

Ninety-First Arizona Town Hall

October 28-31, 2007

LAND USE: CHALLENGES AND CHOICES FOR THE 21ST CENTURY

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The Arizona Town Halls would not be possible without the support of those who understand the importance of convening statewide leaders and developing consensus-based solutions on Arizona issues. Our sincere thanks are extended to the following sponsors of the 91st Arizona Town Hall.

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We would like to acknowledge a number of individuals who contributed to the production of this report. First, Kathryn Kyle copy edited the entire document with diligence and respect for the variety of disciplines and fields represented by the authors. Barbara Trapido-Lurie and Nicholas Moore created colorful and provocative graphics. Michelle Rupp organized the endnotes and provided editorial assistance. And finally, Michelle Schwartz and Kelly Graf provided editorial support.

Cover designed by Shalini Prasad. The photograph depicts development in Green Valley, Arizona.



ARIZONA TOWN HALL

Building consensus — Charting progress

On October 28-31, 2007, the 91st Arizona Town Hall was convened at the Grand Canyon with approximately 150 citizens representing all corners of the state, various political persuasions and numerous occupations to develop consensus recommendations to address the land use challenges and choices Arizona faces in the 21st century.

An essential element to the success and effectiveness of these consensus driven discussions was the background report that is provided to all participants prior to the Town Hall. In a remarkable demonstration of its talent and its dedication to our state, Arizona State University prepared a detailed and informative background report that will provide a unique and unparalleled resource far into the future.

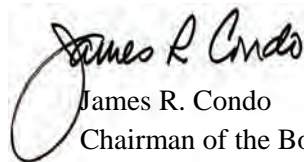
For their dedication to the concept that ASU should be embedded in the community and thereby assuring that resources would be available for producing the best possible background report, our sincere thanks are extended to ASU President Michael Crow, Chief of Staff Jim O'Brian and Debra Friedman, Dean of ASU's College of Public Programs. For sharing their wealth of knowledge and professional talents, our thanks go to the many individual authors who contributed to the background report.

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Finally, the Town Halls could not occur without the financial assistance of our generous sponsors. The presenting sponsor for the 91st Arizona Town Hall was Arizona Public Service Co. Supporting sponsors included: Casino Arizona, The Nature Conservancy, The Virginia G. Piper Charitable Trust, along with Arizona Cattlemen's Association, Arizona Open Land Trust, Rio Salado College and Scottsdale Community College, The Sonoran Institute and Lincoln Institute of Land Policy Joint Venture, and Union Pacific Railroad.

The consensus recommendations that were developed during the course of the 91st Town Hall have been combined with the background information prepared by ASU into this final document. This final report will be widely distributed throughout Arizona to public officials, community and business leaders, Town Hall members and many others. We believe that this final report, in concert with the work of the 91st Town Hall participants, will effectively help to meet future challenges and make prudent choices about land use throughout Arizona.

Sincerely,



James R. Condo
Chairman of the Board

December 2007

TABLE OF CONTENTS

Letter from Arizona Town Hall Board Chairman	iii
Table of Contents.....	v
List of Figures	viii
List of Tables.....	x
91st Arizona Town Hall Report of Recommendations.....	xi
List of Participants	xxxvi
Executive Summary – Background Report.....	xli
Chapter 1 Taking Stock: How Much Growth, Where, and When.....	1
<i>Patricia Gober and Nancy Jones</i>	
Uncertainties about Future Population Growth.....	1
Sources of Growth.....	2
Characteristics of Growth.....	6
Geography of Growth	7
Population Density	10
Growth and Land Development	12
Land Ownership	12
Entitlements and Development Areas	12
Chapter 2 Smart Growth and Growing Smarter in Arizona	15
<i>Jim Holway and Kristen Keener Busby</i>	
The Smart Growth Movement.....	15
Smart Growth Principles & Implementation	16
The Evolution of Planning and Smart Growth Approaches	16
How Is Smart Growth Different.....	17
Smart Growth Lessons from Elsewhere.....	18
What Has the Smart Growth Movement Achieved?	18
Limitations and Criticisms of Smart Growth	19
Arizona’s Growing Smarter and Grower Smarter Plus Programs.....	19
Growing Smarter Oversight Council.....	23
Governor’s Growth Cabinet	23
Evaluating Arizona’s Growing Smarter Programs.....	25
Smart Growth Recommendations.....	27

TABLE OF CONTENTS

Chapter 3	Land-Use Regulation.....	29
	<i>Edgar Ramírez De la Cruz</i>	
	Principles and Goals of Land-Use Regulation	29
	Rezoning, Variances, and Other Special Uses.....	33
	Financing Infrastructure and Adopting Flexible Land Uses	35
	Annexation	37
	Role of Interest Groups in Land-Use Regulation	37
	Role of Local Political Institutions in Land-Use Regulation	39
	Final Considerations.....	40
Chapter 4	Proposition 207	41
	<i>Grady Gammage, Jr.</i>	
	Eminent Domain and Regulatory Takings	41
	The Kelo and Bailey Cases	43
	The 2006 Election	44
	The Provisions of Prop 207	45
	The Oregon Experience.....	48
	Initial Reactions to Prop 207	49
Chapter 5	State Trust Lands: The Future of Urban Growth in Arizona.....	51
	<i>Peter W. Culp and Susan K. Culp</i>	
	Arizona’s Trust Lands	51
	Trust Land Management in Arizona.....	53
	Revenues from State Trust Lands.....	54
	The Trust Responsibility	54
	Important Restrictions on Arizona Trust Lands	56
	Emerging Issues for Trust Lands in Arizona.....	56
	Recent Developments on Arizona State Trust Lands	60
	Facing the Future.....	61
Chapter 6	Tribes in Arizona: Growth and Land Use	63
	<i>Patricia Mariella and Norm DeWeaver</i>	
	Tribal Perspectives on Land	63
	Tribal Development.....	64
	Gaming	65
	Effects of Off-Reservation Growth on Tribes in Arizona	67
	Opportunities Related to Growth	70
	Tribal Participation in Regional Planning	70
	Summary	71

TABLE OF CONTENTS

Chapter 7	Landscapes of Energy Consumption and Energy Supply	73
	<i>Martin J. Pasqualetti</i>	
	Landscapes of Energy Consumption	74
	Landscapes of Energy Supply	75
	Combining the Landscapes of Energy and Water	85
	Summary	86
Chapter 8	Taxes, Incentives, and Fiscal Policy Choices.....	87
	<i>Carol E. Heim</i>	
	The Importance of Sales Taxes	87
	Sales Taxes and Land Development.....	87
	Tax Incentives for Retail Development.....	89
	Joint Revenue Sharing.....	91
	Alternatives to Sales Taxes	91
	Municipal Finance in Different Phases of Growth.....	93
	Strategies for Build-Out	95
	Forward-Looking Policies	96
	Summary	98
Chapter 9	Living in Growth Communities: Affordability and Livability.....	99
	<i>Nancy Welch and Dana Bennett</i>	
	Growth Communities Must Search for Balance.....	100
	Personal Perspectives on Quality of Life	101
	Tracking Quality of Life.....	103
	Housing, Jobs, and Transportation	105
	“Getting There” and Livability.....	108
	Livability Initiatives	110
Chapter 10	Land Use and Environmental Quality.....	111
	<i>David Pijawka, Anthony Brazel, Edward Cook, Joseph Feller, Susanne Grossman-Clarke, Subhrajit Guhathakurta, and Matthias Roth</i>	
	The Urban Heat-Island Effect	111
	Environmental Justice	113
	Biophysical Risks of Land Development.....	115
	Landscape Ecology and Ecological Networks	116
	Compact Urban Form and Ecosystem Integrity	118
	The Effect of Two Recent Supreme Court Decisions on Growth and Development in Arizona	118
	Summary	121
Endnotes	123
About the Authors	133

TABLE OF CONTENTS

LIST OF FIGURES

1.1 Historic population growth, United States versus Arizona, 1960-2005 1

1.2 Projected population growth, United States versus Arizona, 2000-2050..... 1

1.3 Components of population change in Arizona, 2001-2006.....3

1.4 Components of population change in Arizona counties, 2000-20064

1.5 Population of Arizona by age and sex, 2000 and 20305

1.6 Future percentages of the dependent population in Arizona, 2000-2030..... 6

1.7 Population and percent change in Arizona incorporated places, 2000-2006 8

1.8 Population density in Arizona, 2000 11

1.9 Future land use in Arizona 13

1.10 Land ownership in Arizona 14

2.1 Required elements for general and comprehensive plans22

3.1 Percentage of local governments with land-use regulations for protection
of culture and history by type of regulation31

3.2 Percentage of local governments with adopted land-use regulations and policies
to increase the supply of affordable housing, by type of program32

3.3 Percentage of local governments with land-use regulations that can increase problems
of affordable housing by type.....33

3.4 Percentage of local governments with land-use regulations for environmental protection34

3.5 Percentage of local governments with impact fees charged, by type of service35

3.6 Percentage of municipalities with land-use regulation for multiple purposes by instrument36

4.1 Tempe Mission Palms42

4.2 Bailey’s Brake Service44

4.3 Commercial property adjacent to residential development47

5.1 Map of state trust lands in Arizona52

5.2 State trust lands in the Sun Corridor counties, Arizona57

6.1 Location of tribal lands in Arizona64

7.1 Historical growth of Arizona electricity demand73

7.2 Clean air vs. hazy air. Views from Bryce National Park eastward toward Navajo Mountain77

7.3 The mining operations of Black Mesa78

7.4 Dragline on Black Mesa removes the overburden, revealing the coal beneath.....78

7.5 A traditional hogan, abandoned, on Black Mesa.....79

7.6 Navajo woman near the coal conveyor belt that removes the coal from Black Mesa and
makes it available for railroad transport to the NGS.....79

7.7 Tuba City Uranium Mill.....80

7.8 Palo Verde Nuclear Generating Station81

7.9 Hoover Dam and Lake Mead from the southwest.....81

TABLE OF CONTENTS

7.10 Kaiporowitts Plateau from the Navajo Generating Station and cover of *National Geographic Magazine*, October 2006 82

7.11 Artificial lake used for cooling the Cholla coal-fired power plant near Holbrook, AZ 83

7.12 Transmission lines taking electricity from the Coronado power plant near St. Johns to metropolitan Phoenix 84

7.13 Conveyer belt that carries coal off of Black Mesa to a coal storage silo, to await the coal train to the Navajo Generating Station..... 85

8.1 Shares of sales and property taxes in general revenue from own sources, Fiscal Year 1999-2000, Arizona municipalities 88

8.2 Share of sales taxes in general revenue from own sources, Fiscal Year 2004-2005, all local governments 89

8.3 Shares of sales and property taxes in general revenue from own sources, Fiscal Year 1999-2000, selected western and southern municipalities 92

8.4 Shares of construction-related revenues in general fund revenues, Fiscal Year 2004-2005, Scottsdale, Chandler, Fountain Hills 95

9.1 Affordability index of homes in Arizona, 1993 to 2006 105

9.2 Annual hours of commute-time delays in Phoenix and other very large areas 109

9.3 Annual hours of commute-time delays in Tucson and other medium areas 109

9.4 Characteristics of a livable community 110

10.1 Annual mean, maximum, and minimum air temperatures (Phoenix downtown, Tucson University of Arizona campus, Yuma airport, edge of the towns of Tombstone and Wickenburg)..... 112

10.2 Actual air temperature comparisons for an early-June, clear, calm period of 2001 in the Phoenix metro area and surroundings 113

10.3 Arizona river basins 115

10.4 Location of communities in the San Pedro watershed 117

TABLE OF CONTENTS

LIST OF TABLES

1.1 Growth in Arizona counties and the U.S., 2000 and 20067

1.2 2000-2006 Growth by type of place9

1.3 Median single-family residential lot size in Phoenix, 1900-2004 10

2.1 Growing Smarter general and comprehensive plan elements21

2.2 Growing Smarter guiding principles 24

3.1 Regulations used to restrict and facilitate annexations38

6.1 Population and acreage of tribal reservations in Arizona66

9.1 Population change in Arizona counties, 1990, 2000, and 200699

9.2 Personal perspectives touch on many aspects of growth communities 100

9.3 Benefits and costs of urban growth and increased size101

9.4 Ratings of regional and personal quality of life in metro Phoenix, 1997-2004 102

9.5 The ranking of nine quality of life components are familiar over time..... 103

9.6 Livable Tucson touched on many quality of life issues and goals 104

9.7 Median home prices and median family incomes, 2000-2006 106

9.8 Job and housing balance in metropolitan Phoenix 107

Report of the

91ST ARIZONA TOWN HALL

“LAND USE: CHALLENGES AND CHOICES FOR THE 21ST CENTURY”

Grand Canyon, Arizona

October 28 – 31, 2007

Arizona’s recent and projected population growth means that change is inevitable. This inevitable change will have a profound impact upon the quality of life and the sustainability of the environment of our state unless addressed by prudent, informed, innovative and coordinated land-use planning. Arizonans must look beyond the practices of the past and embrace a series of land use changes that:

- Include enactment of comprehensive State Land Department reform;
- Promote effective intergovernmental collaboration and cooperation;
- Balance the human, natural, and cultural resources;
- Embrace conservation opportunities; and
- Recognize the responsibility of all citizens to work towards a prosperous, livable, sustainable and economically responsible future.

The participants of the 91st Arizona Town Hall, drawn from across the state, met for three days of thoughtful discussion and deliberations, inspired by the majesty of the Grand Canyon as a backdrop. These citizens believe that the time has come to face the challenges of future growth by making hard land use choices for the 21st century.

This Town Hall addressed population growth; the balance of responsibility for land-use planning and regulation among local, regional, tribal, federal, and state governments; and the effectiveness of collaboration among tribal and non-tribal communities. Participants examined the interface of land-use planning with transportation, education, water, energy, and state trust land issues. They debated the best approaches to creating livable communities and considered the roles of financing and incentives in directing change.

The results of these discussions are included in this report. While not all Town Hall participants agree with each of the conclusions and recommendations, this report reflects the overall consensus achieved at the 91st Arizona Town Hall.

SURVEYING THE LANDSCAPE

The diversity in Arizona’s natural, historical, cultural and economic landscapes is one of our state's most important features. This unique diversity contributes greatly to the quality of life in Arizona. Arizona’s wide open spaces, natural beauty, and climate are high among the reasons people come to Arizona and choose to make their homes here.

TOWN HALL RECOMMENDATIONS

Other important and unique natural landscapes include Arizona's lakes, watersheds, natural washes, rivers and streams, wetlands, ponderosa pine forests, mountains, vast deserts, plateaus, grasslands, agricultural and farming lands, blue and night skies, parks and monuments, indigenous wildlife, and native vegetation.

Enhancing and Preserving Arizona's Diverse Landscapes

We need to enhance and preserve each of Arizona's diverse landscapes in a way that allows for growth, yet does not harm the features that draw people to Arizona. Arizona's varied geographic and historical landscapes provide the state with a cultural identity to be valued and preserved. As growth continues, Arizona should maintain the authenticity and mystique of the western experience, including historical, cultural and heritage sites.

To maximize livability, Arizona should preserve open spaces, natural landscapes and habitats, and public lands in both rural and metropolitan areas.

To maximize livability, Arizona should preserve open spaces, natural landscapes and habitats, and public lands in both rural and metropolitan areas. We also must provide physical and visual access to these places. We must find ways to connect people to the "place" in which they live.

Arizona should balance preservation of natural, cultural and historic landscapes with its various economic landscapes, including mining, ranching, farming and agricultural industries. Arizona also should preserve and enhance its climate by addressing air quality, solar energy and alternative fuels, and protect corridors, such as land, air, water, utility and wildlife corridors, and the human, natural and cultural resource areas connected by those corridors.

Impacts of Arizona's Rapid Population Growth on Its Landscape

Arizona's rapid population growth has a significant impact on its many and varied landscapes. Preserving land and the natural environment does not mean stopping growth. Growth is not inherently bad, but uncontrolled sprawl is. Better planning will help mitigate issues created by sprawl and ease population growth pressures throughout Arizona.

Growth is not inherently bad, but uncontrolled sprawl is.

Landscapes will change as a result of rapid population growth, thus preservation efforts must be planned and implemented. Arizona needs to responsibly facilitate change through a balanced approach. We need to identify the natural, cultural and human resources we have, assess the essential components of those resources, and determine how we can prioritize, use, manage, and implement those resources as Arizona grows.

How Current Systems of Planning and Land Use Address Population Growth

Arizona's population is expected to double within the next forty-five years and its current systems of planning and land-use regulation to address such population growth are inadequate. Collaborative planning among all levels of government is crucial, particularly in managing infrastructure, transportation, education, environmental, energy, natural and water resource concerns.

There must be improved land-use planning coordination among the various levels of government – federal, state, tribal, county and municipal. While local communities necessarily act independently, they also should communicate and coordinate regarding issues that cross artificial boundaries such as transportation

TOWN HALL RECOMMENDATIONS

infrastructure. There is a need for more consistency among local communities in statewide and regional land-use planning.

Opportunities for Improvement

There are many opportunities for improvement in current systems of planning and land use.

- Coordinate and share planning processes among state, tribal, county and municipal governments. This includes expanding and encouraging regional planning and land-use planning among all levels of government. For example, statewide framework studies for transportation have been effective and should be expanded to other resource areas. Future transportation studies need to include multi-modal options.
- Implement multi-county plans whereby counties work together to establish a multi-regional system of planning.
- Coordinate land-use decisions with water-use decisions. Much of rural Arizona does not have sufficient water management. For instance, expanding the use of gray water and rainwater harvesting could reduce Arizona's water shortage concerns. New planning models need to be created with regard to water conservation. For example, land-use planning should be asking what can be done to reduce water use.
- Improve statewide wastewater planning. Opportunities exist for statewide cooperation in identifying water supply issues and complying with safe drinking water standards.
- Educate the public and decision-makers on the importance of increased density housing in urban areas. Arizona should consider statutory changes to encourage increased density.
- Amend statutes and local ordinances to encourage long-range regional planning. For example, many state statutes need to be updated to mirror municipal ordinances and regulations. A problem with creating additional statutory requirements is that we run the risk of overburdening the system and creating a structure of laws and ordinances that are not enforced. We need smarter regulation, not just more regulation.
- Use state discretionary funds to encourage cities and counties to grow smarter by requiring cities and counties to implement smart growth measures.
- Amend Growing Smarter and Growing Smarter Plus statutes to require all general and comprehensive plans to contain benchmarks to determine progress or regression, and require coordination of all general and comprehensive plans with neighboring communities. Municipalities may have to share some control to further the ideals of comprehensive planning as set forth in Arizona's Growing Smarter and Growing Smarter Plus legislation.
- Amend Growing Smarter statutes to include affordable/workforce housing and a job/housing balance within general plans.

TOWN HALL RECOMMENDATIONS

- Emphasize sustainability in land-use plans. In addition to sustainability of our natural resources, this includes physical, cultural, social and economic sustainability.
- Require sufficient infrastructure planning to be in place prior to the approval of large-scale developments.
- Educate property owners about the responsibility that goes with ownership and development, and encourage private property owners to take personal responsibility with the planning process.
- Recognize existing entitlements to use Arizona lands when developing land-use plans. Such entitlements should not constrain land use and development and should not constrain funding the purchase of private lands to make them public.
- Enact enabling laws to require a conceptual build-out plan that works and can be implemented.
- Give Arizona's youth an active role in land use planning and development. For example, encourage youth to serve on non-elected councils and commissions, and then let it be known of their ability to become involved.

BALANCE OF RESPONSIBILITY FOR LAND-USE PLANNING AMONG VARIOUS GOVERNMENTS

Local governments have the greatest responsibility for land-use planning and are best-suited to deal with local land-use planning issues. Nonetheless, Arizona needs stronger regional planning and better coordination among state, federal, county, municipal, and tribal governments in land-use planning, especially when land use decisions cross jurisdictional lines.

Arizona needs stronger regional planning and better coordination among state, federal, county, municipal, and tribal governments.

Collaborative planning also is necessary for specific forms of land use, such as preserving open spaces and natural resources, affordable housing, transportation, adequate use of water resources, infrastructure, lot splitting, and planning for unincorporated land.

Revisions of the Current System

To reflect an optimal balance, the current land-use planning systems need revision. Local governments should review their plans more regularly. In addition, Arizona has a Growing Smarter Committee, but its activities are not well known. The state should coordinate a statewide framework of the state's natural, cultural, and human resources that can be used to provide land-use planning guidance in support of tribal, county and municipal governments.

The state also should give additional authority and resources to counties. Most counties do not have sufficient revenues to implement effective land-use planning and development. Counties also have limited

TOWN HALL RECOMMENDATIONS

power to regulate and control important issues such as lot splits. Counties need additional statutory authority and resources to follow through with regulation.

Role of the Free Market in Land-Use Planning

Capitalism also plays a role in land-use planning, as private capital is a crucial component of land-use planning and development. To help the free market function properly and help Arizona achieve an optimal balance, there must be more predictability within the market. Private land developers need more predictability in land-use planning and development in both rural and urban areas.

A balance also must be struck between basic land-use planning and private property rights. Personal responsibility and accountability are imperative. Individuals must take into account how their use of natural and cultural resources affects the greater community and future generations.

Effective Interaction among Governments, Their Agencies, Property Owners and Other Stakeholders

To promote effective collaboration among the various Arizona governments (including tribal and non-tribal), government agencies, property owners and other stakeholders, Arizona has a responsibility to educate all stakeholders about land-use planning and development.

Other suggested specific actions to help promote effective interactions among all stakeholders include:

- For regional planning that has impacts beyond local boundaries, local authorities need to be willing to share some measure of control with regional authorities.
- State government should implement policies that demonstrate integrated, community-based planning performance measurements and benchmarks and subsequently direct state discretionary funds to cities and counties that achieve these goals.
- Arizona should strengthen the notification requirements with respect to encroachment. All affected entities (cities, individuals, etc.) should then have the ability to respond if they are impacted and engage in possible adjudication if there is a dispute.
- The voting public should be better educated on ballot initiative and referendum measures and on land planning and development issues. These steps will enable and encourage citizens to become more actively engaged in local government.

TRIBAL AND NON-TRIBAL COMMUNITIES WORKING TOGETHER

Tribal governments manage 28% of the lands in Arizona, which includes a significant percentage of water resources. Tribal lands are a critical component of the future of Arizona. Generally, Arizona's tribal and non-tribal communities have not collaborated as effectively as they could in the area of land use and land-use planning. Historically, communications between tribal and non-tribal communities regarding land-use planning have been limited, in some instances because tribal communities were left out of the process. Tribal governments are sovereign, and there are many legal and cultural challenges that have prevented adequate communication and collaboration. Nonetheless, both tribal

Tribal lands are a critical component of the future of Arizona.

TOWN HALL RECOMMENDATIONS

and non-tribal communities have joint concerns about land-use planning and growth-planning that affects each other's communities.

Arizona's tribal and non-tribal communities have successfully collaborated in areas such as transportation planning, water use, and land preservation, and there have been challenges in these and other areas as well. One ongoing collaborative effort is Arizona's tribal participation in collaborative planning with county associations, and regional metropolitan planning organizations.

To foster greater collaboration and cooperation between tribal and non-tribal communities, creating cultural awareness in each community is critical. The cultural differences between tribal and non-tribal communities affect how each community's respective government makes decisions. Tribal and non-tribal communities often have different procedures, values, expectations, timeframes and understandings regarding land-use planning.

Arizona governments and tribal communities should increase collaboration in land-use planning at the municipal, county, and statewide levels to better address the concerns of each community, to better account for and address cultural differences, and to better identify common expectations and goals.

Other suggested steps to foster greater collaboration and cooperation between tribal and non-tribal governments include:

- Encourage participation in the planning process by civic leaders, including youth, who are not necessarily land-use planning or development experts, but who may represent the concerns of the community's citizens.
- Encourage participation of tribal members in state and local governments, for example, by seeking public office or serving on councils or commissions.
- Provide specific "incentives" to tribal and non-tribal communities for effective collaboration and implementation of land-use planning.
- Provide current tribal and non-tribal governments with information on successful case studies of tribal and non-tribal cooperation and planning; share input and share successful land-use plans with each community.

THE RELATIONSHIP BETWEEN LAND-USE PLANNING AND DEVELOPMENT AND TRANSPORTATION NEEDS

There is a direct relationship between land-use planning, development, and transportation. Sufficient funding at all levels for transportation needs is critical. It also is essential that transportation needs are taken into consideration in the early stages of planning and development. The amount and kind of land-use development directly impacts our transportation needs, and transportation infrastructure directly impacts land use.

Proper planning can improve efficiency and reduce costs. For example, advance transportation planning within land-use plans will help guide where and how we grow. When transportation comes ahead of development, development will build up around the existing transportation systems. Advance planning requires obtaining adequate rights-of-way early in the process when land is still easily available to keep costs down.

TOWN HALL RECOMMENDATIONS

Even if governments cannot purchase the land now, at least the location of the transportation corridors should be identified and efforts made to restrict their development until funding is available.

Addressing Transportation Needs through Land-Use Planning

Arizona's transportation needs can best be addressed through long-range, statewide land-use planning. Transportation corridors have taken a long time to plan, finance and construct; realistically, it should take 10-12 years to build freeway and transit projects. Arizona is currently engaged in a five-year implementation program based on a 20-year transportation plan. Arizona needs a comprehensive multi-modal statewide transportation plan that includes reserving transportation corridors for at least a 20-25 year planning horizon.

Arizona needs a comprehensive multi-modal statewide transportation plan that includes reserving transportation corridors for at least a 20-25 year planning horizon.

Alternative modes of transportation, such as bike lanes, mass transit, airports, heliports, bullet trains and pedestrian transportation, must be included in our long-range transportation planning. We need to make alternate transportation choices attractive, affordable, and economically compelling. For example, in

considering "walkability" we should increase shade over pedestrian walkways and slow traffic in high pedestrian areas. Mass transit options including bus, light rail, and commuter rail should encourage connectivity between the systems and the communities they serve.

There must be comprehensive employment centers included in land-use planning, which will reduce the need for expanding transportation. Location of employment centers and population density also should be taken into account when determining appropriate modes of transportation for the specific land use and development.

Additionally, there needs to be greater connectivity between various communities. Current communities are not always designed for ease of access between developments. Many master planned communities do a good job providing for transportation infrastructure within the community, but fail to provide for regionally significant transportation improvements that are necessary for travel beyond the boundaries of that development.

Identifying Those Who Are Responsible

All levels of government should be responsible for coordinating transportation needs within land-use planning. There needs to be coordination among federal, state, tribal and regional transportation planning agencies. Cooperation and strong leadership is necessary to develop a comprehensive transportation plan. Regional planning for transportation is critical.

Local government should provide infrastructure planning for local communities, while state and regional entities should be responsible for inter-city transportation planning.

For local transportation issues that do not impact beyond a local boundary, the local government should continue to take the lead. But where transportation reaches beyond artificial boundaries, local governments must work in conjunction with other affected jurisdictions. Local government should provide infrastructure planning for local communities, while state and regional entities should be responsible for inter-city transportation planning. Metropolitan Planning Organizations (MPOs) also need to accelerate their planning efforts to ensure a local voice in transportation planning.

TOWN HALL RECOMMENDATIONS

Effective communication and cooperation is imperative among government agencies, developers and planning authorities to develop and implement plans. One of the difficulties associated with transportation planning is that highways and freeways rely significantly on federal and state dollars, which do not necessarily correlate with impact fees and other revenues associated with municipal land-use planning and development.

One way in which transportation needs can be addressed is by sharing information between parties associated with the specific development. For example, utility companies share their development plans with municipalities to allow for more efficient and effective planning. Collaboration between public and private entities is essential to successfully meeting transportation needs.

Federal and state agencies should work with local agencies to conduct framework studies to integrate transportation planning, including alternative forms of transportation that drive land-use decisions (e.g., roadways, rail transit, pedestrian and bike paths, walkable neighborhoods). A mechanism is already in place to do this: the Arizona Department of Transportation has agreed to fund ten framework studies, and several other studies jointly funded with other jurisdictions. Regional planning allows jurisdictions to build infrastructure that they could not build independently. In addition, and as recommended subsequently in this Report, the Arizona State Land Department should be given the authority to dedicate right-of-way for transportation improvements as part of its planning process.

The Arizona State Land Department should be given the authority to dedicate right-of-way for transportation improvements as part of its planning process.

Land-use and transportation decisions must be integrated. The process should begin with local planning agencies, and then be proposed to or merged with the plans of Metropolitan Planning Organizations (MPOs) and/or Councils of Governments (COGs), with the hope of developing a statewide plan.

Funding transportation infrastructure will require tax increases and other funding sources. All potential funding sources should be considered, including a gas tax, sales tax, impact fees and private investments, which could include toll roads. Consideration should be given to a statewide, voter-approved tax package to fund statewide transportation plans. We also should consider public-private partnerships in funding and creating new transportation systems. Although developers should not be responsible for developing an entire regional or statewide transportation plan, there must be a mechanism for jurisdictions to recover the substantial value added to private land from the transportation infrastructure being built.

Regardless of the funding source, we need to develop a broad-based, statewide approach, the benefits of which accrue to smaller and rural communities as well as major urban cores.

RELATIONSHIP BETWEEN LAND-USE PLANNING AND DEVELOPMENT AND WATER RESOURCES

There is a direct and vital relationship between land-use planning, development, water resources and conservation. The land-use and urban patterns that Arizona chooses will determine the quantity, quality and reliability of the water supply that Arizona needs. We need to adequately consider water resources when we engage in land-use planning. Arizona must prioritize its use of water and make tough decisions regarding the amount of water used for exterior purposes.

TOWN HALL RECOMMENDATIONS

Assuring Efficient Utilization of Arizona's Limited Water Resources through Land-Use Planning and Regulation

Arizona can assure the efficient utilization of its limited water resources through integrated land-use planning and regulation. It is necessary to identify the true cost of water and educate the end user about water conservation.

Once we understand how much water we have, we need to prioritize water use and use incentives to achieve our water usage goals. Zoning and land-use planning decisions must consider water availability.

Growth should not occur unless there is sufficient water supply to support Arizona's population and natural resources.

Depending on the type of development, certain restrictions can be placed upon the type and amount of water used. Consideration should be given to the standard that when no potable water supply exists, then there will be no development. Growth should not occur unless there is sufficient water supply to support Arizona's population and natural resources.

Regulating water use is difficult for several reasons. Many communities have experienced critical issues relative to water shortages, lack of an adequate water supply, and consistent water quality control and management. Different water use regulatory schemes have developed around the state. In urban areas, a mid-level of regulation has evolved. In many rural communities, scarce water resources have led to stringent controls. Getting rural communities involved is important; but to get buy in from rural communities, we need to show more emphasis on regulation in urban areas. For rural communities to accept Active Managements Areas (AMAs), they need to see active efforts in urban areas.

Arizona citizens and decision makers need better information about all of Arizona's available water resources, including how the water resources are used and how much growth they can support and sustain. Data on water supply and usage should be gathered and brought into a usable form. A key issue with Arizona water supply is groundwater consumption. Groundwater usage and replenishment should be measured and managed tightly. Exempt wells should be required to participate in collection of data, and legislation should be drafted to change the classification of exempt wells to non-exempt wells.

Groundwater usage and replenishment should be measured and managed tightly.

Arizona should be more proactive in educating its citizens regarding water conservation issues with public service announcements and water conservation campaigns, including the water that we do not have, the benefits of conservation, and sustainability. We need more information on how limited our water supply is and what it can sustain. Arizona has been in a drought for thirteen years, yet we do not talk about the drought, or encourage citizenry to use the water wisely.

Further, Arizonans may want to put a true price tag on water usage and offer incentives to those who minimize water use and implement successful water conservation mechanisms. High population density reduces water use per capita, and high density maintenance may be used as an incentive.

Finally, a related issue is how, or whether, Arizona can increase its water supply. We need to consider recycling water, such as using reclaimed rainwater, which currently is treated as wastewater and can play a valuable role. Water storage, such as cisterns and groundwater recharge also can play a role in moving toward save yield. There might be value in the state investigating how to increase the water supply and investing in

TOWN HALL RECOMMENDATIONS

and encouraging technologies that help do that, such as desalinization plants. Improved watershed management, including reducing density of small diameter trees and brush, also can increase watershed production and reduce wildfire danger.

Responsibility for Assuring Efficient Utilization of Arizona’s Limited Water Resources

All are responsible for assuring the efficient utilization of Arizona’s limited water resources: individuals, developers, private utilities, municipalities, counties, the state, tribes, and even the Federal government/military. But there is no concerted effort to coordinate between the various players. It is essential to clarify what authority and obligation each of these levels of government has to protect and conserve water resources.

Local control is important, but we need to study our water resources so that we know what we have. One example would be to require local government to consider water use and availability when considering a lot split. As we experience more growth, we should consider the expansion of Active Management Areas (AMAs) under the Groundwater Management Act so that more consistent water resource management can occur.

Developers also need to share responsibility by designing and building for controlled water use and consider greener development. Some builders are responding to market pressures that make “green” development desirable.

The state has a role to play in building infrastructure and resolving conflicts over the priorities and uses of water. We should have a statewide resource plan that includes all water resources outside AMAs. We also should expand groundwater management statewide, which should include drought planning.

We should have a statewide resource plan that includes all water resources outside AMAs.

A regional water authority might be appropriate to help set priorities between water rights and realistically look at the interplay between groundwater, surface water, rivers, etc. Counties, in conjunction with cities and towns, should be encouraged to adopt the goal of sustainable water supply and ensure the efficient use of

water as it relates to land use planning and development, and should be provided with the tools to implement such goals. Various stakeholders, including residential, industrial, agricultural, environmental, tribal, mining, and other various interest groups need to engage in a discussion on water use at the state level.

Water management districts and commissions are important components to successful land development. The Arizona Water Institute, which combines the expertise of Arizona’s Universities, was established to conduct applied research, provide technical assistance, and capitalize on new technologies to aid water management throughout Arizona. A key activity is to assist local government with water resource issues, including building web-based information systems providing access to data (collected by ADWR, ADEQ and other state, federal and local entities) regarding Arizona’s water resources. The Arizona Water Institute should continue to receive state funding for these activities. The Arizona Department of Water Resources also should be adequately funded to develop information on water resources and to monitor trends in those resources.

In summary, Arizona needs a long-term strategy before decisions can be made about water use. We also must look at how water affects quality of life: personal lawns, green belts, decreasing the impact of heat islands, etc. We must develop some criteria as well as consideration of the costs, benefits, environmental use,

TOWN HALL RECOMMENDATIONS

and third-party impacts of allowing water supplies to be moved from one area to another. And if we choose to move water from one area to the other, we need to build the infrastructure to do so.

RELATIONSHIP BETWEEN LAND-USE PLANNING AND DEVELOPMENT AND THE STATE'S ENERGY NEEDS

Affordable energy and reduction of energy usage are critical issues facing Arizona as it experiences rapid population growth. Just as with water, the land-use planning and development that Arizona chooses will determine the necessary quantity, quality, and reliability of Arizona's energy supply. Energy conservation is influenced by land-use design. Our rapid population growth is stretching our energy infrastructure daily. Arizona's energy needs must be included in our land-use planning as we continue to grow.

Land-Use Planning and Development and the Impact on Per Capita Energy Use

Land-use planning and development can impact per capita energy use dramatically. Arizona cannot support its growing population without doing more to conserve, and Arizona's land-use planning must encourage conservation practices. For example, the use of densities or designing mixed-use development to reduce trips reduces traffic which, in turn, reduces energy use. In addition, items as simple as building placement in relation to the sun can have a dramatic impact on energy use and should be part of land-use planning.

Arizona should be more proactive in evaluating energy availability and routes on a statewide level. Collaboration by governmental entities, developers, and energy providers would be beneficial to Arizona to effect smart land-use planning and development that incorporates energy infrastructure corridors. The planning of energy sources, and identifying energy corridors, prior to the start of the actual development is critical to successful land-use planning. When we engage in land-use planning and development, we need to identify all necessary right of ways, including transportation and energy corridors. Additionally, energy corridors should be used, wherever possible, for purposes such as recreation, bike trails and hiking trails.

The planning of energy sources, and identifying energy corridors, prior to the start of the actual development is critical to successful land-use planning.

Building up versus building out reduces the use of energy and the costs associated with providing energy. To the extent that development is done in a "leapfrog" fashion, this increases expenses to everyone because every energy user pays for the expansion of the system. There must be efficient use of land and efficient use of existing infrastructure.

Land development should be evaluated on the basis of its energy innovation. State and local governments need to encourage and provide incentives for effective land-use planning and energy conservation that fosters infill and diverse balanced economic incentives, such as the creation of LEED (Leadership in Energy & Environmental Design) certified buildings and use of alternative sources of energy. LEED certified buildings, while more costly to build, provide for a greater conservation of energy resources in the long-term.

Arizona also must consider alternative energy sources as part of land-use planning and development. Such alternative sources might include alternative fuels (including forms of biofuels), solar energy, water-based energy sources, wind farms, and nuclear energy. Arizona's landscapes offer three unique assets that will

TOWN HALL RECOMMENDATIONS

help us with our energy needs. We have many days of sunshine, Class 4 winds in northern Arizona, large areas of state trust and other federal and state public lands, and research institutions that can help us develop those resources.

Impacts of Government Regulation of Land-Use Planning and Development on Energy Efficiency

Government regulation of land-use planning and development can impact energy efficiency. It would be beneficial to Arizona for governmental entities, developers and energy providers to collaborate in order to affect smart land-use planning and development. We need to encourage conservation energy efficiencies through current efforts, such as solar tax credits. Arizona should be a leader in developing and utilizing solar energy. There should be some incentive for renewable energy to be generated in Arizona.

Government can encourage energy conservation through LEED standards, adherence to green building, and incentives for alternate energy, including incentives to users and utility companies.

Government can encourage energy conservation through LEED standards, adherence to green building, and incentives for alternate energy, including incentives to users and utility companies. Arizona may want to work with energy providers to offer incentives to developers who engage in smart planning and developing of efficient energy provisions. For example, utilities try to most efficiently use water in the provision of electricity,

and an example of such a project is the Palo Verde Power Plant. Utilities engage in exploring new energy sources to ensure the efficient and effective provision of energy and they actively explore energy conservation mechanisms.

A statewide mandate should be developed and implemented among the building community to aid in energy innovation and conservation. Local government should provide incentives to developers to encourage participation in energy conservation implementation, including density bonus incentives, infrastructure assistance, and lot coverage.

State and local governments should create a comprehensive plan identifying the location of future power generation and transportation facilities. State and local governments should encourage mixed use and transit-oriented development.

THE RELATIONSHIP BETWEEN LAND-USE PLANNING AND DEVELOPMENT AND STATE TRUST LANDS

State trust lands play an important role in Arizona's land-use planning and development, because state trust land planning significantly impacts where, when, and how growth occurs in Arizona.

The mission of providing financial support for education, which was the basis for creating trust lands in 1910, must be kept in mind and maintained. Arizona's education system faces many challenges, and our state trust lands provide an invaluable resource to help meet those challenges. Consistent with the trust's fiduciary responsibility, we also need to find a way to effectively incorporate conservation into the planning and use of state trust lands.

We can work for preservation of important environmental resources and open space and still protect beneficiaries of state trust lands. State trust lands should not only be evaluated in terms of development, but

TOWN HALL RECOMMENDATIONS

also in terms of the preservation of open space and natural resource preservation. When valuing state trust land we must recognize that conservation is an important tool that can increase the value of adjoining land. Setting aside state trust lands for conservation must be done strategically; we must think about the various corridors and areas we want to preserve. Water use and availability also are long-range issues at play affecting the value of trust lands.

State trust lands should not only be evaluated in terms of development, but also in terms of the preservation of open space and natural resource preservation.

More than one million acres of Arizona's trust lands are located within rapidly urbanizing areas, including Maricopa, Pinal and Pima counties. As Arizona's cities have grown, these parcels have been swallowed by urban growth leaving islands of undeveloped trust lands amidst a dense urban landscape. Providing the Land Department the

necessary resources will allow for the development of these "in-fill" trust land parcels, will encourage increased urban densities, and limit continued sprawl. Trust land in northeastern Pinal County known as "Superstition Vistas" provides one example of an opportunity to create a model of sustainable, smart growth.

Accomplishing Goals and Addressing Existing Barriers

We recommend some important changes so that Arizona benefits from land-use planning of state trust lands and the beneficiaries receive their value from the trust. The State Land Department should be given the tools needed to increase the value of state trust lands. The best way to accomplish the use, management, and sale of state trust lands is through state trust land reform, and Town Hall recommends the following reforms.

- The State Land Department should become a true asset manager. Additional resources dedicated to state trust land planning are needed, and additional funding for the State Land Department is critical. Through statutory reform, the State Land Department should be allowed to retain a portion of the proceeds from the sale and lease of state trust lands to fund planning and development. Town Hall recommends that an enterprise fund be created for the State Land Department that will allow the department to retain a portion of proceeds from sales and leases, including brokerage fees, for use in the operations, planning, management, and development of state trust lands.
- Town Hall recommends reform that allows the State Land Department to increase the value of state trust lands. For example, reform should include an adequately-funded and timely process to dedicate rights-of-way, dedicate open spaces, and account for conservation concerns within the land development process. The State Land Department must be authorized to plan, engineer, design infrastructure, and entitle (which includes zoning changes with the local community) on state trust lands. However, because the Enabling Act and the Arizona Constitution restricts the way state trust lands may be used and the manner in which the State Land Department operates, a constitutional amendment is most likely needed to achieve this type of reform.
- Another recommended change to the Arizona Constitution is to allow the sale of trust land for conservation purposes, at appraised market value but without auction, to allow for the purchase of lands for open space and environmental needs consistent with the mission of the trust.

TOWN HALL RECOMMENDATIONS

- The State Land Department should expand the use of long-term land leases on an auction/bid basis to provide for more effective land-use development and planning that is allowed without any constitutional amendment.
- Town Hall recommends that counties and municipalities be given some ability to participate in land-use decisions regarding state trust land that affect open space, and environmental issues. Planning for state trust lands must be broader and more comprehensive. For example, counties and the State Land Department should be encouraged to work together to identify lands for development over the next 50 years, and to identify lands considered for long-term retention by the trust. Another example is to allow cities to have a consultation function within the State Land Department's planning efforts.
- Town Hall recommends constitutional reform to authorize public-to-public land exchanges, including exchanges between federal and state lands that are in Arizona's best interests. Although prior attempts to achieve this reform have been unsuccessful, continued efforts are essential. Past initiatives that included both public-to-public and private-to-public provisions have been repeatedly rejected by the voters; this private-to-public provision should not be included..

Although the above reforms may require amendments to the Arizona Constitution and the Enabling Act, it is important to keep moving forward – for Arizona's future growth, land planning in general, and the beneficiaries of state trust land.

CREATING LIVABLE COMMUNITIES

Preferred Balance of Population Densities Throughout Arizona

Arizona's densities are likely to increase with its inevitable population growth. It is difficult to precisely quantify a preferred density balance throughout Arizona, because the market drives the balance and people choose where they want to live. However, local governments can use planning to provide people with density alternatives to achieve a better balance between urban cores, suburbs, and rural areas. The preferred balance of density should optimize our use of transportation, water, and energy resources, and also provide quality jobs, quality schools, and affordable and workforce housing.

All levels of government can assist in achieving the preferred balance by developing the necessary infrastructure and creating corridors and connections between and within density areas that make them more attractive. Density is based on gross acreage, not net, and open space is included. Density is based on the number of residences divided by the gross amount of land in the project.

Support or Barriers to These Preferred Densities

Many factors encourage and discourage the preferred densities. Current densities and development are driven by existing market and regulatory forces. Varied forms of density will help achieve the preferred balance of population between urban and rural centers.

Density also is driven by land value, and growth on the fringe is more economical because land is less expensive. Density is often related to the infrastructure in place and the availability of employment

TOWN HALL RECOMMENDATIONS

opportunities and affordable and workforce housing. It is imperative that land-use planning take into account local communities' needs and desires and provide for high and low density options. While decisions about density and local development should be left to the local community, it is important to share information with neighboring communities.

The advantages of higher density cores include: mass transit is more feasible and cheaper to install; high density development is more energy efficient; and, by appropriate clustering you can protect the natural flow of water and protect wildlife. Higher densities also can improve livability, create better established neighborhoods, and foster a sense of community.

Various factors, however, discourage higher densities. Additionally, people move to Arizona for wide open spaces. High density areas should have access to open space (trails, parks, and natural areas.). Higher density development also escalates land prices in the core, which makes it more challenging to have nearby affordable and workforce housing. Public and private partnerships, in combination with incentives and requirements, should be encouraged to result in more affordable and workforce housing.

Specific Actions Needed to Achieve Preferred Densities

Various steps can be taken to achieve the preferred balance. We must meet the challenges of achieving a preferred balance among urban, suburban and rural communities.

Town Hall recommends revising local zoning ordinances and general plans to allow for higher density urban cores. This would include revising regulations to reduce mandatory large lot sizes, large setbacks, wide street widths, sidewalks, etc. Municipalities must review and revise their zoning requirements and general plans to allow for more efficient and effective creative development in both high and low density plans, to consider multiple centers of high-density, to maintain open space between population centers, and to reduce sprawl. Municipalities should consider adopting minimum density districts and should require height and density designations within general plans.

Town Hall recommends revising local zoning ordinances and general plans to allow for higher density urban cores.

Town Hall recommends educating the public about the consequences of sprawl. The public does not want growth on the fringes, but some neighborhoods do not want to allow higher density in their own neighborhoods. Community leadership and the education of citizens are crucial when exploring the advantages and disadvantages of high or low density developments. The goal should be to help the public understand that higher density housing, if properly planned, can improve the quality of life by creating livable communities.

Proactive measures must be taken to achieve high density urban areas that allow for a diverse community, which includes taking into consideration varied forms of housing, such as affordable and workforce housing, high-end housing and the redevelopment of blighted areas. Measures also should provide incentives to developers who are willing to develop and create alternative forms of housing and who are willing to redevelop blighted areas. Collaborative and creative partnerships between municipalities and other stakeholders must be fostered to allow for the opportunity to explore creative solutions. It is imperative that land use planners take into account the required infrastructure to ensure livable conditions, sufficient modes of transportation, the adequacy of the natural resources available and environmental impacts. High density development must take into account the accoutrements necessary for a livable community, which include, but are not limited to, retail, community and cultural spaces. Cultural characteristics also must be considered in

TOWN HALL RECOMMENDATIONS

planning dense developments. It is recommended that low density areas allow for incremental increases in density to provide for cultural diversity and economic sustainability.

Town Hall recommends statewide redevelopment financing, on a competitive basis open to all-sized communities, which would provide funding for items including workforce housing, historic preservation, urban open space, replacement of aging infrastructure, redevelopment of public facilities and remediation of brownfields.

Town Hall recommends encouraging higher density through impact fees on infrastructure, reflecting the cost of servicing certain areas.

Town Hall recommends encouraging higher density through impact fees on infrastructure, reflecting the cost of servicing certain areas. One way would be through graduated impact fees which would encourage higher density urban cores while discouraging lower density sprawl. However, we should not lose sight of the purpose of impact fees, which is to address the actual impact of development by taking all costs into account. In addition, impact fees should not be seen as the panacea for resolving all infrastructure needs.

Overall, we must stop subsidizing growth that does not optimize our use of transportation, water, and energy resources and does not provide quality jobs, quality schools, and affordable and workforce housing. Arizona should avoid additional sprawl, which we define as low-density, poorly planned or unplanned areas, on the outer fringes of urbanized areas. If planning is not happening on multiple levels, we can end up with sprawl between master-planned communities.

With the recommended increase in funding for planning and coordination with local government, appropriate developable infill state trust lands should become the focus for the future of urban sustainable growth.

In short, we recommend making the changes listed previously that encourage smart growth. We must resolve the dilemma that local jurisdictions face — growth as a source of revenue. Although a new regulatory program may not be necessary, we need to provide alternative sources for revenue besides growth at the fringes.

Developing Communities Where Arizonans Live, Work, Learn and Play

Land-use planning must promote communities in which Arizonans live, work, learn and play within the same geographical area, a concept sometimes called an “urban village.” This model reduces the impact on our resources and helps give the public a vested interest in their communities. We should promote mixed-use land development that encompasses employment, education, and housing, and other important attributes, such as community centers, meeting places, cultural and social venues.

The development of “live, work, learn and play” communities will require creative and insightful solutions as well as strong political will and market force support. Each community must have zoning ordinances and general plans that allow mixed-use districts and other designations that promote cluster development. Benchmarks for progress and adherence to general plans must be created so we can track achievements and address deficiencies.

In many cases, people work in a high-density, urban area, but prefer to live in a low-density area; however, they want the benefits associated with high-density living in their low-density communities. Infrastructure requirements including, but not limited to, hospitals, fire, police, sewage, adequate

TOWN HALL RECOMMENDATIONS

transportation, and the availability of sufficient funding are often insurmountable obstacles to achieving such desires.

Through their leadership role under the state's Growing Smarter process, the Department of Commerce, in partnership with the Growth Cabinet and other interested parties, should provide funding and work with cities, counties, and towns to educate the public about the benefits of creating a model based on high density, mixed use, livable, walkable communities. There should be a mechanism, like Urban Land Institute's "Reality Check," to educate citizens about key land use issues. This education process could help coalesce a broad-based group of citizens to take action to ensure that things get done. Further, the Department of Commerce should be supported in continuing and increasing its community planning and development role in providing assistance to small towns and rural communities.

A balanced approach to planning is critical for mixed-use communities to succeed. Local governments must develop general plans, use zoning where appropriate, offer incentives, and integrate transportation overlays to encourage mixed-use developments. Planning also must be used to turn challenges into success stories. The state should reserve areas of state lands for a new town design competition to create an entirely new living concept to reflect Arizona's unique natural beauty.

A number of factors create barriers to developing "live, work, learn and play" communities. Housing costs dictate that many people "drive until you qualify" to purchase houses, resulting in long commutes. NIMBYism (Not In My Back Yard) comes into play when residential communities and neighborhoods oppose nearby development that would provide employment opportunities. Existing state laws, local zoning ordinances and general plans also create obstacles to viable growth. Existing infrastructure systems may not have the capacity to absorb higher density development. The realities of personal circumstances also lead some people to live a greater distance from where they work, learn and play. For example, family illness, caring for elderly relatives, concerns about school systems, job changes, and household members who hold jobs in different areas often play a role in where people choose to live.

In some cases, large commercial tracks are developed without sufficient planning for affordable and workforce housing. To create diverse "live, work, learn and play" communities, planners must take into account housing and transportation pressures, required infrastructure, community demographics (families, singles, senior citizens, etc.), and hold back parcels of land for employment/commercial uses. Commercial development must meet the needs of the community and a one-size-fits-all solution will not work.

While large scale master community planning is one mechanism that can create livable communities, they often are located in areas at a significant distance from existing urban areas and employment sites. Statutes should be changed to ensure that land for schools will be available in such communities. Also, many rural communities want to remain rural and preserve their natural landscapes and do not want master planned communities developed in their areas.

The Town Hall recommends changes in local zoning to encourage employers to locate close to affordable and workforce housing. As part of this, local communities must work with private developers to create affordable and workforce housing. For example, they should allow increased density, consider reducing some impact fees, allow for modifications such as changes to setbacks and garage requirements, and also consider paying for infrastructure to encourage affordable and workforce housing. In short, local communities

The Town Hall recommends changes in local zoning to encourage employers to locate close to affordable and workforce housing.

TOWN HALL RECOMMENDATIONS

must recognize that developing affordable and workforce housing requires a partnership with private developers.

Town Hall makes the following additional recommendations:

- Utilize regional and state tools, including regional planning and business associations, to ensure that we attract employment and economic development opportunities.
- Review and perhaps revise zoning laws, regulations and ordinances to ensure smart growth and development.
- Provide incentives to entities that engage in collaborative land-use planning and provide for community spaces.
- Give the State Land Department the resources to allow for the planning of livable communities and development that will minimize our use of water, energy, and transportation resources.
- Support continued full funding for the Arizona State Commission on the Arts and Arizona Heritage Fund, which strongly contribute to enhanced quality of life for Arizona's cities, towns and counties.
- Encourage employers to take a role in ensuring affordable and workforce housing. Some examples include subsidies and assistance with down payments, but we should not expect employers to bear full responsibility for ensuring nearby affordable and workforce housing.
- Make statutory changes to ensure uniformity between county and city planning.
- Master Planned Communities should be planned with a job creation/employment element, with a mix of housing options appropriate to reasonably projected employment uses.
- The state, county and local governments should capitalize on new types of alternative forms of public transportation and non-vehicle based transportation to alleviate low-density sprawl.
- Municipalities and counties should create flexible zoning regulations that increase open space, high density and mixed-use development.
- The Governor should create a blue ribbon panel of employers that would consider how to create communities where employees live closer to their jobs.
- The state should provide assistance to rural areas to plan for and manage development. Funding, technical assistance, and development planning are needed to help rural areas manage and plan for growth.
- Zoning ordinances and general plans should allow accessory dwelling units, such as guest houses, within single family zones, to create higher density and provide affordable housing closer to areas where people work.

TOWN HALL RECOMMENDATIONS

- ADOT and relevant associations of government must take an active role in developing designated freight corridors in conjunction with funding associated with the reauthorization of the Federal Surface Transportation Act.

Quality of Life Factors in Land-Use Planning

Land-use planning should incorporate “quality of life” factors to the maximum extent possible. Early planning is essential to successful incorporation of desired quality of life factors. Achieving quality of life factors includes the use of eminent domain, zoning laws, general plans, regulations, and planning policies. Quality of life factors impact how people decide where they want to live and where employers choose to

Land-use planning should incorporate "quality of life" factors to the maximum extent possible.

locate. When employers are considering location options, they are concerned with quality of life factors and amenities, such as primary and secondary schools, arts and cultural facilities, parks, access to health care, and higher educational opportunities. In deciding where to live, people will look for many of the same amenities or “livability factors.” Thus, it is in the best interest of communities to have these lifestyle activities available.

General plans should be designed to address a broad-range of quality of life issues and should include designations for quality of life factors before development is proposed. At its core, fundamental quality of life issues start with factors such as affordable and workforce housing, livable wages, access to healthcare, energy sources, utilities, public safety, and creation and preservation of open space. We also must address the socioeconomic concerns of the underprivileged and impoverished.

Arizona’s communities currently incorporate some quality of life factors in land-use planning, but not enough. Schools, community colleges, and universities play a critical role. They also need to provide educational opportunities for people of all ages. Schools are more than just a place to learn; they provide opportunities for community interactions at many levels through extracurricular activities and amenities. Also, schools tend to encourage nearby community development. Educational institutions should play an active role in developing parks and structures or facilities that can be shared with the communities in which they are located. Educational institutions can help revitalize communities by drawing people and services into the areas in which they are located. Cities should plan with educational institutions to locate them in places where cities seek to develop high density cores.

To attract and retain a knowledgeable employment base, cultural and recreational resources must be available and easily accessible. Allowing for art, cultural and community centers can only be accomplished with sufficient funding and financing. These quality of life factors are important in attracting new economic opportunities and a diverse employment base. Art and cultural quality of life factors also can serve as economic engines, bringing money into the community. Land-use planners should consider public/private partnerships, as they are essential to ensuring that cultural, artistic and community-based activities and events are part of the development of a community. Currently, communities such as Tempe and Phoenix require a percentage of the capital cost of construction be paid to the arts as part of development.

In identifying “quality of life” factors, we should remember the different generational needs. Certain mixed-use zoning should specifically reflect our aging population by encouraging essential services that are accessible by foot or public transportation. Land-use planners must account for future population projections and ensure proper infrastructure for adequate public safety, health care, and educational services.

TOWN HALL RECOMMENDATIONS

General plans also should be designed to address health and health care issues. Communities should be designed to facilitate exercise and recreation by having features such as parks, and walking and biking paths close to where people live. Cities should use incentives to strongly encourage developers, in a form of public-private partnership, to include these improvements.

General plans should include open spaces, public parks and large destination or civic areas. These public spaces are important not only in large urban areas, but also in smaller and more rural communities. There must be a long-term investment in community spaces, including maintenance and upkeep. State and regional cooperation is needed to ensure that “recreational” destinations are funded in rural areas.

Preservation of unique historic areas must be included in the planning process. Historic preservation commissions need to be brought into the planning process to protect historic areas while promoting growth and redevelopment.

Agriculture affects quality of life and should be included in open space planning in rural and urban areas. Community based agriculture is increasingly popular in urban areas and important for giving people an appreciation for where food comes from and for creating a wellness-type food source for Arizonans. Additionally, wildlife and natural areas should be included as “quality of life” factors.

Finally, we need to listen to the public to learn what the public wants in a livable community and then plan based on those expectations. This requires actively surveying and listening to the public early on so that our long-range development meets those needs. Satisfying the public’s expectations is paramount because ultimately the public will need to provide the financial resources for our planning.

Balancing the Needs of a Growing Population with Environmental Consequences

Arizona has not done a good job of balancing the needs of a growing population with the environmental consequences in either our short-term or long-term planning. Arizona needs to avoid, minimize, and mitigate environmental consequences of population growth. Arizona needs to be more proactive and visionary in protecting our environment.

Actions to Address Environmental Consequences and those Responsible

Not only must Arizona comply with federal and state environmental regulations, it is recommended that Arizona and its leadership proactively promote a statewide partnership, including tribal communities, to properly protect the environment, Arizona’s landscape, wildlife, and natural resources. Because many environmental concerns expand well beyond any local or regional border, it is recommended that we create a state master plan that addresses environmental issues and considers alternative energy sources to meet the needs of a growing population.

Because many environmental concerns expand well beyond any local or regional border, it is recommended that we create a state master plan that addresses environmental issues and considers alternative energy sources to meet the needs of a growing population.

Lessening environmental impacts starts with early planning, and incorporating development that avoids the environmental impact of rapid population growth. Our planning needs to look at sustainable communities that minimize our environmental footprint. Impact studies should be performed

before development occurs, with local governments and communities involved. Pima County’s Sonoran

TOWN HALL RECOMMENDATIONS

Desert Conservation Plan is an example of a community incorporating wildlife preservation into planning. The costs to the environment should be incorporated into development, perhaps through indirect impact fees. Arizona's State Department of Transportation and State Land Department as well as the Governor's Growth Cabinet should work with local governments at a regional scale to reduce impacts on ecological, recreational, and cultural resources.

We need to reduce or eliminate the heat island effect.

We need to reduce or eliminate the heat island effect. Municipalities and counties should consider providing developer trade-ups to encourage use of new construction materials that reduce the heat island effect. Governments also should consider using underground parking to reduce the heat island effect. Arizona should engage in research on the heat island issues, and universities and practitioners should be involved in applied research about the proper building materials, technology, and design.

Arizona also should engage in research on climate change and its effects on the state, and based on that research, identify adaptation and mitigation measures that could be adopted to effectively address the potential impacts of this climate change on Arizona. Arizona's leadership should be educated on the ability to decrease or diminish the effects of global warming, as well as the effects of climate changes on the preservation of Arizona's natural resources and wildlife. Planning for areas of food production and the adoption of agricultural practices to respond to climate change is essential.

We also must consider the impact of development on air quality. Incentives should be created to encourage donations of qualifying conservation easements. We must do a better job in land-use planning to ensure that we look at ways to reduce vehicle miles traveled and encourage land-use patterns that have "live, work, learn and play" opportunities. Citizens should be educated as to how their personal choices affect air quality and should be encouraged to travel less, carpool, use alternative forms of transportation, and telecommute.

We also need to evaluate our actual construction to minimize and mitigate the effects of growth. Environmentally friendly construction comes at an economic cost. Incentives such as accelerating permitting processes and reducing impact fees for green building development can help developers overcome those economic costs. Importantly, public projects must be included in the discussion about environmentally friendly construction and design techniques.

As part of our efforts to minimize and mitigate the impact of growth, we must encourage conservation, by reducing electricity use in building units, revising the building code to require green building development, and requiring public building facilities to incorporate those green building standards as well. Perhaps public and private sectors, including universities, should further develop Arizona-appropriate LEED standards. We also must require the public sector to use renewable energy, and encourage large commercial energy users to do the same.

As part of our efforts to minimize and mitigate the impact of growth, we must encourage conservation.

Arizona's communities should utilize transfer of development rights (TDR) programs, including cross-jurisdictional TDRs, so as to ensure adequate protection and use of agricultural lands, natural resources, wildlife corridors, riparian habitat, special preservation lands, open space, and military installations. Legislation should be considered to allow jurisdictions to transfer development rights across jurisdictional boundaries and incentives should be created to encourage donations of qualifying conservation easements.

TOWN HALL RECOMMENDATIONS

The Governor's Office should provide leadership in collaboration with the legislature to initiate science-based regional framework studies, similar to the framework studies performed by ADOT and regional entities regarding transportation. Environmental framework studies should address wildlife corridors, habitat areas, water resources, and other natural and infrastructure corridor issues.

All levels of government (federal, state, tribal, and local) and private developers must take responsibility for environmental impacts.

FINANCING, INCENTIVES, AND TAKING ACTION

Condemnation and Eminent Domain Laws – Effect on Land-Use Planning.

Eminent domain laws are necessary and effective tools of land-use planning. The public generally has a negative view of eminent domain and we should educate the public about the value of eminent domain. Generally, Arizona jurisdictions have not abused their eminent domain powers. Most eminent domain actions in Arizona have been for public health and safety purposes, not for economic development.

It is proper for the state or utilities to use eminent domain to put in critical infrastructure. It is only appropriate to consider eminent domain for public amenities that are not critical infrastructure after all other possible options have been explored and exhausted. We do not believe it is appropriate for cities to transfer property from one private owner to another for redevelopment or to create an additional tax base for a public entity.

Balancing Effective Land-Use Planning with Personal Property Rights

We recommend that whenever an entity exercises its eminent domain power, it must properly inform affected individuals (including the property owner and owners of adjacent lands) at the time of the taking of the proposed plans for the property, the complete anticipated use, and any other changes that will be involved. This allows the property owner to more effectively negotiate the proposed price.

States and municipalities should create an education program that balances and respects private property rights with community and civic responsibilities, including a matrix of costs and benefits for landowner and community.

Government must exercise its power of eminent domain carefully, and ensure that the private land owner believes the process is fair. In particular, small landowners must be protected. We cannot underestimate nor discount the importance of private property rights to the citizens of Arizona.

Railroads are a unique entity in that they are private entities that have the power to condemn property without any requirement that the railroads provide information on the impacts of major rail infrastructure to state, county or local officials. Without regulating what railroads may do, as that is a federal function, there should be a “sunshine” process requiring the railroad to at least inform the public as to those impacts, particularly impacts related to water, natural resources and local environmental considerations.

Steps for Achieving Balance

The current eminent domain process is slow and difficult. We recommend making the process easier by: permitting the ability to pay higher than market value where justifiable to more fully compensate people,

TOWN HALL RECOMMENDATIONS

including some concept of damages; paying higher relocation benefits; and, creating an administrative process for expedited hearings.

Because of certain provisions of Proposition 207, local governments are hesitant to make difficult planning decisions due to the fiscal impact such planning decisions could cause if they are considered regulatory takings. This limits the ability to create historic districts and overlays such as cultural and runway clearance zones. The regulatory takings provision of the measure has added difficulties and uncertainty to the entitlement process and many jurisdictions require a waiver to file a claim under Proposition 207 as part of considering any land use change.

Because of the potential ramifications of Proposition 207, as related to effective land-use planning and development, we recommend the governor and legislature assemble a blue-ribbon panel. The panel should be comprised of governmental officials, public and private stakeholders, and citizens to address concerns raised by Proposition 207. The panel shall make recommendations to the public and legislature. Town Hall recommends the legislature and Governor create the blue-ribbon panel in the next session.

After receiving judicial guidance regarding the regulatory taking provision, we may want to ask the voters to revisit the regulatory takings provision of Proposition 207.

After receiving judicial guidance regarding the regulatory taking provision, we may want to ask the voters to revisit the regulatory takings provision of Proposition 207, either through a direct repeal or through revisions to narrow the impact through definitions and standards. One revision that should be considered is a process to ensure that smaller landowners have some protections, such as a takings assessment process that gives all landowners notice of the impact of a regulatory taking. Asking voters to make any changes to a recently enacted proposition is a concern. We may need to be cautious, educate the public first, and then prepare necessary changes.

Government Needs for Revenue and Infrastructure in the Context of Land-Use Planning

Arizona communities rely too heavily on sales tax revenues which has a direct and negative impact on effective land-use planning. To have a truly effective planning and development system, we need to consider new and more diversified revenue sources and financing mechanisms such as tax increment financing (TIF), real estate transfer taxes, and toll roads. We also should explore increases in the gas tax, property taxes and sales taxes. Furthermore, there should be more incentives to encourage municipalities to share sales taxes that have a regional component.

It is important to offer a balance of financing options to attract new industries and developers. However, municipalities that offer these incentive-based packages should require that the incentives are performance-based and contain penalties for failure to perform.

ESSENTIAL ACTIONS

The key recommendations of the 91st Arizona Town Hall are as follows:

State trust land reform must be enacted. The State Land Department must receive adequate funding and authority to become a trust asset manager. An enterprise fund should be created that would allow the State Land Department to retain a portion of land sale and lease proceeds, including brokerage fees, and use those

TOWN HALL RECOMMENDATIONS

funds for state trust land planning, operations and management. Reforms must allow the State Land Department to increase the value of state trust lands for its beneficiaries. Further, counties and municipalities must be given the ability to participate in land use decisions regarding state trust lands that affect open space and environmental issues, such as biodiversity. Public-to-public land exchanges, such as land exchanges between the State Land Department and the federal Bureau of Land Management, should be authorized through an amendment to the Arizona Constitution.

Additional and diversified revenue sources should be adopted to support long-range smart growth planning and implementation. Revenue sources should be related to the end users, including developers and existing users. Revised inter-jurisdictional revenue sharing should be considered. In addition, federal resources commensurate with taxes paid by Arizonans should be sought to address all aspects of Arizona's long-range land-use planning.

Communities should revisit their land use planning mechanisms to ensure that the mechanisms meet the needs of Arizona's rapidly growing population. The League of Arizona Cities and Towns and the County Supervisors' Association should create a public/private task force to: (1) evaluate the successes in the area of smart growth and sustainability; (2) inventory and assess industry best management practices in sustainability used by Arizona and other states; (3) consider appropriate local time frames for implementation for smart growth and sustainability; and (4) review potential incentives for voluntary incorporation of sustainable land use practices. Local jurisdictions must review general plans and zoning codes to see if they accommodate anticipated growth and are compatible with smart growth principles and sustainability.

State statutes should be changed so that municipal and county planning statutes are made comparable by granting municipal planning authority to counties. Adequate public infrastructure must be a prerequisite for land use development. Stronger regulations of lot splits and other unplanned development are needed.

Regional planning and cross-jurisdictional communications should be enhanced to ensure smart land use planning on issues that straddle jurisdictional boundaries. The state must take a more active leadership role in ensuring smart land use planning. We must produce regional, long-term plans for transportation, water, energy, infrastructure, affordable and workforce housing, education, and open space.

A blue ribbon panel comprised of governmental officials, public and private stakeholders and citizens should be established to address current and future concerns raised by Proposition 207. The panel should specifically address the regulatory takings provision of Proposition 207.

The governor should lead a visioning process for the entire state to determine where we want to be in 50 years. The Governor's Growth Cabinet, in partnership with the Arizona Planning Association and the private development community, must develop a smart growth vision for Arizona and a training program for planners, local elected officials, planning and zoning commissions and other volunteer boards.

The governor's office, in collaboration with the legislature and regional entities, should provide leadership to: facilitate the development of framework studies of the natural, human and cultural resources within the state; identify opportunities and constraints and critical elements of each of these resources; overlay these to identify conflicts; resolve those conflicts through multi-use planning; and, use these studies in guiding land-use planning – including transportation, wildlife, open space, and recreation elements. Particular attention should be paid to water resources, energy resources, wildlife corridors, habitat areas, riparian habitat, and other natural and infrastructure corridor issues.

TOWN HALL RECOMMENDATIONS

Arizonans should establish a broad-based, diverse citizen organization that can provide a sustained presence in support of effective growth management. Ideally, such an organization can provide education, technical expertise, and broad-based, reasoned citizen involvement on the issues discussed at this Town Hall.

Arizona's universities should be engaged to do applied research on issues raised in this Report in collaboration with practitioners. Studies that are performed should not stop at data collection and analysis; they also should include interpretation and practical application. Additionally, resources need to be studied and addressed at the appropriate scale for the issue. We need to think beyond fences or boundaries. Studies need to cross jurisdictional lines and it is essential that we make better use of public-private partnerships and take steps to attract venture capital to leverage both private and public investments.

State and local governments should identify the top 20 land use planning, conservation and environmental opportunities and implement those priorities within the next five years.

These might include:

- A multi-modal statewide transportation plan and funding package that includes rail, mass transit, airports, heliports, roadway and pedestrian transportation, and public and private partnerships.
- Strengthening the linkage between water issues and land-use planning.
- Data collection on actual use of ground and surface water in Arizona, and developing a comprehensive strategy for long-term sustainability of Arizona's water supply.
- Prohibiting exemption of any well from data collection.
- A citizens' initiative on comprehensive environmentally sensitive state trust land reform in conjunction with the November 2008 election.
- Performance-based development codes, including zoning ordinance texts that include mixed-use components and higher density housing and zoning ordinance map amendments that encourage a higher jobs-to-housing ratio.
- Amending comprehensive plans to include decentralized multi-modal urban centers, a job growth component, an energy component and integration with adjacent comprehensive plans.
- Enacting legislation to allow local and tribal tax increment financing (TIF) with appropriate use guidelines and other local revenue generation options.
- Developing a multi-year communications plan to engage recent and long-term Arizona residents regarding land use challenges during this period of rapid growth.
- Enacting legislation to continue authorization for the Transfer of Development Rights program. Additional consideration should be given to expanding TDR to authorize cross-jurisdictional transfers. The current statute is scheduled to sunset in 2009.

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EXECUTIVE SUMMARY

This report is concerned with the dimensions of growth and land-use change in Arizona (Chapter 1), the regulatory and legal environment in which land development occurs (Chapters 2, 3, 4, 5, and 6), and the complex choices that Arizonans now face about how to: meet the energy needs of rapidly growing cities without degrading the state's rural landscapes (Chapter 7), fund municipalities as they progress through the life cycle of growth (Chapter 8), promote livability, quality of life, and sense of place in communities experiencing rapid growth (Chapter 9), and retain the dazzling views, healthy ecosystems, and pleasant climate that attracted so many people to the state in the first place (Chapter 10).

Chapter 1 takes stock of current demographics and asks how large the state's future population will be, where people will live, and how future population characteristics (age, race, ethnicity, etc.) will differ from those of current residents.

- Arizona's population is projected to grow from just over six million residents in 2006 to almost **thirteen million by 2050**.
- Despite the enormous importance of population projections for planning infrastructure and public services, Arizona Department of Economic Security's **projections typically fall short of the mark**, particularly in rapidly growing urban-fringe communities and counties.
- **Domestic migration** has been the most important source of population growth for the state, but **international migration** is increasingly important in gateway cities such as Phoenix and Tucson and along the Arizona-Mexico border.
- Recent growth is concentrated in the state's metropolitan areas (Phoenix, Tucson, Flagstaff, and Yuma) and surrounding territory linked to them through commuting and second-home development. Metropolitan areas are beginning to grow together into **megapolitan areas**, challenging planners to consider land-use practices and transportation planning for trans-metropolitan development.
- Contrary to the popular perception that urban growth in Arizona is dominated by low-density development, considerable growth in the state's urban cores is occurring at moderate to high densities. Unregulated, low-density sprawl is largely a phenomenon of rural Arizona where **lot splits and unregulated development** cause haphazard growth and environmental problems.
- With the exception of several mountain towns with growing second-home development and retirement migration, most of the state's non-metropolitan counties (without cities of more than 10,000 residents) grew slowly or not at all between 2000 and 2006. In the midst of rapid state growth, there are wide swatches of territory with **little or negative growth**.
- In the six-county "Sun Corridor" region of Yavapai, Maricopa, Pinal, Pima, Santa Cruz, and Cochise Counties, there were 1.6 million existing housing units, 0.7 million under active development, and 1.2 million either entitled or planned in 2007. There is enough land already in the **development pipeline** to accommodate nine million residents in these counties.

EXECUTIVE SUMMARY

Chapter 2 tackles the principles and practice of Smart Growth, which include a mix of land uses, compact building design, a range of housing opportunities and choices, walkable neighborhoods, communities with a sense of place, environmental preservation, directing development toward already built-up areas, a variety of transportation choices, efficient and predictable decision making, and stakeholder collaboration in development decisions. The chapter also addresses Arizona's attempt to implement Smart Growth design principles through several pieces of legislation named Growing Smarter and Growing Smarter Plus.

- **Smart Growth Principles** enjoy support from a large number of interest groups and professional organizations, including the Urban Land Institute, National Association of Home Builders, planning, health, and environmental organizations, and local and state government organizations. The difficulty is in deciding how best to achieve the principles of Smart Growth.
- Four factors have **limited the effectiveness of Smart Growth efforts** nationwide: lack of widespread adoption by any one level of government, lack of consistency across levels of government (i.e., state and local), lack of rewards for implementing Smart Growth programs, and market forces that continue to favor sprawl.
- **Key recommendations** for developing Smart Growth programs include the following: recognize that one-size-fits-all programs do not work, and that effective programs are tailored to the needs of communities with differing values and at different phases in the life cycle of development; combine state and local efforts; balance carrots and sticks; include market incentives when appropriate; and focus on issues of importance to local constituents.
- Arizona enacted **Growing Smarter in 1998 and Growing Smarter Plus in 2000**, which required cities, towns, and counties to prepare long-range plans that included consideration of such issues as land use, transportation, water supplies, open space and the environment. Local zoning was required to be consistent with these plans and, for larger cities and towns, the plans have to be approved by residents in local elections.
- **Assessments of Arizona's Growing Smarter legislation** by expert practitioners reveal there is need for more regional cooperation, more tools to manage high rates of growth, and additional authority and resources for the management of state trust lands.

Chapter 3 considers the multiple policies, ordinances, and mandates adopted by municipalities to govern what people in Arizona can do with their land. Arizona cities, towns, and counties should consider the values and goals of all their residents, not just special interest groups, when deciding whether to adopt regulations. Local political institutions and the form of local government play important roles in determining land-use regulations.

- **Arizona land-use regulation** is complex, sophisticated and extensive. It is also more political and more ad hoc in character than is true in many other states. The original use of zoning regulation to segregate land uses largely has been supplanted by a system that solicits extensive community input on individual projects and reviews such projects to insure overall character and quality.
- In a **survey of fifty-five participants** representing fifty Arizona municipalities, 90% of respondents reported having sign ordinances and 65% have adult entertainment ordinances. Regulations to promote cultural heritage such as historical district ordinances (34%), overlay

EXECUTIVE SUMMARY

zones to protect cultural features (10%), and landmark preservation ordinances (8%) are less common but are under consideration by a substantial number of communities.

- **Few (<10%) municipalities have regulations that facilitate affordable housing;** far more (60%) have regulations that restrict access, such as large-lot zoning.
- Although a large number of Arizona communities have night-sky ordinances (67%) and floodplain zoning (52%), few (<10%) have explicit ordinances to protect wildlife and air quality, purchase development rights, or conserve agricultural and range lands.
- Communities should achieve a balance such that their **zoning process** is strict enough to protect the community's historical landscape and cultural identity, but flexible enough to adapt to the inevitable challenges that accompany transition from rapid growth to more mature stages of development.
- 60% of Arizona municipalities charge **impact fees**. The most common purpose is for wastewater facilities (38%), recreation and parks (36%), water (32%), and public infrastructure (28%). Fewer than 5% charge fees for environmental protection and culture resource management.
- Recognizing that traditional ideas about separating incompatible land use are giving way to the need for new planning tools, 70% of Arizona's cities, towns, and counties have implemented **regulations for planned-unit developments**, which provide more flexibility in designing communities and allow more creative designs and mixes of land use.
- The strength of **interest groups**, ranging from the development community to the tourism sector and environmental organizations, influences local regulatory processes.
- **Local political institutions** interact with interest groups to affect land-use regulation. District-based elections favor NIMBY (Not in My Backyard) groups, organized to resist unwanted land uses. Council-Manager forms of government promote efficiency in city affairs, and direct democracy with local citizen participation in decision making encourages greater balance among community goals in choosing land-use regulations.
- A **regional perspective** often is needed to manage rapid growth and avoid its unintended consequences. Arizona might consider Florida's system for reviewing "developments of regional impact." Also, dividing the state into regions, establishing a regional council, and giving them a voice in decisions about development might be considered.

Arizona's Proposition 207, the Arizona Private Property Rights Protection Act, stipulates that, ". . . if any land-use law enacted after the date the property is transferred to the owner and such action reduces the fair market value of the property, the owner is entitled to just compensation from this State or the political subdivision of this State that enacted the land-use law." Chapter 4 examines the origin of Proposition 207, its key provisions, and some of its immediate impacts.

- **Eminent domain**, the power of government to seize private land and use it or transfer it to a third party for "public use" is based on English common law and identified in the Fifth Amendment of the US Constitution. It is a "taking," and requires fair compensation to the original landowner. Zoning is a "police power" that allows government to regulate society for the health, safety, and

EXECUTIVE SUMMARY

welfare of its citizenry. The legal issues surrounding Proposition 207 center on when a government regulation or police power goes too far and is recognized as a taking, requiring compensation to the landowner.

- Two cases captured public attention in the years immediately before passage of Proposition 207, and set the stage for the bill's passage. In the 2001 case of **Bailey vs. the City of Mesa**, the Arizona Court of Appeals ruled against the City of Mesa's attempt to initiate eminent domain action against a longtime downtown business, Bailey's Brake Shop, and replace it with an Ace Hardware store. In 2005, the US Supreme Court ruled in **Kelo vs. the City of New London** that it was acceptable for New London, Connecticut to condemn land in a stable, middle-class neighborhood for a higher economic purpose—a shopping mall and factory.
- *Kelo* set off a firestorm of protest across the country and in Arizona, where the *Bailey* case had already received widespread publicity. **Proposition 207** passed by a wide margin—65% to 35%—in November 2006. The bill challenges a longstanding and fundamental principle of zoning and regulatory takings—that in an orderly society each individual must surrender some measure of his rights for societal benefit.
- **Cities opposed Prop 207** out of fear that they would be unable to update and expand their zoning regulations in response to development pressure without paying compensation. This concern is particularly significant in rapidly growing cities where the net effect of 207 may be to virtually “freeze” the rules in place on the measure's effective date of December 7, 2006.
- **Oregon's Measure 37**, passed in 2004, requires government to compensate private property owners for any land-use regulations that restrict the use of property and reduce its value, and as of early 2007 nearly 15,000 claims have been filed, totaling more than \$11 billion. Several features of the Oregon situation make it a poor exemplar for Arizona. First, most of the claims have been filed outside of the state's urban growth boundaries which prohibit virtually all development. And second, unlike Prop 207, Oregon's Measure 37 allowed for retroactive claims.
- Prop 207 has **two immediate consequences for Arizona land-use regulation**. First, it has slowed down cities attempting comprehensive revision of their zoning ordinances. Second, it has added new layers of legal and planning review to consider 207 implications.

Chapter 5 outlines the historical and geographic importance of state trust lands and the unique legal restrictions that govern how these lands are managed. Arizona's trust lands represent a large percentage of the future land base for urban growth, and offer unparalleled opportunities for large-scale regional planning and for open-space conservation.

- Arizona retains approximately 9.27 million surface acres of the public lands granted at statehood in a **perpetual, intergenerational trust** to support a variety of beneficiaries, including public schools, universities, penitentiaries, and hospitals. Schools are the principal beneficiaries of most grants.
- In other states, the grant of trust land frequently resulted in a checkerboard pattern of land ownership, but because many lands in Arizona had previously passed into private ownership or been reserved by the federal government, Arizona acquired much of its trust lands in larger,

EXECUTIVE SUMMARY

contiguous blocks. This **pattern of state land ownership** now offers an opportunity for large-scale planning of state trust lands.

- Arizona's trust lands **are managed by the Arizona State Land Department under the direction of the State Land Commissioner**. Although most other western states generate the vast majority of their trust land revenues from traditional natural resource exploitation activities, such as timber, mining, agriculture, and grazing, the sale and lease of land for commercial and residential development generates nearly 95% of the trust's annual revenue in Arizona.
- While a majority of Arizona's trust lands are located in rural areas of the state, more than one million acres are located **adjacent to or within rapidly urbanizing areas**, including Maricopa, Pinal, and Pima Counties. Many urban trust lands offer prime opportunities for urban development, and have become a source of astonishing economic value, commanding prices in the range of \$200,000, \$300,000, or even \$800,000 per acre in recent auctions.
- **Arizona's 1998 Growing Smarter legislation** requires the State Land Department to prepare and update "conceptual plans" for urban trust land that will be integrated into the general and comprehensive plans of cities, towns, and counties.
- The Arizona State Land Department has recently been able to bring only about two thousand to three thousand acres of land to market for development use, out of the nearly one million acres within or adjacent to urban areas. Some trust parcels, because of their large size, have become **barriers to urban growth**, with development jumping over miles of state trust land to access privately owned lands beyond.
- Many trust lands also have significant value for open-space, recreation, and conservation uses. The **Arizona Preserve Initiative (API)**, passed by the legislature in 1996, allowed for limited disposals of trust lands for conservation use, and a \$220 million public-private matching grant program was added in 1998 to assist in the purchase or lease of trust lands for conservation. However, the API program has been indefinitely suspended by the Land Department due to concerns raised by program opponents who argue that the program is unconstitutional, since it does not guarantee that trust lands are sold to the "highest and best bidder" as required by the Arizona constitution.
- The slow rate at which trust land is brought to market and the challenges associated with providing for the conservation of trust lands stem from the unique legal restrictions that govern the management and disposal of these lands, as well as the extremely limited planning and development budget of the State Land Department. These **restrictions also limit the value that the trust** has been able to receive from the sale and development of trust lands.
- These restrictions have led to ongoing efforts to **reform trust lands management** in Arizona to allow for improved planning, development, and conservation of trust lands. These efforts have resulted in several measures that have been introduced to Arizona voters by referenda and citizens' initiative, but to date, none of these measures has passed.

Chapter 6 deals explicitly with the challenges and opportunities that rapid growth presents to Arizona's tribal governments. Indian and non-Indian peoples share a common interest in promoting

EXECUTIVE SUMMARY

responsible land use and economic development in the state, while preserving the rights of future generations to a quality of life and economic opportunity that is at least comparable to what we have now.

- There are twenty-two federally recognized tribal governments in Arizona. Their landholdings comprise more than forty million acres, **28% of the state's land area**.
- **American Indian traditions** view land as a commonly-held resource, recognizing the use rights of extended families, lineages, and clans. The Indian worldview values land and the living world not as property to be bought and sold, but in familial or kinship terms.
- The substantial increase in revenues, largely from **gaming**, has changed the pace of development in Indian Country. In approaching development, tribal land-use plans reflect values of protecting the land, maintaining identity, and assuring the future. Communities often allow commercial zones along their outer borders, but seek to retain the rural character of the community core.
- As a direct result of **population growth and urban sprawl in off-reservation communities**, tribes have become concerned about the effect of that growth on the rural character of tribal lands, the quantity and quality of water supplies, and the deterioration of air quality over tribal lands.
- **Transportation** is at or near the top of any list of crucial land uses for Arizona's future. Some of the most highly used highways in the state traverse tribal lands. While expanding such transportation corridors may bring more customers to tribal enterprises, this use of tribal land gives rise to concern about loss of control over the already limited tribal land base.
- Several tribes have **water settlements and have substantial water rights**. Those rights are often used to sustain and expand tribal agriculture, consistent with the farming traditions of many tribes. While it is often assumed that tribes will lease their water to rapidly-growing urban communities, they have the right to choose to retain that water for farming and other on-reservation development.
- Traditional tribal religious practices and beliefs are deeply tied to **tribal homelands** that extend beyond the boundaries of current reservations. The potential for conflict between tribes and off-reservation developers is particularly high when it involves sacred sites. Off-reservation developers should be mindful of tribal interests in traditional homelands beyond reservation boundaries, and of the federal laws that protect them.
- There are increasing opportunities, benefits, and incentives for tribes, local governments, and state government to work together on issues of land use and growth. Mutual understanding, respect for one another's values, and trust are essential to **successful collaboration**.

Chapter 7 describes the increasing energy demands of Arizona cities, which stem in large part from land-use patterns. It argues that the sources of energy production and transmission lines often are located in places distant from cities, and that rural landscapes, views, and air quality are being degraded to support urban energy demands.

- Arizona cities are **landscapes of energy consumption** because of the heavy use of cars to get to work and fulfill everyday needs, and the widespread use of air conditioning to control temperature

EXECUTIVE SUMMARY

and combat the effects of the urban heat island. Landscapes of energy supply largely are external to the state or are located in rural Arizona.

- **Electricity** accounts for more residential energy use in Arizona than other sources combined; it amounted to 66% of all energy consumed in 2003, 50% higher than for the nation as a whole.
- Urbanites rarely experience the **landscapes of energy supply**, and there is little public consciousness of how cities are fueled. Energy development is more evident in rural Arizona where national parks, monuments, and wilderness areas are being compromised to support urban growth.
- There are three kinds of energy landscapes in rural Arizona. “**Pervasive landscapes**” are those where people lose the landscape they came to see, as, for example, in the case of the formerly clear skies of the Colorado Plateau being obscured by the haze from coal-burning power plants. “**Centralized landscapes**” such as mining, fuel processing, and power generation facilities are distributed along the margins of the state. “**Linear landscapes**” include the transmission lines, railroad lines, and pipelines that connect the centralized landscapes with one another and with the cities.
- There is a strong relationship between **energy and water** because water is needed for various processes to make energy available, and energy is needed to make water available.
- Arizona’s growth involves a circular relationship between the landscapes that attract us and the landscapes that sustain us. When we change the form and functioning of our cities (i.e., **land-use patterns**), we alter the energy demands needed to maintain them. The costs of providing energy are disproportionately felt in rural Arizona where Arizonans’ needs for open space and outdoor recreation traditionally have been met.

Rapid growth creates fiscal challenges for Arizona cities and towns. Chapter 8 addresses the relationship between land development and how local governments raise and spend their revenues. It discusses how young, rapidly growing municipalities finance infrastructure for their growing populations and considers strategies for municipalities approaching build-out, with declining construction-related revenues.

- Arizona municipalities rely heavily on **sales taxes** as compared to property taxes. The share of sales taxes in general revenue from own sources in the seven largest Arizona cities in fiscal year 1999-2000 ranged from 34% in Glendale to 51% in Tempe, compared to only 18% for all US municipalities in fiscal year 2001-02 (the closest year for which data are available to make this comparison). Property-tax shares in these Arizona cities ranged from 0% in Mesa to 15% in Glendale, lower than the average share of 29% for all US municipalities.
- Reliance on sales tax leads municipalities to annex land where they expect to reap sales-tax revenues, either from shopping malls already located there or because they anticipate future commercial and retail development. The need for sales-tax revenues also may lead municipalities to favor **retail uses over other land uses**, such as residential or heavy industrial.
- The desire to attract retail development leads municipalities to compete by offering **tax incentives and other subsidies**, which can transfer resources from the public to the private sector. Legislation passed in 2007 imposes financial penalties, with some exceptions, on cities and towns

EXECUTIVE SUMMARY

that have exterior boundaries located entirely within the exterior boundary of a metropolitan statistical area having a population of more than two million that provide tax incentives to retail businesses. Joint revenue-sharing agreements provide a way for municipalities to avoid offering incentives.

- **Alternatives** to relying heavily on sales taxes include greater use of property taxes and charges for services such as trash disposal or use of parks.
- **Impact fees** assessed on new developments to pay for necessary public facilities are common in Arizona. They are seen as a way of requiring growth to “pay for itself.” Impact fees are rising, but they remain only a partial solution to the problem of infrastructure finance.
- Because of the fiscal structure of Arizona municipalities, revenue is tied to growth. When new construction slows, municipalities see a drop in revenues from **construction sales taxes**, which often make up a large share of total sales-tax revenues, and from other construction-related revenues such as building-permit and engineering fees. As they approach build-out, municipalities may face fiscal pressure and difficult choices about whether to raise taxes, cut services, or postpone or eliminate capital projects.
- **Strategies for municipalities approaching build-out** include: expanding municipal boundaries through annexation, promoting redevelopment and infill, building up rather than out, finding new revenue sources, and increasing retail sales tax revenues.
- Arizona municipalities should **look ahead to the time when growth will slow**. Policy choices made now can help them avoid future problems and prepare for future needs. Two important policies are avoiding the use of one-time revenues for ongoing operating expenses, and acquiring land and rights of way for public purposes before land becomes extremely expensive.

Chapter 9 deals with the “softer” side of growth, including issues such as livability, quality of life, and sustainability. Living in a growth community usually means living in a state of becoming, rather than one of being. Substantial growth forces leaders and residents to reconcile the old and the new, costs and benefits, quality and quantity, preservation and progress, personal choices and community values, and market forces and public policies.

- Opinions about **quality of life in Phoenix** have remained positive and stable over four studies conducted by the Morrison Institute for Public Policy between 1997 and 2004, but 40% of residents have said they would leave metro Phoenix if they could, and a substantial majority have noted that the area is growing too quickly.
- In the **2004 survey**, Phoenix residents said that a number of changes were “very important” to increasing quality of life. Nearly 60% supported making affordable housing more available, one-third felt that strong downtowns were very important, and one-half believed that expanding mass transit and preserving more open space was very important.
- In a 1997 study of livability, Tucson residents valued a range of community and environmental attributes in addition to better paying jobs, strong businesses, and reduced poverty. Attributes of a **livable Tucson** included better alternatives to automobile transportation, an engaged community and responsive government, safe neighborhoods, caring healthy families, and excellent public

EXECUTIVE SUMMARY

education. These attributes reflect the importance of the many tangible and intangible factors that shape people's day-to-day existence.

- Low housing costs have been a powerful draw for many newcomers to Arizona over the past several decades, but housing affordability for both new and resale homes plummeted after 2003. Many workers are forced into the **difficult tradeoff between commuting and housing prices**. For every dollar a working family saves on housing, they spend seventy-seven cents more on transportation. At some distance, generally twelve to fifteen miles from the employment location, the increase in transportation costs outweighs the savings on housing, and the share of household income required to meet these combined expenditures rises. There are, in other words, limits to the "drive-until-you-qualify" strategy of coping with escalating home prices.
- **Higher housing costs** have led to increased crowding for low-income households and stiffened competition among middle-income families.
- **Dealing with rapid growth** will require land-use and transportation planning that ensures that Arizona's communities maintain and improve their livability, including old-fashioned pride in places and a more equitable distribution of the good life.

Chapter 10 deals with the relationship between land use and environmental quality, and considers environmental quality in both biophysical (urban heat island and river degradation) and social (disproportionate risks for poor and minority residents) systems. The field of landscape ecology offers solutions to restoring the integrity of natural systems in the face of urbanization, and planners must consider the effects of the Clean Water Act and the Endangered Species Act on future development.

- **Urban heat-island (UHI) effects** occur in the state's large cities. Since 1950, summer nighttime temperatures have increased 10° F in Phoenix and Tucson, and 5° F in Yuma, while changing little in outlying places such as Wickenburg and Tombstone. UHI effects increase energy and water use, reduce human comfort, and jeopardize plant survival.
- **Heat-island effects can be mitigated** by using shade devices and tree plantings to minimize daytime temperature extremes, increasing building densities to provide more pedestrian shade among buildings and along streets, and using building materials that are more reflective or do not have high heat-storage properties.
- **Environmental risk** from exposure to industrial pollution falls disproportionately on low-income and minority populations in Phoenix. One of the first and most significant hazardous events in Phoenix occurred in the early 1990's as a result of a fire in a high-technology assembly firm in South Phoenix. Highly publicized events can stigmatize the neighborhood and undermine stability and property values even years after the risks of contamination are no longer evident.
- **Rapid urbanization of the San Pedro Watershed** in Southern Arizona has placed the San Pedro River and its riparian habitats under considerable stress due to dwindling runoff, and groundwater pumping in and around Sierra Vista.
- Cities can be planned or retrofitted to preserve the ecological patterns that nature has shaped over time by employing green networks, green infrastructure, and habitat structures. An **ecological**

EXECUTIVE SUMMARY

network uses a system of interconnected or related patches and corridors to provide and sustain ecological values within a human-dominated landscape, such as a city.

- **Pima County’s Desert Conservation Plan** demonstrates how landscape-scale environmental considerations such as the need to preserve continuous habitat and provide room for species to move can contribute to a plan that promotes a more compact urban form as well as ecosystem integrity.
- **Recent Supreme Court decisions** have lessened federal authority to protect thousands of miles of intermittent and ephemeral streams in Arizona. If state and local governments fail to assume that burden, development will threaten our desert environment, wildlife, and rivers fed by these streams.

Chapter 1

TAKING STOCK: HOW MUCH GROWTH, WHERE AND WHEN

Patricia Gober and Nancy Jones

Arizona has been synonymous with rapid population growth and intensive urbanization since the end of the Second World War. Social scientists argue that people “vote with their feet” and choose to live in places that meet their needs for jobs, housing, neighborhoods, lifestyle, climate, social interaction, and public services. The fact that Arizona has grown much faster than the nation as a whole suggests that the state has had these assets aplenty. Continued rapid growth and urbanization are beginning, however, to compromise some of the assets that traditionally have drawn people to Arizona. Areas of concern include increasing land costs, declining housing affordability, increasing commuting times, sprawl and haphazard development, urban heat island effects, and loss of views, open space, habitat, and biodiversity. Effects of growth depend on the pace, location, and character of growth (e.g. compact development or sprawl, planned or unregulated development), as well as on the make-up of the population. This chapter deals with the demography and geography of growth and its consequences for land development.

Uncertainties about Future Population Growth

Arizona has grown much faster than the nation as a whole since 1960 (Figure 1.1), and this trend is expected to continue into the future, although the Arizona Department of Economic Security’s (DES) projections show growth rates closer to the national average the further we move out in time (Figure 1.2).

Figure 1.1

**Historic population growth
United States versus Arizona, 1960-2005.**

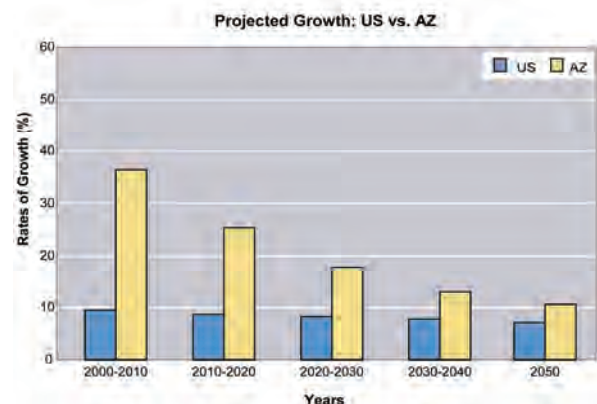


Note: The last time period is five years in length compared to earlier ten-year time blocks.

Source: US Census Bureau, Population Estimates, Resident Population 1960-2005.

Figure 1.2

**Projected population growth
United States versus Arizona, 2000-2050.**



Source: US Census Bureau, 2004, US Interim Projections by Age, Sex, Race, and Hispanic Origin, and Arizona Department of Economic Security, Research Administration, Population Statistics Unit.

TAKING STOCK: HOW MUCH GROWTH, WHERE AND WHEN

The state's population is projected to grow from just over 6.3 million people in 2006 to almost 13 million by 2050, with the largest additions occurring during earlier decades.¹ These projections use a "cohort survival" method which reduces existing cohorts (age groups) according to prevailing mortality rates, adds children based on fertility rates, and estimates in- and out-migration rates. These projections are sometimes unreliable because we have only a rudimentary understanding of the way societal forces such as national economic growth, the vitality of housing markets, national immigration policy, the vagaries of California's and Mexico's economies, preferences for certain kinds of lifestyles, and environmental forces such as climate change, may affect future migration rates, especially dozens of years into the future. Historically, DES's projections have underestimated the pace of the state's growth. Past projections anticipated a population of 4.7 million in 2000 and 5.7 million in 2010.² The state's 2000 population was, in fact, 5.1 million, and passed the 5.7 million mark in 2004, six years ahead of schedule.³

Official projections are particularly problematic for cities and counties, because growth often comes in bursts and is geographically concentrated in urban-fringe locations. Consequently, the recent past is sometimes a poor basis for predicting the future. This can lead to serious discrepancies. 1995 projections for Pinal County underestimated the 2000 Census population by 17%, and the current projections for 2010 are double what had been expected ten years ago.^{4,5,6} Yavapai County was expected to have 148,000 residents in 2000 and 187,000 in 2010. The county actually grew to 213,000 in 2006 and is now projected to reach 242,000 in 2010, 30% higher than what had been predicted ten years earlier.

While it is reasonable to expect continued rapid growth statewide in the short- and mid-term, there is a very high degree of uncertainty associated with the 2050 statewide projections, especially with the geographic allocations of those projections. Hindsight tells us that past projections have provided only a very rough understanding of current conditions. The population is now growing much faster than we expected ten years ago; it has spread into formerly rural communities at the outer margins of large metropolitan areas much faster than was anticipated; and some places did not experience the population booms that were anticipated. Erroneous projections cause problems for planning infrastructure and other public services.

Sources of Growth

Population growth comes from three sources: natural increase (births minus deaths), domestic or internal migration (in-migration minus out-migration), and international migration (Figure 1.3). Between 2001 and 2006, natural increase accounted for 28.5% of growth, domestic migration for 52.1%, and international migration for 19.4%. Since 1990, international migration has become increasingly important, especially along the border and in the large urban concentrations of Maricopa and Pima Counties (Figure 1.4). Phoenix and Tucson have become "new immigrant gateways," magnets for new immigrants as the cost of living has soared and employment opportunities stalled in the traditional gateway cities of Los Angeles, New York, Miami, and Washington, DC.⁷ High levels of natural increase in Arizona tend to accompany immigration from abroad because of high levels of fertility among immigrants from Mexico, the chief source area of international migrants to the state. The increasing role of immigration as a component of growth suggests that we need to consider the land, housing, and lifestyle preferences of potential immigrants from Mexico in addition to those from California, Texas, and Illinois, traditional source areas for Arizona migrants.

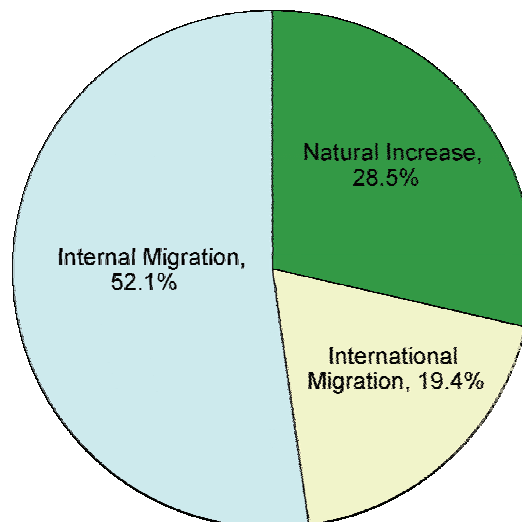
Domestic migration is the major component of population growth in urban-fringe and exurban counties such as Pinal and Yavapai. Yavapai County experienced natural decrease (deaths exceeded births) between 2000 and 2006, and Mohave is quite close to experiencing it; the populations of the two counties are relatively old, and therefore generate more deaths than births. The median ages in Yavapai and Mohave Counties are 44.3 years and 42.2 years respectively—much higher than the statewide median of 34.5 years and figures of 33.4 in Maricopa, 30.5 in Navajo, and 28.0 in Apache Counties.⁸ Population characteristics like age

TAKING STOCK: HOW MUCH GROWTH, WHERE AND WHEN

vary widely across the state, in part because growth takes different forms in different places. Pinal County on the urban fringes of Phoenix and Tucson grows from the influx of young families with children who are in search of affordable housing; Yavapai and Mohave Counties are strongly influenced by retirement migration, and Maricopa and Pima Counties grow from a variety of sources, including international migration. In Coconino County and primarily rural counties such as Apache and Graham, growth is slow and due to natural increase rather than migration. The source and rate of growth will influence population characteristics which will, in turn, affect preferred lifestyles, the demand for certain housing types, acceptable densities, and prospects of political and planning strategies to manage growth.

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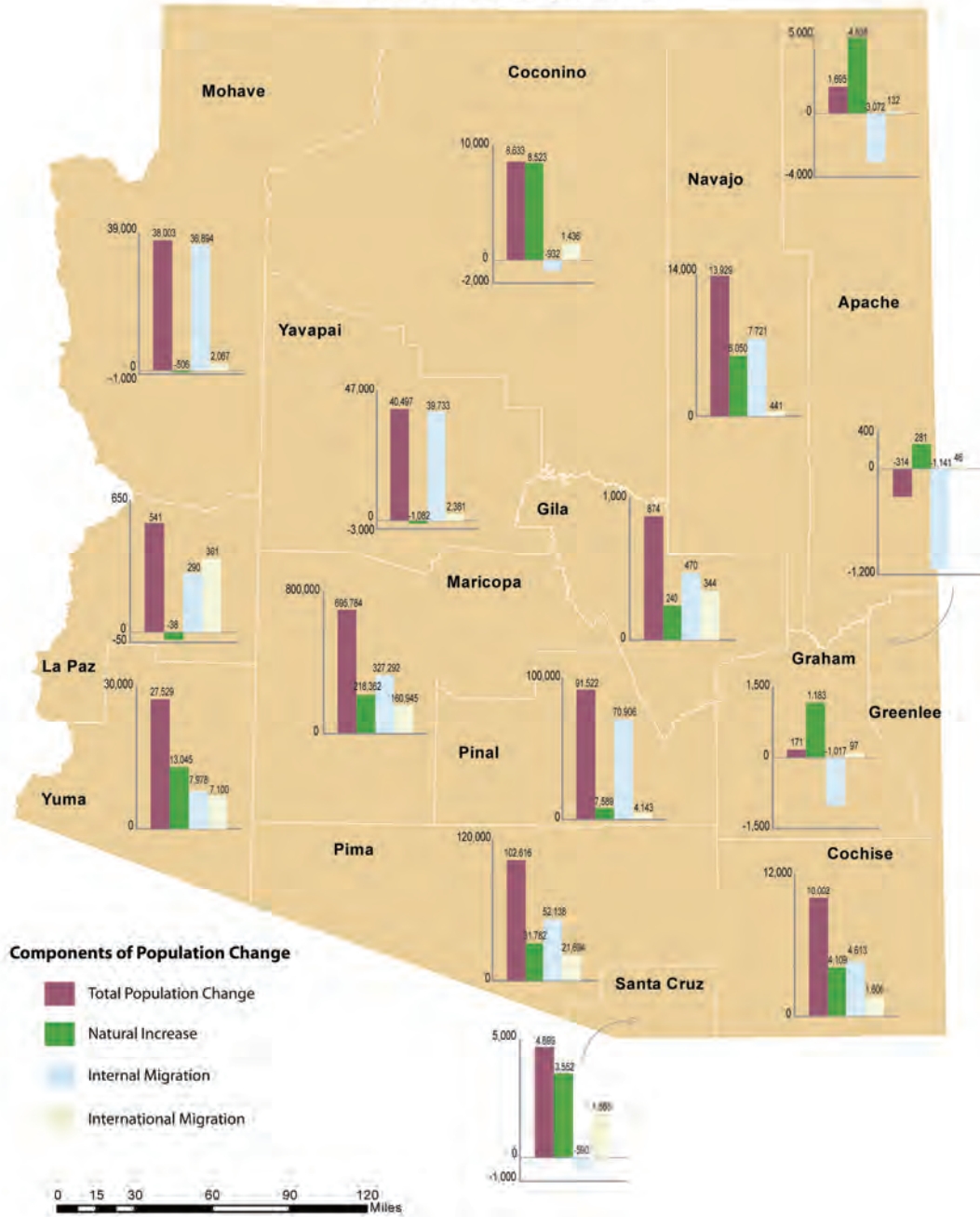
Figure 1.3
Components of population change in Arizona, 2001-2006.



Source: US Census Bureau, Population Estimates,
http://www.census.gov/popest/states/files/NST-EST2006-compchg2000_2006.csv.

Figure 1.4
Components of population change in Arizona counties, 2000-2006.

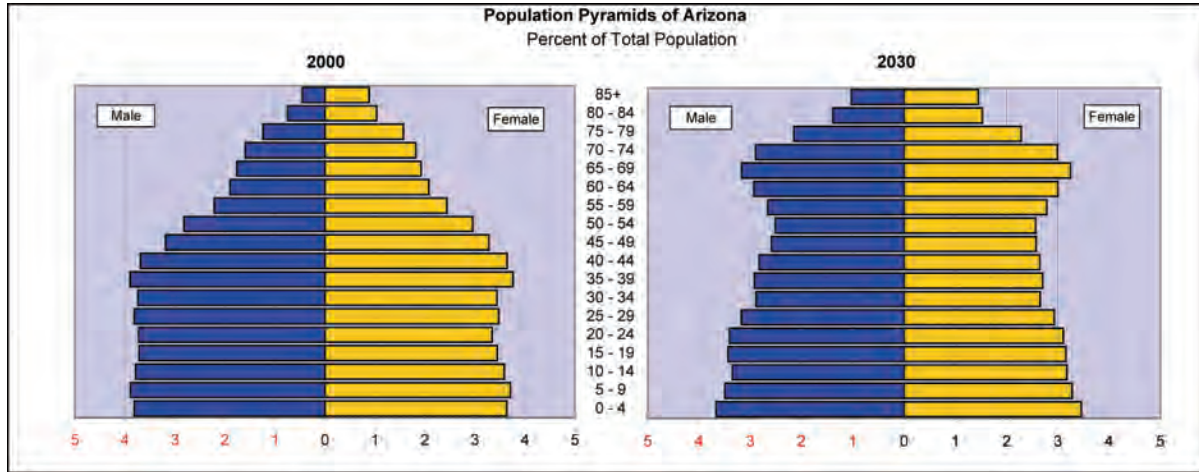
Components of Population Change: 2000-2006
 (in number of persons)



Source: US Census Bureau, Population Estimates, http://www.census.gov/popest/states/files/NST-EST2006-compchg2000_2006.csv.

TAKING STOCK: HOW MUCH GROWTH, WHERE AND WHEN

Figure 1.5
Population of Arizona by age and sex, 2000 and 2030.



Age Group	Census 2000				Projection 2030				2000 - 2030 Change	
	Total	Number		Percent	Total	Number		Percent	Number	Percent
		Male	Female			Male	Female			
Total	5,130,632	2,561,057	2,569,575	100.0	10,712,397	5,407,629	5,304,768	100.0	5,581,765	108.8
0 - 4	382,386	195,634	186,752	7.5	762,344	392,364	369,980	7.1	379,958	99.4
5 - 9	389,869	199,476	190,393	7.6	725,178	374,612	350,566	6.8	335,309	86.0
10 - 14	378,211	194,064	184,147	7.4	698,857	358,861	339,996	6.5	320,646	84.8
15 - 19	367,722	190,608	177,114	7.2	705,791	367,968	337,823	6.6	338,069	91.9
20 - 24	362,860	191,086	171,774	7.1	697,383	364,802	332,581	6.5	334,523	92.2
25 - 29	374,106	195,400	178,706	7.3	653,655	340,083	313,572	6.1	279,549	74.7
30 - 34	368,559	191,666	176,893	7.2	593,730	309,357	284,373	5.5	225,171	61.1
35 - 39	392,687	199,664	193,023	7.7	602,406	312,736	289,670	5.6	209,719	53.4
40 - 44	376,117	188,993	187,124	7.3	586,587	302,727	283,860	5.5	210,470	56.0
45 - 49	331,903	163,478	168,425	6.5	553,371	277,454	275,917	5.2	221,468	66.7
50 - 54	296,001	144,311	151,690	5.8	544,255	269,023	275,232	5.1	248,254	83.9
55 - 59	238,675	113,487	125,188	4.7	582,805	284,819	297,986	5.4	344,130	144.2
60 - 64	203,697	96,923	106,774	4.0	634,681	313,853	320,828	5.9	430,984	211.6
65 - 69	189,007	90,270	98,737	3.7	687,098	339,324	347,774	6.4	498,091	263.5
70 - 74	174,834	81,419	93,415	3.4	630,661	309,953	320,708	5.9	455,827	260.7
75 - 79	144,201	63,418	80,783	2.8	475,497	230,452	245,045	4.4	331,296	229.7
80 - 84	91,272	38,132	53,140	1.8	312,824	149,044	163,780	2.9	221,552	242.7
85+	68,525	23,028	45,497	1.3	265,274	110,197	155,077	2.5	196,749	287.1
Under 18	1,366,947	701,311	665,636	26.6	2,607,152	1,343,981	1,263,171	24.3	1,240,205	90.7
5-17	984,561	505,677	478,884	19.2	1,844,808	951,617	893,191	17.2	860,247	87.4
18-24	514,101	269,557	244,544	10.0	982,401	514,626	467,775	9.2	468,300	91.1
25-44	1,511,469	775,723	735,746	29.5	2,436,378	1,264,903	1,171,475	22.7	924,909	61.2
45-64	1,070,276	518,199	552,077	20.9	2,315,112	1,145,149	1,169,963	21.6	1,244,836	116.3
65+	667,839	296,267	371,572	13.0	2,371,354	1,138,970	1,232,384	22.1	1,703,515	255.1

Demographic Indicator	2000	2030	Change
Median Age	34.2	39.3	5.1
Male	32.9	38.2	5.2
Female	35.5	40.6	5.1
Dependency Ratio (1)	74.2	96.6	22.4
Youth (2)	51.6	53.1	1.5
Old Age (3)	22.7	43.5	20.8

Demographic Indicator	2000	2030	Change
Child-Women Ratio (4)	35.3	41.4	6.1
Sex Ratio (5)	99.7	101.9	2.3
Under 18	105.4	106.4	1.0
18-64	102.0	104.1	2.1
65-84	83.8	95.5	11.7
85+	50.6	71.1	20.4

(1) Dependency Ratio = (Age under 20 + Age 65 and over) / (Age 20-64) X 100
 (2) Youth dependency ratio = Age under 20 / Age 20-64 X 100
 (3) Old age dependency ratio = Age 65 and over / Age 20-64 X 100

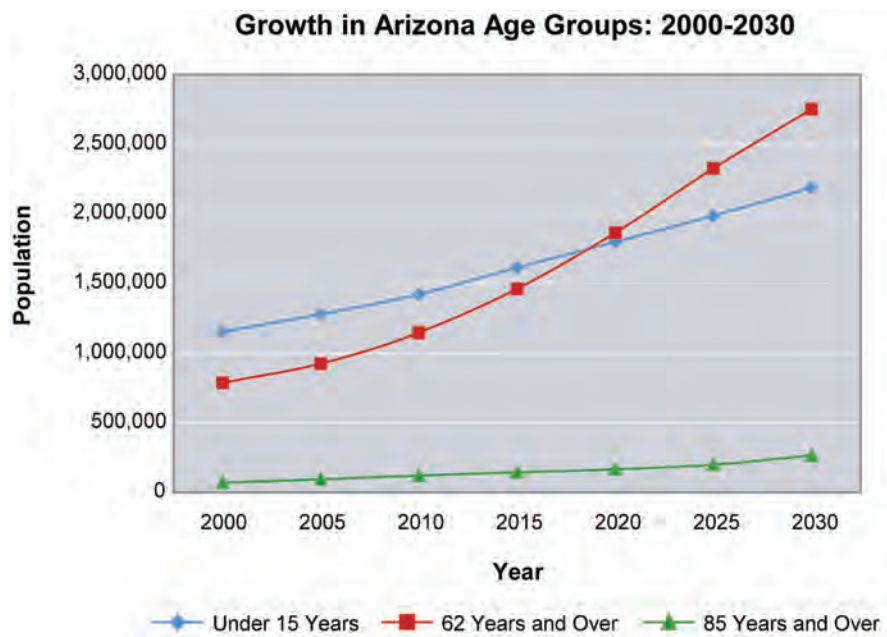
(4) Child-Women ratio = Age under 5 / Female 15 - 44 X 100
 (5) Sex Ratio = Male / Female X 100

Source: US Census Bureau, "Population Pyramids of Arizona,"
<http://www.census.gov/population/www/projections/statepyramid.html>.

Characteristics of Growth

Despite large inflows of domestic and international migrants, the most rapid growth in Arizona’s population will occur in older age groups. The state’s median age is expected to rise from 34.2 years in 2000 to 39.3 years in 2030 (Figure 1.5), compared to a rise in the nation’s median age from 35.3 in 2000 to 39.0 in 2030. The number of residents who are over 65 will increase substantially because of the aging Baby Boom generation born between 1946 and 1964 (Figure 1.6). Baby boomers, who will range from 66 to 84 years old in 2030, will swell the ranks of the state’s retirees. The dependency ratio, the number of economically dependent people (under 20 and over 65 years old) relative to the number of economically active people (20 to 64 years old), will increase from 74.2 in 2000 to 96.9 in 2030. This means that 100 working adults will be supporting 97, instead of 74, retirees and children. These dependency issues will be especially severe in retirement centers such as Yavapai County, where the dependency ratio will rise from today’s 83 to 120 in 2030.

Figure 1.6
Future percentages of the dependent population in Arizona, 2000-2030.



Source: US Census Bureau, 2005, “The total population by selected age groups,” <http://www.census.gov/population/www/projections/projectionsagesex.html>.

Although Arizona’s population was only 36% minority in 2000, there was substantial geographic variation in this figure, from slightly over 82% in Apache and Santa Cruz Counties, to 13% and 16% in Yavapai and Mohave Counties respectively.⁹ The state’s Hispanic population grew from 25% (1.3 million) in 2000 to 29% (1.8 million) in 2006, and will continue to increase, even without future migration because of higher-than-average birth rates among Hispanic women.¹⁰ The Arizona Department of Health Services

TAKING STOCK: HOW MUCH GROWTH, WHERE AND WHEN

reported birth rates in of 116.8 per 1,000 women of childbearing age in 2005 among Hispanics, compared to 51.2 for non-Hispanic whites, 76.7 for African Americans, 90.5 for American Indians and 83.4 for Asians.¹¹

Geography of Growth

Recent growth has been concentrated in the state’s urban areas—large and small—and especially robust at the outer margins of these areas. Between 2000 and 2006, rates of change ranged from +66.9% in Pinal County to -2.9% in Greenlee County, where the declining copper industry curtailed employment and population growth (Table 1.1). More than 80% of the state’s total growth was concentrated in Maricopa, Pinal, and Pima Counties. Substantial variation occurred at the city level where change of more than 100% occurred along the outer margins of the Phoenix and Tucson areas in places such as Maricopa (1,642%), Sahuarita (456%), Queen Creek (333%), El Mirage (329%), Buckeye (275%), Surprise (218%), Goodyear (162%), and Marana (125%) (Figure 1.7). Not long ago these places were freestanding settlements outside their respective urbanized regions. Today they are sites of new subdivisions, shopping malls, and grocery stores. As growth exploded in these communities, it tapered off in the metropolitan core cities of Phoenix (14%) and Tucson (10%).¹²

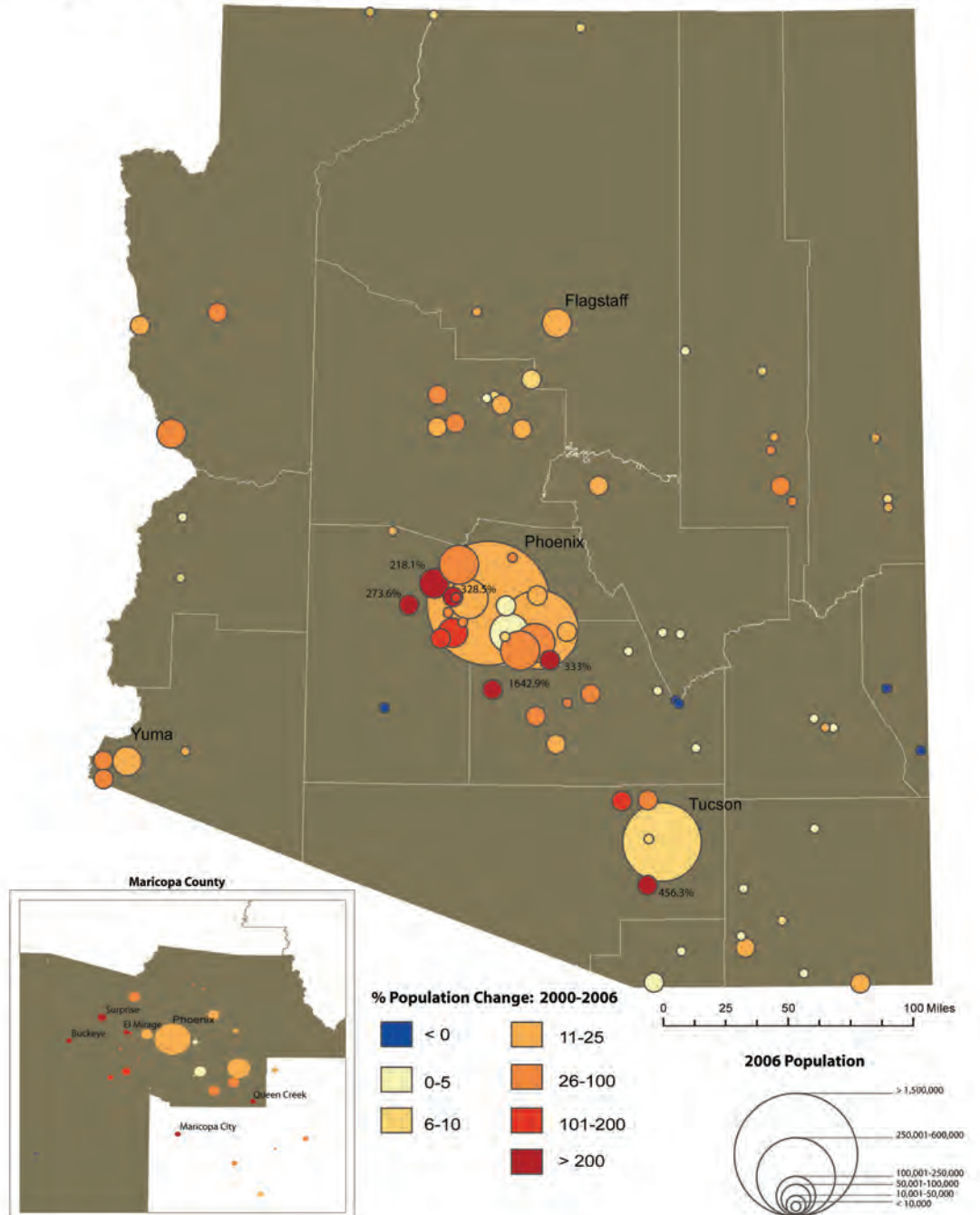
Table 1.1
Growth in Arizona counties and the US, 2000 and 2006.

Rank	Area	DES Estimate 7/1/2006	Census April 1, 2000	Number Change	Percent Change
	United States	299,398,484	281,421,906	17,976,578	6.4%
	Arizona	6,305,210	5,130,632	1,174,578	22.9%
1	Pinal County	299,875	179,727	120,148	66.9%
2	Mohave County	198,320	155,032	43,288	27.9%
3	Yavapai County	213,285	167,517	45,768	27.3%
4	Maricopa County	3,792,675	3,072,149	720,526	23.5%
5	Yuma County	196,390	160,026	36,364	22.7%
6	Santa Cruz County	45,245	38,381	6,864	17.9%
7	Navajo County	113,470	97,470	16,000	16.4%
8	Pima County	981,280	843,746	137,534	16.3%
9	Cochise County	135,150	117,755	17,395	14.8%
10	Coconino County	132,270	116,320	15,950	13.7%
11	Gila County	56,800	51,335	5,465	10.6%
12	Graham County	36,380	33,489	2,891	8.6%
13	La Paz County	21,255	19,715	1,540	7.8%
14	Apache County	74,515	69,423	5,092	7.3%
15	Greenlee County	8,300	8,547	-247	-2.9%

Source: Arizona Department of Economic Security, Population Estimates “July 1, 2006 Population Estimates for Arizona, Counties and Incorporated Places ranked by percent change, 2000-2006,” <http://www.workforce.az.gov/?PAGEID=67&SUBID=137>.

Figure 1.7
Population and percent change in Arizona incorporated places, 2000-2006.

% Population Change For Incorporated Towns and Cities From 2000-2006 and 2006 Estimated Population



Source: Arizona Department of Economic Security.

TAKING STOCK: HOW MUCH GROWTH, WHERE AND WHEN

Planners have begun to talk about a new category of urban entity called “megapolitan areas,” or “megas.” These are formerly distinct metropolitan areas that have begun to converge into enormous urban complexes that can be easily traversed in a day by car, round trip. They include the Washington, DC-Baltimore area, Southern California between San Diego and Santa Barbara, Northern California, the Front Range of the Rockies, and the so-called Sun Corridor encompassing Phoenix, Tucson, and linking territory in Pinal County where workers commute to both Phoenix and Tucson. The idea of megas is more than just the coalescence of traditional metropolitan regions, however. It is urban living on a larger scale supported by “extreme commuting” on the part of those who travel more than 90 minutes to work, innovations in information technology, the trend in some fields that workers not be present in the office five days a week, and growing metropolitan inter-connectivity whereby a significant number of local jobs are held by people living outside the region.¹³ This kind of future development challenges planners to rethink land-use practices (transportation planning, density restrictions, airport locations, etc.) for trans-metropolitan development.

While the Phoenix-Tucson Corridor is the state’s best example of an enlarged urban realm, it is by no means the only example of increasing regional inter-connectivity and new growth corridors in Arizona. Consider the communities of Sedona, Cottonwood, Clarkdale, and Camp Verde, where long-distance commuting is commonplace; and Prescott, Prescott Valley, and Dewey-Humboldt, where workers commute to Flagstaff and Phoenix. According to Census 2000, 11% of Yavapai County workers commuted outside the county to one of the state’s metropolitan areas.¹⁴

Table 1.2 breaks down 2000-2006 growth rates by types of places. Not surprisingly, the metropolitan areas (with a principal city of more than 50,000 residents and surrounding counties where there is enough commuting to show they are functionally connected) grew faster than micropolitan areas, a new census category (with a core city of at least 10,000 residents), and nonmetropolitan areas that have only small cities of less than 10,000 residents. 92.5% of Arizona’s population growth during the period 2000-2006 occurred in metropolitan counties.

Table 1.2
2000-2006 Growth by type of place.

Type of Place	2000 Population	2006 Population	Number Change	Percent Change
Metropolitan	4,530,335	5,615,770	1,085,435	24
<i>Urbanized</i>	3,566,494	4,290,905	724,411	20.3
<i>Urban Cluster</i>	173,945	323,275	149,330	85.8
<i>Rural</i>	22,960	49,715	26,755	116.5
<i>Unincorporated</i>	766,936	951,875	184,939	24.1
Micropolitan	404,543	480,145	75,602	18.7
Nonmetropolitan	183,608	209,240	25,632	14

Source: Authors’ calculations based on population estimates from the Arizona Department of Economic Security.

TAKING STOCK: HOW MUCH GROWTH, WHERE AND WHEN

This reflects a growing concentration of the population into large urban regions, but within these regions growth is fastest at the outskirts in rural areas and in “urban clusters,” places that have not yet merged geographically with the core’s main built-up area. Examples of these clusters are El Mirage, Buckeye, Goodyear, Queen Creek, Fountain Hills, and Carefree in the Phoenix area; Sahuarita in the Tucson area; San Luis in the Yuma area; and Chino Valley, Clarkdale, Cottonwood, and Sedona in the Yavapai County growth complex. The numbers in Table 1.2 paint a picture of rapid growth in the state’s four metropolitan areas (Phoenix, Tucson, Flagstaff, and Yuma), and demonstrate the rampant spread of their influence and their economies into surrounding territory. With the exception of several mountain towns with growing second-home development and retirement migration, including Pinetop-Lakeside, Show Low, and Taylor, most of the state’s nonmetropolitan rural areas grew slowly, if at all, between 2000 and 2006.

Although rapid growth is expected in Safford, Thatcher, and other mining areas in Graham and Greenlee counties, former mining towns such as Clifton, Hayden, Duncan, and Winkelman lost population between 2000 and 2006, and Globe and Superior eked by with very small increases. Superior is planning for future growth as the outer margins of the Phoenix area move ever closer and new residential subdivisions like Superior Highlands begin to sprout. Superior sits along US-60, nestled between mountain peaks, surrounded by Forest Service land, 65 miles east of Phoenix. If, as predicted by a recent Morrison Institute report, the Superstition Vistas development fills in the territory between eastern Maricopa County and Superior, the town is ripe for exurban development. Superior was one of Arizona’s first towns to go wireless. It hopes to attract eco-tourists to hike trails along Queen Creek, bird watch, camp overnight, and explore the town’s historical landscape of copper mining. As urban-fringe boundaries expand across the state, new opportunities for economic development and growth are created in places like Superior, but they create new challenges, including problems of long-distance commuting, degradation of natural and historical landscapes, loss of the night sky, and loss of traditional identities that were based on “Old West” legacies.

Table 1.3
Median single-family residential lot size in Phoenix, 1900-2004.

Year	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
Lot Size sq ft	6500	6875	6875	7035	7453	7523	7544	8213	7809	6730	6547

Source: DCDC using records from the Maricopa County Assessor’s Office.

Population Density

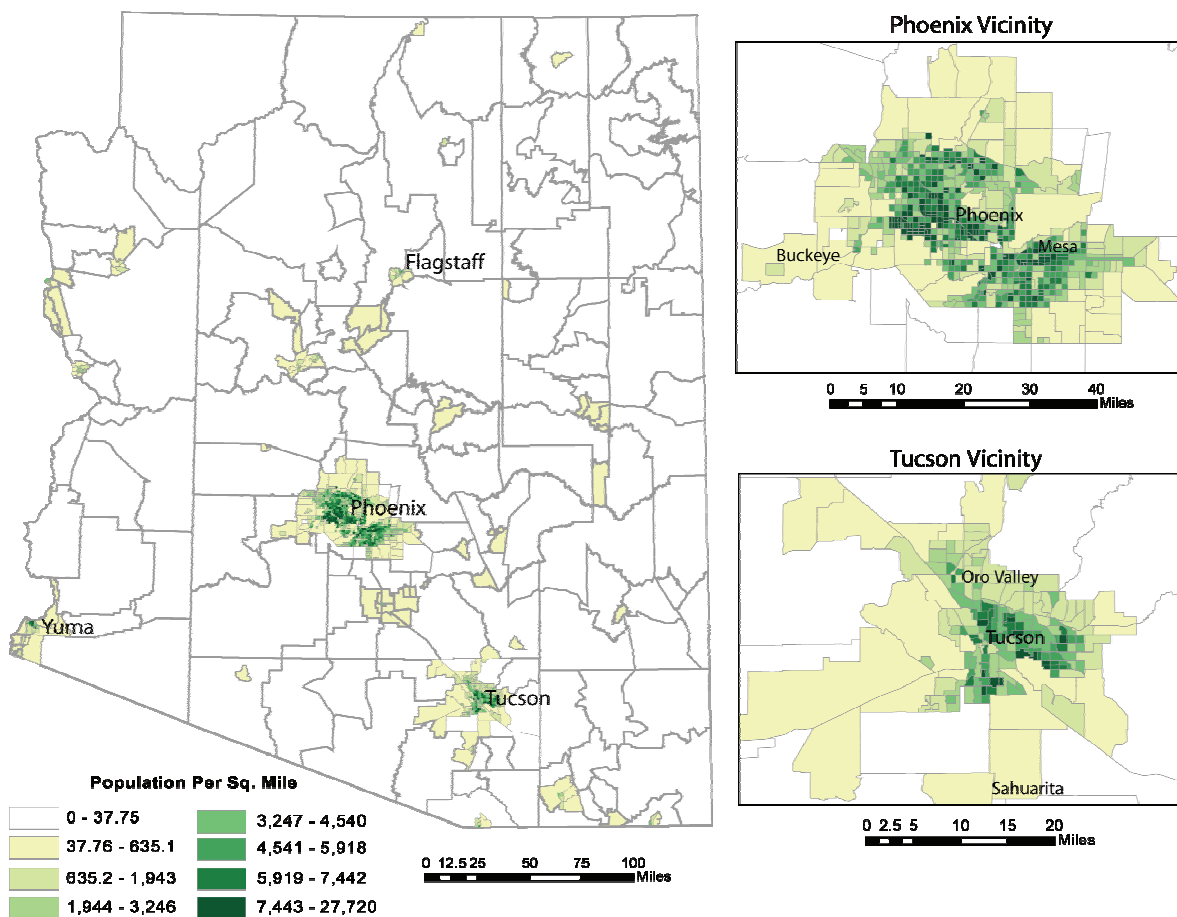
Despite the popular perception that growth in Arizona is dominated by very low-density construction, considerable growth is occurring at moderate-to-high densities. Upscale, high-rise residential towers are being developed in downtown Tempe and Phoenix and at Scottsdale’s Waterfront development. Most growth on the urban fringe of Phoenix is not the sort of one-home-per-acre development that occurs in the new areas of large American cities. This means that the population density in greater Phoenix is on a par with urbanized areas of comparable size. Its urbanized density of 3,638 persons per square mile is higher than that of Washington, DC (3,401), Philadelphia (2,861), Boston (2,323), Detroit (3,094), and Atlanta (1,783).¹⁵ This is because most new perimeter developments in Phoenix are built on the order of four to six units per acre, and include condominiums and other related forms of higher-density housing (Table 1.3). The population density in

TAKING STOCK: HOW MUCH GROWTH, WHERE AND WHEN

urbanized portions of Tucson (2,473), Flagstaff (1,758), and Yuma (2,531) is also in the moderate range for cities of their size (Figure 1.8). The problem of low-density development is not, in the main, an issue of the state's major cities, but it is a growing problem in rural Arizona where lot splits and so-called "wildcat subdivisions" epitomize the idea of sprawl as awkward, unregulated, and haphazard development.

Figure 1.8
Population density in Arizona, 2000.

2000 Population Density by Census Tract



Source: US Census Bureau.

Lot splits in unincorporated areas occur when landowners subdivide their properties and then sell off lots, often at a lower price than parcels in incorporated cities and towns that are subject to higher levels of regulation, guaranteed higher levels of services, and are closer to employment and other city amenities.

TAKING STOCK: HOW MUCH GROWTH, WHERE AND WHEN

Arizona law, like that of many states, allows a landowner to divide a rural lot and sell off the pieces without meeting local requirements for sidewalks, roads, sewers, and other improvements. Unlike other states, however, that allow counties some level of control over the lot-splitting process, Arizona law explicitly denies this authority to county officials. In 1994, the legislature gave counties the authority to review proposed lot splits for legal and physical access, floodplain hazard, and utility easements, and it increased the number of splits allowed in a single transaction from three to five. It's a classic western struggle between the responsibilities of government to regulate land use and maintain public safety and health, and the unfettered rights of individual property owners to do with their land as they see fit. Some residents and local officials criticize "wildcat subdivisions" for their shabby, helter-skelter appearance; dusty, unpaved roads; and the burdens that they impose on nearby landowners and the public at-large. Homeowners pay taxes at the unincorporated county rate, and those taxes often do not cover the costs of minimal services, such as police and fire protection and emergency medical services. The proliferation of septic systems can contaminate groundwater, and "exempt" wells outside the Groundwater Management Act of 1980's Active Management Areas can deplete groundwater and cause neighboring communities to have to dig deeper wells to maintain water supplies. These land divisions are by no means limited to isolated, rural Arizona. It is estimated that 40% of Pima County's new homes in 1999 were built on wildcat lots.¹⁶ Lot splits also occur in sizable numbers in Pinal, Yuma, Santa Cruz, and Yavapai Counties.

Growth and Land Development

Continued growth will consume a substantial amount of the state's land resources. If the state grows to DES's projected level of more than thirteen million people in 2050, it will take 2,367 square miles, roughly the size of Greenlee County, to accommodate the population at today's densities. This growth will not occur evenly across the landscape, but along corridors that will connect Phoenix and Tucson, Tucson and the Mexican border, Phoenix and Yuma, towns in the Verde Valley, and territory linking Ashfork and Kingman to Nevada, stretching north to Las Vegas. The pattern of development projected by MAG is dominated by rapidly growing urban regions stretching their tentacles to grasp more territory (Figure 1.9). Development patterns also will be influenced by the fact that a good deal of Arizona's land is owned by the federal and state governments and Native American tribes, and thus is largely not available for private development.

Land Ownership

Some 42% of Arizona's land base is owned and managed by the federal government through the US Forest Service and the Bureau of Land Management. Indian communities own another 28%. Several of these communities are directly adjacent to, or surrounded by, urbanized areas. Decisions they make about development can have profound ramifications for surrounding, privately-owned lands—an issue that will be covered in Chapter 6 of this report. Realistically, future development will occur on the 18% of land that is privately owned, and on the 13% that is managed by the state (Figure 1.10). State trust lands, the subject of Chapter 5, represent some of the most accessible lands for new residential development in the Phoenix, Tucson, and Verde Valley areas, and their management offers a crucial opportunity for the state to play a major role in shaping future development.

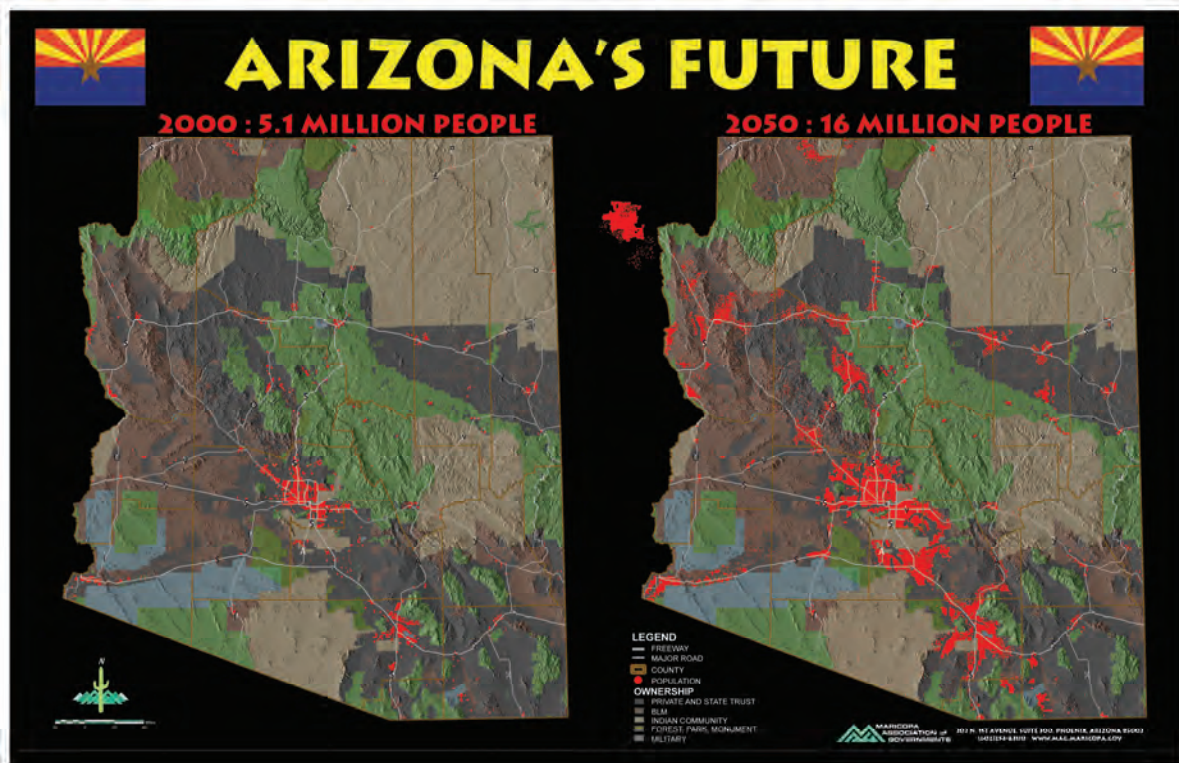
Entitlements and Development Areas

The horse is already out of the barn in terms of population growth because of the sheer amount of land that has been set aside for future development. Development areas are defined as parcels that are either planned or approved for future development. They are, in turn, divided into three types: active areas that are experiencing infrastructure development, entitlements that are not yet active but have gone through the planning process and have received official approval, and proposed areas that are at an early point in the

TAKING STOCK: HOW MUCH GROWTH, WHERE AND WHEN

planning process but have not yet received approval. In the six-county region, including Yavapai, Maricopa, Pinal, Pima, Santa Cruz, and Cochise Counties, which includes 35% of the state's land area and 86% of its 2000 population, the Maricopa Association of Governments (MAG) estimates that in early 2007, there were 1.6 million existing residential units, 0.7 million units under active development, and 1.2 million units that were entitled or planned, for a future total of 3.5 million housing units.¹⁷ Assuming an average of 2.6 persons per household, this area now has enough housing built, under construction, or planned to accommodate more than nine million residents. Thinking about this another way, there are as many housing units entitled, planned, or under construction today as there are in the current housing stock. Relevant planning-related questions are: (1) Do we have an adequate transportation infrastructure to accommodate the additional travel that will be generated by this future development? (2) How does this future development affect the demand for state trust lands? (3) How does state policy regarding state trust lands affect the pattern and type of development?

Figure 1.9
Future land use in Arizona.

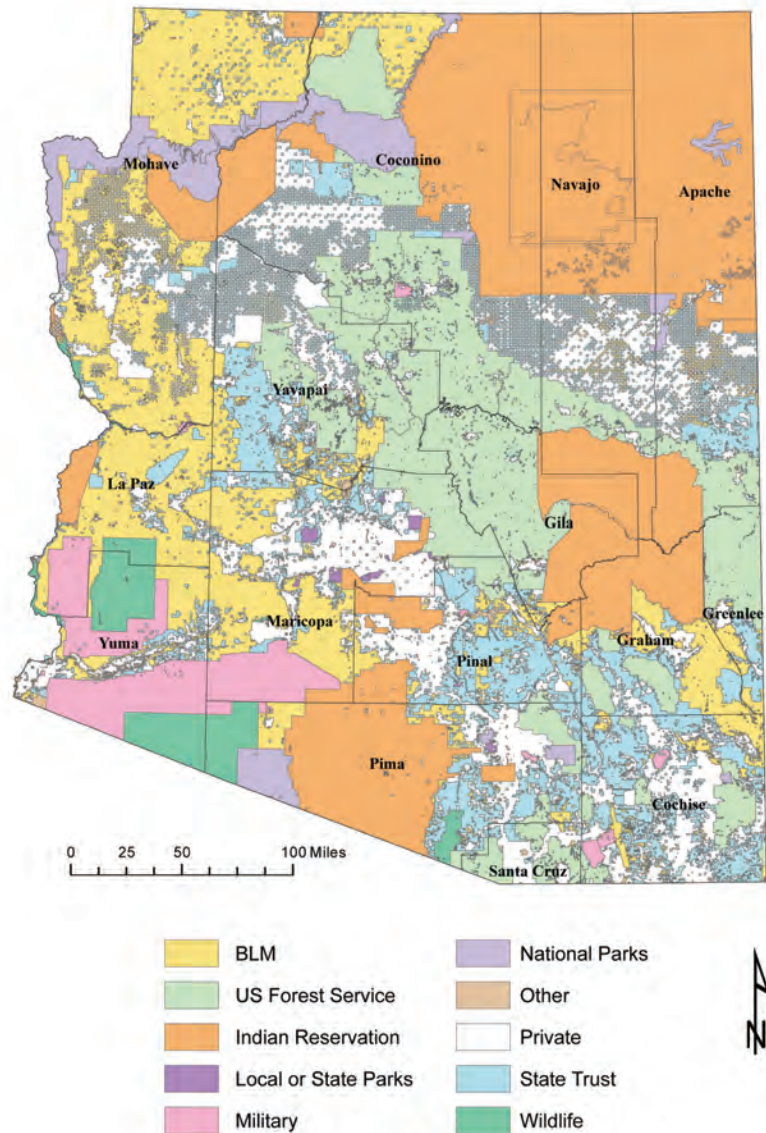


Source: Maricopa Association of Governments.

The critical challenge in Arizona is how to accommodate more than twice as many people in the state without compromising the features that attract new residents and keep current residents from moving elsewhere. These features have traditionally included the wide open spaces of the West, clean air and water, a glorious climate, breathtaking scenery, outdoor lifestyles, and the American Dream of an affordable single-

family home. With six million residents, the state largely has been able to deliver these features, and new migrants continue to flock to the state. Current development patterns, particularly those in rural areas adjacent to rapidly growing urban regions, may not be sustainable for a population of thirteen million, and serious choices must be made about how and where growth will proceed.

Figure 1.10
Land ownership in Arizona.
Arizona Land Ownership



Source: Arizona State Land Department, Arizona Land Resources Information System. Last updated June 2007.

Chapter 2

SMART GROWTH AND GROWING SMARTER IN ARIZONA

Jim Holway and Kristen Keener Busby¹

This chapter addresses two distinct though related topics. The first is Smart Growth, an approach to planning, growth management, and community design which is gaining attention throughout the US. The second involves the planning requirements and local growth management tools adopted as part of the Growing Smarter program in Arizona. We will describe the core ideas of the Smart Growth movement, identify what the Smart Growth movement has and has not achieved, and point to some lessons learned about Smart Growth based on the experiences of other states. In addition, we will describe background for the Growing Smarter and Growing Smarter Plus programs in Arizona, discuss how these programs have impacted planning in Arizona, and consider how they could be modified to improve our ability to manage growth.

The Smart Growth Movement

Smart Growth is an urban design and planning movement that seeks to manage urban growth in ways that: 1) enhance the quality of life for existing and future residents, 2) protect the natural environment, and 3) facilitate efficient and affordable provision of services, particularly transportation, to communities. The goal of Smart Growth is to change how and where a state grows, the mix of land uses within individual communities, and what the cities and towns, rural areas, and state as a whole will look like in the future. A principal strategy of Smart Growth is to alter both the location and type of development, in particular to redirect growth away from the expanding outer edges of urban areas back into downtown cores and other already developed areas. For example, the City of Phoenix is planning for 40,000 new households in its downtown core, an eightfold increase over the existing 5,000 households. Additional new growth may be directed into already developed areas as higher-density infill and redevelopment. Even under Smart Growth principles, growth in many parts of the nation will continue outward from the urban edge, though perhaps at a lower rate and with a more efficient pattern which might include a better jobs-housing balance, more accessible public transit, and more walkable neighborhoods. Smart Growth principles can be implemented in rapidly growing rural areas and small cities if adequate resources are in place for local governments and businesses to manage and service this growth. In addition to the location and type of development, Smart Growth efforts often address the distribution of the costs of growth among government, developers, homeowners, and others. The various Smart Growth strategies for redirecting growth have been categorized as:

1. Controlling outward movement through growth controls,
2. Inner-area revitalization,
3. Design innovations (attractive and functional centers, cultural exchange, integrated living and working environments, etc.),
4. Land and natural resources protection, and
5. Transportation re-orientation.²

SMART GROWTH AND GROWING SMARTER IN ARIZONA

Smart Growth advocates argue that there is a unique opportunity in the US today to redirect some growth to urban cores because growing numbers of empty nesters (couples whose grown children have left the family home), young professionals, and immigrants from throughout the world are looking for urban-living opportunities.³ Although young families and others continue to search for the larger lots, affordable housing, better schools, and other family-oriented amenities of outer suburbs, demographic change is producing an increasing number of new residents who value urban living in city cores.

Smart Growth Principles & Implementation

The International City Managers Association (ICMA) describes Smart Growth as, “a connection between development and quality of life; the leveraging of new growth to improve the community; the restoration of center cities and older suburbs; and a method of preserving open space and other environmental entities.”⁴ The box below lists specific principles typically cited as components of Smart Growth.⁵

Smart Growth Principles

- Mix land uses
- Take advantage of compact building design
- Create a range of housing opportunities and choices
- Create walkable neighborhoods
- Foster distinctive, attractive communities with a strong sense of place
- Preserve open space, farmland, natural beauty, and critical environmental areas
- Strengthen and direct development towards existing communities
- Provide a variety of transportation choices
- Make development decisions predictable, fair, and cost-effective
- Encourage community and stakeholder collaboration in development decisions

Typically these principles are implemented through a series of four steps: (1) enactment of state legislation establishing the program, (2) preparation of comprehensive plans by local governments, (3) review of local plans by a state agency, and (4) provision of state incentives and disincentives to encourage compliance.⁶

The Evolution of Planning and Smart Growth Approaches

While “Smart Growth” is sometimes viewed as a new approach to urban planning, it really is the product of a long evolution of planning and local land-use regulation in the US. The responsibility for growth management, and land-use planning more generally, was left to the states by the US Constitution. Historically, the states delegated this authority to local governments. The roots of local land-use regulation can be traced back to the early 1900’s Standard Zoning Enabling Act drafted by the US Department of Commerce in the 1920’s, upheld by the US Supreme Court in 1926, and adopted by states throughout the country, including Arizona. Major milestones in the continuing evolution of local, state, and federal urban planning included the development of new towns, first in the 1930’s and later in the 1960’s and 1970’s; experience with urban renewal in the 1950’s and 1960’s; and the federal and state environmental initiatives of the 1960’s and 1970’s. Finally, in the mid-to-late 1960’s, states started to review laws and ordinances dealing with planning and land-use controls. Views on

SMART GROWTH AND GROWING SMARTER IN ARIZONA

the role of government and how humans relate to the natural environment evolved significantly over this fifty-year period. Public debate moved from viewing the environment as a resource to be exploited; to deciding whether or not to protect sensitive areas; to concerns about protecting environmentally sensitive areas, open space and farmland; and finally, how best to balance an environmental protection imperative with other needs while maintaining a high quality of life.

Since the late 1960's, increasing state engagement in local planning and growth has occurred in three phases.⁷ First, in the 1960's and 1970's, a quiet revolution in land-use controls based on environmental concerns was led by Hawaii, Vermont, Florida, and Oregon. The second phase, from the mid 1980's to early 1990's, involved increasingly comprehensive planning and growth management. Efforts moved beyond environmental issues and gave attention to the provision of infrastructure, housing, economic development, community character, and quality of life. Planning mandates were still a major feature, but a focus on inter-jurisdictional cooperation was added. The states of New Jersey, Maine, Rhode Island, Georgia, and Washington became more active during this phase. The third phase, known as the Smart Growth Movement, started in the early 1990's. Maryland, Delaware, Tennessee, and Pennsylvania initially adopted Smart Growth programs. During this phase, emphasis has been placed upon the power of government to shape growth and the ability of state funding incentives to discourage sprawl.

How Is Smart Growth Different?

The goals of new urbanism (a community design philosophy that favors new-home features such as prominent front porches and backyard garages; multi-use buildings; and housing clustered near commercial service areas) and sustainable development (defined as balancing the fulfillment of human needs with the protection of the natural environment so that these needs can be met for future generations) are complementary to the philosophy of Smart Growth. Smart Growth (as well as new urbanism and sustainable development) differs from earlier planning methods in the types of programs proposed, the roles for different levels of government, and the extent of public involvement, as illustrated in the box below. Citizen advocacy has played a significant role in supporting statewide Smart Growth programs, including the 1,000 "Friends" organizations established to provide citizen advocacy and support for the implementation of state programs.⁸

Smart Growth – Innovations from Traditional Planning⁹

- Greater understanding and attention to the connections between the quality of community in the urban core and pressure for suburban growth
- Integration of transportation and land-use policy
- Institutional reforms that establish a stronger role for state and regional government and restrain state activities that favor sprawl
- Incentives for implementation in the sense that there are more carrots and fewer sticks, as well as a focus on innovative policy instruments that go beyond traditional planning, zoning, and subdivision ordinances
- Broader public support, including stronger community advocacy for Smart Growth and federal support

Smart Growth Lessons from Elsewhere

A number of states and regions throughout the country have developed and implemented Smart Growth approaches. We cannot provide a comprehensive examination of these efforts, but we can offer several observations and conclusions based on literature reviews.¹⁰

Envision Utah is often cited as an exemplary effort to develop a future-growth vision through an extensive public participation process.¹¹ Such a visioning process is typically the first step in developing an effective growth-management program.

Among the various statewide Smart Growth efforts, the State of Maryland is probably the most widely cited and studied of the recent efforts.¹² Maryland's 1992 Economic Growth, Resource Protection, and Planning Act established six visions for the state and required local-government comprehensive plans to incorporate these visions and to review plans every six years. The 1992 Act also allowed local governments to utilize state funds in projects only if they were consistent with the local plan. In addition, the state committed to fund only public works projects that were consistent with the local plan.

Maryland's Smart Growth Areas Act of 1997 built on the planning requirements and visions established by earlier legislation dating back to 1974. First, and most significant, was the requirement for counties to designate Priority Funding Areas (PFAs). PFAs are locally certified areas that are either already developed or in which growth is planned and infrastructure will not be sufficient for the growth. State subsidies for infrastructure (roads, water, sewer, etc.) are available only within PFAs. The Act also included a Rural Legacy Program that provides state funding to protect valuable farmland and natural areas threatened by development. Other initiatives adopted by the 1997 act included a voluntary cleanup and brownfields (former industrial sites) program, a job-creation tax credit, a live-near-your-work program, and a neighborhood-partnership tax-credit program.

Maryland's basic approach was to establish a series of state visions and local planning mandates and to rely principally upon financial and other incentives to accomplish the visions. A key component was to preserve the autonomy of Maryland's traditionally strong county governments. One advantage Maryland had in establishing its program was that an Office of State Planning already existed, and the multiple new activities initiated were spread throughout existing state agencies; hence, no new bureaucracy and no major new funding were necessary, and buy-in was obtained from existing agencies.¹³

One recent evaluation of the State of Maryland's program made a number of observations about the state's success so far in redirecting growth towards a more compact, less sprawling urban pattern.¹⁴ Significant spending for infrastructure still occurs outside of the designated priority funding areas, both from the state continuing to fund infrastructure maintenance and repairs, and from local government expenditures. Maryland's incentives for infrastructure investment within the priority funding areas were found to have a marginal impact on continued sprawl and were inadequate to reverse the long-term trends toward continued sprawl. The state is investing resources in purchasing open-space land and protecting farmland outside of the priority funding areas, but there was little evidence that local governments were actively encouraging growth inside of the priority funding areas.

What Has the Smart Growth Movement Achieved?

The Smart Growth movement has been credited with some successes in managing growth and quality of life, often attributed to the widespread support for its principles.¹⁵ Smart Growth has received commitments from national organizations representing various interest groups and professional associations, including planning, health, environmental, education, civic, economic development, local and state government associations; the

SMART GROWTH AND GROWING SMARTER IN ARIZONA

Urban Land Institute; and the National Association of Home Builders. Although the goals of Smart Growth programs are easy to agree on, the difficulty lies in determining how best to achieve them. The development community typically favors clear and predictable development regulations, and timely provision of infrastructure to serve new growth areas, while environmental groups advocate for protection of natural resources and mandates for local planning, or even growth boundaries.

Limitations and Criticisms of Smart Growth

Four sets of factors have limited the effectiveness of Smart Growth efforts.¹⁶ First, although programs have emerged from all levels of government, they have not been widely adopted by any one level of government. The US Environmental Protection Agency continues to promote Smart Growth, but the overall federal commitment is limited. Additionally, even in states committed to Smart Growth, more funding is provided in support of sprawl than for infill development. At the local level, only a few governments have adopted Smart Growth programs.

Second, there is a lack of vertical and horizontal consistency across governments where Smart Growth programs are adopted. Even in states requiring growth management, only three of the twelve (in 2000) mandated consistency between local, regional, and state programs, and in those three states there was very little attention given to requiring consistency across adjoining jurisdictions. Effective Smart Growth coordination would require local plans to be in synch with regional plans, for those to be consistent with the state program, and for local areas to be compatible with one another. Generally, this is not occurring.

Third, there is a lack of specific tools for Smart Growth, and the rewards for implementing Smart Growth programs are often inadequate to motivate compliance.

Fourth, market forces continue to favor sprawl. Within many of the urban areas, automobile commuting appears to be growing stronger and the demand for large houses is increasing faster than demand for small houses. A separate study that examined neighborhoods in five regions, including Maricopa County, Arizona, provided evidence that single-family lot sizes were down but house sizes were increasing, and although internal connectivity within subdivisions was improving, external connectivity to the community and pedestrian accessibility to commercial services were lower.¹⁷

Critics of Smart Growth argue that it does not reflect consumer preferences, infringes on freedom, increases traffic congestion and air pollution, reduces housing affordability, results in undesired high density, increases public service costs, requires wasteful transit subsidies, and can cause unintended consequences.¹⁸ Critics also assert that Smart Growth advocates exaggerate both the costs of sprawl and the benefits of Smart Growth. Some critics contend that automobiles are the most efficient mode of transportation and that the economic benefits of farmland preservation are not sufficient justification for restricting the size of urban areas. Smart Growth advocates acknowledge some of the criticisms as legitimate, but note that others result from an incomplete understanding of Smart Growth, and in fact highlight the need to implement additional growth management efforts.

Arizona's Growing Smarter and Growing Smarter Plus Programs

Arizona has been striving for over a decade to improve management of fast-paced growth while preserving diverse open spaces and quality of life. State legislation adopted in 1973 required cities and towns to adopt general plans, and counties to develop comprehensive plans. However, growth rates significantly increased in the 1990's, making it increasingly clear that more tools were needed to enhance local planning and growth management.¹⁹

SMART GROWTH AND GROWING SMARTER IN ARIZONA

The Arizona Preserve Initiative was one of the first tools put into place to preserve state trust land in and around urban areas. (This program and the difficulties in implementing it will be discussed in Chapter 5.) However, it was the landmark 1998 Growing Smarter and 2000 Growing Smarter Plus Acts that significantly modified how Arizona cities, towns, and counties plan. These legislative acts, as well as the ongoing evolution of Arizona's efforts, have been influenced by the Smart Growth ideas and programs described in the first half of this chapter.

The 1998 Act added four new elements to the general and comprehensive plans of large or fast-growing communities and counties: "Open Space," "Growth Areas," "Environmental Planning," and "Cost of Development." The 2000 Act followed with a "Water Resources" element. In addition, several previously required elements were clarified and strengthened. The 2007 legislative session added a new element for cities and towns over 50,000 and counties over 125,000, "Energy Planning" that identifies policies to encourage energy efficiency and greater use of renewable energy. Table 2.1 describes the content of the principal Growing Smarter elements, and Figure 2.1 illustrates what elements must be included, based upon the size and growth rate of individual communities. The cornerstone of Growing Smarter is the requirement for public participation. The governing body of each jurisdiction must adopt written procedures for effective public participation to guide the development, updating, and amendment of its general and comprehensive plans (hereafter referred to simply as "plans," unless we are specifically referring to just the comprehensive or just the general plan). In addition, large (greater than 10,000 population) or fast-growing (greater than 2% per year) cities and towns must obtain voter approval of their general plans at least every ten years. Arizona is the only state to require public votes on local land-use plans, and this unique requirement, though adding costs and time to the planning process, has been credited with increasing citizen participation in long-range planning. Three communities had their general plans fail at the ballot in 2002 and 2003, but with slight modifications all were successfully ratified the second time around.

Additional requirements are triggered by changes to the plans. Plan amendments have to be identified as major or minor, and major amendments—those requiring a substantial alteration of the local jurisdiction's land use-mixture—must be specifically defined by each jurisdiction. In order to assess the cumulative impacts of proposed major amendments, all such changes can only be heard at a local, special public hearing that occurs only once a year.

Growing Smarter also sought to strengthen the connection between the plan and local land-use changes, such as would result from approval of a new housing development or shopping center. Prior to Growing Smarter, zoning (local laws specifying the type of use allowed on a piece of land) had only to be in basic harmony with local plans. Now all changes in zoning must conform strictly to the approved plan, such that incompatible zoning changes cannot be made without first changing the plan. Some experts agree that this has greatly increased the importance of the plans in the development process. Others feel that it has only led to simultaneous zoning and general-plan changes in many communities and has not had the intended effect.²¹

Table 2.1
Growing smarter general and comprehensive plan elements.²⁰

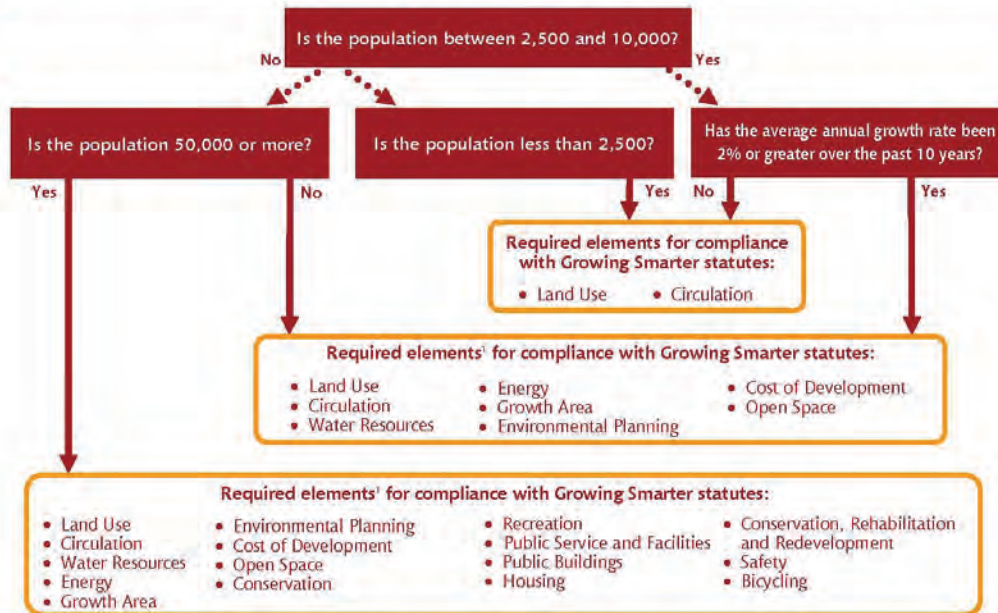
Elements	Requirements
Land Use	<ul style="list-style-type: none"> • Designates proposed distribution, location, extent of land uses • Includes standards of population density and building intensity • Identifies programs and policies to promote infill or compact-form development • Considers air quality and access to incident solar energy • Includes a broad variety of land uses
Circulation	<ul style="list-style-type: none"> • Designates the location and extent of existing and proposed freeways, arterial and collector streets, bicycle routes, and other transportation routes • Correlates with the land-use element
Open Space	<ul style="list-style-type: none"> • Includes a comprehensive inventory of open-space areas, recreational resources, and designations of access points • Analyzes forecasted needs, policies for managing and protecting open space, implementation strategies to acquire additional areas • Creates policies and strategies to promote a regional system of integrated open space
Growth Areas	<ul style="list-style-type: none"> • Identifies areas suitable for multimodal transportation and infrastructure expansion to support a planned concentration of uses • Creates policies and strategies to make circulation more efficient and infrastructure expansion more economical • Conserves natural resources in the growth area • Promotes timely infrastructure expansion through funding and planning that are coordinated with development activity
Environmental Planning	<ul style="list-style-type: none"> • Analyzes anticipated air quality, water quality, and effects on natural resources likely to result from proposed development
Cost of Development	<ul style="list-style-type: none"> • Identifies policies and strategies that require developers to pay their fair share of the cost of additional public services • Identifies mechanisms that can finance additional public services, including bonding, special taxing districts, development fees, in lieu fees, facility construction, dedication, and service privatization • Creates policies to ensure that mechanisms result in benefits to the development and bear a reasonable relationship to the burden of providing additional necessary public services
Water Resources	<ul style="list-style-type: none"> • Addresses the known legally and physically available surface water, groundwater, and effluent supplies • Addresses the demand for water resulting from future projected growth, added to existing uses • Analyzes how projected future growth will be adequately served by available supplies, or creates a plan to obtain additional necessary supplies
Energy Planning	<ul style="list-style-type: none"> • Identifies policies that provide incentives for efficient use of energy • Identifies policies and practices that provide for greater uses of renewable energy sources

Source: Arizona Revised Statutes § 9-461.05 and 11-821, <http://www.azleg.gov/ArizonaRevisedStatutes>.

SMART GROWTH AND GROWING SMARTER IN ARIZONA

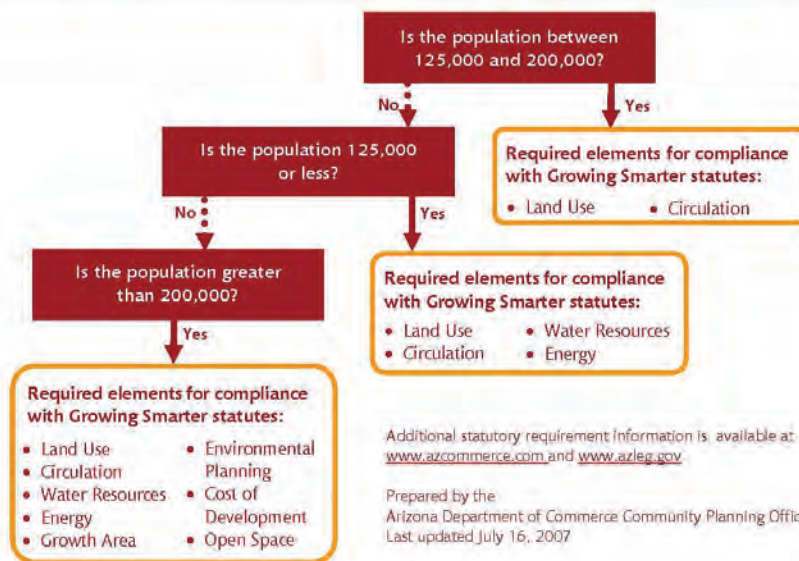
Figure 2.1
Required elements for general and comprehensive plans.

GROWING SMARTER STATUTES FOR CITIES & TOWNS — GENERAL PLAN ELEMENTS



¹ The legislative body shall submit each new adopted General Plan to the voters for ratification at an election. If a majority of the voters fail to approve the new plan, the current plan remains in effect until a new plan is approved. See A.R.S. §9-461.05(L).

GROWING SMARTER STATUTES FOR COUNTIES — COMPREHENSIVE PLAN ELEMENTS



Additional statutory requirement information is available at www.azcommerce.com and www.azleg.gov.

Prepared by the Arizona Department of Commerce Community Planning Office
 Last updated July 16, 2007

Source: Arizona Department of Commerce Community Planning Office.

SMART GROWTH AND GROWING SMARTER IN ARIZONA

Other highlights of the changes enacted by Arizona's Growing Smarter legislation include:

- Unless there is landowner permission, private property cannot be designated as open space, conservation, recreation, or agriculture, including state trust land, in plans without the underlying allowance of at least one residential unit per acre in the plan or zoning ordinance.
- Cities and counties are authorized to designate service-area boundaries beyond which the extension of publicly financed services and infrastructure, such as water, sewer, and street improvements, are not provided at public expense.
- Counties are authorized to impose development fees to offset capital costs for water, sewer, streets, parks, and public safety facilities, as long as a capital-improvement plan has been adopted (cities and towns already had this authority).
- Counties are authorized to enter into development agreements (cities and towns already had this authority).
- Counties are authorized to form voluntary rural-planning areas to encourage traditional rural and agricultural enterprises.
- Cities are authorized to create infill-incentive districts and plans that include expedited-process incentives.

Growing Smarter required the plans to be finalized by 2002 or 2003, depending upon the size of the jurisdiction. Most communities and counties in Arizona developed or updated their plans in accordance with the requirements, except for a few towns under 2,500 in population that were exempt from the deadlines and have lacked the necessary resources to prepare a plan.

Growing Smarter requires plans to be updated at least every ten years; however, some local jurisdictions are already engaging in plan updates now in order to deal with increased growth pressures, new development trends, and changing circumstances.

Growing Smarter Oversight Council

Governor Jane Hull established the Growing Smarter Oversight Council (GSOC) by Executive Order in early 2001 to help ensure that Arizona would have the tools necessary to manage growth. In 2004, Governor Janet Napolitano requested that the GSOC initiate a statewide conversation on growth and develop a set of guiding principles to help Arizona, "not just grow, but reach for the next level in developing quality growth." The GSOC held a series of eighteen listening sessions around the state during 2005 and asked Arizonans: 1) how the state was growing, 2) what their ideal community would be like, and 3) how we would measure our progress towards such a community. The GSOC adopted a detailed set of guiding principles, including observations from the public input and recommendations to facilitate implementation. Table 2.2 summarizes the six guiding principles.²²

Governor's Growth Cabinet

In late 2006 Governor Janet Napolitano asked agency directors who deal with growth issues to convene a "Growth Cabinet." The Smart Growth Executive Order (2007-05) established the Growth Cabinet to ensure that all agencies of the state government work together on critical growth issues. The Executive Order charged the

Growth Cabinet to develop and implement a Smart Growth plan that: 1) integrates land-use and infrastructure planning, 2) considers the effects of growth upon natural resources and wildlife, and 3) directs future state discretionary funding toward communities and counties undertaking Smart Growth practices.

Table 2.2
Growing Smarter guiding principles

Responsibility and Accountability

State and local governments should assume responsibility for oversight of the community development toward long-term growth. The expectation of the property owner is key to successful outcomes, but the overall welfare of the community is the guiding principle in planning, revenue sharing and development.

Preservation of Community Character

Citizens should be encouraged to participate in creating a vision for the future of their community based on their desires, the history of their area and the character of the region. This would form a base for planning decisions that reflect a strong “sense of place.”

Stewardship

Maintaining clean air and water are absolute for preserving the quality of life for future generations. Just as critical are natural areas, wildlife protection, and allowances for sufficient open space.

Opportunity

Arizona communities of the future should assure the availability of a range of choice in housing, employment, education and other essential services. Development plans must incorporate the need for school sites and recreation facilities in conjunction with housing.

Infrastructure

Smart planning means taking into account a community’s long-range needs for transportation, water, sewer, power, communications, and public facilities. Partnerships among public and private entities will ensure the cost of all amenities is borne equally.

Economic Development

A healthy statewide economy will include contributions from a variety of economically strong sectors. Contribution and cooperation on regional levels is essential to building a diverse business climate that encourages financial growth for individuals and the community.

Source: Arizona Department of Commerce.

The Governor’s Growth Cabinet has met monthly over the past year to discuss the opportunities and challenges facing Arizona relative to our rapid growth, and has held listening sessions with a number of interest groups and experts to evaluate their recommendations, including recommendations from previous Arizona Town Halls. The Growth Cabinet is focusing on: 1) initiating a statewide visioning process for growth and development; 2) developing a mechanism to invest scarce state resources wisely and “incentivize” investments in smart growth; 3) developing a statewide, multi-modal transportation plan; 4) making State trust lands an integral part of the state’s growth strategy; and 5) creating state-agency partnerships with local, county, and Tribal governments, as well as private sector partners, to support local capacity for improving development decisions.

Evaluating Arizona's Growing Smarter Programs

The authors held two small focus-group discussions on Arizona's Growing Smarter programs. These conversations included a developer, city and county planners, and a member of a conservation organization. It also involved some of the original architects of Arizona's Growing Smarter legislation. We asked three questions to focus these expert practitioners' assessments of Growing Smarter.²³ A few of the most significant observations of the group are listed below.

In what specific ways have the Growing Smarter And Growing Smarter Plus requirements strengthened or weakened planning and growth management in Arizona?

- The effectiveness of the comprehensive and general plans (hereafter referred to as "plans") depended upon the efforts put into them by the individual cities, towns, and counties.
- Growing Smarter didn't weaken Arizona's planning because the system was already very feeble.
- The requirement to prepare a plan and the assistance provided to some smaller communities raised the quality of long-range planning in Arizona.
- One of the most significant changes was that zoning now has to be in "strict conformance" with the plan, rather than meeting the previous standard of "basic harmony." This has greatly increased the importance of the plans, at least for changes that qualify as major amendments.
- Some of the required plan elements were not integrated into the entire plan, or perhaps not used as intended, in particular the growth area, cost of development, open space, and environmental elements. For example, in most plans the environmental element was entirely separate from, and at times even in conflict with, the other elements.
- Local jurisdictions have gotten much better at planning the location, density, and quality of new development, but they still do not do very well at managing the impacts of the growth. Jurisdictions also have difficulty balancing the relative proportionality between land uses, such as residential and employment.

What, if any, changes do you believe are needed in Arizona's Growing Smarter programs to ensure effective growth management in Arizona?

- More consistency across jurisdictions on the distinction between major (which can only be approved once per year) and minor amendments to the plan is necessary. Some participants supported a minimum standard on what constitutes a major amendment. Some questioned whether it would be more appropriate for the plan amendments, rather than the related zoning changes, to be subject to citizen initiative to refer them to the ballot.
- More effort should be made to look at interrelationships between the different elements.
- More effort should be made to look beyond local boundaries and coordinate the plans of separate jurisdictions. Guidance should be given to address projects of regional significance, and on mechanisms to coordinate procedural activities, such as hearings and amendments, across boundaries. Consider requiring a consultation process between neighboring jurisdictions prior to adoption of their plans.

SMART GROWTH AND GROWING SMARTER IN ARIZONA

- Plans should include a visioning process and element, as well as an implementation or strategic-action element with specific steps to be taken.
- Affordable housing needs more attention.
- More use could be made of the growth-area element and the infill-incentive provisions of Growing Smarter to encourage growth in desired locations and to link this element to local capital-investment plans.
- The land-use element and the associated general-plan map could incorporate a phasing of growth or timing of land-use change component, and this could also be linked to the capital-investment plan.
- Perhaps smaller communities on the urban edge that are growing extremely quickly and becoming part of the metropolitan community should face the same planning requirements as large cities, if state resources are available to assist them.
- Promote best practices of the rural-planning-area provisions (i.e., Diablo Canyon in Coconino County) to help rural areas focus regional open-space and ranchland efforts.

What are the major challenges Arizona will face concerning the use of our land in times of burgeoning growth?

- Local jurisdictions need to work together regionally and develop mechanisms to cooperate at their boundaries.
- Local governments need additional tools, and authorization to use them, to effectively manage their high rates of growth. Specific tools identified included:
 - Multi-jurisdictional transfer of development rights
 - Tax increment financing
 - Form-based zoning
 - Counties need the authority to effectively manage wildcat subdivisions
- The state needs additional authority and resources for the management and planning of state trust lands. Some components of state trust land reform were part of the original Growing Smarter legislation. Participants suggested particular critical reforms including:
 - Mechanisms for joint planning between the State Land Department and local jurisdictions
 - Providing the State Land Department with the authority to enter into participation agreements on State trust lands being developed
 - Allowing the set-aside of utility and transportation rights-of-way on State trust land
 - Providing authority for land exchanges between State trust land and federal lands

SMART GROWTH AND GROWING SMARTER IN ARIZONA

The Sonoran Institute, an Arizona-based conservation and environmental organization, reviewed the plans for all Arizona communities and concluded that “the plans predicted and considered issues related to continued growth, but failed to provide robust policies for directing such growth in a desirable pattern.”²⁴

Smart Growth Recommendations

The literature reviewed on Smart Growth efforts elsewhere provides several recommendations for building effective Smart Growth programs that may be relevant to future efforts in Arizona.²⁵ First, we must recognize that different regions require different approaches. While some areas may wish to manage growth, other regions are merely hoping they will manage to grow. Second, it is important to recognize and balance different types of community needs. Strip-type shopping districts that are easily accessible to automobiles may be the most efficient way to provide certain services, while downtown civic spaces accessed by walking or public transportation will serve other functions. Third, mixing different approaches can build stronger programs. Effective programs can combine top-down, state-level programs, such as those adopted in Hawaii, with bottom-up locally controlled programs, such as are emphasized in the state of Washington. Effective efforts balance mandates (sticks) with incentives (carrots) that provide more flexibility and discretion to allow local governments to decide which tools they need. One potentially unique aspect of growth in Arizona is the role of master-planned communities. Much of the growth on the urban edges of metropolitan areas occurs in master-planned communities designed for tens of thousands of residents. Although local government may set basic guidelines for these developments and require infrastructure to connect communities, clearly much of the design and planning of whole communities is occurring entirely under the control of one master-planning developer.

Fourth, market incentives can be effective, but they must be large enough to change the economic environment in which decisions are being made; otherwise, they simply provide a subsidy for actions that would have been taken anyway. Fifth, Smart Growth advocates need to articulate rationales that will resonate with local constituents. For example, the argument that we are running out of open space may not be effective in rural areas. Efforts should focus on providing options for alternative community designs, but not on promoting particular lifestyles or advocating that one residential design is better than another. Sixth, Smart Growth efforts would benefit from incorporating indicators that provide timely feedback on local conditions, plans, and regulations. And finally, broader support and impact can be gained by strengthening connections between effective growth-management approaches and social justice concerns, in order to gain additional support for Smart Growth and to address problems of community, race, education, and affordable housing.

SMART GROWTH AND GROWING SMARTER IN ARIZONA

Chapter 3

LAND-USE REGULATION

Edgar Ramírez De la Cruz

Multiple policies, ordinances, and mandates implemented by local governments in Arizona determine what people can do with their land. Local governments employ these regulations to achieve a variety of goals. Land-use regulations have direct implications for community goals such as increasing property values, protecting environmental resources, constructing affordable housing, and improving the quality and provision of public services infrastructure. Land-use regulations also have indirect implications for community goals, such as economic development and the fiscal capacity of local jurisdictions (see Chapter 8). This chapter describes land-use regulations adopted by local governments in Arizona, which were identified through a survey completed by representatives of cities and counties throughout the state. In addition, the chapter discusses the regulatory framework for annexations in Arizona that allows municipalities to expand their regulatory power over new territories. Finally, the chapter examines the impacts of local political institutions and interest groups on land-use regulation.

Principles and Goals of Land-Use Regulation

Originally, land-use regulation had a narrow objective: separating land uses to reduce the conflict caused by incompatible activities, such as heavy industrial production adjacent to residences. Over the years, communities requested that local governments intervene to achieve new goals, including protecting the environment and cultural heritage, providing housing for all income levels, and achieving the desired density of residents. More recently, tools of land-use regulation have been used as mechanisms to sustain economic growth by helping to finance new infrastructure and by increasing the mix and flexibility of land use.

In order to better understand land-use regulations in Arizona, regulations were classified according to the various goals pursued by communities: 1) ensuring a desirable physical separation of land uses, 2) preserving the cultural environment, 3) stimulating construction of affordable housing and urban redevelopment projects, or, 4) promoting economic growth. It is possible that a regulation may facilitate one objective while hampering another, or contribute simultaneously to two goals. We simplify the analysis by classifying regulations only according to the policy to which they contribute the most. How often these regulations are adopted was determined by a survey of fifty-five participants representing fifty municipalities and five counties throughout Arizona, conducted June 5-27, 2007.

Physical Separation of Land Uses

Extensive regulation of land use in America began following the industrial revolution of the late 19th century. Bigger, denser cities created a need for building regulations because of the risk of fire and structural collapse. As existing patterns of settlement began to change, factories started sprouting up near existing residential areas. So, beginning in the early 20th century, cities began passing regulations designed to separate land uses and avoid future complaints. These early zoning ordinances were usually designed to recognize existing land-use patterns. Later, rapidly growing cities began to “zone” undeveloped areas in an effort to direct future growth. By 1920, many of America’s large cities were extensively using regulations dividing cities into zones which separated industrial, commercial, and residential uses.

LAND-USE REGULATION

Because the states are the basic units of governmental power in America, cities have only the power delegated to them by state government. In 1922, the US Department of Commerce promulgated *The Standard Zoning Enabling Act*, which became the template for nearly all early state statutes permitting zoning. In 1926, in *Village of Euclid v. Ambler Realty Co.*, the US Supreme Court held zoning to be a constitutional use of the police power. Arizona adopted its first state zoning enabling act in 1925. The statute was patterned on the standard enabling act. Most of the statute remains intact today. Arizona cities first began using zoning in 1926. Like most places in the US, in Arizona the use of zoning preceded any requirement that cities engage in long-range planning.

The original notion of zoning involved a set of relatively inflexible rules. Cities would be divided into areas separating not only uses, but densities. Apartments should not be mixed with single-family homes. Homes on large lots should be separated from homes on smaller lots. Euclidean zoning, named after the original case, operated from the presumption that detached single-family homes deserved the most protection. The protection of such homes from encroachment by apartments, shopping areas, offices, or industrial uses was the principal point of regulation. Within each zone, detailed regulations spelled out the exact uses that would be permitted and mandated development standards such as building height, lot coverage, and setbacks from lot lines.

Since their original inception, zoning ordinances have grown in complexity, flexibility and specificity. For example, most cities in Arizona now have various forms of planned-unit development ordinances. Instead of imposing rigid rules on every lot, these flexible mechanisms allow a property owner or developer to design an area to cluster densities, aggregate open space, create common areas and vary the underlying regulations. In exchange for such greater flexibility, the municipality is much more involved in approving every aspect of the development, including aesthetic design, unit sizes, etc.

Preservation of the Cultural Environment

As communities and counties grow, they may adopt land-use regulations to preserve the heritage, culture, and values that distinguish them from other communities and make an attractive environment for residents. Figure 3.1 presents the most common regulations adopted by municipalities in Arizona. Some land-use regulations have a direct effect on how cities grow and only an indirect effect on preservation of existing cultural environment. More than 90% of jurisdictions whose representatives responded to the survey have adopted sign ordinances, and 67% have an adult-entertainment ordinance. Instruments such as landmark-preservation and historical-district ordinances that explicitly target the preservation of culture and history are less common in the state. Fewer than 10% of local governments have adopted ordinances for protecting cultural resources, landmarks, or cultural features, although there appears to be considerable interest in these instruments, as evidenced by the number of respondents who indicated that their cities are seeking them. Despite the rich cultural history of Arizona cities and towns, only 37% have regulations that explicitly regulate historic districts.

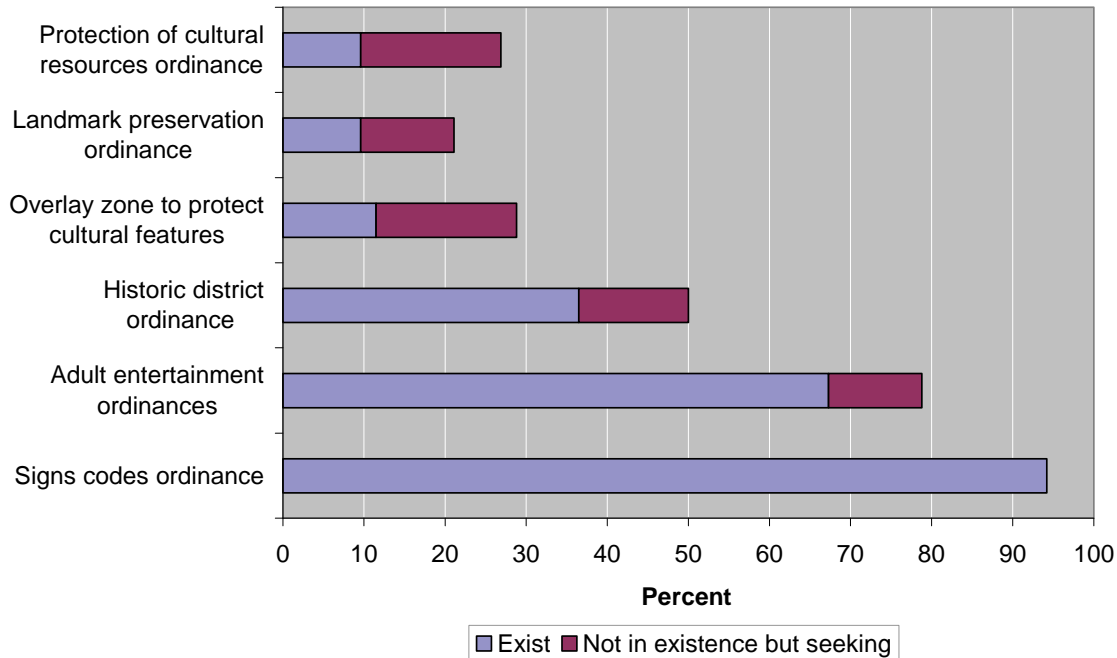
Construction of Affordable Housing and Redevelopment

In a free-market economy, regulations should ensure that consumers have access to the market if they have the financial resources to enter it. However, the housing market has special features due, in part, to high rates of domestic and international migration (see Chapter 1). An influx of migrants increases the population of young adults, many of whom have not yet accumulated, or will be unable to accumulate, the financial resources necessary for home ownership. According to the US Census Bureau, 33% of Arizona homeowners spend 30% or more of their household incomes on housing; the state ranks 16th highest in the percentage of people burdened by housing costs among US states.¹ Obstacles to home ownership represent a dilemma for regulators and are often the basis for the implementation of policies that foster construction of affordable housing.

LAND-USE REGULATION

Figure 3.1

Percent of local governments with land-use regulations for protection of culture and history, by type of regulation



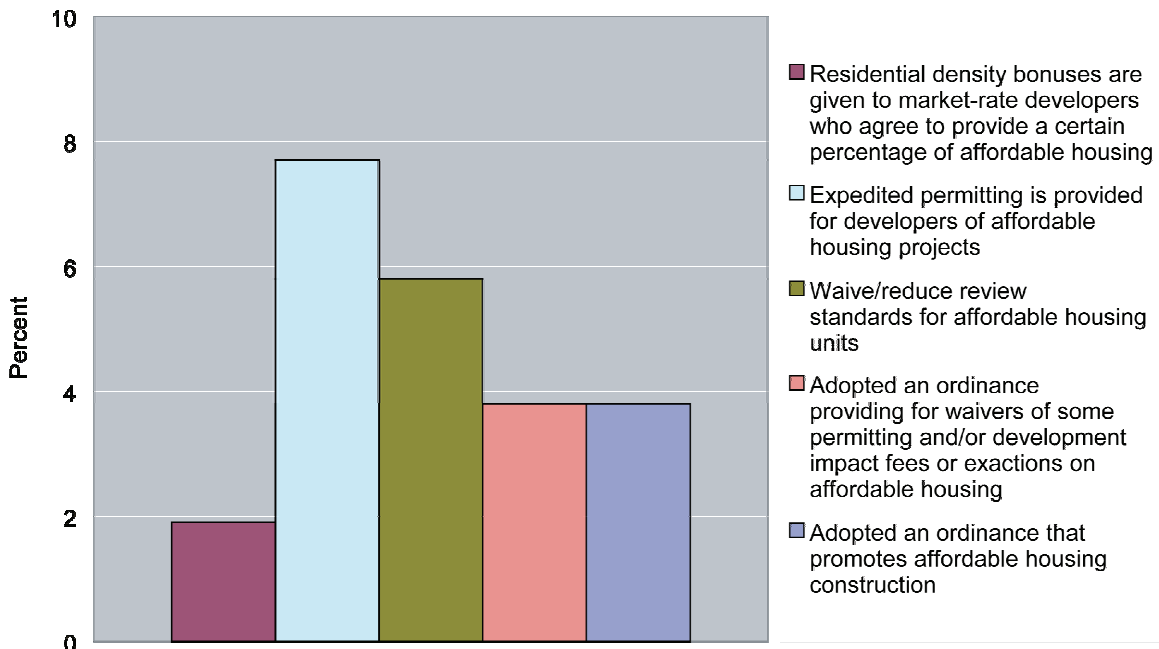
Source: Survey conducted by the author.

Land-use regulations can make housing more affordable for all income levels in many ways. Common mechanisms include reducing the share of public-infrastructure costs paid by new home buyers, minimizing regulatory delays for developers in exchange for quotas of affordable housing in new developments, increasing densities, and facilitating redevelopment of old areas of a city. Subdivision regulations may require developers to provide costly infrastructure improvements and other neighborhood amenities before lots are subdivided and sold; such costs are transferred to home buyers through increased housing prices. Costs related to infrastructure can be reduced through density bonuses that permit more units of construction in exchange for revitalization of particular sections of the city or construction of affordable housing. Local governments may also waive fees and other financial obligations or expedite parts of the permitting process for builders who contribute to the stock of affordable housing.

According to survey respondents, few local governments in Arizona have actively promoted the construction of affordable housing within their jurisdictions. Figure 3.2 shows that some of the most commonly used regulations in the United States have been adopted by fewer than 10% of Arizona's municipalities. More common in Arizona are regulations that restrict access, such as the large-lot zoning implemented by 60% of the respondents' communities, and age-restricted zoning, implemented by 10%.

Figure 3.2

Percent of local governments with adopted land-use regulations and policies to increase the supply of affordable housing, by type of program



Source: Survey conducted by the author.

The ethics of land-use regulation aim to achieve a minimum level of quality of life for all groups in the community, and to prevent segregation of minorities and low-income families. Redevelopment and revitalization policies are used to prevent the formation of low-income ghettos that reinforce the cycle of poverty. Just over 38% of respondents reported that their communities have adopted improvement districts intended to revitalize neighborhoods, about 23% have redevelopment ordinances, and only slightly more than 15% have implemented urban renewal policies (Figure 3.3). While these regulations are not yet common in Arizona municipalities, each is being pursued by about 20% of the respondents' cities, suggesting an increasing use of these regulations in the future.

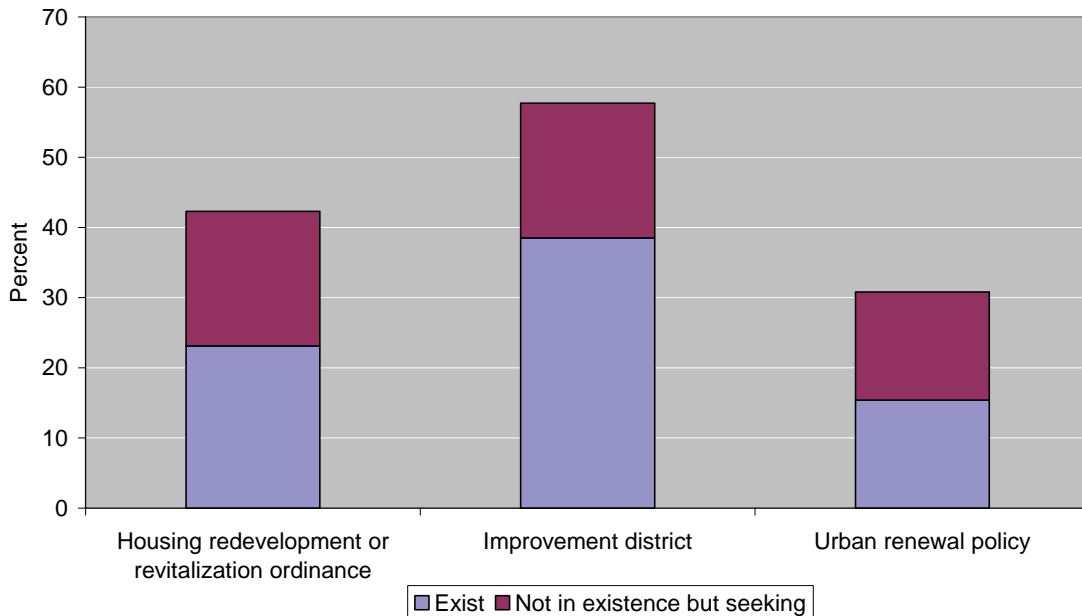
Preservation of the Environment

In California, Oregon, Washington, Florida, Massachusetts, and Maine, municipalities have actively worked to protect environmentally sensitive land and wildlife, as well as land for agricultural and recreational purposes. These are less profitable land uses, and therefore, are unlikely to be undertaken without government intervention. Arizona entitles local governments to actively protect the environment through zoning ordinances; however, not all communities adopt these types of regulations. There is a wide range of adoption rates for land-preservation policies, depending upon the particular regulation (Figure 3.4). Survey results demonstrate that a majority of communities have adopted light-pollution ordinances (67%) and floodplain zoning (54%); also popular are open-space zoning regulations (46%). Fewer than 10% of municipalities have explicit ordinances to protect wildlife or air quality; purchase of development rights, or conserve agricultural or range land.

LAND-USE REGULATION

Figure 3.3

Percent of local governments with land-use regulations that can increase problems of affordable housing, by type.



Source: Survey conducted by the author.

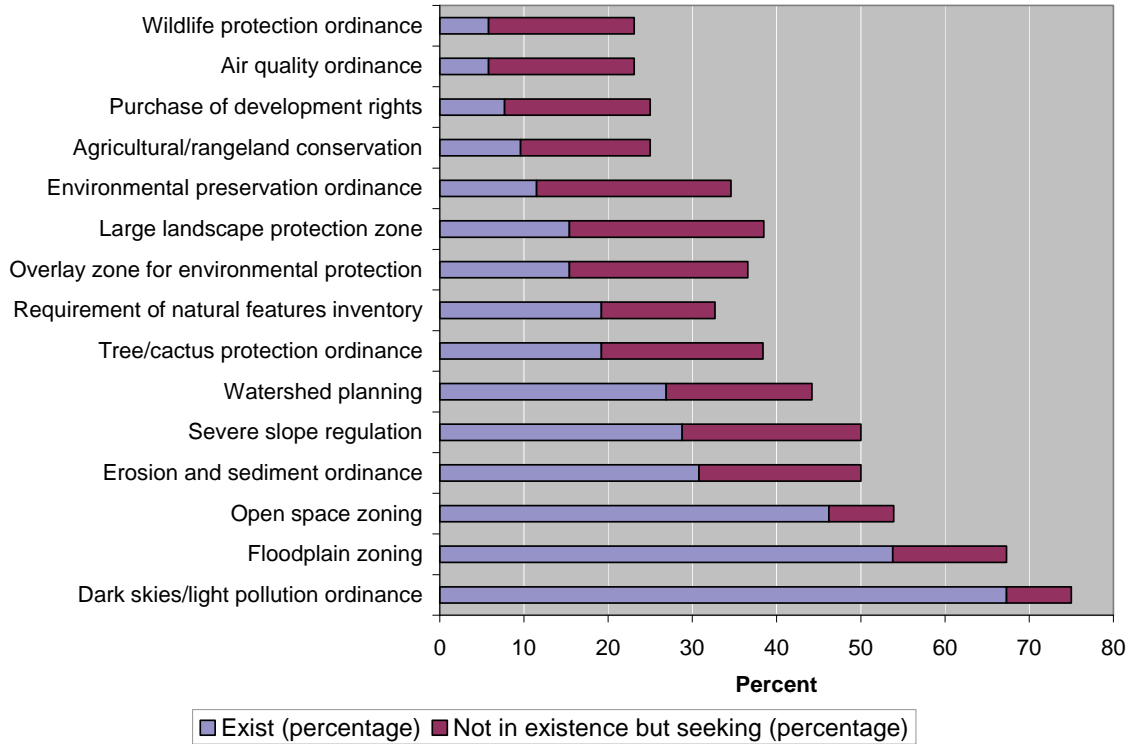
Rezoning, Variances, and Other Special Uses

When a proposed development does not meet one or more zoning requirements, a developer can either seek rezoning or apply for a variance. Under Arizona case law, all rezoning decisions are considered legislative. This is not the case in many states. Some states treat rezonings as quasi-judicial, with amendments to a general plan considered legislative. Other states distinguish between small and large zoning cases. The result of the Arizona rule is that rezoning cases are subject to political influence by both developers and citizen activists, and all rezoning cases are subject to local referendum, which can result in a public vote. High-growth cities in Maricopa County, for example, consider dozens of rezoning cases every year. Such cases result in extensive review by the professional planning staff, which issues a lengthy staff recommendation, and are then heard by the planning commission, which makes a recommendation to the city council after a public hearing. Rezoning decisions are also subject to legal protest by immediately adjacent neighbors, and if protested, can require a three-quarters vote of the legislative body in order to be approved. More than 80% of rezoning requests are approved while 76% of land-use map changes are approved.

LAND-USE REGULATION

Figure 3.4

Percent of local governments with land-use regulations for environmental protection.



Source: Survey conducted by the author.

Arizona cities consider a much higher volume of rezoning cases than do municipalities in many other states. Some of this is because the high growth rates in Arizona often overwhelm existing city zoning regulations. But in part, this is a cultural expectation in Arizona: our populist traditions and high level of citizen participation create an expectation that growth and development decisions should be made in a relatively free-wheeling political environment. A consequence, however, is that a community’s long-range general plan and citywide considerations are only a part of a development approval. Often just as important are what kind of promises have been made to adjacent neighbors and how attractive the designs for the development seem. Rezoning cases are also subject to the imposition of conditions of approval. Such conditions are heavily negotiated between developers and city staff, and are reviewed in detail by the planning commission and city council. These conditions may run into pages and pages of additional regulations imposed on a particular project to insure that it develops in the way the community expected.

Variations deal only with physical development standards and not with land use. In this practice, Arizona and most of the western US are different than the eastern part of the country. In Arizona, it is incorrect to say “they got a zoning variance to build a shopping center there.” Variations are granted only to deal with such things as setbacks, building heights and lot coverage. Variations are also not generally given out by city councils. They are considered quasi-judicial actions and approved by a Board of Adjustment. The quasi-judicial nature of these

LAND-USE REGULATION

decisions means that variances are held to relatively strict standards concerning hardship imposed on an individual property owner. Quasi-judicial decisions do not allow lobbying, with the ruling highly dependent on a formal hearing. Such decisions are also not subject to referendum. Conditional uses or use permits are widely employed by cities and counties in Arizona. They are sometimes approved by the Board of Adjustment and sometimes by the City Council and County Board of Supervisors. Their specific use varies widely from one jurisdiction to another. More than 82% of variances and conditional uses requested are approved in the municipalities represented by the survey respondents.

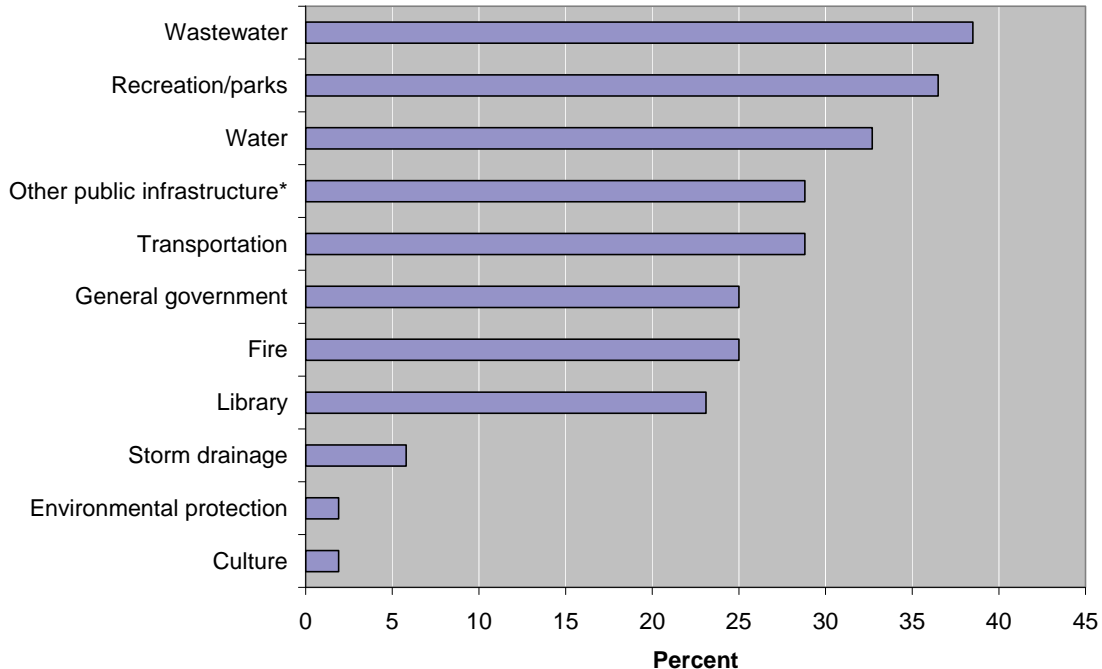
Today, Arizona land-use regulation is complex, sophisticated, and extensive. It is also more political and more ad hoc in character than in many other states. The original use of zoning regulation to segregate land uses largely has been supplanted by a system that solicits extensive community input on individual projects and reviews such projects to insure overall character and quality.

Financing Infrastructure and Adopting Flexible Land Uses

Financing growth has become a key issue for the nation's local governments in recent years, and Arizona is no exception. The cost of infrastructure such as roads, sidewalks, sewerage, parks, schools, and public facilities, once financed by local governments through tax revenue, is increasingly diverted to developers. Local governments may regulate the use of land to ensure an acceptable level of services and a high standard of living.

Figure 3.5

Percent of local governments with impact fees charged, by type of service.



* In addition to water, wastewater, drainage or transportation, some local governments also have fees for public works, sanitation, public buildings, roads, and street that do not fit accurately in any of the other categories.

Source: Survey conducted by the author.

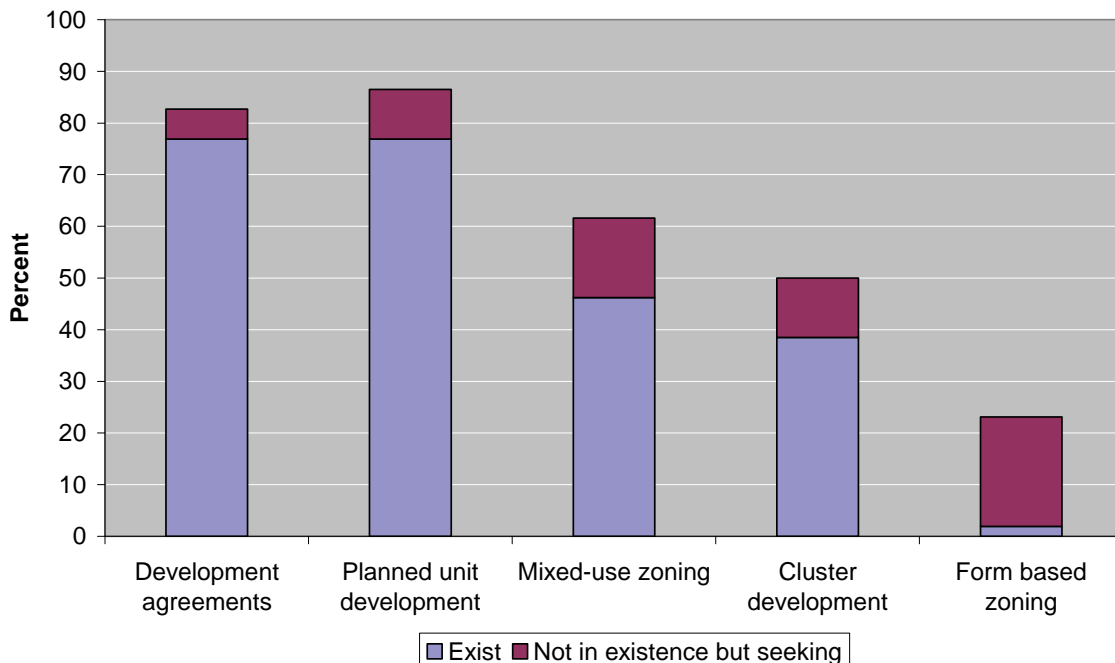
LAND-USE REGULATION

By the mid-1980s, approximately 60% of US localities had imposed some kind of development or impact fees.² Fast-growing states like Arizona tend to make greater use of such fee policies. Approximately 60% of Arizona municipalities charge impact fees, and most of the remaining 40% are considering the adoption of such fees. Figure 3.5 presents the most common services for which impact fees are charged, and the percentages of local governments in Arizona that charge them.

In recent years some Arizona communities have adopted sophisticated, innovative, and flexible land-use regulations to foster communities which mix both residential and non-residential uses. Old ideas about the need to physically separate land uses are giving way to the idea that a greater mix reduces the need for transportation and creates benefits from complementary land uses. These regulations address the impact of development on a community, rather than on assigning a specific land use to a particular area. Figure 3.6 shows that such regulations are very popular among Arizona's local governments. Almost 77% of local jurisdictions have implemented regulations for planned-unit developments, which provide more flexibility in design and allow more creative combinations of land uses. Approximately 46% of local governments allow mixed-use zoning and cluster developments, which permit the construction of dense neighborhoods and the preservation of characteristics unique to the land developed. A popular instrument promoted by the planning movement known as "new urbanism" is form-based zoning that controls primarily by physical form (size, shape, setback, etc.), and secondarily by land use. Such an instrument exists in only one of the municipalities surveyed. However, more than 21% of local governments are interested in adopting this kind of zoning.

Figure 3.6

Percent of municipalities with land-use regulation for multiple purposes by instrument.



Source: Survey conducted by the author.

Annexation

Annexation is the most common process by which a city can expand its jurisdiction over land use. In Arizona, there is one state statute regarding annexation, but it is implemented in different ways.³ In Pima County, development of unincorporated areas has historically tended to precede annexation. The main supporters of annexation there are municipal authorities, developers, and businesses. Municipal authorities frequently see annexation as a mechanism that allows them to expand their tax base, as well as their capacity for future growth. Developers and builders may support annexation if it will supply public services and infrastructure to the land on which they want to build. In the case of Pima County, the primary opponents of annexation are homeowners who prefer to purchase public services in a “cafeteria style” from other suppliers, such as special districts, private companies, counties, or even adjacent cities. When annexed to an existing municipality, homeowners are required to purchase through increased taxes the standard package of services that a city supplies to all residents. In Maricopa County, annexation tends to precede development. Developers seek annexations as a way to secure water and other infrastructure for new developments. The strength of the development industry in Maricopa County ensures that approximately 90% of new developments occur within municipalities.

In the US, states establish the institutional framework for annexation, either restricting or facilitating annexations. Policies that restrict annexation generally add layers of reviews, including impact assessments, intended to ensure that annexations will actually achieve a public benefit or purpose. Restrictive annexation prevents cities from annexing only financially attractive areas, such as wealthy areas with potential shopping centers and high sales tax revenue.

Table 3.1 lists the most common regulations used to restrict and facilitate annexations in the US.⁴ In parentheses is the number of states that have adopted each component in some way. The notation “AZ” identifies whether Arizona includes the particular component as a part of its annexation process. It is assumed that a more comprehensive set of annexation laws (including multiple components) indicates a commitment to integral land-use planning and long-term growth strategy. Arizona has implemented five of nine provisions restricting annexation while employing two of eight provisions facilitating annexations.

An integral framework for annexation contributes to a regional and more comprehensive perspective for land-use regulation, regardless of the particular process of annexation in the area. In the end, we must acknowledge that no municipality or county is self-sufficient. In terms of land use, local jurisdictions complement one another. Competition based on attracting the most profitable land uses may deemphasize the need for policies to protect certain groups, such as low income families.

Role of Interest Groups in Land-Use Regulation

Development interests often have the upper hand in local politics because they obtain direct benefits for pro-development land-use regulations and are well organized.⁵ However, other groups, such as community activists, can often organize diffuse public interests and affect local decisions, even in the presence of strong pro-development coalitions.

Local agencies are perceived as more responsive to citizens’ demands from powerful interest groups, particularly when they contribute to a city’s economic growth.⁶ Local governments compete with each other to improve their economic well-being by attracting residents who pay higher taxes and firms that could promote their interests. As a result, firms and residents who promote economic growth have a strong influence on local governments. Economic and development interests have a substantial interest in land-use decisions, because land-use policy has consequences for private risk and return on investments and productive activities. Like other business interests, development interests are often well organized and financed, making them strong candidates to

LAND-USE REGULATION

become powerful articulators of political demand. In rapidly growing states like Arizona, development and construction interests are particularly influential with regard to land-use regulations, due to the size and value of the industry.

Table 3.1
Regulations used to restrict and facilitate annexations.

Regulations used to restrict and facilitate annexations	
Restrictive Regulations	Facilitative Regulations
Judicial review (42) AZ	Annexation through local resolution (46)
Independent review body required (14)	Property owner initiation (46) AZ
Referendum and majority approval in city required (20)	Special annexation of unincorporated islands (27)
Referendum and majority approval in area to be annexed required (33) AZ	Special annexation of municipally owned land outside city boundaries (26)
Public hearings required (44) AZ	Cross-county annexation permitted (20) AZ
Plans for providing or expanding services required (40) AZ	Noncontiguous annexation permitted (16)
Approval of county authority (24)	Special annexation for health and safety concerns (8)
Law pertaining to unincorporated islands (27) AZ	Legislatively initiated annexation (7)
Reports of financial impacts (revenue/expenditures) required (8)	

Source: Survey results as compiled by the author.

The tourism industry is concerned with balancing the various goals of land-use regulations. Tourism services have an interest in maintaining the quality of life in a community, since degradation of services such as traffic and congestion of public parks and recreation areas may discourage visitors. However, the tourism industry also understands that anti-growth regulations may impede the construction of new attractions, facilities, hotels, and services for visitors.

Other interest groups commonly concerned about the adoption of land-use regulations are environmentalist groups. Some local environmentalist groups are unorganized, as in the case of citizens who worry about urban sprawl. Others like the Sierra Club are well organized to support the protection of environmentally sensitive lands and promote growth management.

“Not in My Backyard” (NIMBY) groups are mainly interested in preventing locally unwanted uses. One form of NIMBY group is the homeowner association. These associations often have financial resources; they represent a homogeneous population with similar perspectives, and they are well organized for preventing locally unwanted land uses. As a result, they are quite effective in protecting the interests of their members. Homeowner associations often advocate for growth controls because new developments would compete for existing public services and limit property values.

Role of Local Political Institutions in Land-Use Regulation

Political institutions are important for understanding why certain land-use regulations are adopted in a municipality. They affect the ability of interest groups to achieve their demands and the motivation of elected officials and administrators to supply policies. Generally, the interest groups described in the previous section demand from local authorities land-use regulations that foster local economic changes, protect the environment, or preserve cultural heritage. In return for political support, many elected officials supply land-use policies that benefit different social interests. District-based elections in a community tend to favor NIMBY groups organized to resist specific unwanted land uses, facilitating the adoption of their preferred regimes.

The structure of the executive branch can also explain the willingness of communities to impose various regulations on land use. In Arizona, approximately 78% of municipalities have adopted a Council-Manager form of government.⁷ In addition, 98% of municipalities have appointed chief-executive administrators or city managers. The predominance of public managers in Arizona suggests their potential importance as growth-management leaders, because they are isolated from political pressures and frequently have a professional perspective on planning. In America, almost 60% of city managers hold a master's degree in fields such as public and business administration or public policy, which grants them a certain degree of authority to execute their job.⁸ Managers' preferences are shaped by the norms of professional planning associations and public administration schools, which stress the importance of growth management as a way to resolve tensions among conflicting goals and interest groups. In America, professional managers have been linked to successful promotion of efficiency in the administration of city affairs and economic development.

In addition to the form of government, the nature of the election process (district versus at-large) shapes land-use regulations. District elections reduce the cost of representing territorial interests, particularly NIMBY interests. District-based elections also can make council members more responsive to environmental concerns about growth and development. In contrast, representatives elected at large serve a citywide constituency and are more likely to think in terms of the entire jurisdiction, disregarding territorial interests. At-large elections force council members to respond to a broader set of political interests than those found in a single district. For this reason they are more likely to respond to well-organized interests, which can provide instrumental political resources than to territorially based interests. In Arizona, only 6% of municipalities elect all council members by district elections while the majority of municipalities elect all members in at-large elections.⁹

Direct democracy takes the form of citizens who are directly involved in public decision making through the voting process, without the mediation of elected representatives. Recent research reveals that when local policies are made through direct-democracy institutions, they tend to better balance multiple municipal goals.¹⁰ Arizona required provisions for referendum, recall, and initiative upon becoming a state in 1912. The adoption of these provisions in Arizona lowers the costs for interest groups that oppose locally unwanted uses, as compared to costs for such groups in other states without these provisions.

Political institutions provide for participation of citizens in bodies such as citizens' commissions that have either advising or decision-making power; this may amplify the voice of groups that are not necessarily linked to pro-growth interests. In fact, most political institutions that facilitate citizen participation in any stage of the policy-making process promote growth management to the extent to which they allow the inclusion of voices that may dissent with exclusively pro-growth interests. Such institutions are effective in providing a more comprehensive idea of a community's desires.

Citizens' commissions or boards can serve in different capacities. The most common capacity of such boards is as an advisory group in the policy-making process. Nearly 100% of municipalities in Arizona have commissions with such a capacity, compared to 86% in California and 75% for the nation as a whole. The

LAND-USE REGULATION

capacity of such groups to actually make policy decisions is less common. In Arizona, no more than 35% of municipalities grant such power to citizens' commissions. The percentage in Arizona is similar to that in the rest of the nation.

Final Considerations

Communities need to consider all of the goals that can be accomplished by land-use regulation to deal adequately with rapid growth. It is the responsibility and authority of local governments to address such goals as an integral part of the regulatory process. Political institutions that allow collective decision making with participation from groups that represent a cross-section of the community are more likely to consider a broad range of goals that can be pursued by land-use regulations. They encourage municipalities to be as inclusive as possible in their decision-making process and in the implementation of local policies. Adequate growth management for rapidly growing communities should avoid the domination of single interests in regulating land use.

Institutions that generate a regional perspective tend to be effective in managing rapid growth. Inter-local cooperation and coordination are necessary to avoid unintended effects of growth. For example, in order to deal with the regional effects of large developments, Florida has divided the state into regions and has established a regional council for each. In each region, Florida has authorized a Regional Planning Councils (RPC) to serve as an intermediate reviewing agency in conjunction with the state agency.¹¹ Arizona might consider a similar institutional arrangement that allows for the identification of developments that may have regional impacts and facilitates coordination to manage them. Although the Arizona Council of Governments can play an important role in providing planning assistance, policy making, and coordination within regional communities, they do not have authority in approving developments that may affect more than a single jurisdiction. Regional perspectives on land-use regulation help to avoid the negative impacts of incompatible neighboring land uses and to facilitate inter-local coordination and cooperation.

Chapter 4

PROPOSITION 207

Grady Gammage, Jr.

In the 2006 election, Arizona’s voters adopted what is arguably the most sweeping change in Arizona land-use law in the state’s history. Proposition 207 was billed as the Arizona Private Property Rights Protection Act. Most of the publicity surrounding the Proposition, and most of the campaign materials prepared by the ballot measure’s proponents, dealt with the Proposition’s restrictions on the use of eminent domain. That aspect of the Proposition garnered significant public scrutiny because of controversy over the US Supreme Court’s decision in *Kelo vs. New London*¹ and the Arizona Court of Appeals case involving Bailey’s Brake Shop in Mesa.² But in addition to revisions to change the aspects of the law of eminent domain, Prop 207 contained a far more dramatic change in Arizona law: a requirement that government must compensate for the negative financial impacts of land-use regulations on the value of private property. This chapter will examine the origins of Proposition 207, some specific provisions of the Proposition, and some of its immediate impacts.

Eminent Domain and Regulatory Takings

A property has been “condemned” or “taken” by the government when a parcel has been physically seized and ownership has been transferred to a city, state, or federal entity. The power of government to force such a transfer is called *eminent domain*. When this power is used, the private party losing his property is paid “just compensation,” which is ultimately determined, if necessary, by a court. Eminent domain is used frequently for building roads, acquiring school sites, or assembling property for a municipal convention center. The power dates back to English law and was specifically identified in the Fifth Amendment to the Constitution, which states: “nor shall private property be taken for public use without just compensation.” This phrase is known as the “takings clause.” Similar language appears in virtually all state constitutions, including Arizona’s.³

Zoning and land-use regulation is undertaken through a completely separate power of government known as the *police power*. Police power is the power to regulate society for the benefit of the health, safety, and welfare of the citizenry. It is the broadest and most general power of government, under which we establish police and fire departments, enforce building and health codes, and engage in all manner of general government regulation. Regulating the individual use of land by “zoning,” or designating on a map what uses are appropriate in a particular area, was recognized as a legitimate use of the police power by the US Supreme Court in 1926 in *Village of Euclid vs. Ambler Realty Company*.⁴

A *regulatory taking* is not about the physical seizure of property by the government. It is not, therefore, strictly speaking, the exercise of eminent domain. Rather, regulatory takings operate as a check or limit on the extent to which the police power can be used to regulate property. In one of the most legendary cases in all of American jurisprudence, Justice Oliver Wendall Holmes recognized—some say created—the doctrine of regulatory takings in *Pennsylvania Coal vs. Mahon*.⁵ There he said, “The general rule at least is, that while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking.” From *Pennsylvania Coal* forward, the line at which a regulation “goes too far” has often been difficult to understand, interpret, or predict. Over the ensuing eighty years, the US Supreme Court has often revisited the doctrine of regulatory takings but provided little concrete guidance on exactly when a regulation goes “too far.” Note, for example, that if a regulation specifically allows physical invasion of property by the government, compensation is

PROPOSITION 207

always due (*Loretto vs. Teleprompter*).⁶ We also know that if government regulation wipes out virtually all of the value of a piece of property, such regulation “goes too far” and compensation will be called for (*Lucas vs. South Carolina Coastal Council*).⁷ If a regulation prohibits any use of property, even temporarily, compensation is required (*First English Evangelical*).⁸ But apart from those relatively clear cut or “per se” taking situations, it is hard to figure out when compensation must be paid. Courts must engage in a balancing test, weighing the impact on a private property owner with the purported need for the government regulation. In doing so they must be particularly mindful of an individual property owner’s “investment backed expectations” in acquiring a piece of property. This famous, but hard to predict, balancing test was announced by the Supreme Court in the *Penn Central* decision which upheld the use of the police power to designate historic landmarks.⁹

Figure 4.1

Tempe Mission Palms.

The City of Tempe used eminent domain to assemble a large parcel for the hotel from numerous small users, including a funeral parlor, restaurant, food co-op, automobile body shop, and others.



Photograph courtesy of Nancy Jones.

Cases examining the takings clause generally have said that it is acceptable for government to change regulations as to a particular piece of property by, for example, lowering a height limit, increasing a setback, decreasing density, or requiring additional landscaping. All such actions would need to be analyzed under the

PROPOSITION 207

balancing test, but generally these and a host of other “downzonings,” or actions to decrease what someone can do with property, have generally been upheld without compensation.

In the early 1990’s, a number of proposals were made in state legislatures and in Congress to try and codify the doctrine of regulatory takings to make it more predictable and less ad hoc. One such measure was put on Arizona’s ballot by referendum petitions in the 1994 election. That proposal, known at the time as Prop 300, would have required a “takings impact analysis” by the Arizona Attorney General’s office before any new law or regulation could go into effect that would affect private property. It was passed by the legislature and was placed on the ballot as the result of petitions circulated primarily by environmental groups. Despite extensive early balloting indicating broad support for the measure, it was ultimately defeated at the polls by a 3-2 margin. Voters seemed persuaded that it would create a new and needless bureaucracy, and hamper adoption of needed environmental and safety regulations.

The Kelo and Bailey Cases

After the defeat of the 1994 ballot measure, the issue of regulatory takings seemed to move off of the front burner both in Arizona and on the national stage. Meanwhile, perceived abuses in the use of eminent domain—actual physical seizure of private property—was becoming more controversial.

Since the early 1950s, the power of eminent domain had been used in the US for “urban renewal.” Federal statutes justified urban renewal of areas in cities which were found to exhibit “slum or blighted conditions.” Eminent domain was used to condemn small, arguably obsolete properties and reassemble them for the redevelopment of inner-city areas. This use of the power of eminent domain included condemning private property for the purpose of slum and blight clearance. After the government acquired the property, it would subsequently transfer ownership to other private entities to build newer, nicer development. Such use of the power of eminent domain was approved by the US Supreme Court in the 1954 *Berman vs. Parker* decision.¹⁰

Various cities in Arizona made fairly widespread use of the power of eminent domain for urban redevelopment throughout the 1960’s and 70’s. Much of downtown Tempe was redeveloped using this mechanism. The areas around Good Samaritan Medical Center in Phoenix were similarly assembled and redeveloped.

Such use was always controversial, however. Many citizens opposed any use of eminent domain where property was subsequently put back into private hands. Such a program seemed susceptible to widespread abuse and favoritism toward one developer or property owner over another. To many, the takings clause limitation of eminent domain being permitted for “public use” does not include turning property over to other private ownership.

In 2001, the City of Mesa, in the cause of redeveloping its downtown area, began an eminent domain action against Bailey’s Brake Service, a longtime small business downtown operating an automobile garage. As part of a larger redevelopment plan, the City wanted to replace the brake shop with another private business, in this case an Ace Hardware store. Mr. Bailey sued, claiming that the use of eminent domain to transfer property from one private owner to another was in violation of the Arizona Constitution’s takings clause. Bailey’s case went to the Arizona Court of Appeals, which ruled in Bailey’s favor. The Court’s opinion created a new series of tests which would need to be met before eminent domain could be used in circumstances where the property was turned over to another private property owner.

In 2005, the US Supreme Court revisited this area of the law in a case called *Kelo vs. New London*, arising out of a condemnation in Connecticut. The situation in the *Kelo* case was different from the facts of the

PROPOSITION 207

Berman vs. Parker decision or the *Bailey vs. City of Mesa* decision. In *Kelo*, there had been no finding that the area in question constituted an area of slum or blight in need of redevelopment. Rather, in *Kelo*, a relatively middle-class, stable neighborhood was being condemned by the City for a higher economic purpose—a shopping mall and factory. The use of eminent domain was not justified by the need to “redevelop” an area, but rather by the “economic development” of a higher tax-generating use. The majority in *Kelo* found this use of eminent domain constitutional, but expressly invited state and local governments to impose restrictions through legislation.

Figure 4.2

Bailey’s Brake Service, located on the corner of Main and Country Club.



The photo on the right shows the gateway of downtown Mesa looking east from the intersection where the brake shop is located. The Arizona Court of Appeals disallowed the use of eminent domain by the City in an effort to convert the property to a new use.

Photographs courtesy of Nancy Jones.

In a dissent in *Kelo*, Justice Sandra Day O’Connor took the Court to task for allowing condemnation of private property simply so government could obtain more tax revenues from the alternative use: “Nothing is to prevent the State from replacing any Motel 6 with a Ritz-Carlton, any home with a shopping mall, or any farm with a factory.” The majority of the Court, however, disagreed and held that the use of eminent domain in this circumstance was acceptable.

Kelo set off a firestorm of protest throughout the United States. Conservative commentators were outraged by what was perceived as an extraordinary expansion of the government’s power to condemn and take private property. Many moderate legal scholars tended to side with Justice O’Connor, who felt that when eminent domain was used and the property taken turned over to a subsequent *private* owner, the power should be strictly limited to circumstances where the existing conditions of slum or blight justified the taking.

The 2006 Election

Kelo generated a tsunami of property-rights and eminent-domain measures on ballots in the 2006 election. No less than ten states had some form of eminent domain reform on their ballots. Many of these were in the west, where property rights resonate strongly with the electorate and where relatively liberal initiative laws make it easy

PROPOSITION 207

to place measures on ballots. California, Arizona, Nevada, Idaho, Oregon, and Washington each saw a ballot measure. Many of these were funded in varying degrees by a variety of national libertarian organizations. In Arizona's case, a libertarian New York real-estate developer named Howard Rich contributed more than \$1 million to the campaign through an organization called Americans for Limited Government.

Many of these measures, in addition to mandating eminent domain reform, included provisions dealing with the regulatory takings issue. In several states this inclusion ultimately proved detrimental to the measure. In Nevada, for example, including eminent domain and regulatory takings in the same measure was held to violate the State's constitutional restrictions limiting measures to a single subject.¹¹ In California and Idaho the inclusion of regulatory takings limitations in the measure became a major part of the campaign to defeat the proposition. Governor Schwarzenegger came out strongly against California's Proposition 90 and the measure failed by 52% to 47%. In Idaho, one of the most conservative states in the Union, Proposition 2 overwhelmingly failed, receiving only 25% of the vote. The opposition of a popular and conservative governor, as well as the awareness that the measure had been put on the ballot primarily by New York real estate interests, sank Proposition 2.

Arizona became the most prominent state to pass eminent domain legislation in 2006—by a wide margin of 65% to 35%. There were a number of reasons why Prop 207 passed handily. A major reason was the widespread publicity surrounding the Bailey Brake Shop case, and the sense that it represented an abuse which needed to be stopped. The reality was slightly different, since Randy Bailey actually won the case. Not only did the Arizona Court of Appeals impose significant new restrictions on eminent domain in the Bailey decision, the State Legislature subsequently enacted additional changes. In fact, most property rights advocates and commentators did not even see the actual eminent domain provisions of Prop 207 as being particularly meaningful.

There is significant anecdotal evidence since the election that many voters did not understand that Prop 207 had anything to do with zoning and land-use regulation, and thought they were voting only on an eminent domain measure. The campaign against Prop 207 got started late and was relatively under-funded. The largest contributions against 207 actually came from the real estate development industry, which feared that significantly changing the rules of real estate development regulation in Arizona would not be beneficial to the industry and would in fact make it harder to get new developments approved.

There was prominent editorial and columnist support for the regulatory takings provisions of Prop 207, however. Many commentators felt that government often had abused the scope of its power to regulate private property, with an excessive and negative impact on property rights. Arizona's popular governor, Janet Napolitano, opposed the measure but was not prominent in opposition.

The Provisions of Prop 207

Proposition 207 added a new Arizona statute, ARS§12-1134, which states: "If the existing rights to use, divide, sell or possess private real property are reduced by the enactment or applicability of any land-use law enacted after the date the property is transferred to the owner and such action reduces the fair market value of the property, the owner is entitled to just compensation from this State or the political subdivision of this State that enacted the land-use law."

This paragraph dramatically altered the rules in effect since zoning was invented and upheld by the US Supreme Court in the 1920s. Indeed, in *Pennsylvania Coal*, the famous case that first recognized the doctrine of regulatory takings, Justice Holmes observed: "Government could hardly go on if to some extent values incident to property could not be diminished without paying for every such change in the general law." Holmes was, in essence, restating the social compact. In an orderly society, each individual must surrender some measure of his

PROPOSITION 207

rights—he is *burdened* by those limits but *benefited* by limitations on others. It all works out, Holmes said, because an *average reciprocity of advantage* exists in the incidence of burdens and benefits.

Proposition 207’s language represents a repudiation of this principle, for it says that *whenever* government adopts regulations that *to any degree diminish* the value of private property, it must compensate for doing so. The fact that other regulations may increase the value of the same property, creating that “average reciprocity of advantage,” is no longer justification for any diminution. Adopting such a dramatic shift in substantive law is always fraught with complications and unintended consequences. This is especially true of initiatives, where the proposed language has not been put through the “sausage grinding” process of the legislature. Many provisions of Prop 207 raise questions of concern and ambiguity. In addition, since 1998, Arizona’s Voter Protection Act limits the power of the legislature to substantively change adopted voter initiatives, even to fix unintended consequences.¹²

Some of the particular provisions of Prop 207 include a lengthy list of exceptions. For example, one exception says that 207 does not apply to measures designed for the protection of the public’s health and safety, including rules and regulations relating to fire and building codes, health and sanitation, transportation or traffic control, solid or hazardous waste, or pollution control. Unclear in this exception is where normal zoning regulations fall. Those regulations are legally justified by the need to protect the public’s health and safety. One proponent of Prop 207 indicated in a televised debate that this section would exempt “normal zoning measures.” In most other discussions, however, measures designed to limit density, height, or lot coverage have been viewed as being attackable under Prop 207.

Other exemptions include any regulations required by federal law, or any which are codifications of common-law nuisance rules (dubbed “background principles” by Justice Scalia in the *Lucas* case), and any limitations dealing with pornography, liquor, or adult entertainment. Another exemption covers any regulations which do not “directly regulate” the use of an owner’s land. This exception is generally thought to mean that a property owner who believes his property has been diminished by virtue of some privilege or permission given to his neighbor cannot sue, because the action regulating his neighbor’s property does not directly regulate *his* property. This interpretation is disputed by some lawyers, however, and third-party claims have been threatened, though none (as of this writing) are known to have been filed.

Prop 207 also contains provisions for two distinct types of waivers. First, the law permits a property owner to waive his right to file a Proposition 207 claim by executing written agreement with the city (an “owner waiver” or “claim waiver”). Secondly, it provides that if a property owner files a Prop 207 claim, the city can waive the enforcement of that regulation as to that property owner (a “city waiver” or “regulatory waiver”).

Prop 207 also has a further provision stating that it does not apply to regulations adopted before an individual owner making a claim acquires property. This provision is especially difficult to interpret. It seems to be an effort to acknowledge a *caveat emptor* rule preventing those who take with knowledge of a regulation from claiming damage.

Cities throughout Arizona strongly opposed Prop 207 because of a fear that it would prohibit them from necessary updating or revising of their zoning ordinances. For example, it is quite common for smaller cities to initially adopt zoning ordinances that do not include such things as hillside regulations. As the city begins to grow and development pressures mount, usually a point comes at which more sophisticated regulations dealing with hillsides are enacted. But under Prop 207, any such enactment would arguably call for compensation. This means that a city which enacted hillside regulations before Prop 207 would be able to enforce them, but a different city might be unable to adopt new ones. Another example is aesthetic design review. Most smaller cities not feeling significant development pressure do not initially have the sophistication to engage in aesthetic

PROPOSITION 207

design review of large commercial shopping centers and other buildings. Almost all of the larger cities in Maricopa County now have such aesthetic design review. But as the smaller cities in Pinal County begin to grow, they may be unable to adopt such a measure. The net effect of 207 on general city regulation may be to virtually “freeze” the rules in place as they were on the measure’s effective date of December 7, 2006, unless property owners agree to accept changes.

Cities revise and change their zoning regulations often in response to different patterns of development and different regulatory needs. One of the most common recent examples is the spate of “big box” ordinances which seek to limit the size of individual retail stores because of the perceived impact of such big boxes on traffic and congestion. In Phoenix in the 1980s, developers discovered that the one-story, 1950s-era strip commercial buildings along arterial streets had zoning which permitted four-story structures without any review by the City. Several such buildings were built immediately behind single-family homes, and a citizen outcry resulted. Phoenix lowered the “as-of-right” height to two stories. All these sorts of new regulations would be susceptible to attack under Prop 207.

Figure 4.3

These images depict a commercial property in Phoenix adjacent to a residential neighborhood.



As a result of controversy related to this, the City of Phoenix revised its policies toward commercial property development adjacent to residential zones, limiting building heights to two stories. Proposition 207 will likely make this sort of zoning ordinance revision far more difficult and potentially very expensive for cities in the future.

Photographs courtesy of Patricia Gober.

It is also important to note that Prop 207 affects state laws as well as city ordinances. Historically, Arizona has not had extensive land-use regulation at the state level, and Prop 207 will make any additional regulation difficult. Any state statute regulating rural lot splits (for example), as has been proposed in several recent legislative sessions, is likely to result in widespread claims under 207. Even recent legislation dealing with the authority of counties to consider water supply in making planning and zoning decisions has been attacked as posing a potential diminution in property value compensable under the proposition.

The Oregon Experience

The only other state in the Union which has a law even similar to Arizona's new compensation scheme is Oregon, which passed Measure 37 in 2004.¹³ That measure also required government to compensate private property owners for any land-use regulations that restrict the use of property and reduce its value. Measure 37 was adopted in a very different political context from that of Prop 207. Oregon had enacted a statewide land-use regulatory scheme enacting urban growth boundaries and requiring state review of most land-use decisions. Arizona, by contrast, rejected urban growth boundaries in the 2000 election and operates on an almost purely locally based land-use decision making process. Oregon has been widely criticized within the state for being excessively heavy handed with land-use regulations. Arizona, by contrast, has generally been regarded, even within the development industry, as having among the most *laissez-faire* and pro-property rights regulatory schemes over the past several decades. While Measure 37 had many exemptions similar to Prop 207 in Arizona, it has one enormous difference: its applicability was retroactive as well as prospective.

As of early 2007, nearly 15,000 claims have been filed in Oregon, with aggregate claimed dollar damages of more than \$11 billion. 90% are claims that have been filed outside of urban growth boundaries and result from the imposition of urban growth boundaries which prohibit virtually all development. There is no such comparable regulatory impact in Arizona. The overwhelming majority of these claims, probably more than 90%, are retroactive—based on actions taken before Measure 37 took effect. Many of the claims have been submitted by timber and other resource companies alleging diminution in value by virtue of their inability to log or mine particular properties.

Only about 2,000 of the 15,000 claims have actually been fully adjudicated. Nearly 1,800 resulted in the impact of the regulation being waived as to an individual property owner. This has been the predominant impact in Oregon: a patchwork quilt of where regulations apply. As of February 5, 2007, only one claim had resulted in dollars being paid.

In March of 2007, a public-opinion survey was conducted statewide in Oregon about voters' attitudes toward Measure 37. That survey indicated that more than two-thirds of the voters either wanted to fix what they saw as significant flaws in Measure 37, or believed that it should be repealed entirely. Nearly half of all Oregon voters believed that Measure 37 had a negative effect on the state. Only about one-quarter believed it was, "on balance," positive. Heavy majorities backed a variety of specific fixes to the measure, such as protecting existing water supplies, requiring documentation for any claim of lost property value, prohibiting larger scale development, and creating exemptions for small properties. As a result of such sentiment, the Oregon legislature has taken the unusual step to put a measure on the November 2007 ballot (Measure 49) which would exclude non-residential development from making Measure 37 claims and limit the number of residential claims based on a set of criteria.

While the experience with Measure 37 in Oregon may be interesting, there are simply too many dramatic differences from Arizona's Prop 207 to make these lessons very valuable. Most of Oregon's claims relate to prior land-use impositions and deal with restrictions on property such that it can be used only for farming or other low-intensity uses. Because 207 is not retroactive, and because Arizona has never engaged in a statewide regulatory scheme limiting property to only agricultural use, we are unlikely to see the magnitude of claims which were filed in Oregon.

One blog commentator said this comparing Arizona with Oregon: "It will be interesting to watch Arizona wrestle with Prop 207 during the coming years. Unlike Oregon's Measure 37, Arizona's new law isn't retroactive. So there isn't likely to be a wave of horror stories emerging in the next six months. What we'll see

PROPOSITION 207

instead, I suspect, is that paralyzing Arizona's laws in 2006 will be more like watching a disaster flick in slow motion. We're still on the first reel."¹⁴

Initial Reactions to Prop 207

The immediate impacts of Prop 207 in Arizona are being felt most dramatically by cities and towns. Shortly after the passage of 207, the Arizona League of Cities and Towns issued a series of guidelines.¹⁵ Many cities virtually froze all consideration of rezoning requests pending an analysis of the impacts of Prop 207. Very unlike Oregon, Arizona tends to operate in an essentially ad hoc development review process in which individual projects are permitted at the municipal level through a rezoning case considered by the planning commission and city council. Literally thousands of rezoning cases are processed in Arizona every year. Arizona's pro-development attitude is played out in these locally based legislative decisions—political decisions by elected officials as to individual development projects. Prop 207 has given great concern to city attorneys and city managers that any revisions to their zoning ordinances, even revisions designed to permit individual project approvals, may give rise to potential Proposition 207 claims. As a result, the first response of Arizona cities and towns was to adopt procedures to request that individual property owners waive their 207 claims whenever they are seeking permission from the City to do anything to their property or make any changes to the regulations relating to their property. Some cities began imposing mandated property-owner waivers on such minor approvals as building permits, site plan reviews, conditional use permits, and virtually any other city permission. Requiring these waivers as a condition of approving—or in some cases as a condition of receiving an application—for minor development was immediately met with a backlash from newspaper commentators and the development community, who felt that cities had gone overboard in trying to punish members of the electorate for adopting Prop 207. This arguable overreaction by cities seems to have subsided, and most cities now will process rezoning and other requests without a signed waiver, though the professional planning staff may recommend against granting the approval. It appears that a majority of Arizona cities have also recognized a difference between ministerial actions such as subdivisions, building permits, and site plan reviews, and legislative actions like rezoning cases, and are limiting their request for waivers to the more discretionary reviews like rezonings. Many cities will now process cases without waivers, but often require waivers as a condition of any approval. Because of potential 207 claims, annexations are often being held to a requirement of 100% consent, rather than the 50% required by the annexation statutes.

Virtually all cities in Arizona that were attempting to engage in comprehensive revisions of their zoning ordinances have slowed down those processes and added extensive additional layers of legal and planning review to consider 207 implications. When cities revise their zoning ordinances in what are called “text amendments,” they frequently add landscaping restrictions, adjust densities, change lot coverage or building height, and add additional types of review. Under Prop 207 those cities are nervous about any such additional impositions, and are therefore asking for property-owner waivers. One example of such a circumstance is when cities impose historic-district regulations. In Arizona, no city uses historic-district regulations to prohibit demolition of structures. Rather, the regulations add review for consistency of changes to structures relative to the overall character of a neighborhood, and historic regulations may delay attempts to demolish designated historic buildings while some means to preserve the resource is negotiated. However, because of a belief that such designations may give rise to Prop 207 claims, many cities are now requiring a very high percentage of owner consent—in some cases 100% agreement—before an area can be designated historic. This has resulted in freezing most historic district designations being considered by cities. Most empirical evidence throughout the United States suggests the historic district designations *raise*, rather than *lower* property values, but individual property owners may still be able to assert claims as to the impact of regulation on their particular property. At the time of this report it appears that the first Prop 207 claim likely to get to court and be considered is related to a historic district designation in the City of Flagstaff.

PROPOSITION 207

Many city planners and city attorneys decry the impact of Prop 207 on their jurisdictions, believing that it has added needless layers of bureaucracy, further slowed down the development approval process, and impeded their ability to update, revise, and strengthen their zoning ordinances. Many developers feel that it threw an unnecessary monkey-wrench into what had been a relatively smooth approval environment. Neighborhood activist groups and others have also called for significant modification or repeal of Prop 207 because of its impact on any attempts to strengthen regulation protecting neighborhoods.

On the other hand, the proponents of Prop 207 believe that it is operating exactly as they intended and exactly as it should. It is forcing cities to think more carefully about the impact of their regulations on individual property owners, and in some cases to back off sweeping revisions when there is the potential for significant diminution in the value of private properties being regulated.

It is too early to tell exactly what Proposition 207's true impact will be. There will undoubtedly be unintended consequences. It will certainly slow down or cause significant modifications to virtually all new land-use regulations. It has already dramatically changed the dialogue about Arizona land use.

Chapter 5

STATE TRUST LANDS: THE FUTURE OF URBAN GROWTH IN ARIZONA

Peter W. Culp and Susan K. Culp

State trust lands are one of the least understood categories of public lands.¹ These lands, which were granted to some Eastern states and most of the Western states at the time they joined the Union, currently comprise approximately forty-six million acres of land spread across twenty-four states.² In the lower forty-eight states, Arizona, New Mexico, and Montana have by far the largest land holdings, together accounting for approximately half of all trust lands.³

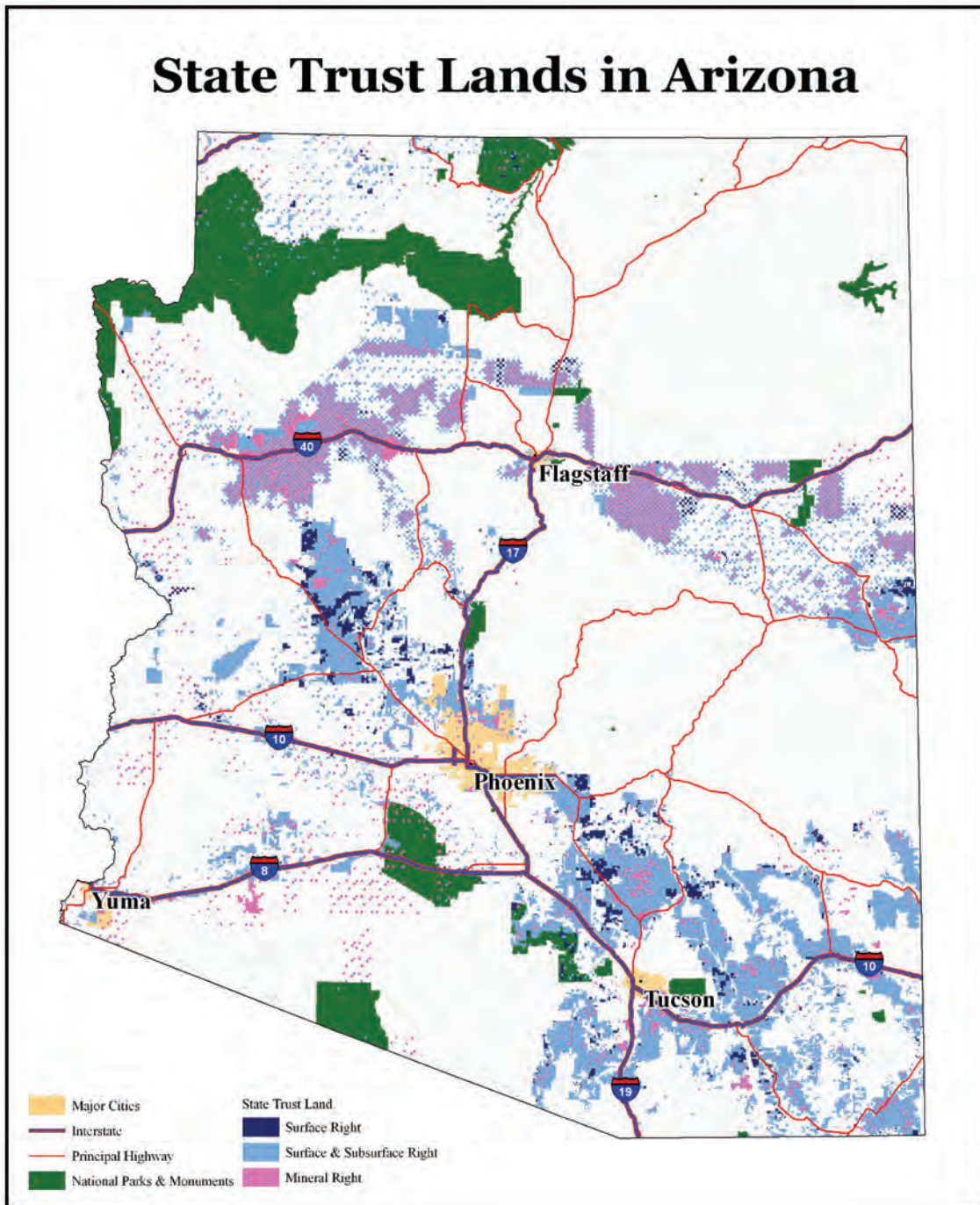
Unlike other categories of public lands, the vast majority of state trust lands are held in a perpetual, intergenerational trust to support a variety of beneficiaries, including public schools (the principal beneficiary of most grants), universities, penitentiaries, and hospitals. This trust relationship reflects the intent of Congress in granting these lands to the states—to provide a means of support for critical public institutions in the West. To fulfill this trust mandate, these lands are actively managed for a diverse range of uses, including: timber, grazing, mining for oil and gas and other minerals, agriculture, commercial and residential development, conservation, and recreational uses such as hunting and fishing.⁴ These land holdings are normally accompanied by large permanent funds—some of which now total in the billions of dollars—that hold some of the proceeds from the disposal of these lands and their natural resources. These funds, and the interest payments derived from them, are used for many purposes, including guaranteeing school bonds and loans, funding construction, providing land for public institutions, and paying teachers' salaries.⁵

Arizona's Trust Lands

At statehood, Arizona received sections two, sixteen, thirty-two, and thirty-six in every township “for the support of common schools” (K-12 education).⁶ In other states, this grant of enumerated sections from each township produced a “checkerboard” pattern of land ownership, in which the state holds only scattered sections of land that are difficult to administer. However, because many lands in Arizona had previously passed into private ownership or had been reserved by the federal government for other purposes (such as Indian reservations and national parks), Arizona acquired most of its lands in larger, contiguous blocks granted in lieu of previously reserved lands. As such, although some 2.3 million acres of trust lands are held in a checkerboard, the majority of Arizona's trust lands are held in large, contiguous parcels, some approaching hundreds of square miles in size.⁷

In addition to the common school grant, the state also received approximately two million acres of specific grants for a variety of other public institutions, including the state university system, public buildings, penal institutions, schools for the deaf, dumb and blind, and hospitals.⁸ Today, Arizona retains approximately 9.27 million surface acres spread throughout the state (around 87% of its original land grant),⁹ and an even larger portfolio of subsurface rights (normally reserved when trust lands are sold) (Figure 5.1).

Figure 5.1
Map of state trust lands in Arizona.



Note: There are three types of lands identified as state trust: surface right only, combined surface and subsurface (mineral) right, and subsurface right only.

Source: Sonoran Institute (based on data provided by the Arizona State Land Department).

Trust Land Management in Arizona

Arizona's trust lands are managed by the Arizona State Land Department under the direction of the State Land Commissioner. The Commissioner is appointed by and serves at the pleasure of the Governor. The Department has the administration of state trust lands as its central focus; nearly 75% of the Department's budget, which is appropriated by the legislature from general funds, is dedicated to the administration of trust lands.¹⁰

The Commissioner has essentially complete authority over the administration of trust lands, with the notable exception of land sales and commercial leases, which must be approved by the Board of Appeals (which also hears appeals from certain Department decisions). The five members of the Board of Appeals are selected by the Governor and confirmed by the Senate for six-year terms. Three members represent the state's fifteen counties, which are divided into three districts, with two members holding at-large positions. Additionally, in administering urban trust lands, the Commissioner cooperates with two advisory committees that provide advice on urban planning and conservation matters under Arizona's general and comprehensive planning scheme and an urban open space program.¹¹

Virtually all of Arizona's trust lands are managed under short- and long-term lease arrangements for a variety of traditional natural resource exploitation activities, including grazing, agricultural, mining, timber, and other similar uses. However, unlike most other Western states, Arizona also generates significant amounts of revenues from commercial and residential development; in recent years, these lucrative uses have produced nearly 95% of the trust's annual revenue.¹² As a result, of the non-oil and -gas producing states, Arizona has the largest permanent fund, a fund which is growing quickly due to recent, high-value land sales.¹³

Trust lands are noticed and sold at public auction for no less than their appraised value; in addition to sales of trust lands, the Department also auctions rights-of-way and other easements across trust lands. However, when trust lands are sold for development, they are typically disposed of under more complex planning and disposition rules set forth in Arizona's Urban Lands Act and Growing Smarter legislation.

Arizona's 1998 Growing Smarter legislation created a statewide framework for the planning of lands in Arizona's cities and towns that requires the adoption and periodic update of general plans in each city and town and of the comprehensive plans in each county.¹⁴ This legislation also created a corresponding framework for the planning of state trust lands, requiring the Land Department to prepare and periodically update "conceptual plans" for urban trust land that will be integrated into the general and comprehensive plans of cities, towns, and counties. The legislation also required the State Land Department, in consultation with city, town, and county planning authorities, to prepare five-year disposition plans that identify trust lands that will be master-planned, zoned, sold, leased, or classified for conservation purposes over the next five years. Finally, the statutes provide for a process by which trust lands can be planned in greater detail for development, receive entitlements, and ultimately be brought to auction for lease or sale.

The Department is required to consider a variety of factors in identifying lands for development, including whether the development of land will promote urban sprawl, compatibility with other uses, proximity to public facilities, the availability of water, consistency with local land use policies, and environmental concerns. With regard to disposition plans, the Commissioner is additionally required to consider, at a minimum, the market demand for the lands, anticipated transportation needs, and the availability of development infrastructure. The Department is also required to consult with the Urban Land Planning Oversight Committee when planning trust lands for development.¹⁵ This Committee, whose members are appointed by the Governor, provides recommendations to the Department on procedures and strategies for creating conceptual plans for urban state trust lands, gives advice on studies needed to craft those plans, and reviews the final conceptual plans for urban state trust lands.

STATE TRUST LANDS: THE FUTURE OF URBAN GROWTH IN ARIZONA

This approach has created a system for the selection of development parcels that has focused the Department's limited resources for real estate dispositions on the most valuable and most easily accomplished development opportunities in the state, rather than simply responding to piecemeal development proposals from outside parties. However, this focus on high-value, urban parcels (primarily located in Maricopa and Pima counties) has also led to concerns that the Department will not consider the needs of smaller communities whose lands are less attractive from a revenue-generation standpoint.

Revenues from State Trust Lands

A variety of public institutions receive revenues from trust activities in Arizona. The largest of these beneficiaries include the common schools (K-12 education), public buildings, the state hospital system, the state correctional system, the state universities, and the school for the deaf and blind. Of these beneficiaries, the common schools are by far the largest, credited with the revenues from approximately 8.1 million acres of the 9.27 million acres of Arizona trust lands.¹⁶

Revenues derived from certain activities on Arizona's trust lands, including land sales and mineral royalties, are deposited into a "Permanent Fund" for long-term investment,¹⁷ while other revenues, such as lease rentals and interest payments on the Permanent Fund, are distributed for use by the trust beneficiaries.¹⁸ Arizona's total Permanent Fund (including monies on deposit for all beneficiaries) is currently valued at around \$1.6 billion.¹⁹

In November of 2000, Arizona voters approved Proposition 301, which changed the distribution of trust revenues to the common schools. Prior to Proposition 301, trust revenues were simply used to supplant existing general fund obligations to education; as such, the source of these funds was of little consequence, since an increase in trust revenue would simply result in a corresponding decrease in general fund appropriations. Proposition 301 capped the amount of trust revenues that could be used by the state legislature at \$72 million annually, and required that all revenues above this amount go into a new "Classroom Site Fund," which together with certain sales taxes²⁰ are distributed to schools to supplement basic teacher salaries, fund teacher performance pay, and fund classroom-based programs.²¹

Although these contributions continue to represent only a small fraction of Arizona's total education budget—less than 1% of the state funding supplied to public schools by the Department of Education—now that trust revenues are supplemental funds, increased trust revenues correspond directly to increases in money for education. This has promoted the direct involvement of education interests in ongoing efforts to reform Arizona's trust land management system and improve revenue generation from trust management.

The Trust Responsibility

Due to its late entry into the Union, Arizona (along with its sister state, New Mexico) has the most restrictive requirements for the administration of trust lands written into its Enabling Act. Historically, as state admissions proceeded, Congress imposed ever more stringent requirements on trust land management in an effort to combat fraudulent land transactions and the rapid disposal of trust lands in the frenzy of frontier settlement that characterized the behavior of many earlier-admitted states.²² In Arizona and New Mexico's Enabling Act, Congress expressly indicated that the granted lands were to be held "in trust," to be "disposed of in whole or in part only in the manner as herein provided," and provided that any disposition of trust lands or the monies and resources derived therefrom in a manner contrary to the provisions of the Enabling Act "shall be deemed a breach of trust."²³

STATE TRUST LANDS: THE FUTURE OF URBAN GROWTH IN ARIZONA

In its simplest form, a “trust” is a relationship in which one person (the trustee) holds property for the benefit of another (the beneficiary). As noted above, Arizona’s trust lands are held in trust by the state for the benefit of a series of public institutions, including the common schools. This trust relationship imposes on the state, as the trustee, a fiduciary duty to manage the lands for the benefit of the beneficiaries of the trust grant. This fiduciary duty includes, among other things: a duty of loyalty, requiring the state to manage the lands to benefit the beneficiaries and not divert benefits to other parties; a duty of prudence, requiring the state to manage the trust lands with a reasonable degree of skill and expertise, diversify investments, balance risks and returns to meet the purposes of the trust, and monitor and reassess strategies over time; and a duty to preserve and protect the trust to satisfy the needs of both present and future beneficiaries.

Court decisions interpreting the requirements that apply to state trust lands have applied these common-law fiduciary principles to trust managers.²⁴ However, the way in which these duties apply to state trust managers is also somewhat different than that which applies to private trust managers, largely due to their status as government entities. For example, the state of Arizona can pass laws that regulate the behavior of the State Land Department—such as environmental laws or requirements for public participation or public hearings—even where this might disadvantage the economic interests of the trust or require trust managers to consider a broader range of public interests. Because the trustee is a government agency, the number of interested parties that can seek to enforce the trustee’s responsibilities (and the range of available enforcement tools) can also be significantly expanded (or limited) as compared to a private trust. Perhaps most significantly, judicial rules frequently extend varying degrees of deference to state legislatures and state agencies in their interpretations of federal laws, state constitutional provisions, and state statutes, giving state trustees more flexibility in trust administration than might be allowed to a private trustee under the same circumstances.²⁵

Historically, the common-law duty of prudence was often interpreted to essentially require the trust manager to maximize returns from every parcel of trust lands. However, modern trust theory generally rejects this notion, providing instead that the standard of “prudence” should be applied in the context of the overall trust portfolio. Under this “portfolio” approach, the trustee is required to develop and maintain a balanced portfolio of diversified investments that meet the trust’s long-term management objectives, and a particular investment or decision will be prudent insofar as it is consistent with the strategy for the overall portfolio and the balancing of risks and returns.²⁶

This balancing approach to trust management is particularly important in light of the fact that Arizona’s trust lands are held in a perpetual trust—in other words, that they are intended to endure and provide benefits from generation to generation. As a result, the state trust’s obligations extend not just to the current beneficiaries, but to future generations as well. This requires the trustee to look past simple notions of achieving “maximum financial return” on every transaction, and instead look at ways to plan for the long term and manage trust assets in a manner that will maintain a healthy trust corpus in perpetuity.²⁷

Recent court decisions have also indicated that the perpetual nature of the state trusts may require the trust manager not only to meet the financial objectives of the trust, but also to consider a variety of non-monetary values (including community values, socioeconomic needs, and environmental values) that are associated with trust lands, and identify ways to obtain revenues for trust beneficiaries without unnecessarily diminishing these non-monetary values.²⁸ Although there are no court decisions on point in Arizona, as noted above, the 1998 Growing Smarter legislation requires the Department to consider a broad range of factors and public values that go well beyond the mere economic interests of trust beneficiaries.

Important Restrictions on Arizona Trust Lands

The Enabling Act that created the State of Arizona identifies a series of detailed restrictions on trust land dispositions. Most significantly, it prohibits any mortgage or encumbrance of trust lands, and requires that, as a general matter, trust lands and the natural products of trust lands may only be sold or leased “to the highest and best bidder at a public auction.”²⁹ The Act also specifies that before being offered, all lands and leases must be appraised at their “true value,” and cannot be disposed for less than the appraised value. Finally, the Act establishes minimum standards for the conduct of auctions.³⁰ Arizona’s Constitution contains even more detailed provisions, reiterating the requirements of the Enabling Act but also imposing additional restrictions, such as a prohibition against land exchanges.³¹

Based on the trust responsibility and the restrictive provisions of the state’s Enabling Act and Constitution, courts have held, among other things, that public auctions and competitive bidding are required for all sales of land, even when the purchaser is a public institution or agency (including schools);³² public agencies cannot acquire trust lands by condemnation;³³ land exchanges constitute an unconstitutional “sale” without public auction;³⁴ the state cannot be required to renew an existing lease of trust lands, since it must grant leases in accordance with the best interest of the trust;³⁵ and sales of mineral resources and other natural resources, right of ways, and other interests in trust lands or its resources must be sold for their appraised value,³⁶ and cannot be discounted by any enhancement in value that a disposition may bring to remaining trust lands.³⁷

As discussed further below, these historic restrictions in Arizona’s Constitution, Enabling Act, and case law are now a major concern for the management of trust lands in Arizona, as they restrict the Department’s ability to use modern planning and land disposition tools, to create public rights-of-way that benefit trust lands, and to protect important trust lands to provide for open space, recreation, and conservation uses.

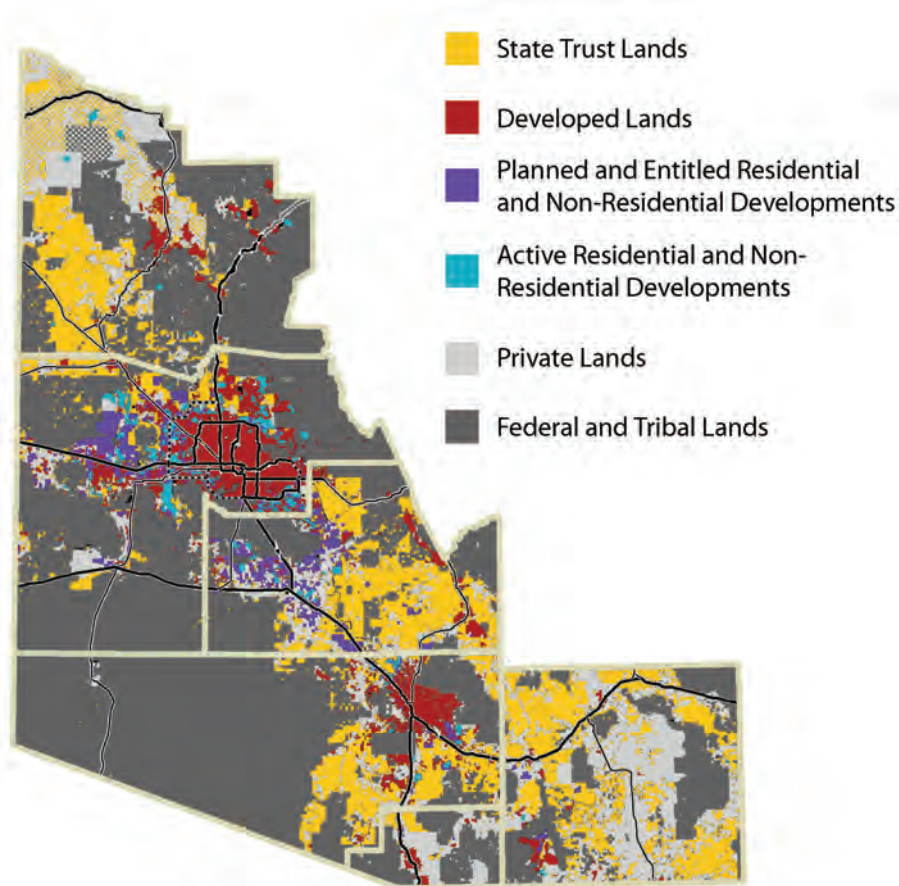
Emerging Issues for Trust Lands in Arizona

Trust Lands: The Future of Growth in Arizona

While the majority of Arizona’s trust lands are located in rural areas of the state, more than *one million acres* of Arizona’s trust lands are located adjacent to or within rapidly urbanizing areas, including Maricopa, Pinal, and Pima Counties. A substantial portion of the land accessible to currently developed land and land under development in the Sun Corridor is state trust land (Figure 5.2). Within Maricopa County, it is estimated that more than 30% of the remaining development-suitable land is held as state trust lands; in Pima County, trust lands comprise the vast majority of the land to the south of the City of Tucson—the future growth area for the city and its outlying suburbs.³⁸ In addition, as noted above, Arizona holds much of its trust land in large, contiguous blocks—some approaching tens or hundreds of square miles in size.³⁹ Even where trust lands are held as scattered parcels, few are less than one square mile in size.

As Arizona’s cities have grown, these trust lands, many of which were once remote parcels suitable for little other than cattle grazing, have been swallowed by urban growth, leaving islands of undeveloped trust lands amidst a dense urban landscape. This process is continuing because of the relatively slow rate at which trust lands are brought to market. Development uses currently occur on an extremely small subset of trust lands; due to its extremely limited planning and development budget, the Department has recently averaged sales of only around 2,000 to 3,000 acres of land for development each year out of the nearly 1,000,000 acres currently located within or adjacent to urban areas.⁴⁰ Because of their sheer size, some trust parcels have effectively become obstacles to growing urban areas, with development jumping over miles of trust lands to access privately-owned lands beyond.

Figure 5.2
State trust lands in the Sun Corridor counties, Arizona.



Source: Maricopa Association of Governments.

In the interim, these urban trust lands have become a resource of astonishing economic value. Recent Land Department auctions have commanded prices in the range of \$200,000, \$300,000, and even \$1,000,000 per acre, earning hundreds of millions of dollars for the state land permanent fund; the past three years of Land Department auctions netted nearly as much revenue as had been placed in the fund over the preceding 90 years.⁴¹ The Department's Desert Ridge development, which is the product of many years of Department planning, is expected to net nearly \$40 billion in commercial leases and land sale proceeds over the next one hundred years—on less than 60,000 acres of trust lands.⁴²

The massive size of these urban trust holdings means that, inevitably, the policies and strategies that govern the planning and disposition of trust lands will have a major, if not incalculable, influence on the future development of Arizona's urban areas. From a land-use planning and development perspective, the singular ownership of these lands, their proximity to existing urban areas, and the large parcel sizes provide unprecedented opportunities for comprehensive planning. Decisions regarding how trust lands are planned, the size of planning

STATE TRUST LANDS: THE FUTURE OF URBAN GROWTH IN ARIZONA

areas, the types of communities designed, the way in which lands are connected to transportation corridors, and strategies for open-space preservation will shape major portions of Arizona's urban landscape in the years to come.

Not least among these influences will be the selection of which trust lands are ultimately disposed of for development use and the timing of these dispositions. Despite the high value of land for development, given the rate of land absorption in Arizona's urban areas, constraints on transportation, water, and other natural resources, and the limited resources available to the Department, it seems highly unlikely that the Department will ever sell more than a small percentage of its overall portfolio for development use over the next hundred or even two hundred years. As such, trust land management will determine not just whether growth occurs and what kind of growth occurs, but also where and when it occurs.

Challenges for State Trust Lands Planning and Development

The unique restrictions on Arizona's trust lands created by the trust responsibility and the requirements of Arizona's Enabling Act and Constitution create significant challenges for a modern Department that is trying to plan and dispose of trust lands for urban development use. In addition to legal constraints, the Arizona State Land Department faces numerous logistical and institutional capacity limitations that present challenges for trust land planning and disposition.

The Arizona State Land Department relies primarily on legislative appropriations to fund its activities, including planning for the disposition of urban state trust lands. Historically, the lack of an adequate planning budget has been one of the most significant factors affecting the timely review, planning, and preparation of state trust lands for the market. In fiscal year 2006, the Department's budget for planning was \$855,000, with \$200,000 allocated for outside services and a total of nine full-time staff.⁴³ This level of funding is comparable to the planning budget for a single, small-to-medium-sized development project in the private sector, yet must cover the planning needs for 9.3 million acres of land, including some of the most significant urban lands in the state. While funding for planning has increased substantially in recent years, given the scale of the Land Department's holdings, the planning budgets remain inadequate.

The Arizona State Land Department has recently been experimenting with participatory-style joint ventures with private developers as a means of bringing greater planning resources to bear on state trust lands, and thus increasing revenues for the trust. In the context of land development for commercial, industrial, and residential uses, "participation agreements" and "joint ventures" are arrangements in which a landowner enters into an agreement with a project developer in planning and developing a parcel, sharing the risk associated with the development in exchange for a share of the profits.⁴⁴ Such agreements allow landowners to receive much higher returns on the disposition of the lands than they would receive if the land were sold as a "raw" parcel, since they can share in the significant increases in land value that occurs when lands are entitled, supplied with infrastructure, and developed or prepared for sale to optimize market demand.⁴⁵ However, historic restrictions on trust land management limit the Department's ability to use this mechanism when compared to private lands.

Historic Enabling Act and constitutional provisions also restrict the Department's ability to provide for the construction and financing of major public infrastructure on trust lands. On privately-held lands, a common financing tool is the issuance of publicly-financed bonds to pay for this infrastructure, with the bonds secured and repaid over time via the collection of taxes on the lands that are served by this infrastructure. However, because trust lands are constitutionally immune from liens, bonds cannot be secured by the trust lands for which infrastructure is constructed, and taxes cannot be assessed against these lands until they have passed out of public ownership.⁴⁶ Public auction requirements also prevent the Department from granting rights-of-way across trust lands for highways and roads, water and sewer lines, and other infrastructure, even when these improvements will

increase the value of trust lands; instead, these rights-of-way must be purchased at auction, which creates disincentives to route rights-of-way across trust lands and increases the cost of public infrastructure.

Challenges for the planning and disposition of state trust land also arise from conflicts between the State Land Department and local community planners. Often, the five-year disposition plans are crafted by the Department with little or no coordination with or input from local governments as they conduct their own local and regional planning efforts for land use, open space, infrastructure investments, and transportation needs. The converse is also frequently true, as local communities frequently plan their land uses (including state trust lands) without reference to the plans of the Department. The failure to plan collaboratively almost inevitably leads to conflict with both local jurisdictions and community stakeholders. These conflicts can lead to increased constraints on trust management due to political pressures at the state and local levels, unfavorable zoning or land-use allocations from local jurisdictions, litigation, and overall increases in uncertainty—translating into reduced economic value for trust beneficiaries over the long run.

Conservation on State Trust Lands

The same issues that create problems for the planning and disposition of trust lands for development also pose challenges for the conservation of trust lands. Since trust lands can only be sold at public auction, lands intended for conservation use must be sold at fair market value to the highest bidder. This presents financial challenges for conservation—since the value of urban trust lands can be extreme—but also fails to guarantee that lands will end up in conservation status.

As noted elsewhere, there are now more than one million acres of state trust lands located in and around Arizona's urban areas. Although these lands clearly represent a major asset for the trust due to their potential value for development, in many cases these lands also have significant value for open space. In 1996, the Arizona Legislature passed the Arizona Preserve Initiative (API) in an attempt “to encourage the preservation of select parcels of state trust land in and around urban areas for open space to benefit future generations.”⁴⁷

Under the API program, a state or local government, business, state land lessee, or a citizen group can petition the State Land Commissioner to reclassify state trust lands as “suitable for conservation purposes.” If the land is reclassified, the Commissioner can adopt a coordination plan protecting the property's conservation values that allows the land to be withdrawn from sale or lease for three to five years in order to enable prospective lessees or purchasers time to raise funds; the trust lands may then be leased or sold for conservation purposes at auction.⁴⁸ The Commissioner reclassified nearly forty thousand acres of urban land as “suitable for conservation purposes,” and has sold approximately three thousand acres under the program. A 1998 amendment also provided for a \$220 million public-private matching grant program to assist the purchase or lease of trust lands for conservation.⁴⁹

However, the API program has been indefinitely suspended by the Land Department due to recent concerns raised by program opponents who believe the program to be unconstitutional, since it does not guarantee that trust lands are sold to the “highest and best bidder” as required by the Arizona Constitution.⁵⁰

The failure of the API program to effectively address trust lands conservation issues has led many conservation organizations, urban planners, business leaders, and community organizations to seek reform of trust lands management. However, other options remain available for achieving conservation of some state trust lands. Market-based mechanisms for achieving conservation outcomes are on the rise, such as traditional direct acquisition, as well as conservation banking, mitigation banking, transfer of development rights, and land tenure adjustment. The Arizona State Land Department has recently begun exploring these mechanisms.⁵¹ These tools

have the potential to generate significant new revenues for the trust beneficiaries while meeting some of the public demands for land conservation.

Exchange Authority

Of Arizona's 9.3 million acres of trust land, some 2.3 million acres are interspersed with private lands in a "checkerboard," with the trust owning every other section of land.⁵² In addition, around 500,000 acres of trust lands are "landlocked" within federal land holdings, including national forests, national parks, and national monuments.⁵³ These ownership configurations have complicated the management of these lands as a result of access issues. Federally landlocked parcels are unlikely to have any productive use because of limited access or because of the applicable restrictions on the surrounding lands; at the same time, the checkerboard lands are extremely difficult to manage effectively. The majority of the checkerboard lands are located within large grazing units, and as a result, the owner of the surrounding private lands may be the only viable lessee.

Historically, the Department exchanged approximately two million acres with the federal government to preserve lands for state and federal parks, national wildlife refuges, and wilderness areas, while securing other lands with greater potential for revenue generation and for the University of Arizona's experimental range. Although Arizona's Enabling Act and its statutes provide authority for the State Land Department to engage in land exchanges, a 1990 Arizona Supreme Court decision declared land exchanges unconstitutional on the basis that they constituted a "sale" without public auction for purposes of Arizona's Constitution.⁵⁴

Since 1990, at least six land exchange measures have been referred to the Arizona voters and have been rejected for a variety of reasons. Opposition to these measures has generally focused on the somewhat checkered history of federal land exchange programs throughout the West, arguing that public lands have frequently been exchanged in less-than-equitable deals that have benefited private land developers.

Recent Developments on Arizona State Trust Lands

Thinking Big: Superstition Vistas

Arizona's trust lands may offer some unparalleled opportunities for large-scale, regional planning due simply to the sheer size of the trust portfolio. For example, at the eastern edge of the Phoenix metropolitan area is a vast area of undeveloped state trust lands, embracing the Superstition Wilderness Area with the Tonto National Forest, Bureau of Land Management lands on the north and east, and the Gila River Indian Community and the fast-growing cities of Apache Junction, Mesa, Coolidge, and Florence on the south and west. Known as the Superstition Vistas Study Area, this parcel of state trust land encompasses nearly 270 square miles, making it one of the largest pieces of land under single ownership in any metropolitan area in the world.⁵⁵ Given the size of the area, the development of this land will be an important force in shaping the future of the Phoenix metropolitan area.

Recently, a group of organizations, civic leaders, and cities, including Pinal County, the City of Apache Junction, the City of Queen Creek, the City of Mesa, the Salt River Project, the East Valley Partnership, the Morrison Institute of Public Policy, the Sonoran Institute, and the Central Arizona Project, have begun working with the State Land Department, forming the Superstition Vistas Steering Committee to study this important area and consider how the Department might best plan for the development and conservation of the area in the future. Recognizing the unique opportunity presented by the Superstition Vistas to shape the Phoenix area, the mission of the Steering Committee is to work with the State Land Department to develop the parcel in a manner that will "create vibrant communities with a sense of place anchored in community values establishing Arizona as a leader in sustainable development." Although a portion of the area will be planned by a land developer that recently

STATE TRUST LANDS: THE FUTURE OF URBAN GROWTH IN ARIZONA

purchased approximately two square miles of the Superstition Vistas land, the Steering Committee will be conducting a larger planning exercise that will attempt to establish Superstition Vistas as a model for sustainable, high-quality development in an arid setting, integrating land-use planning with infrastructure, transportation, open-space networks, and sustainable-development practices.

Trust Land Reform

The Arizona legislature has considered state trust land reform measures repeatedly in the recent past, both comprehensive reform proposals that seek to modernize the management of state trust lands by addressing many of the limitations in Arizona's Enabling Act and Constitution, and more piecemeal attempts to address specific limitations with state trust land management. After a ballot-box showdown in 2000 in which a reform initiative failed due to opposition from conservationists, a group of diverse stakeholders representing educators, developers, city, town, and county representatives, ranchers, and conservation organizations explored the development of a consensus reform proposal. After years of negotiations, the stakeholder group reached agreement on a consensus proposal that was supported by most of the participants in the process. This proposal was developed into legislation that would have amended Arizona's Constitution and many of the statutes governing the Land Department; it would also have required a subsequent amendment to Arizona's Enabling Act.

In brief, the agreement proposed to create a Board of Trustees to oversee trust lands administration, improve trust management funding by allowing the Department to retain a portion of the proceeds from trust land management, require collaborative planning of trust lands by the Department and local communities, allow for the disposal of trust lands for open space through local planning processes, enable modern real estate disposition tools such as participation agreements, infrastructure financing, and disposals for rights-of-way and environmental mitigation, reform grazing management to allow for longer-term, stewardship-based leasing, and protect approximately 670,000 acres of identified "conservation lands" for open space and conservation uses.⁵⁶

Despite several months of hearings in 2004, this reform package failed to move forward in the legislature. Further negotiations among the stakeholder coalition in an attempt to produce a package that would garner support from key legislators ultimately fell apart, and although two separate trust land reform bills were introduced into the spring 2005 legislative session, both failed. Nevertheless, trust land reform remained a priority for many of the stakeholders, and the major elements of the proposal were recast into a ballot initiative, *Conserving Arizona's Future*, during the 2006 elections.

This measure narrowly failed at the ballot box, and current efforts are now focused on a more targeted, limited approach working through the legislature. While a recent legislative measure intended to address conservation of urban state trust lands was floated during the 2007 session, it did not succeed in securing sufficient support to move through the process.⁵⁷ Stakeholders remain committed to achieving reform, however, and efforts to resolve the limitations of state trust land management continue.

Facing the Future

Arizona's state trust lands represent a large percentage of the future land base for urban growth. As a result, trust lands planning will have significant implications for where, when, and how growth occurs in Arizona. If planned well, trust lands could contribute significantly to "place-making" and the development of improved urban form on a regional scale—and, given the high value of the trust's urban portfolio, could provide an extremely significant source of revenue for Arizona's educational system and other important public institutions.

In this context, protection of the long-term interests of the trust mandates the proactive participation of trust managers in regional and community planning activities, particularly long-term infrastructure planning (such

STATE TRUST LANDS: THE FUTURE OF URBAN GROWTH IN ARIZONA

as water and transportation), and other long-term planning activities that will influence the development potential of state trust lands and the type of development that will occur on those lands. At the same time, however, recent surveys of public attitudes toward trust lands—particularly among rapidly growing urban populations—suggest that most members of the public view trust lands like other public lands, and few support the widespread sale of these lands for development. This change in public attitudes has led many different interests—including education beneficiaries, the development community, cities and towns, and conservation groups—to explore ways for trust lands to contribute to the preservation of healthy landscapes and regional urban open space within the fiduciary mandate of the trust.

Ultimately, the significant restrictions imposed by Arizona’s Enabling Act and Constitution on both land planning and conservation activities may well require constitutional and statutory reforms to overcome. The pressures generated by Arizona’s rapid growth create a critical need—and a real opportunity—to explore means of generating trust revenues that serve the present and future needs of trust beneficiaries, while providing for the future prosperity and sustainable development of Arizona’s communities.

Chapter 6

TRIBES IN ARIZONA: GROWTH AND LAND USE

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There are twenty-two federally recognized tribal governments within the boundaries of the State of Arizona that vary in land base, population size, and cultural traditions (Figure 6.1). Tribal lands are located throughout the state in a variety of settings, some near urban areas and others in remote locations. The US tribe with the largest land base (Navajo Nation), as well as a tribe with no land base (San Juan Southern Paiute) are in Arizona. The varied geology and ecosystems of Arizona provide the basis for the diverse traditional economies of the Tribal Nations, support their modern economies, and offer the potential for future development. The dramatic population growth in Arizona over the past twenty-five years has put non-Indian communities in close and direct contact with tribes, in some cases completely surrounding rural, tribal lands with new residential and commercial developments.

Tribes in Arizona have experienced the ongoing growth of the non-Indian population for well over a century. Prior to Europeans coming to the territory, Arizona tribes used virtually all of the land in the state.³ Tribes gave up large tracts of land when reservations were established in Arizona. Tribal peoples are concerned about the explosive growth in residential and commercial construction on their boundaries, the expansion and construction of new freeways across tribal lands, and regional issues such as water and air pollution. Tribes also recognize opportunities associated with growth. A number of tribes have prime land for development, and the value of that land is related to the growth of surrounding communities. Although tribal lands, people, and water are generally recognized as critical players in the growth of Arizona, there are few studies or scholarly articles on the subject of tribal nations and growth in Arizona. This overview will summarize the effects of growth on tribes and land use, as well as the opportunities for collaboration and coordination between tribes and local jurisdictions.

Tribal Perspectives on Land

American Indian traditions generally view land as commonly-held, recognizing the use rights of extended families, lineages, and clans. This system is flexible to meet community needs as some families grow and others diminish, and it avoids disputes among families. Under traditional land-use systems, no tribal people were homeless. Many American Indian people over the centuries have eloquently expressed the view that monetary value cannot be placed on land, water, plants, animals, and sacred places. The native worldview consistently values land and the living world not as property to be bought and sold, but in familial or kinship terms, reflected in the well-known concept of Mother Earth. The former Chairman and President of the Navajo Nation, Dr. Peterson Zah, summed up the tribal land ethic in these words: "On the reservation, land means everything. It touches religious beliefs and spiritual reality."⁴ Elders of the Fort McDowell Yavapai Nation spoke metaphorically about the value of land and money during their struggle to prevent their land being flooded by the construction of Orme Dam in the 1970's and 1980's: "Land is like diamonds, money like ice. The land stays forever but money melts through your fingers."⁵ This long-term perspective is a core element of a tribal worldview that seeks quality of life for the tribe as a whole. Tribal leadership is expected to think about success for the tribe as a whole, not just individuals, families, or select groups. Consistent with the long-term values of tribes that have lived on their homelands for millennia and will continue to be based on their reservation lands into the future, tribes seek sustainable development that does not degrade resources for future generations.

TRIBES IN ARIZONA: GROWTH AND LAND USE

Former President Ivan Makil of the Salt River Pima-Maricopa Indian Community stated in testimony to Congress in 2002, “We are very aware that future generations of our people will live with the results of the decisions we make today. It is critical, therefore, that we make the very best decisions that we can.”⁶ In the 1980’s, Salt River was the first tribe to develop a major shopping center, the Pavilions, on reservation land in Arizona. This development required pulling together many tribal landowners (heirs of original allottees) and a developer. To manage the complex land tenure of allotted land and fractionated heirships, the Community established a realty database and a compatible geographic information system (Table 6.1).

Figure 6.1

Location of tribal lands in Arizona.



Source: Inter-Tribal Council of Arizona.

Tribal Development

The substantial increase in tribal revenues, largely from gaming, has changed the pace of development in Indian Country. Because tribal nations are land-based, land-use planning is essential to economic development. In addition, tribes need physical, legal, and regulatory infrastructure for economic development.⁷ The tribal land-use plans that have been the most useful reflect values that include protecting the land, maintaining identity, and

assuring the future. For example, buildings at Salt River cannot generally exceed forty feet in order to avoid blocking culturally significant mountain views.

Tribes in Arizona near metropolitan Phoenix generally try to define commercial zones near borders or along key transportation routes in order to retain the rural character of the community core. The Gila River Indian Community developed a Borderlands Plan in the 1980's that established the area adjacent to Phoenix and Chandler as the main focus for commercial growth. This is the area containing the Lone Butte Industrial Park, Wild Horse Pass Casino and Resort, and Whirlwind Golf course. Similarly, Salt River and Fort McDowell have concentrated commercial growth along Route 101 and the Beeline Highway. Salt River has nine miles of freeway frontage on a very heavily traveled road that presents an outstanding opportunity for economic development. Based on potential square footage, it is estimated that up to 70,000 jobs could be created along Route 101 at Salt River. It is likely that most of those jobs would go to other Valley residents, because the tribal workforce is relatively small (less than 2,000).

Besides gaining the cooperation of landowners when allotted land is involved, private developers doing business on Indian land must also get the approval of tribal officials and, in many cases, the Federal Bureau of Indian Affairs. According to a developer who has successfully worked with tribes in the Valley, "It's a significantly different business environment and culturally different. A lot of business is done on relationship and trust. You've got to have patience."⁸ The process for development on Arizona reservations generally requires tribes, tribal landowners, and developers to obtain clearances under the National Environmental Policy Act, as well as myriad archeological protection laws, before land disturbance and construction work can begin.

Gaming

Gaming is an economic engine for a number of tribes, particularly those that are near urban areas. Because tribal governments have survived over a century of severely limited revenues (few federal resources, limited or no tax revenues), gaming revenues are often used to make up for decades of lack of basic infrastructure development of all kinds: roads, housing, public safety, sanitation, education, and health. Like a number of gaming tribes, the Camp Verde Yavapai-Apache Nation initially used gaming revenues to support basic governmental and physical infrastructure for their community and members. Later, casino revenues were used to improve quality of life, provide employment, and diversify the economic base beyond gaming to ensure economic success in the long term. To ensure their future, tribes also use gaming funds to support education at all levels, including scholarships for higher education.

A significant effect of tribal gaming and economic development, particularly in more rural areas, is on employment of both on- and off-reservation residents. In 2001, the Yavapai-Apache Nation's casino was the largest single employer in the Verde Valley; Cliff Castle Casino employed approximately 520 people, only 10-15% of whom were tribal members.⁹ Many tribes, including the Gila River Indian Community, Salt River Pima-Maricopa Indian Community, Hopi Tribe, Navajo Nation, the Yavapai-Apache Nation, and Fort McDowell Yavapai Nation, also have extractive industries (sand and gravel operations, coal mining) in their land-use and economic mix.

TRIBES IN ARIZONA: GROWTH AND LAND USE

Table 6.1

Population and Acreage of Tribal Reservations in Arizona

Reservation	Classification	Enrolled Members	Acreage	
Ak-Chin Indian Community	Papago-Pima	697	21,480	
Cocopah Tribe	Cocopah	924	6,368.42	
Colorado River Indian Tribes	Mohave-Chemehuevi Navajo-Hopi	3,705*	268,964* 225,995 42,969	Total AZ CA
Ft. Apache (White Mountain Apache Tribe)	White Mountain Apache	13,279	1,664,984	
Fort McDowell Yavapai Nation	Yavapai	932	26,400	
			32,970+ 22,820	Total AZ
Fort Mojave Tribe	Mojave	1,100+	6,298 3,862	CA NV
			43,958* 35,834 1,901 33,933 8,124 480	Total Tribal AZ Tbl. CA Tbl. Allot. AZ All. CA All.
Fort Yuma (Quechan Tribe)	Quechan	3,037*	7,644	
Gila River Indian Community	Pima-Maricopa	17,488	373,365	
Havasupai Tribe	Havasupai	650	185,516	
Hopi Tribe	Hopi-Tewa	11,497	1,561,213	
Hualapai Tribe	Hualapai	2,210	992,463	
Kaibab-Paiute Tribe	Paiute	240	120,413	
Navajo Nation	Navajo	275,000^	17,686,465^ 11,601,856	Total AZ (approx.)
Pascua Yaqui Tribe	Pascua Yaqui	13,618	8,277	Total
Salt River Pima-Maricopa Indian Community	Pima-Maricopa	8,300	53,000	
San Carlos Apache Tribe	Apache	12,214	1,826,541	
San Juan Southern Paiute	Paiute-Navajo	300	0	(approx.)
Tohono O'odham Nation	Tohono O'odham	27,300	2,854,881	Total
Gila Bend				
San Xavier				
San Lucy				
Tonto Apache Tribe	Tonto Apache	110	85	
Yavapai-Apache Nation	Yavapai-Apache Nation	1,796	644	
Yavapai-Prescott Tribe	Yavapai	161	1,425	
Zuni Tribe	Zuni	18,692**	463,278.18	Total AZ & NM
	Totals	413,250	40,184,406.60	(approx.)

* Includes Arizona and California + Includes Arizona, California, and Nevada
^ Includes Arizona, New Mexico, and Utah ** Includes Arizona and New Mexico
Source: Inter Tribal Council of Arizona, Inc. January 2003

Source: Inter Tribal Council of Arizona, Inc.

Effects of Off-Reservation Growth on Tribes in Arizona

As a direct result of population growth and urban sprawl in Arizona, a number of tribes that were once relatively remote, rural communities are now surrounded by residential and commercial development. In the past decade, the Phoenix metropolitan area has leapfrogged over reservations that were once considered to be the boundaries of development. Tribal leadership has expressed consistent concerns about the impacts of off-reservation development on their rural quality of life, water supply and quality, air pollution, the need for more transportation corridors, and impacts on sacred sites.

Transportation

Transportation is at or near the top of crucial land uses in Arizona's future. Population growth has strained the existing transportation corridors that link one part of the state to another, and pressure for new or expanded rights-of-way is not expected to subside in the near future. Because of the rural nature of most reservation land and the relatively low population density on reservations, urban dwellers often assume that tribal land is 'unused' and a resource that should be made available for transportation and utility corridors. In the past, state and regional transportation plans may have assumed that tribal land was the least expensive and easiest to acquire for new or expanded freeways and other rights-of-way. From a tribal perspective, major transportation corridors on or near reservation land pose both opportunities and concerns. High traffic volumes bring customers to tribal enterprises and tenants to tribal business parks. At the same time, the land dedicated to transportation corridors erodes the tribal land base and is an intrusion into tribal communities. Every one of the existing interstates in Arizona crosses reservation land or comes close to it: I-8 goes through Quechan land at the border with California; I-10 runs through both the Gila River and Colorado River reservations; I-17 is adjacent to the Camp Verde reservation as it crosses the Verde Valley; I-19 runs through the San Xavier District of the Tohono O'odham reservation; and I-40 traverses miles of the Navajo reservation. In addition, smaller transportation routes from Globe to Safford and Show Low, Mesa to Payson, Lake Havasu City to Bullhead City, and Flagstaff to Page all cross tribal land.

Some of the most acute tensions over the use of tribal land for transportation are found in the greater Phoenix area. Loop 202 is a major beltway for the East Valley. It also provides hope for a key link from the East Valley to the West Valley, bypassing central Phoenix. Selection of the route that 202 might follow around South Mountain highlights the critical role which tribes play in the transportation arena. One route, under study by the Arizona Department of Transportation for many years, would follow an alignment west from Pecos Road to the western end of South Mountain. Building 202 along that alignment would require the taking of many expensive and recently built homes. An alternative is to construct 202 further south, on land that belongs to the Gila River Indian Community. In the past, tribal members living in the area have expressed their strong opposition to building a freeway across their land. The tribe has recently agreed to discuss potential transportation developments, but has made no commitment to surrender any more land for transportation corridors.

Tribal development may benefit from improved transportation and access but it is critical, if tribal approval is to be obtained, that any proposed freeway development meets tribal needs as well as regional needs. Tribes may be unwilling to lease their land for transportation corridors that result in increased traffic through reservation communities and increased emissions contributing to air pollution. Because ozone is created from the action of sunlight on pollutants as they move through the air, some of the highest ozone readings in the Valley are in or near the Salt River Pima-Maricopa Indian Community and Fort McDowell Yavapai Nation, both of which are downwind of the Phoenix metropolitan area. Much of Maricopa County is a non-attainment area (does not meet national health standards) under the Clean Air Act for ozone and particulates (dust), and the movement of these pollutants is exacerbated by increased growth, particularly sprawl that encourages more vehicle miles traveled. The US Environmental Protection Agency has designated both Salt River and Fort McDowell as non-

TRIBES IN ARIZONA: GROWTH AND LAND USE

attainment areas because of pollution that is generated in adjacent cities but transported to the tribal communities; the non-attainment designation can result in constraints on tribal economic development as well as on that of municipalities and counties.

Water and Agriculture

American Indians were the first farmers in Arizona. If present trends continue, they may well be the last. Agriculture no longer dominates the economy of the state in the way that it did historically. Dramatic population growth has pushed developed urban areas into what were once verdant citrus groves, cotton farms, and alfalfa fields. While agricultural land outside reservations shrinks, especially near the major metropolitan areas, it remains a major land use on many Arizona reservations. The commitment to agriculture runs deep in tribal traditions as a majority of the Arizona tribes were farming people. The ancestors of the O'odham constructed major irrigation works to water their crops; desert tribes made use of rainwater for their fields and river tribes practiced flood plain agriculture.

Tribes in Arizona have longstanding rights to water under federal water law, known as reserved rights. When the United States forced tribes onto small portions of their homelands, the remaining land was supposed to sustain the tribes. In most cases, the federal government expected American Indians to farm, and because in the arid west farming generally requires irrigation, federal case law states that enough water was reserved along with reservation land to irrigate and farm. In Arizona, a number of tribes have obtained settlements determining their rights to water. However, there are several tribes that still have unresolved claims to water. Tribes currently manage 40% of surface water in the state and have claims to up to 100%. In addition, tribes have rights to the groundwater beneath their lands.

From the first Anglo settlements and the construction of dams on the Salt, Colorado, and Gila Rivers, non-Indian population growth and farm development resulted in loss of water for Indian lands. The loss of water for irrigation crippled the farming economies and associated way of life for Indian communities. The lack of resolution of tribal claims to water has been a barrier to development on both tribal and non-tribal land in Arizona. Even with water settlements, many tribes do not have the built infrastructure (canals, laterals, leveled fields) to make use of their full water entitlements. The Gila River Indian Community (GRIC) is developing the Pima-Maricopa Irrigation Project, an element of the Central Arizona Project, in order to make use of its water rights for farming.

There has been a common assumption that tribes will lease their "unused" water to growing urban areas. It has met the needs of some tribes to lease water: the Ak-Chin Indian Community leased water to Del Webb for the construction of the Anthem master-planned community in northwest Phoenix. But it is critical for non-Indian communities to realize that tribal governments may also choose to use water on their own land for farming and other development. In addition, there have always been tribal concerns about wells along their borders drawing from groundwater that originates under tribal land. The potential for loss of tribal groundwater increases dramatically as non-Indian development comes closer to tribal communities.

Water-quality issues from storm-water runoff and waste-water discharge also affect tribes. Natural patterns of storm-water sheeting and drainage are profoundly affected by land clearing and construction. In addition, the quality of stormwater degrades as oils, solvents, and other pollutants are picked up in urban areas. There have been several cases of private developments on tribal boundaries that have requested the ability to discharge from wastewater treatment facilities into washes and rivers that flow onto tribal land. This was the case with the Ak-Chin Indian Community when one of the many housing developments in the Maricopa area requested a permit to discharge into the Vekol Wash, which has environmental and cultural value to the tribe. Discussion among the Arizona Department of Environmental Quality, the tribe, and the developer resulted in an innovative

TRIBES IN ARIZONA: GROWTH AND LAND USE

approach in which the wastewater treatment facility will not discharge into the wash. GRIC faced a similar situation with discharge from a new development in Pinal county, up-gradient of the Community. GRIC negotiated an agreement in which the developer provided funds for background and ongoing water quality monitoring and agreed to meet the Community's discharge criteria for water quality.

Throughout the United States, major conflicts at the urban-rural interface occur when residential areas locate near farms. New residential growth at the boundaries of existing agricultural lands or animal feedlots is a source of conflict in a number of areas in Arizona. The challenges are particularly difficult for tribes that have farmed for millennia, and for whom farming is a core element of the culture, as well as the economy. New urban residents who have not had experience living near agricultural land may complain when they hear crop dusting planes at night and smell odors from farm lands. To help resolve these challenges, the Ak-Chin Indian Community leadership worked with the Arizona Department of Real Estate so that land descriptions on the reservation boundary include information about the proximity to tribal land. The Gila River Indian Community experienced similar problems when housing was built on its northern border adjacent to existing farms. The Gila River Department of Environmental Quality staff met with homeowners groups and provided information about the Community's pesticide regulatory program. The program includes four full-time senior pesticide officers who regularly monitor applications in the field. This outreach effort significantly improved understanding by surrounding residents and the complaints diminished.

The non-Indian farmers who were competitors for irrigation water in the past may become partners of farming tribes in trying to preserve the values of an agricultural, rural lifestyle. Arizonans will continue to be able to smell fresh cut hay in significant areas of Indian Country, even though between 1987 and 2002, more than 625,000 acres of farmland were lost to development in Maricopa County.¹⁰

Sacred Sites

Traditional tribal religious practices and beliefs are deeply tied to tribal homelands that extend well beyond the boundaries of current reservations. As a result, tribes have profound interests in areas that are increasingly affected by off-reservation development. Tribes want to maintain free access to cultural and religious sites and generally do not want to see these areas disturbed, or access by non-Indians increased. The potential for conflict can be substantial with regard to areas where tribes are pushed to accept development but feel that there is no way to mitigate impacts on sacred sites.

The plan to use treated wastewater to make snow for the Arizona Snowbowl resort on the San Francisco Peaks has generated heated opposition from northern Arizona tribes who regard the Peaks as sacred. In the most recent decision on a lawsuit filed by the tribes, the 9th Circuit Court of Appeals cited the provisions of the federal American Indian Religious Freedom Act as the basis for denying the plan.¹¹

The Arizona Apache tribes, joined by the Hopi and Hualapai Tribes, have united to oppose a bill in Congress that would authorize a land exchange between the US Forest Service and a copper company that would mine the property. The area in question has high spiritual value to the Apache people.¹² The use of several mountaintops in southern Arizona for astronomical purposes has generated controversy. For example, a 1990 resolution by the San Carlos Tribal Council put the tribe on record as opposed to the use of Mount Graham for an observatory on the grounds that the mountain has been used for generations as a site for healing ceremonies, the gathering of plants and animals for religious practices, and is the location of a substantial number of Apache burials.¹³

As seen in the Snowbowl case, federal laws protecting Native American religious freedoms can affect off-reservation land use. There are also federal (Native American Graves Protection and Repatriation Act) and

TRIBES IN ARIZONA: GROWTH AND LAND USE

Arizona laws (A.R.S. §41-844, 865-866) requiring consultation and repatriation (and potentially reburial) of human remains and funerary objects found during land clearing and excavation associated with construction. The federal National Environmental Policy Act, National Historic Preservation Act, and Archeological Resources Protection Act are triggered on tribal land more frequently than on privately held land off-reservation and consequently have a more substantial effect on development on reservations. Developers new to Indian Country can be frustrated by these requirements. It is also important for off-reservation developers to be aware of tribal interests in traditional homelands beyond reservation borders, as well as of the federal laws that protect them.

Opportunities Related to Growth

There are increasing opportunities, benefits, and incentives for both tribes and local governments to work together on a wide range of issues, particularly those related to land use and growth. Tribes, both as governments and business owners, are interested in building relationships with neighbors. If good fences make good neighbors, mutual understanding of and respect for one another's values and perspectives make for a good neighborhood. The reality on the ground can be fairly complex because many tribes have land that lies within several counties, and in the case of Navajo, Zuni, Fort Mojave, Colorado River Indian Tribes and Quechan, land in more than one state.

For many, the attraction of Arizona lies in its open spaces, scenic beauty, and abundant recreational opportunities. Much of the reservation land within the state remains in its natural state; it is used for ceremonies, the gathering of native plants, and as a basis for renewing cultural ties. At the same time, tribes offer non-Indian visitors opportunities for recreation. Tourism is a major source of revenue in Arizona with a huge potential for collaboration. The state of Arizona is the fourth most popular tourist destination in the US, and tourism is the second-largest industry in Arizona, with over 30 million overnight visitors to the state each year. International tourists are particularly drawn to the Southwest because of an interest in American Indians; one of the highest-ranking reasons given for visiting Arizona is to experience Native American lands and cultures.

To cite one example among many, the Navajo reservation and the immediately adjacent land encompass more than a dozen national monuments, tribal parks, and historical sites, including Canyon de Chelly and Navajo National Monument. In addition, the Navajo Nation operates a number of tribal parks that include the well-known Monument Valley. This park alone draws thousands of tourists to Arizona, including many from foreign countries. Further west, the Havasupai and Hualapai Tribes provide recreational opportunities in the Grand Canyon, including the new Skywalk. Of major religious and historical significance, San Xavier del Bac Mission is located within the Tohono O'odham reservation near Tucson and has been maintained by tribal members for hundreds of years. Commercial recreational opportunities also abound on tribal land. They include world-class golf courses, a ski resort, and numerous recreational sites along the lower Colorado River. Cooperative ventures among tribes, nearby local governments, commercial tourism operators, and the state provide income and jobs for tribal members and nearby non-Indian residents.

Tribal Participation in Regional Planning

Tribes increasingly participate in regional planning with other governments. A number of tribes are now members of or participants in their local Councils of Government, and the Inter-Tribal Council of Arizona coordinates a tribal panel at the annual meeting of the League of Cities and Towns. In addition, a number of tribes are active in local economic development councils and chambers of commerce. In recognition of the fact that pollution does not recognize political boundaries, tribes, the state, and counties increasingly coordinate on matters of environmental protection and management. Salt River, Gila River, Fort McDowell, the Arizona Department of Environmental Quality, and Maricopa and Pinal Counties work with the US Environmental Protection Agency on the Joint Air Toxics Assessment Project to understand and reduce hazardous air pollutants.

TRIBES IN ARIZONA: GROWTH AND LAND USE

As more tribes develop the planning and technical capacity to participate as full partners, and more local jurisdictions relate to tribes as governments rather than interest groups, there will be more meaningful intergovernmental collaboration. Relationships and collaboration will continue to mature as counties and municipalities approach tribes with the understanding that tribal elected officials are subject to the same pressures as elected officials everywhere to respond to the needs and concerns of their constituents.

The federal Indian Gaming Regulatory Act compacts between tribes and the state, and requirements associated with Arizona Proposition 202 for tribal gaming revenue-sharing, provide substantial opportunity to build relationships between tribes and local governments. But, just as in relationships between individuals, there are no short-cuts to building relationships with tribal nations. Non-Indian communities will find that tribes listen to and consider their issues in making development decisions. Recently, the Gila River Indian Community listened to the concerns of neighbors about the siting of a new casino near the town of Gilbert. Tribes would appreciate consideration of their ideas and concerns from their neighbors, as well. Collaborative regional planning will be enhanced by the following:

- Regular meetings of both elected officials and staff to share information and learn about each others' values and goals. It is always best for neighbors to get to know one another and develop working relationships outside of times of crises or conflict;
- Early notification by tribal and local governments of development plans (e.g., applications for development permits); the sooner governments know about plans that may affect them, the more time they have to react;
- Pilot projects identifying joint planning areas to develop protocols and positive precedents. It may be useful to use formal and informal agreements, such as Memoranda of Understanding, for solving complex land use issues;
- Addressing emerging issues through a continuous consultation process that reduces communication barriers; and
- Dedicating resources for mutual education and communication.

Summary

Tribal governments manage 28% of the land base in Arizona, as well as a significant percentage of the water resources; tribal lands are a critical component of the future of the state. As the original peoples of the state who will continue to live here in perpetuity, Native Nations are highly committed to protecting their remaining land, water, and air quality. Tribal leaders are working hard to increase both economic opportunity and quality of life for tribal members, as well as neighboring communities, now and into the future. This effort requires ongoing relationships between tribal communities and surrounding jurisdictions, based on respect for long-standing values, recognition of the governmental rights and responsibilities of tribes, and frequent communication and collaborative decision making.

TRIBES IN ARIZONA: GROWTH AND LAND USE

Chapter 7

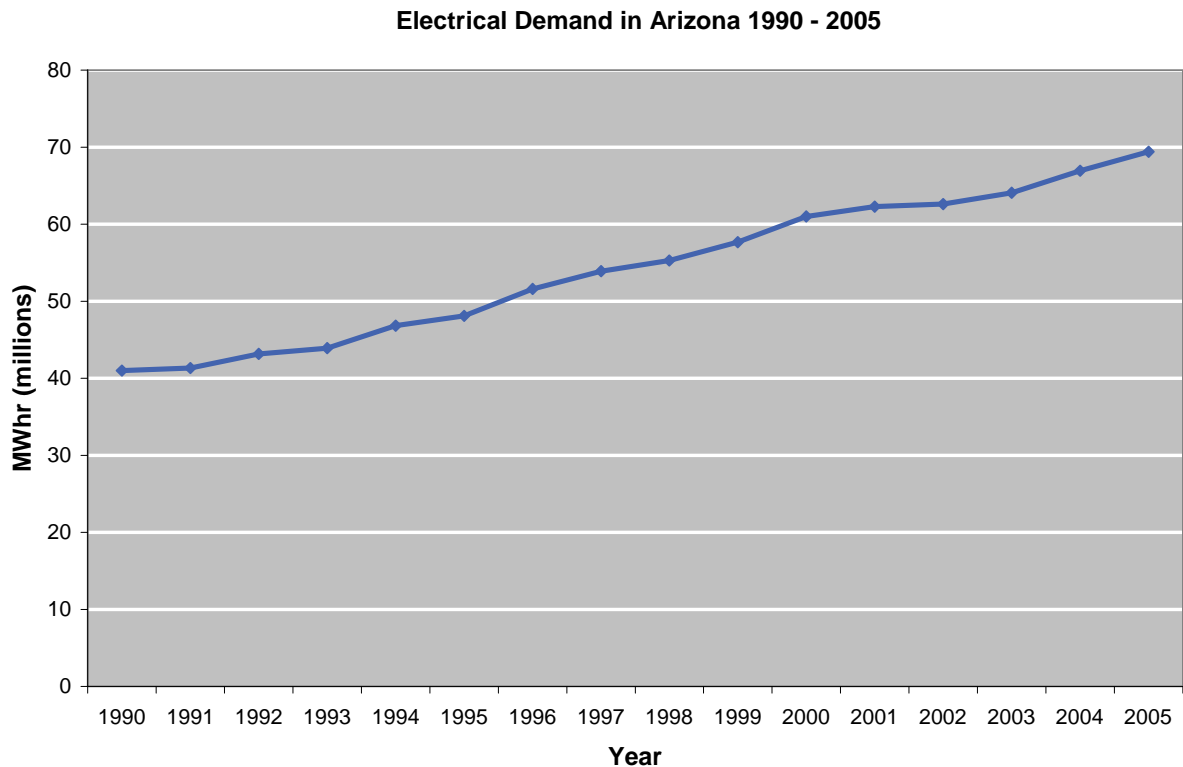
LANDSCAPES OF ENERGY CONSUMPTION AND ENERGY SUPPLY

Martin J. Pasqualetti

Arizona is growing, and so, too, is its demand for energy (Figure 7.1). Also expanding are the landscapes produced by our demand for, and use of, energy. While we may accept, in principle, that any increase in our demand for energy has a landscape price, few could say what that price is or where it occurs. Likewise, while many Arizonans see and experience city landscapes every day, we have less contact with the landscapes that are altered to maintain our energy-consumptive lifestyles.

Figure 7.1

Historical growth of Arizona electricity demand



Source: <http://www.arizonapirg.org/reports/economyreport.pdf>, derived from EIA data in Form EIA-906 and EIA-920, http://www.eia.doe.gov/cneaf/electricity/page/eia906_920.html.

Arizona offers an ideal place to examine the broad interplay between growth and landscapes of energy consumption and energy supply. As the state moves from about six million people today to DES's projected thirteen million people in 2050, the close ties between energy and land will attract increasing attention. While water has played a crucial role in the development of the state, energy also has helped to transform Arizona from the harsh place of the past to the appealing place of the present through electricity and the air conditioning it powers. The goal of this chapter is to shed light on energy and its relationship to land. Building on chapters about energy and water in the 88th Arizona Town Hall,¹ the present paper focuses on two questions regarding energy and land in the state: 1) How does Arizona's growing urban landscape—its landscapes of consumption—influence energy demand?, and 2) How does Arizona's growing energy demand influence landscapes of energy supply?

Landscapes of Energy Consumption

Cities are landscapes of energy consumption. Look no further than the sprawling urban centers of Pima and Maricopa Counties. Not only does the unending flow of energy—especially in the forms of electricity and gasoline—keep these urban areas operating, but everything about their appearance, including their horizontal expanse and means of construction, reflects the heavy use of energy within them. People rely on their cars to fulfill their everyday needs, and suffering in the summer heat is a thing of the past for most people. Today's land use patterns and built environment reflect the era of cheap energy; it is extremely difficult and expensive to retrofit the built environment in response to rising energy prices.

Cheap and available electricity suppressed any incentive to design, construct, and operate cities efficiently. People have been able to live where and how they want with little penalty. They can “drive ‘til they qualify,” thereby subsidizing their housing with their cars. There has been little financial incentive to develop or use mass transit or to build communities where cars are less essential, because the true costs of cars are spread out and easy to ignore.

The Morrison Institute reported that in 2000 Tucson residents drove an average of 22 miles per day, while in Phoenix the average was about 27. In the Phoenix area, the daily vehicle miles of highway travel in 2002 was 62,565,000 miles.² This is equivalent to a journey from Earth to Venus and back each day. If we divide this mileage by 20 MPG as an estimate of fuel efficiency for a combination of light trucks and private cars,³ we find that we are burning over 3 million gallons of gasoline per day and, at \$3 per gallon, costing about \$9 million per day. At a statewide scale, 66,394,000 barrels of motor gasoline were consumed in 2005 for a total expenditure of \$6,385.8 million.⁴ While this is a smaller total cost than borne by other states (California, for example, spends six times more), it is a major expenditure.

Two additional issues emerge from high energy use in growing cities. The first is the urban heat island, which in Phoenix results in up to a 10° F temperature increase over natural conditions.⁵ Part of this jump results from the waste heat ejected from air conditioners, automobiles, and other human sources. Recent calculations show that these sources are responsible for approximately 10% of the heat-island temperature increase, or about 1° F.⁶ There is a ratcheting effect at work; the more heat we eject into the air, the more air conditioning it takes to overcome it (see Chapter 10 for further discussion of the Urban Heat Island).

A second theme associated with high energy use in Arizona cities is the reduction in air quality. A brown cloud, especially in winter, hangs over the major cities. It results mostly from automobile emissions, but there are several natural factors that contribute, as well—temperature inversions and low average wind speed.⁷ The brown cloud prompts air-quality concerns, but it also has ties to the accumulation of greenhouse gas (GHG). Every car annually emits more than its weight in CO₂. The per capita passenger transport emissions of carbon dioxide is 3800 kg (8360 lbs) of carbon dioxide.⁸ About 19.4 pounds of carbon dioxide

are emitted for every gallon of gasoline, and the amount per gallon of diesel is 22.2 pounds.⁹ Rates of increase for atmospheric CO₂ in Arizona are among the highest in the nation, higher than any state in the northeast or on the west coast. Arizona currently accounts for about 93 million metric tons of GHG, roughly 1% of the nation's total, and the rate is increasing faster than that for the nation as a whole, largely because of rapid growth. GHG emissions are expected to increase by over 200% by 2040.¹⁰ The decrease in air quality stems in large part from heavy automobile use, but this use, in turn, is a function of the land use patterns of urban areas. Horizontal development and the disconnection between workplaces and residences fosters dependence on the private automobile, increases commuting distances, and drives up energy use.

Arizona is especially vulnerable to interruptions of energy supply, whether accidental or intentional. A broken gasoline pipeline between Tucson and Phoenix in July 2003 resulted in long lines at gas pumps in Phoenix, a reaction reminiscent of the days of the Arab oil embargo in 1973. One year later, a transformer fire produced immediate requests to customers to curtail their power consumption between 3:00 and 6:00 p.m. until the problem could be resolved, something that took several weeks. These events might be explained as problems of maintenance or chance, but they serve as reminders that Arizona's growth requires close attention to energy security.

Arizona's continued growth relies upon counter-balancing its isolation. The distance between energy resources and their points of consumption, the long transmission lines and pipelines needed to bring in supplies, and the harsh environmental conditions in which all these activities must take place increase the difficulty of keeping everything operating smoothly. Development in Arizona took shape without considering energy or the various non-price costs of keeping it coming, such as environmental impacts.

The footprint of energy demand is large. Given the fact that we must import, in addition to energy, almost everything else we need—from food and apparel to lumber and steel—the expanding urban areas of the state rely almost entirely on consistent and fail-safe systems of re-supply. Most re-supply depends upon inefficient, long-haul trucks that travel on overused highways.

Landscapes of Energy Supply

Most of Arizona's energy comes from out of state. Our oil comes from Alaska, California, and the Permian Basin of Texas; coal from the San Juan Basin of New Mexico and Black Mesa, Arizona; natural gas from New Mexico and Texas; uranium from various places, depending upon price, but usually from Canada. Arizona contributes little to meet its own energy needs. For this reason, the movement of raw energy resources, like that of almost every other product needed to survive here, is part of a one-way arrangement: we import what we want, convert it into what we need, accumulate the waste produced, and export money to pay for it all.

Except for small solar and biomass installations, the only energy resources we have developed within the state are coal, natural gas, and hydropower, the latter coming mostly from giant generators at Hoover and Glen Canyon Dams. In the case of coal, there is only one commercial operation, the Kayenta Mine in northeastern Arizona, and it supplies just a single power plant, the Navajo Generating Station near Page. The two large dams, the coal mine, and almost all of the coal-fired power plants are on the edges of the state, where urbanites see them rarely, if at all. Out of sight, neither this apparatus nor the buried pipelines figure into the public consciousness about how our cities are refueled.

West of the Rockies, principal cities are scattered and rarely adjacent to the energy supplies upon which they depend for survival. Of the large urban centers, only Los Angeles ever coexisted with an energy-supply landscape of oil. Indeed, the rapid expansion of the city did not acquire strong momentum until energy

LANDSCAPES OF ENERGY CONSUMPTION AND ENERGY SUPPLY

wealth became available. Today, evidence of this coexistence has largely vanished throughout southern California, and relatively few residents encounter even residual energy landscapes unless they live adjacent to the Palos Verde Peninsula or near Baldwin Hills. Both north and south of Palos Verde Peninsula are refineries and well fields, so they are easily apparent. Southeast of Culver City in the Baldwin Hills, the well fields are even more noticeable.

It is a different story outside the cities; not only is energy development much more evident, in many areas its impact dominates the landscape. Spectacular natural settings with national significance, such as national parks, monuments, and wilderness areas, are being compromised by energy development to support growth in distant urban areas. When these lands were being set aside, little controversy or debate occurred because there was little competition for the land. Even into the 1950's, tourism was limited. Today, every park and monument attracts hundreds of thousands, or even millions, of visitors each year as part of the swelling demand for recreation that has accompanied population growth in the region, especially in Arizona.

While, as described earlier, the form and function of Arizona cities reflect their use of energy, the form of energy landscapes in rural areas reflects how energy is made available for that use. On the Colorado Plateau, all the many stages of energy production, including extraction, processing, and transport, are in plain view. Only distance keeps the energy landscapes out of view.

Pervasive Landscapes

Of all energy landscapes, the one that people recognize most often is the *absence* of the landscapes they came to see. The haze that now dominates skies on the Colorado Plateau “has been thickening in the region largely due to sulfur dioxide from coal-burning power plants.”¹¹ It is an acknowledged problem in these scenic areas, and it has several causes, most directly the rising demand for energy in southwestern cities (Figure 7.2). The eighteen coal-fired power plants on or near the Colorado Plateau annually dump 142 million tons of carbon dioxide into the earth's atmosphere each year. They also produce more than 200,000 tons of sulfur dioxide, a major contributor to visibility-reducing haze, and 270,000 tons of nitrogen oxide, equivalent to the tailpipe emissions of more than fourteen million cars in one year. In addition to the pollution produced locally at the power plants, smog from the large, car-based urban areas of Los Angeles, Las Vegas, Phoenix, and Salt Lake City also wafts into the area, contributing to the regional haze; the National Park Service estimates that pollution sources in California contribute about 33% of measured sulfur at the Grand Canyon, while urban Arizona accounts for 14% of the same.¹²

At one time, the Colorado Plateau boasted the best visibility in the country. When reduced visibility became more noticeable to visitors, it prompted formation of the Grand Canyon Visibility Transport Commission by the US Environmental Protection Agency (EPA) in 1990. The role of the Commission was to recommend ways to protect the Class I land (major parks and wilderness areas where pristine air quality and scenic vistas are integral features) of the Colorado Plateau, lands that include the National Parks and Wilderness Areas. The main recommendation of the Commission was to encourage the reduction of air pollution through the implementation of “policies based on energy conservation, increased energy efficiency and promotion of the use of renewable resources for energy production.”¹³

The findings of this commission, along with the conclusions of several other studies, prompted action. One of the most decisive steps was taken by the Salt River Project and its co-owners when they agreed to install wet scrubbers at the Navajo Generating Station (NGS) to prevent sulfur emissions from the power plant from reducing the visibility in Grand Canyon National Park.¹⁴ Other plants, particularly the notoriously dirty Mojave Generating Station at Laughlin, Nevada, also were targeted. That plant was eventually closed.

Figure 7.2

Clean air vs. hazy air. Views from Bryce National Park eastward toward Navajo Mountain.



Source: National Park Service.

Typically, coal-burning power plants have devices that capture fly ash, and these systems are more than 99.5% effective. There are two important factors that relate to the 0.5% that remains. One involves the massive amounts of coal that is burned. At full load, the NGS burns 24,000 tons per day. A 0.5% emission rate there still results in a total of 120 tons per day of fly ash. A second factor results from the disproportionate impact the tiniest particles have on reducing visibility in the cleanest air.¹⁵ In other words, the very particles that are hardest to remove are the ones that create the greatest reduction in visibility.

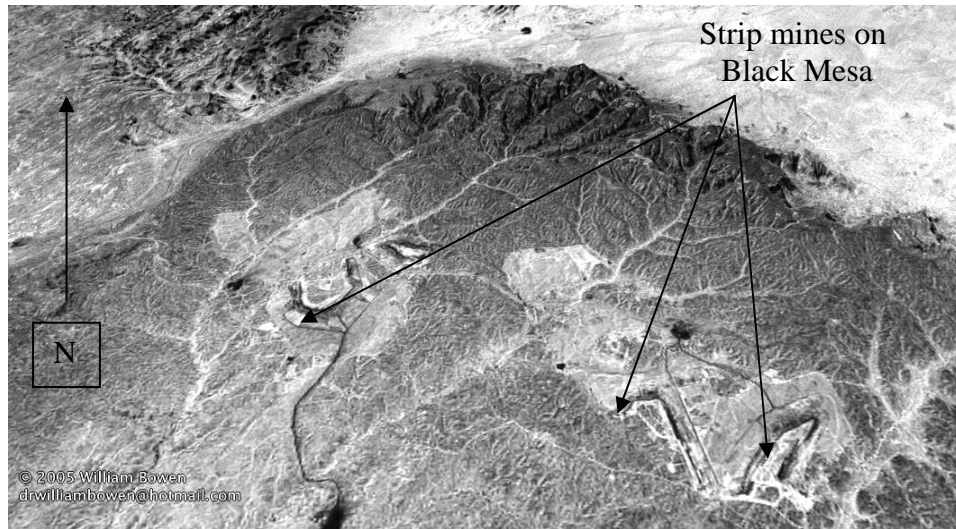
Centralized Landscapes

Centralized energy landscapes are distributed around the margins of Arizona. They result from such activities as mining, fuel processing, and power generation. The Kayenta Mine, located on Black Mesa, is the only commercial mine in the state, and it continues to provide about eight million tons of coal each year to the Navajo Generating Station. Closed at the end of 2005, an adjacent mine provided four million tons a year through a coal slurry line to the Mojave Generating Station. Both mines operated for about thirty years, and together they disturbed on average 650 acres per year over that time. As these mining landscapes are high on Black Mesa and away from any principal roads, few people see them (Figure 7.3). The other coal-fired power plants in Arizona receive their coal from out of state, mostly from New Mexico.

The energy landscapes of mining are most disruptive between the phases of surface-cover removal and the final stages of recontouring and reclamation (Figure 7.4). They are, however, only the most obvious expression of the mining operation. There are many secondary landscapes produced as well; they include landscapes that would not exist without the mines. For example, Kayenta, Page, Joseph City, and St. Johns, Arizona were all transformed into busy commercial centers. When coal reserves lie beneath residential areas, as occasionally happens, residents are relocated. In the case of Native Americans, this can mean exchanging traditional housing for more standard dwellings (Figure 7.5). Energy development has significant impact on the landscape (Figure 7.6), and some Native Americans resent any intrusion onto their lands.

Figure 7.3

Looking toward the northeast, the mining operations of Black Mesa are visible from space. The lighter areas have been mined and reclaimed.



Photograph courtesy of Bill Bowen.

Figure 7.4

Dragline on Black Mesa removes the overburden, revealing the coal beneath.



Photo by Martin J. Pasqualetti.

Figure 7.5

A traditional hogan, abandoned, on Black Mesa.



Photo by Martin J. Pasqualetti.

Figure 7.6

Navajo woman near the coal conveyer belt that removes the coal from Black Mesa and makes it available for railroad transport to the NGS.



Photo by Martin J. Pasqualetti.

LANDSCAPES OF ENERGY CONSUMPTION AND ENERGY SUPPLY

Coal is one of two energy resources mined in Arizona. Uranium mining and its associated processing also have had a brief history in Arizona, and the marks of these activities upon the landscape persist. In addition to hundreds of miles of access roads that still radiate across the dry surface of the northern counties, the most obvious example of the uranium landscape in Arizona is the remnants of the Tuba City Uranium Mill. The mill, built in 1955-56, operated until 1966, after which it sat idle for about twenty years. Since principal remediation activities ceased in 1989, the only blatant sign of the mill that remains is a large, black, impermeable patch of land behind a fence on 105 acres of the original operation (Figure 7.7).

Coal and uranium mines exist principally to supply fuel to electrical generating stations, and these mines are among Arizona's most imposing energy landscapes. These coal plants are almost entirely located in lightly populated areas of the state.¹⁶

The one nuclear power plant in the state is very large. The Palo Verde Nuclear Generating Station occupies 4,000 acres within an agricultural area fifty miles west of Phoenix (Figure 7.8). In 2005 it generated more electricity than any other power plant in the country: 25,807,446 megawatt hours, or roughly four times that produced by Hoover and Glen Canyon Dams combined.

The remaining generating facilities in Arizona take two forms, hydroelectric dams with their reservoirs, and coal-fired power plants. Four relatively small hydroelectric dams are sited on the Salt River. The largest of these is Roosevelt Dam, rated at 36,000 kW and impounding a reservoir covering up to 21,493 acres.¹⁷ The landscapes that these dams create are small when compared to those impounded by the two giant dams on the Colorado River, Hoover Dam and Glen Canyon Dam, both over 700 feet tall. Hoover has a generating capacity of 2,078,800 kW, and produced 3,254,593 MWh in 2005.¹⁸ Glen Canyon Dam has a generating capacity of 1,304,000 kW, and produced 3,208,591 MWh in 2005. As with most power plants, the electricity generated is distributed to several utilities, but if we use a figure of 25,000 kWh per year per household in the Phoenix area, the dams together generate enough for about a quarter of a million homes, or about half a million people.

Figure 7.7

Tuba City Uranium Mill (left, in 1986). All of the buildings were removed, and the most problematic material was removed or covered under a black, waterproof surface (background) (2007). Groundwater continues to be filtered and monitored.



Photo on left by Martin J. Pasqualetti. Photo on right courtesy of The Center for Land Use Interpretation.

Figure 7.8

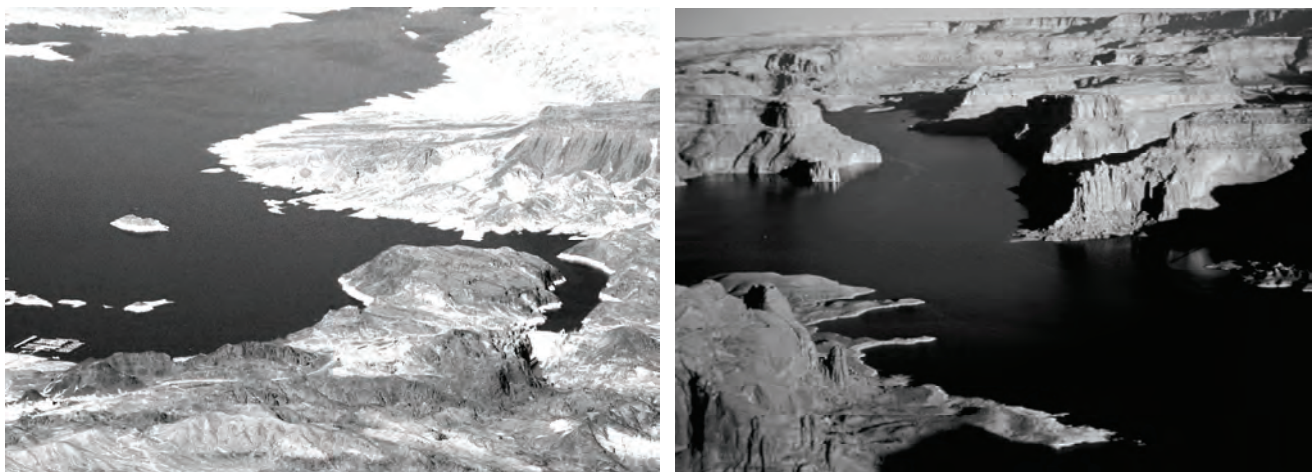
Palo Verde Nuclear Generating Station (view from the south) occupies about 4,000 acres on a parcel 50 miles west of Phoenix.



Photo by Martin J. Pasqualetti.

Figure 7.9

Hoover Dam and Lake Mead from the southwest. On the right is part of Lake Powell. Together they cover about 500 square miles, when full, creating one of the largest energy landscapes in the state.



Photos by Martin J. Pasqualetti.

LANDSCAPES OF ENERGY CONSUMPTION AND ENERGY SUPPLY

Together, the two dams create lakes totaling 500 square miles in surface area (Figure 7.9). This is an area about the size of Phoenix, although the narrow form of each lake stretches to 350 miles in length. Both lakes are used for recreation and water storage as well as for power production.

Both of these dams are on the edges of the state; so are several coal-burning power plants. The Navajo Generating Station at Page is one of the dominant energy landscapes in the country, and it does not blend in with the countryside. The *National Geographic Magazine* put an image of this plant's chimneys on the cover in October 2006 as an illustration of the impact of energy production on natural landscapes (Figure 7.10).

Figure 7.10

Kaiporowitts Plateau from the Navajo Generating Station (left), and cover of *National Geographic Magazine*, October 2006, showing plumes from the three chimneys at Navajo Generating Station from the vantage point of Lake Powell.



Source: Copyright Michael Melford.

Other coal-power plants with large footprints just across Arizona's state boundaries include the Four Corners and San Juan power plants in northwestern New Mexico. Each taps the Navajo River for its cooling water. The Four Corners plant uses the water to fill an artificial lake, another energy landscape. On the western margin of the state is the Mojave Generating Station, just across the Colorado River from Bullhead City, Arizona. For decades until 2005, this power plant was the largest emitter of sulfur oxides in the southwest; it is now closed. Five other coal-burning power plants produce power for Arizona's urban areas: the Springerville and Coronado power plants near St Johns, the Apache power plant near Wilcox, the Irvington plant in Tucson, and the Cholla power plant near Holbrook. All are supplied by unit trains that bring coal from across state lines, mostly from New Mexico. The Cholla power plant pumps water from the Little Colorado River and, like the Four Corners station, fills an artificial lake adjacent to the plant (Figure 7.11). The ash the power plant captures is slurried under the highway for disposal behind an impoundment north of I-40. This ash disposal pond is yet another energy landscape. The two power plants near St. Johns occupy hundreds of acres each, with rights to thousands of acres for expansion and wells. The Apache power plant is easily visible to travelers on I-10 near Wilcox, Arizona. The Irvington power plant in Tucson is the only coal-burning power plant in an urban setting, although its coal consumption is small: 340,000 tons of coal from Colorado in 2000.

Figure 7.11

**Artificial lake used for cooling the Cholla coal-fired power plant near Holbrook, AZ (left).
On the right is the inside of one of the nine cooling towers
at the Palo Verde Nuclear Generating Station.**



Photos by Martin J. Pasqualetti.

Linear Landscapes

Linear energy landscapes connect centralized energy landscapes with one another (for example, mines to power plants), and these in turn to cities (such as through the use of transmission lines). Those above ground are transmission lines. Railroads and conveyer belts are at ground level, and below ground are pipelines. Although none of these conveyances occupies a great deal of land in a single place, their linear nature makes them visible and potentially disruptive to more people than any of the centralized landscapes.

Typically, the most contentious of the linear landscapes is the transmission line. The routing of new transmission lines attracts opponents of every stripe. There are several sources of objection. One is aesthetic; there is very little that can be done to hide the lines, although their architecture has been changed. The drawback, of course, is that they must be unimpeded. That means that if there is forest in the way, it must be cleared and kept clear. If there is no forest, people can see these lines for long distances, especially when sunlight glints off of them (Figure 7.12).

A second objection to transmission lines is that they may be hazardous. Electro-magnetic fields (EMF) surround the conductors, although there is great disagreement about whether or not these fields pose a hazard to humans or animals. Some places are taking no chances. In California, for example, laws prevent these lines near schools. In other countries there are regulations about working under them, for example on a tractor. A related, third, objection is that the appearance and the perception of hazards reduce land values. This appears to be true according to the limited research on the subject, but the reduction in value is not major.

There are hundreds of thousands of miles of high-tension transmission lines in the US, and thousands of miles in Arizona. Over 800 miles are associated with the Navajo Generating Station alone. All of the isolated coal plants transmit electricity via long power lines, and more lines will have to be constructed. Indeed, one of the most persistent bottlenecks associated with keeping pace with growth in Arizona is where to

LANDSCAPES OF ENERGY CONSUMPTION AND ENERGY SUPPLY

locate transmission. Should they be grouped so as not to disturb more land or scattered so as to reduce the intensity of impacts? There are no good solutions to the problem of visual clutter, especially in Arizona with its majestic landscapes and long vistas. Placing transmission lines underground, although common in cities, is prohibitively expensive in rural areas.

Figure 7.12

Transmission lines taking electricity from the Coronado power plant near St. Johns to metropolitan Phoenix.

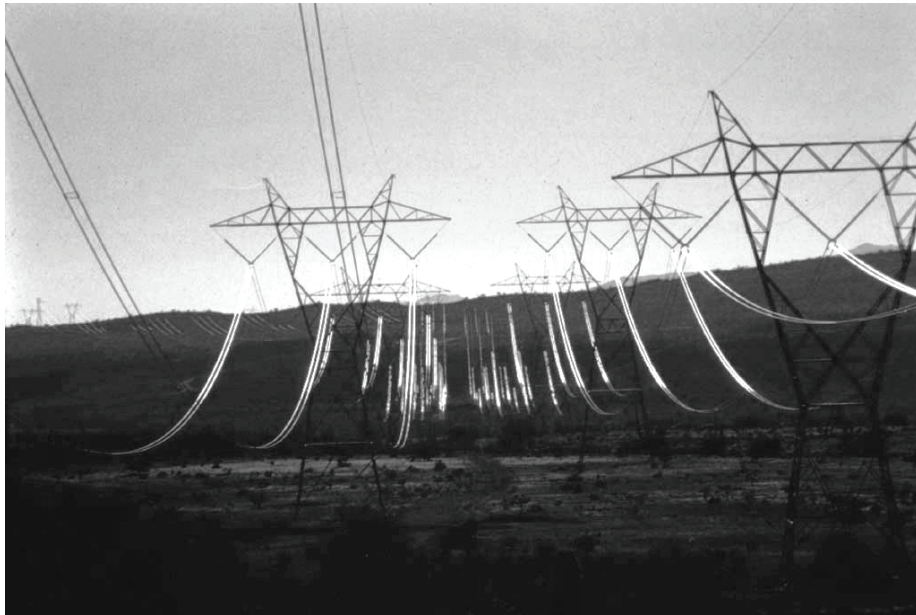


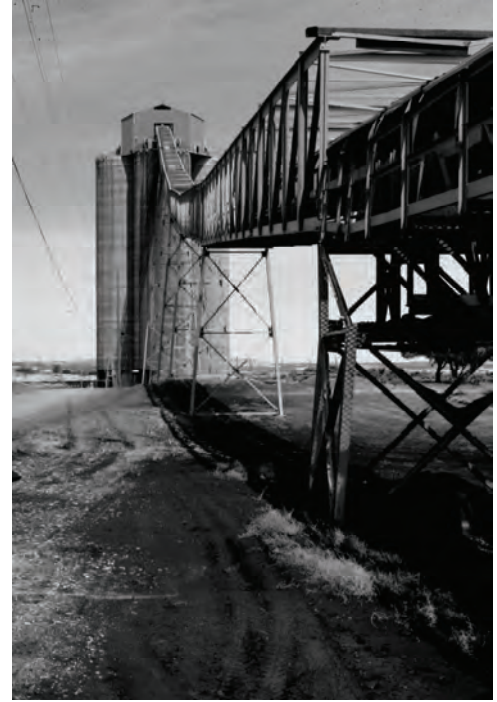
Photo by Martin J. Pasqualetti.

Railroad lines are a second type of linear energy landscape. Several railroads in Arizona carry coal, sometimes exclusively, and they, like transmission lines, divide communities and landscapes. Because the routes are on, rather than above ground, they tend to be more intrusive than transmission lines and can damage community solidarity, land values, and traffic flow. Coal is transported by rail between Black Mesa and the Navajo Generating Station on a dedicated railroad. Dedicated railroad spurs also carry coal to Springerville and Coronado. Coal transported to Cholla, Irvington, and Apache tends to move along routes shared with other users for most of their distance.

Another way to move coal along the surface for shorter distances is by conveyer belt. There is such a belt about fifteen miles long on Black Mesa that carries coal from the preparation plants to the coal silo, where the coal is stored until the train arrives (Figure 7.13).

Figure 7.13

This conveyer belt carries coal off of Black Mesa to a coal storage silo, to await the coal train to the Navajo Generating Station.



Photos by Martin J. Pasqualetti.

Fuel is also moved by underground pipelines. In Arizona, pipelines transport natural gas, gasoline, aviation fuel, and (until recently) coal across the state. Typically, these pipelines are underground and out of sight, but occasionally they are above ground and visible. Even when they are completely out of view, there is often a right-of-way above them that is maintained for reasons of safety and access, creating a linear land-use impact.

For thirty years, Arizona contained the most unique fuel pipeline in the country. A 273-mile coal-slurry pipeline carried coal mixed with water between Black Mesa and the Navajo Generating Station. The use of pristine water for the slurry was opposed by the Native Americans who held the rights to the water. That, plus the high concentration of sulfur emissions, brought about the closing of the power plant, the pipeline, and the mine itself at the end of 2005. The pipeline operation is being decommissioned, but the pipeline and its right-of-way will remain.

Combining the Landscapes of Energy and Water

There are other connections between energy and water that are less obvious than the hydroelectric dams and cooling water ponds discussed above. Not only is water needed for various processes in making energy available, but energy is needed to make water available. There are multiple examples of both sides of this equation. For example, if we assume a low evaporation rate of 0.5 gallons of water for each kWh of

LANDSCAPES OF ENERGY CONSUMPTION AND ENERGY SUPPLY

electricity produced, then a family that uses 24,000 kWh per year also consumes 12,000 gallons per year just for the generation of the electricity. If a nuclear power plant generated the electricity, water loss would actually be greater, due to the lower conversion efficiency of such facilities.

Conversely, if a family uses 0.5 acre-feet of water per year provided by the Central Arizona Project, they are responsible for consumption of at least 1000 kWh of electricity to pump the water to Phoenix, and twice as much to pump it to Tucson. We should also include the water that evaporates in the process of generating the electricity that powers the pumps, another 750 to 1500 gallons. Many other stages of energy production require water, including mining, secondary oil recovery, and fuel processing. Likewise, energy is needed for other stages of water provision, including filtering, pressurizing, and treatment.

Summary

Arizona's growth is part of a circular relationship that includes the landscapes that attract us and the landscapes that sustain us. When we change the form and functioning of our cities, we alter the energy demands necessary to maintain them. The cost of energy provision in terms of land impacts is disproportionately borne in rural areas in the form of worsening air quality, visual blight, forced relocation, disturbed ecosystems, proximity to potentially hazardous transmission lines, and increasing pressure on scarce water resources.

Chapter 8

TAXES, INCENTIVES AND FISCAL POLICY CHOICES

Carol E. Heim

Rapid growth creates fiscal challenges for Arizona cities and towns.¹ This chapter addresses the relationship between fiscal strategies—how local governments raise and spend their revenues—and land development. Topics include heavy reliance on sales taxes, incentives offered by municipalities to attract retail development, joint revenue sharing as one form of regional collaboration, and alternatives to sales taxes. This chapter discusses how young, rapidly growing municipalities finance infrastructure for their growing populations, and considers the strategies of municipalities approaching build-out, with declining construction-related revenues. Forward-looking policies to address revenue and expenditure consequences of build-out are described.

The Importance of Sales Taxes

Arizona municipalities rely heavily on sales taxes as compared to property taxes. Many have no property taxes at all. According to the League of Arizona Cities and Towns, 40% of municipalities had neither a primary nor a secondary property tax in 2006. While some of these municipalities were quite small, they included Mesa, now the thirty-eighth largest city in the United States, with almost a half-million people. Primary property taxes pay for general operation and maintenance expenses; secondary property-tax revenues can only be used for debt service. Forty-four percent of Arizona municipalities did not have a primary property tax and 74% lacked a secondary property tax. Residents in these municipalities did pay property taxes to other jurisdictions such as counties, school districts, and special districts, but these revenues were not available for municipal expenditures.

Figure 8.1 presents data on sales and property taxes for the seven largest Arizona cities in fiscal year 1999-2000. The share of sales taxes in general revenue from own sources ranged from 34% in Glendale and Phoenix to 51% in Tempe. General revenue from own sources includes local taxes, current charges and fees, and miscellaneous revenue, but does not include intergovernmental general revenue, enterprise and other non-general revenue, or funds raised by borrowing. Property-tax shares were much lower, from 0% in Mesa to 15% in Glendale. By way of comparison, for all US municipalities in fiscal year 2001-02, the share of sales taxes was only 18%, much lower than its share in these medium-to-large Arizona municipalities. The property-tax share for all US municipalities was much higher, at 29%.² Data also are available for all local governments in Arizona and the US. The US Census Bureau recognizes five types of local governments: counties, municipalities, townships, school districts, and special districts. Arizona does not have townships. Its municipalities include towns and cities. Sales taxes are more important for local governments in Arizona than for all local governments in the US (see Figure 8.2). In fiscal year 2004-05, sales taxes provided 18% of general revenue from own sources for local governments in Arizona. For all US local governments, the share was only 10%.

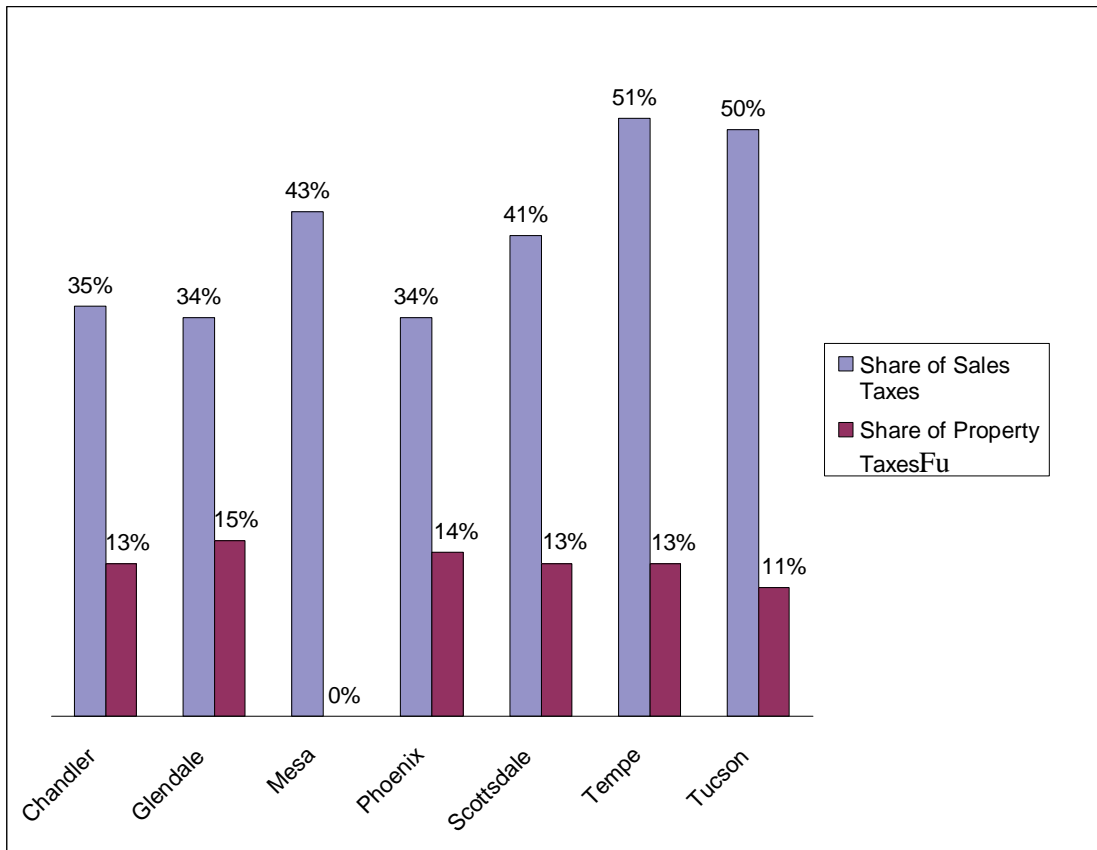
Sales Taxes and Land Development

Heavy reliance on sales taxes affects municipal decisions concerning annexation and land development. Some municipalities annex land where they expect to reap sales-tax revenues, either from shopping malls already located there or because they anticipate future commercial and retail development. Building freeways promotes this process, since it creates more opportunity for retail development and makes land more attractive for annexation. Glendale, for example, now is annexing land that has been available to it for almost thirty years, because the Loop 303 is projected for expansion as early as 2011.

The need for sales-tax revenues also may lead municipalities to favor retail uses over other land uses, such as residential development or heavy industry. This choice, and the resulting competition among municipalities, is called the "fiscalization of land use." In his book, *The Reluctant Metropolis*, William Fulton described the "Sales Tax Canyon" running through Ventura, Oxnard, and Camarillo along Highway 101, northwest of Los Angeles. These three cities have "wooded big retailers, cut red tape, arranged for the acquisition of land, and even given retail chains cash payments from tax funds," because under California's tax laws, "a retail store is a city's best cash crop."³

Fulton argued that there is nothing wrong with stores and shopping centers such as those in Sales Tax Canyon, but was critical of municipalities that overturned planning priorities and provided subsidies to create them.

Figure 8.1
Shares of sales and property taxes in general revenue from own sources,
Fiscal Year 1999-2000, Arizona municipalities.



Note: General revenue from own sources includes local taxes (property, sales, income, and other), current charges and fees, and miscellaneous revenue. Data for Mesa have been corrected.

Source: US Census Bureau, *Government Finances, 1999-2000*, issued January 2003, "Table 4. Finances of Municipal and Township Governments with a Population of 125,000 or More: 1999-2000," <http://ftp2.census.gov/govs/estimate/00allpub.pdf>.

While some planners agree with a "fiscalization of land use" perspective, others seek to protect a municipality's revenue sources by avoiding one type of downzoning, in which land zoned for commercial use is rezoned for residential purposes instead. Pressure for this type of rezoning mounts as municipalities approach build-out and it becomes harder for developers to find land for homes. Also, established residential communities

TAXES, INCENTIVES AND FISCAL POLICY CHOICES

may prefer such rezoning to avoid certain kinds of retail development close by. The passage of Arizona's Proposition 207 (see Chapter 4) created a countervailing force against rezoning in the sense that municipalities fear lawsuits if they take action that decreases the value of landowners' property.

Figure 8.2
Share of sales taxes in general revenue from own sources,
Fiscal Year 2004-05, all local governments.



Note: General revenue from own sources includes local taxes (property, sales, income, and other), current charges and fees, and miscellaneous revenue. Local governments include counties, municipalities, townships, school districts, and special districts.

Source: US Census Bureau, "Table 1. State and Local Government Finances by Level of Government and by State: 2004-05," <http://www.census.gov/govs/www/estimate05.html>.

Tax Incentives for Retail Development

The desire to attract retail development leads municipalities to compete by offering tax incentives and other subsidies. In Arizona, this often takes the form of rebating sales-tax revenues to a developer. Recent examples of incentives in the Phoenix area for mixed-use developments include nearly \$100 million from Phoenix for CityNorth, \$240 million from Surprise for Prasada, and \$20 million from Mesa for the Waveyard water sports resort (Waveyard will be voted on by Mesa residents in a November 2007 referendum). Other municipalities in the Valley have lured sports facilities, auto malls, and large retail stores such as Cabela's and Bass Pro. Retail incentives have been less common in other parts of the state, but in 2006 Oro Valley voters approved \$23.2 million in sales-tax rebates for the Oro Valley Marketplace shopping center.

The need for incentives is less clear for retail establishments than for manufacturing plants being attracted from out of state. Retail establishments tend to follow population growth ("retail follows rooftops"). As Paul G. Lewis and Elisa Barbour pointed out in their 1999 report, *California Cities and the Local Sales Tax*, cities often fight over a fixed pie of retail businesses that would have located in their regions even without inducements.

TAXES, INCENTIVES AND FISCAL POLICY CHOICES

Offering tax incentives can have distributional consequences that some regard as negative: transferring resources from the public to the private sector. Lewis and Barbour concluded that, ". . . the main effect of fiscalized land-use decisionmaking in California is probably to shift resources from the public sector to retailers, their developers, and landowners."⁴ Citizens' groups have objected to some proposed incentives. In Scottsdale, a referendum reversed a City Council decision to provide an incentive of nearly \$37 million for construction of a Wal-Mart on the former Los Arcos mall site. Stop Developer Incentives, a political action committee in Gilbert, collected enough signatures for a special election ballot in November 2007 to challenge the incentive approved by its City Council for a shopping center near Higley and Riggs roads.

Arizona legislators also have been concerned about municipal incentives. In 2005, they passed legislation to limit retail sales-tax incentive agreements. Senate Bill 1274, sponsored by Senator Jay Tibshraeny and others, was intended to provide more transparency and accountability concerning agreements, rather than to stop them. Municipalities were required to make findings, verified by an independent third party, that the incentive would raise more revenue than the amount of the incentive (though a full fiscal impact analysis was not required), and that the retail business or a similar retail business would not locate in the municipality in the same time, place, or manner without the incentive.

Not all legislators felt this bill was sufficient. Senator Ken Chevront and others sponsored legislation imposing financial penalties. Municipalities would lose state-shared tax revenues in an amount equal to the incentive. Senator Chevront (himself a small business owner) argued that legislation was needed because small business could not compete with "big boxes" that were given incentives. He felt that market forces should be allowed to operate and that business survival should not depend on government intervention. The legislation failed to pass in 2005 and 2006, but a similar bill (House Bill 2515) was signed by Governor Janet Napolitano on July 2, 2007. The penalties apply to cities and towns with exterior boundaries located entirely within the exterior boundary of a metropolitan statistical area (MSA) with a population of more than two million that provide tax incentives to retail businesses. The Phoenix-Mesa-Scottsdale metropolitan area (Maricopa and Pinal Counties) is the only Arizona MSA with a population of that size. An amendment to make the legislation apply statewide was defeated. An unintended loophole exempted Peoria from the penalties, and the Governor asked the legislature to close the loophole at its earliest opportunity.⁵

Some municipalities opposed this legislation, as did the League of Arizona Cities and Towns. The main arguments were that it would limit municipal autonomy and jeopardize Arizona's business-friendly reputation. Their position was that decisions about incentives should be made at the local level. Smaller, rapidly growing municipalities such as Avondale, Surprise, and Florence also argued that they should be able to use incentives in the same way that other municipalities had done earlier, to create a solid basis of retail sales-tax revenue by attracting retail establishments.

One argument that can be made in favor of retail incentive agreements is that they provide a way for municipalities to obtain needed infrastructure. Some, although not all, of the agreements require the developer to construct roads or other public facilities. The 2007 legislation contained an exception for public infrastructure, as well as other exceptions. In those cases, municipalities offering incentives would not have to pay the financial penalty. A relevant policy question is whether acquiring public infrastructure through incentive agreements (or other development agreements) is preferable to a municipality directly taxing itself. When a developer provides the infrastructure, the cost to the municipality (the foregone sales-tax revenues) is less obvious. But if this is how a municipality chooses to finance its infrastructure, it means that it must approve new developments in order to get the infrastructure built, perhaps leading to a different pace and pattern of growth than if the municipality chose to finance infrastructure through taxes or bonds.

Joint Revenue Sharing

Joint revenue sharing agreements provide a way for municipalities to avoid offering incentives. Neighboring municipalities agree to share the tax revenues (and perhaps the costs, as well) from a new retail establishment, regardless of where it locates. Although municipal officials have expressed a desire to create such agreements, only two have occurred in the Phoenix metropolitan area. Tempe and Chandler agreed in 1996 to share sales-tax revenues from the Arizona Mills Mall, which ultimately located in Tempe. Guadalupe also was part of this arrangement. The cities decided to end the agreement in 2003. Tempe and Chandler also agreed in 1998 to share revenues from a Chapman Chevrolet dealership. In May 2005, Phoenix, Tempe, and Chandler designated a "no-incentive zone" along some of their mutual borders, although the area was small and already largely built up. Another agreement was signed by Thatcher and Safford in 2004, to share the revenues from a Wal-Mart Supercenter for five years.

The Morrison Institute study, *The Future at Pinal: Making Choices, Making Places* (2007), took the idea of joint revenue sharing one step further, calling for a "sales tax treaty" among Pinal County and all of its towns and cities. The treaty would include a moratorium on all incentives favoring one location in Pinal over another. A portion of the sales-tax revenues received from car dealers, big box stores, and regional malls would be pooled and divided using a formula based partly on population and partly on where the taxes were generated.

Alternatives to Sales Taxes

Municipalities in the United States obtain revenue from a variety of sources in addition to sales taxes.⁶ First, there are other local "own source" revenues, including property taxes, individual and corporate income taxes, vehicle license and other taxes, charges for services (such as trash disposal or use of parks) and for public approvals (as in the case of development impact fees), and miscellaneous general revenue such as interest earnings and revenue from special assessments or sale of property. Secondly, municipalities receive "external" funds from outside their boundaries. These include intergovernmental revenues from the federal government and from state and local governments. For example, Arizona municipalities receive a share of state sales-tax revenues, based on their populations. "External" funds also include enterprise and other non-general revenues, such as revenues from water, electric, and gas supply utilities, from transit, and from liquor stores. Thirdly, municipalities can borrow money by issuing long and short-term debt. Long-term debt can be issued for various reasons, including: 1) public debt used for private purposes, such as industrial revenue bonds to finance the construction of a new factory for a corporation; 2) infrastructure development, such as a sewage treatment plant; and 3) enterprise or public facility improvements, such as parking garages or electric utilities, that will generate revenues to repay the debt.

Some revenue sources are not permitted in Arizona. For example, municipalities cannot impose a local income tax. That option was given up in 1972 in return for a share of state income-tax revenue. Tax increment financing (TIF) is a tool commonly used to finance redevelopment in other states. Infrastructure is built with the goal of sparking development in a designated district. If the project succeeds, property values in the district rise, and the resulting tax increment is used to retire debt on bonds that paid for the infrastructure. Arizona has a TIF district in Tucson (Rio Nuevo), which was created in 1999 and is unusual in being a sales-tax rather than a property-tax TIF district. The legislative compromise that was crafted that year allowed the Rio Nuevo project to go forward, but also included repeal of state legislation that had allowed TIF in Arizona. Arizona also has a TIF district in Apache Junction and two in Casa Grande. These are property-tax TIF districts that were established before the TIF legislation was repealed.

Financing arrangements based on Arizona's Government Property Lease Excise Tax have been used in a way similar to how TIF is used elsewhere. Many developments on Tempe Town Lake and in Phoenix have

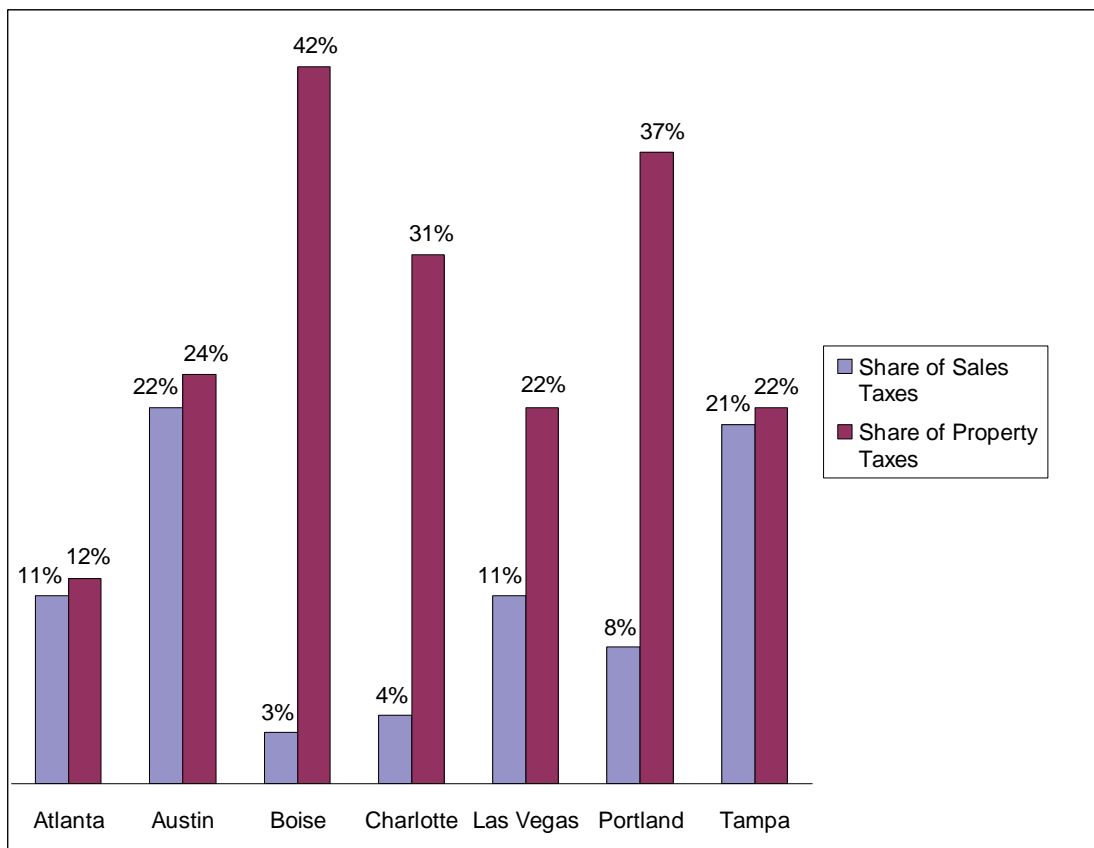
TAXES, INCENTIVES AND FISCAL POLICY CHOICES

benefited from them. But they involve substantial legal and other costs, and are really an option only for large, well-financed projects undertaken by sophisticated development companies. Smaller municipalities and developers would fare better with a TIF system.

Local governments cannot choose to increase certain revenue sources, such as federal funds, and the state puts limits on taxing and bonding options, but Arizona municipalities do have choices regarding their mix of revenue sources. Some western and southern municipalities (as well as many in the northeast and midwest) rely less on sales taxes. Figure 8.3 shows municipalities where property taxes are more important (compare this with Figure 8.1). Many of these are considered successful and attractive places to live, although many factors influence that outcome in addition to tax structures. Arizona's counties, taken together, also rely less on sales taxes than its municipalities.

Figure 8.3

Shares of sales and property taxes in general revenue from own sources, Fiscal Year 1999-2000, selected western and southern municipalities.



Note: General revenue from own sources includes local taxes (property, sales, income, and other), current charges and fees, and miscellaneous revenue.

Source: US Census Bureau, *Government Finances, 1999-2000*, issued January 2003, "Table 4. Finances of Municipal and Township Governments with a Population of 125,000 or More: 1999-2000," <http://ftp2.census.gov/govs/estimate/00allpub.pdf>.

TAXES, INCENTIVES AND FISCAL POLICY CHOICES

Another alternative to sales taxes is charges and user fees. These have become more important for municipalities and other local governments over the past thirty years, as states put constraints on what local governments could do in terms of taxes and spending, and as political opposition to tax increases (especially property-tax increases) grew. Charges and user fees can be praised for making those who benefit directly from a service pay for it. But they also raise questions about the extent to which it is desirable to individualize payment for services (some services have benefits and/or costs that spill over to others not paying for them), and to move away from the idea of a community that defines at least some of its goals as shared ones to be undertaken together.

Different fiscal structures may be associated with different land development policies. In a Brookings Institution discussion paper and a book co-authored with Ann O'M. Bowman (*Terra Incognita: Vacant Land and Urban Strategies*), Michael Pagano explored different choices made by sales-tax cities, property-tax cities, and income-tax cities. Oklahoma City, heavily reliant on sales taxes, promoted retail development. Columbia, South Carolina, drawing more of its income from property taxes, sought residential and commercial land development to preserve property values citywide, promote revitalization, and reduce blight. Columbus, Ohio, more dependent on income taxes, stressed job creation.

Municipal Finance in Different Phases of Growth

Young, rapidly growing municipalities

Young municipalities can draw upon a range of growth-related revenues. This does not mean that they have no fiscal worries. As population soars, needs grow even faster than revenues. In his book, *Phoenix in Perspective*, Grady Gammage, Jr. described the infrastructure finance "gap" problem faced by growing municipalities. Residents in new areas lacking commercial or employment uses generate demands for public infrastructure such as improved roads and more police and fire stations. But they do not immediately pay property taxes and in the short run, until shopping facilities are built, they drive to shop in already developed areas, which receive the sales-tax revenues from their purchases.

Municipalities have resorted to a variety of financing mechanisms. In addition to taxation and bonds, development impact fees have become very common in Arizona. These are fees assessed on new developments to pay for the additional public facilities needed for them, such as water and wastewater treatment plants, parks, libraries, fire and police stations, roads, and others. They commonly are viewed as a way of requiring growth to "pay for itself." There are limits on the uses of impact fees; for example, they can only be used for capital projects, not operating expenses. School construction is excluded, since municipalities are not responsible for school construction in Arizona.

A national impact fee survey by Duncan Associates showed impact fees in Arizona for three-bedroom single-family homes ranging from \$711 to \$14,049 in 2006, with the average at \$7,152.⁷ The average was higher in the Phoenix metropolitan area than elsewhere in the state. The national average was \$8,868 (or \$6,628 without California, where impact fees averaged \$22,190). In 2006 and the first half of 2007, many municipalities raised their impact fees. Goodyear, Phoenix, and Surprise (although not Avondale) agreed to phase in increases after developers and homebuilders pointed to the downturn in the housing market, and argued that fee increases would force them to take their projects elsewhere.

Even though impact fees are rising, they remain only a partial solution to the problem of infrastructure finance. They do not cover the entire infrastructure costs of new development. Due to the length of time it takes to do impact fee studies and get new fees approved, and to rising construction costs, they may yield insufficient funds for the costs they do cover. They also do not fully solve the "gap" problem of timing, and are complicated

TAXES, INCENTIVES AND FISCAL POLICY CHOICES

to assess and implement fairly. However, they are a very important, if controversial, source of funds, and counties as well as municipalities have moved to adopt them. In recent years, there have been legislative challenges to impact fees in Arizona. So far, the legislation passed has not made a large number of substantive changes that undermine impact fees. The issue of transparency has been addressed through changes in reporting requirements, and procedures for modifying fees have been revised.

In the face of legal and political constraints on their abilities to tax and spend, local governments also are starting to use less traditional methods such as community facilities districts (CFDs) to get infrastructure built. A CFD is formed by landowners, who then issue debt that does not need to be approved by the general public (although the CFD must be approved by the local government). CFD financing is allowed in unincorporated areas as well as in municipalities. Goodyear has several CFDs, and they were used for the master-planned communities of Vistancia, in Peoria, and Verrado, in Buckeye. In June 2007, the Mayor and Council of Tucson viewed a presentation on CFDs and were considering policy guidelines and application procedures.

As Jeffrey Chapman and Rex L. Facer II explained in their October 2005 *Land Lines* article, CFDs can be very complex and are not always well understood. Chapman and Facer suggested another option for financing needed infrastructure: a land tax. Although not currently widely used, and not without problems, a land tax has important advantages of transparency and accountability. Chapman and Facer also pointed out that, "if land value increases because of government activities, there is strong justification for recovering at least some of those costs through a tax on the land component."⁸

Municipalities approaching build-out

Because of the fiscal structure of Arizona municipalities, revenue is tied to growth. When new construction slows, municipalities see a drop in revenues from construction sales taxes, which often make up a large share of total sales-tax revenues. In Maricopa and Pinal Counties, the construction share ranged from 0% in Mammoth to 72% in Maricopa, a very rapidly growing (and recently incorporated) municipality in Pinal County. For half of the municipalities in the Phoenix metropolitan area, construction provided one-fifth or more of their sales-tax revenues.⁹

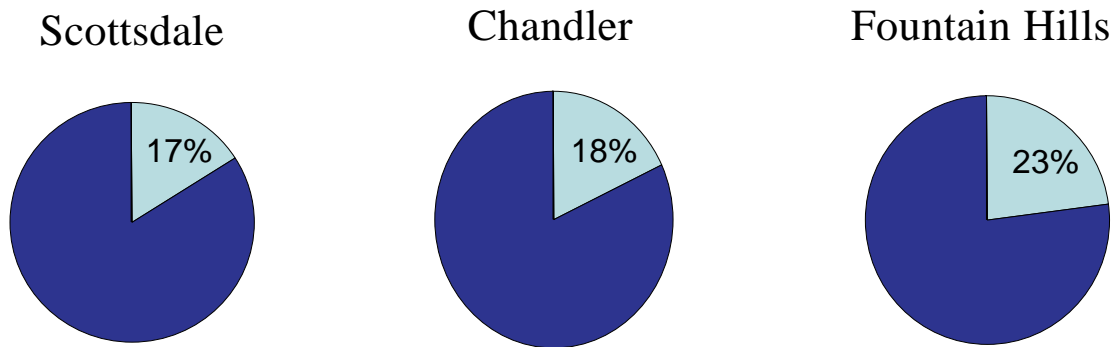
The share of construction varied for municipalities in other parts of the state as well. In Tucson it was only 11%. But in Oro Valley and Sahuarita, rapidly growing near Tucson, it was much higher. The population of Oro Valley, where the construction share was 35% percent, grew by 20% between 2000 and 2006. The town anticipates slower growth and predicts that between fiscal years 2014 and 2018, annual construction sales-tax revenues will fall by almost one-fifth. Sahuarita, which grew from 3,720 people in 2000 to 13,027 in 2006, received 49% of all local sales-tax revenues from construction in fiscal year 2004-05. It, too, projects a slowdown in construction. Other rapidly growing municipalities where the share of construction in sales-tax revenues was about one-third were Marana, Prescott Valley, and Somerton.

In addition to construction sales-tax revenues, municipalities receive other construction-related revenues such as building permit and engineering fees. Taken together, these construction-related revenues provide an important share of general fund revenues in some municipal budgets (see Figure 8.4). In Scottsdale, Chandler, and Fountain Hills, all of which are close to build-out, approximately one-sixth to over a fifth of general fund revenues was based on construction in fiscal year 2004-05.

So when construction slows, municipalities may face fiscal pressure and difficult choices about whether to raise taxes, cut services, or postpone or eliminate capital projects. Some of the construction may have built stores that generate retail sales-tax revenues. And if redevelopment and infill occur, some construction-related

revenues will continue to be collected. But these are likely to be less than the revenues from construction of large residential subdivisions in early phases of a municipality's growth.

Figure 8.4
Share of construction-related revenues in general fund revenues,
Fiscal Year 2004-2005, Scottsdale, Chandler, Fountain Hills.



Note: General fund revenues are those available for local government services such as police and fire protection, code enforcement, parks and recreation, planning and economic development, general administration, and any other activities for which special funds have not been created. Development fees are not included in construction-related revenues here, since the fees can be used only for capital projects and are not available to fund operating expenses for government services.

Sources: Arizona Department of Revenue, Office of Economic Research and Analysis; Finance Departments of individual municipalities; and municipal budgets.

Strategies for Build-Out

Municipalities approaching build-out are adopting five main strategies to deal with this situation. The strategies are not mutually exclusive, and some municipalities are trying several. They include: 1) expanding municipal boundaries through annexation, 2) promoting redevelopment and infill, 3) building up rather than out, 4) finding new revenue sources (such as a property tax), and 5) increasing retail sales-tax revenues.

Annexation is an option for some municipalities, but others already are landlocked. Moreover, annexation is not always a fiscal boon, since services need to be provided for residents in the newly annexed areas. Redevelopment and infill are being pursued by many municipalities. For example, two main initiatives are underway in Scottsdale: SkySong (the ASU Scottsdale Innovation Center), located on the former Los Arcos Mall site, and the Scottsdale Waterfront. Both are large, mixed-use development projects. Chandler and Tempe also seek to redevelop downtown areas. This strategy is less of an option for smaller, more heavily residential communities facing build-out, such as El Mirage or Fountain Hills.

Some of the redevelopment projects include buildings that are higher than the usual building heights allowed on their sites. They thus are also examples of the third main strategy: building up rather than out.

TAXES, INCENTIVES AND FISCAL POLICY CHOICES

Chandler has adopted this approach most explicitly, by passing a Mid-Rise Development Policy in March 2006. Tempe has approved high-rise condos and other developments, including many on its Town Lake. Building up also is occurring in municipalities such as Phoenix that are not yet near build-out. It has been controversial in some neighborhoods, such as the Camelback Corridor where the proposed 190-foot Trump Tower project ultimately was withdrawn. However, some residents elsewhere, as in the Fiesta Mall area in Mesa, welcome high-rise development if they see it as contributing to revitalization.

Municipalities that want to promote building up rather than out may consider revising zoning codes to allow higher buildings by right, rather than through special permitting processes. Potential disadvantages to such revision could be less public participation in the process and less consideration of the characteristics of individual sites on a case-by-case basis. Municipalities also need to think about expenditure as well as revenue consequences of building up. For example, they may need to purchase new fire-fighting equipment and train firefighters to handle fires in taller buildings.

A fourth strategy is to find new revenue sources, such as a primary property tax if the municipality does not have one. Fountain Hills, for example, anticipates a deficit in the town's operating budget by 2017. As part of its comprehensive strategic planning process, it conducted extensive discussions and did surveys about adding a primary property tax (as well as considering other possibilities, such as increasing the sales-tax rate or using utility franchise fees, charges for municipal services, or licensing fees). Town residents have not yet voted on the question. Even for municipalities not facing build-out and a drop-off in construction-related revenues, having alternative sources of revenue that lessen their dependence on sales taxes may reduce the competition for retail sales-tax revenues, the pressure to provide tax incentives, and the tendency for land development to respond to fiscal needs.

Efforts to pass primary property taxes in Arizona communities (not necessarily facing build-out) have met with varying success. Mesa failed to do so in 2006, choosing instead to raise its sales-tax rate and continue relying heavily on revenues from public utilities. The city has seen cuts in services; one result has been higher response times to fires and a drop in its fire safety rating, which may lead to higher fire insurance rates for residents and businesses. Litchfield Park considered a property tax in 2004, but its City Council failed (with a 3-3 vote) to approve a motion to put a property tax question on the May ballot for voters to consider. By contrast, Queen Creek approved a primary property tax in 2007 with little apparent controversy. It will be used to provide fire, emergency, and police services. A year earlier, the city of Maricopa passed a property-tax plan to create fire and police departments by a very wide margin.

Finally, as growth slows and growth-related revenues decline, municipalities may pursue a fifth strategy: trying to protect or increase their retail sales-tax revenues. They may increase their efforts to prevent land from being downzoned from commercial to residential use, or their efforts to attract retail establishments by offering incentives. In this respect, the consequences of slower growth may be similar to consequences of the passage of Proposition 13 in California in 1978. A drop in funds from a previously important revenue source (in that case, the property tax) is alleged to have caused more competition for retail sales-tax revenues and more fiscalization of land use.¹⁰

Forward-Looking Policies

Although many Arizona municipalities now are booming, they need to look ahead to the time when growth will slow. In some cases, open space preservation may hasten build-out. Policy choices made now can help them to avoid future problems and prepare for future needs. Two important policies are: 1) avoiding the use of one-time revenues for ongoing operating expenses, and 2) acquiring land and rights of way for public purposes before land becomes extremely expensive.

TAXES, INCENTIVES AND FISCAL POLICY CHOICES

Many of the construction-related revenues described above are one-time revenues that will diminish when a municipality's outward physical expansion slows or ends. Despite the fact that these revenues are temporary, municipalities have been using them to pay for operating expenses. Those expenses will continue after physical expansion ceases (and they may even grow), since the population already is in place and will continue to need police and fire protection, general government administration, and other services.

Fiscal prudence suggests allocating some, if not all, of the construction-related revenues to capital projects or other one-time expenditures rather than to operating expenses such as staff salaries. Many municipalities have taken positive steps in this direction. Chandler has a longstanding policy of allocating 100% of one-time revenues to one-time expenditures. (Not all construction-related revenues are considered one-time revenues, since some construction continues.) Casa Grande's 2006-07 budget used no one-time revenues for operations, and the city is wary of doing so.

Sahuarita uses construction sales-tax revenues only for capital improvement projects. Surprise allocates 75% of its construction sales-tax revenues to one-time expenditures. Fountain Hills' goal is to allocate 100% of its construction-related revenues to capital projects. It was unable to meet that goal in FY 2005-06, but plans to do so in FY 2007-08. Avondale also has a 100% goal. Scottsdale, committed to a strategy of redevelopment and infill and confident that construction-related revenues will be ongoing, has a lower target. Its policy is to allocate at least 25% of construction sales-tax revenues to one-time expenditures. The actual amount transferred to the Capital Improvement Program was more than 25% in FY 2005-06.

Forward-looking policies can be adopted on the expenditure, as well as the revenue, side of the budget, by attending to land acquisition and rights of way. Rising land prices make it difficult to purchase land for public purposes such as parks, roads, or affordable housing. Some municipalities have taken early action. Chandler created a Real Estate Division several years ago, and city departments were asked to provide information about their upcoming requirements for land. In December 2005, the Surprise City Council voted to hire personnel for a new Real Estate and Survey Division. In Surprise, the Division's goals included a property and right-of-way inventory; identification of department and city real estate needs; acquisition of land and rights of way in advance, through a centralized process rather than each department acting separately; creation of urban villages and grouping of municipal infrastructure on sites serving them; and establishment of standard policies and procedures for acquisition. The latter allow the city to qualify for federal funding for infrastructure.

Surprise initially intended to use a substantial amount of its own funds for acquisitions, but decided to delay when other budgetary needs became more pressing. Its protection of rights of way, even before the new Division existed, may have helped it to obtain road funding. In 2006, the Maricopa Association of Governments approved acceleration of two Loop 303 projects in Surprise. It was looking for projects that were ready or close to ready to go, with environmental assessments far along and right of way issues settled.

Municipalities can adopt other policies related to land acquisition and rights of way that prevent housing development on planned transportation routes and produce agreements with developers of master-planned communities to set aside land for parks and open space. Land on which houses already have been built is much more expensive to acquire, yet developers have a right to build even on land designated for future roads or freeways. Beginning around 1985, Chandler's planners deterred development on land destined for the Santan Freeway by using density transfers and by steering the placement of retention basins associated with drainage for subdivisions. Chandler and Gilbert also took steps to protect the route for the Loop 202.

Phoenix has not been as successful in the case of the projected South Mountain Freeway in Ahwatukee (in the southern part of Phoenix). Land acquisition costs on the route now most likely to be adopted have soared, partly as a result of residential development. In late 2006, Phoenix officials revised their rules to better ensure

TAXES, INCENTIVES AND FISCAL POLICY CHOICES

that developers and landowners are notified when their property lies in a proposed freeway route. The Arizona Department of Transportation, which chooses routes and purchases land, is working with Phoenix to try to reduce future development on planned routes. An alternate route for the South Mountain Freeway, on Native American tribal land in the Gila River Reservation, is being explored. However, the outcome in this case may differ from that of the Loop 101, which was moved off Scottsdale land and onto that of the Salt River Pima-Maricopa Indian Community (see Chapter 6 for discussion of tribal lands).

Development agreements provide a creative way for municipalities to acquire what otherwise would be increasingly expensive land for parks, other recreational facilities, and open space. In some cases, land is set aside within a master-planned community; in others, the developer donates land elsewhere for a facility to be owned and managed by the municipality. Facilities within master-planned communities raise interesting issues of access and of involvement in planning. Even if a community is not gated, its parks or recreational facilities may not be genuinely open to others. They do, however, reduce the need for the municipality to provide them for the master-planned community's population. To some extent, the practice represents a "privatization of planning," whose consequences are worth exploring. Finally, smaller municipalities with limited staff and resources, may be at a significant disadvantage in negotiating development agreements. Model ordinances or regulations, or other ways to share expertise among communities, could be useful in assisting them.

Summary

This chapter has addressed a number of policy issues associated with growth and land use. Other relevant questions for discussion can be raised. At the state level, are there measures that could be taken to better ensure that local governments have adequate funding sources to provide needed infrastructure and services, both in phases of rapid growth and build-out? Is it worth considering changes in distribution formulas for state-shared revenues to encourage certain types of growth and land use, such as more "green" construction, higher density, or more affordable housing? Would doing so help to protect the qualities that have made Arizona an attractive place to live and work?

At the local government level, construction of new infrastructure is a major problem for growing communities. Replacement of that infrastructure also will be a serious challenge, particularly if replacement needs tend to bunch together in time and if growth-related revenues diminish. What are the best ways to plan ahead for those fiscal needs? Finally, there are questions concerning relationships among fiscal decisions by different units of government. Is more collaboration on fiscal matters desirable as part of a larger effort of regional cooperation and planning? How does the important area of school finance overlap with fiscal policies of municipalities and counties?

In considering these issues, as well as the ones raised earlier in this chapter, it may help to keep in mind three basic questions of political economy: who pays, who benefits, and who decides? Doing so may provide a useful backdrop for thinking about policy choices and recommendations.

Chapter 9

LIVING IN GROWTH COMMUNITIES: AFFORDABILITY AND LIVABILITY

Nancy Welch and Dana Bennett

When political analyst Kevin Phillips coined the term “Sun Belt” in the late 1960’s, he was referring to cities in “the oil, military, aerospace, and retirement country stretching from Florida to California.”¹ His purpose was political, but his enduring catchphrase provided a common image for the places, including many in Arizona, where an increasing number of Americans wanted to live. Since then, city after city and place after place in Arizona have accommodated those fleeing cold climates and economic decline, as well as those seeking second chances and new adventures. The 2000 Census revealed that nearly nine out of ten Arizonans are urban dwellers, and most of those are in fast-growing places. When it comes to living in growth communities, the context is not just Phoenix and Tucson, but many parts of the state (Table 9.1). Even as the largest urban areas continue to add newcomers at a dramatic pace, places such as Coolidge, Casa Grande, Prescott, Goodyear, and Chino Valley are feeling the pressures and pleasures of expansion.

Table 9.1

Population change in Arizona counties, 1990, 2000, and 2006

Each of Arizona’s 15 Counties Has Grown since 1990—Some Dramatically			
County and State	1990	2000	2006
Apache	61,591	64,423	74,515
Cochise	97,624	117,755	135,150
Coconino	96,591	116,320	132,150
Gila	40,216	51,335	56,800
Graham	26,554	33,489	36,380
Greenlee	8,008	8,547	8,300
LaPaz	13,844	19,715	21,255
Maricopa	2,122,101	3,072,149	3,792,675
Mohave	93,497	155,032	198,320
Navajo	77,674	97,470	113,470
Pima	666,957	843,176	981,280
Pinal	116,397	179,727	299,875
Santa Cruz	29,676	38,381	45,245
Yavapai	107,714	167,517	213,285
Yuma	106,895	160,026	196,390
Arizona	3,665,339	5,130,632	6,305,210

Source: Arizona Department of Economic Security.

LIVING IN GROWTH COMMUNITIES: AFFORDABILITY AND LIVABILITY

While discussions about growth usually focus on “hard” topics such as buildings, roads, and infrastructure, there is also a “softer” side to growth. That side is about livability, quality of life, and sustainability—which are all shorthand for myriad factors that shape residents’ day-to-day experience, their sense of community, and ultimately their commitment to Arizona. Today, livability is more important than ever because of the role it plays in economic competitiveness, attractiveness to future migrants, and environmental impacts.

Growth Communities Must Search for Balance

Living in a growth community usually means living in a state of becoming rather than being. Substantial growth forces leaders and residents to try to reconcile old and new, costs and benefits, quality and quantity, preservation and progress, personal choices and community values, and market forces and public policies. The ease or difficulty of finding and maintaining that balance depends in large measure on the intersection of intangible items such as values, culture, leadership, stewardship, and creativity with tangible public choices and policies. Tom Rex, one of Arizona’s foremost experts on population and growth, puts it another way: “Since many of the costs and benefits of growth are difficult to quantify, personal perspective plays an important role in weighing the advantages and disadvantages of growth (Table 9.2).”⁷

Table 9.2

Personal perspectives touch on many aspects of growth communities

Selected Comments, 1970’s-2000’s	
1970s	* Phoenix and Tucson will merge into a super- metropolitan area called the “Golden Corridor.” This early tech leader encouraged his listeners to start now, “. . . looking at future problems such as mass transit between cities, air transportation, electrical power supply, and air pollution control.... Arizona is the nation’s fastest-growing state and [we must] apply the advanced resources available to us to assure that together we preserve the amenities so easily lost by nearsighted or blind planning.” ²
1980s	* Town Hall believes growth within Arizona is highly desirable and a majority of Town Hall participants believe that growth should be promoted.... Attempts to manage and plan for future growth must accommodate the diversity of lifestyles within Arizona and must balance the influence of economic considerations with quality of life considerations including water and air quality, cultural and educational facilities, and employment opportunities. ³
1990s	* As is the case with so many sprawling cities, Phoenix’s growth has been poorly managed. The area’s growth is perhaps more costly to the natural environment nearby than to the human inhabitants. In the northeastern suburbs of Phoenix, development is running into the Arizona Uplands Division of the Sonoran Desert, an area that is home to more than 2,500 plant species and many kinds of rare desert animals, and is among the most bio-diversified regions in the country. ⁴
2000s	* Growth is coming. Growth is going to occur, but how can we modify it so that it produces a higher quality of life, produces the jobs, and reserves the rights of way well before the growth occurs? ⁵ * When all the water is gone, the deserts are paved, the temps are even more scorching, and the air is sickening, then we will all learn that we cannot drink, eat, or breathe cars, super freeways, or money. But by then it may be too late to save us. For the sake of all of us and all that is good in the world, I hope it doesn’t come to that. We are smart people and we can live cleaner. ⁶

Source: Information compiled by Morrison Institute in the past four decades.

Personal Perspectives on Quality of Life

When asked about the effects of growth on their communities or how their places have changed over time, Arizonans tend to relate their own “When I Moved Here” stories. These narratives often touch on the local landmarks that were on the fringe and are now definitely in the city. Accounts frequently refer to what they perceive to have been lost—such as desert land, air quality, or a sense of possibility—as well as what has been gained or appreciated. These stories are integral to how Arizonans feel about their places, their quality of life, and the costs and benefits of growth. They provide a touchstone for evaluating the positives and negatives of living in a growth community and for deciding whether or not to put down roots (Table 9.3).

Table 9.3
Benefits and costs of urban growth and increased size

Individuals, Businesses, and Society Often Experience a Variety of General Benefits and Costs from Urban Growth and Increased Size		
	Benefits	Costs
To Individuals	Broader employment opportunities Higher incomes* Increased cultural and recreational choices Greater selection of goods and services Wider choice of housing	Higher taxes Increased cost of living, especially housing prices Psycho-social, including lifestyle changes, stress, and loss of sense of community
To Businesses	Improved market potential, including more customers and higher profits Improved productivity and efficiency Increased availability of business services and capital	Increased competition Higher costs, such as land, labor, and utilities Higher taxes Greater travel time
To Society at Large	Improvements to infrastructure and social services Public sector economies of scale Broadened tax base Healthier economy with a stable, diversified structure Spin-offs of increased exposure and sophistication Increased rate of innovation and inventions Lower incidence of poverty*	Strain on public facilities Increase in social problems, such as homelessness and income disparity Higher costs of government Urban sprawl and congestion of some public goods Traffic congestion and accidents Higher crime rate Air pollution Water quality and quantity Other environmental damage
*Associated with larger urban size, not growth rate.		

Source: “Growth Brings Uneven Benefits for Arizonans,” *Growth in Arizona: The Machine in the Garden*, Morrison Institute for Public Policy.

LIVING IN GROWTH COMMUNITIES: AFFORDABILITY AND LIVABILITY

People tend to feel good about their choices of communities, even as they acknowledge what improvements need to be made. At the same time, many leaders note that newcomers expect the same or better services than they had in their previous home towns. Their sometimes idyllic visions may not match the reality of the places they have chosen. For example, in a recent survey in Pinal County, nearly three out of four Pinal residents expressed satisfaction with their communities, even as they noted problems in such areas as transportation. Yet a long-time planner also noted: “The average idea of a transportation fix is to have a six-lane divided interstate at the end of the mailbox that leads directly to their shaded parking space at work, but on their arrival it collapses into a bed of Spanish poppies, only to reappear at 5:15.”⁸ Whether in response to what Arizona fails to provide or for other reasons, residents often choose the option of moving again, as Arizona’s infamous population “churn” continually highlights. Because so many, particularly young adults, come to Arizona for a job, the sunshine, or a new start, other areas can become just as attractive, particularly if what attracted them does not live up to their expectations.

In its first project, *What Matters: Quality of Life Indicators in Metro Phoenix* in 1997, Morrison Institute for Public Policy worked with residents and leaders to define and rank components of quality of life for the Phoenix metropolitan area. The project combined data on specific indicators in nine areas with survey data that showed how the public feels about aspects of those issues. Opinions about quality of life in metro Phoenix have remained “good” and stable over four studies from mid-1997 through the end of 2004 (Tables 9.4 and 9.5). Between six and seven out of ten respondents have said they feel “a sense of community with others in their neighborhoods.” At the same time, approximately four out of ten residents have said they would leave metro Phoenix if they could, and the great majority have noted that areas are growing too quickly. Warning signs about safety, jobs, and the environment surfaced among those with the least resources. In the 2004 study, those with the longest local histories tended to be the least likely to rank regional quality of life highly. However, they gave local institutions, such as K-12 schools and hospitals, better marks than those who had lived in metro Phoenix for less than five years. These “older” residents may have deeper relationships with local entities, making them more satisfied with them. Newer residents, in contrast, seemed to look at overall quality of life as better, but specific features often did not rate as well.⁹

Table 9.4
Ratings of regional and personal quality of life in metro Phoenix, 1997-2004

Quality of Life Outlooks Remain Stable								
	% Excellent		% Good		% Fair		% Poor	
	Regional	Personal	Regional	Personal	Regional	Personal	Regional	Personal
1997	9	23	49	55	34	18	8	4
1998	13	26	52	54	27	16	7	4
1999	12	28	51	53	27	15	9	3
2004	11	23	53	54	29	20	6	3

Source: Morrison Institute for Public Policy.

Table 9.5

The ranking of nine quality of life components are familiar over time

1997 Survey	1998 Survey	1999 Survey	2004 Survey
1. Education	1. Education	1. Public Safety and Crime	1. Education
2. Public Safety and Crime	2. Families and Youth	2. Education	2. Public Safety and Crime
3. Families and Youth	3. Public Safety and Crime	3. Families and Youth	3. Health and Healthcare
4. Health and Healthcare	4. Economy	4. Economy	4. Economy
5. Economy	5. Health and Healthcare	5. Health and Healthcare	5. Environment
6. Environment	6. Environment	6. Environment	6. Families and Youth
7. Transportation and Mobility	7. Tie Transportation and Mobility	7. Community	7. Transportation and Mobility
8. Tie Community	7. Tie Arts, Culture, and Recreation	8. Transportation and Mobility	8. Community
9. Tie Arts, Culture, and Recreation	8. Community	9. Arts, Culture, and Recreation	9. Arts, Culture, and Recreation

Source: Morrison Institute for Public Policy.

In the 2004 survey, metro Phoenix residents also said a number of changes were “very important” to increasing quality of life. They ranged from predictable (85% said it was very important to help neighborhoods fight crime) to surprisingly strong (80% noted requiring water conservation was very important). In addition:

- Nearly 60% supported making affordable housing more available.
- One-third felt developing strong downtowns was very important.
- Expanding mass transit and preserving more open space were pegged as very important by more than half.
- Nearly half also said they were “very likely” to “take a bus, use less water, or live closer to work” to increase the region’s sustainability.

In short, residents’ personal perspectives reflect their current experiences and their desires for the future.

Tracking Quality of Life

At the same time that metro Phoenix leaders and residents were defining “quality of life,” Tucson residents were engaged in a similar activity on “livability.” More than 1,000 people helped define and plan for a “Livable Tucson” in 1997. Starting from the desire to balance “community, economy, and environment,” the mayor and city council embraced the Livable Tucson Vision Program to “identify a long-term, community-driven vision for Tucson that would help to shape the city’s budget and provide a framework for developing programs and services that address the real concerns of the community.”¹⁰ This effort resulted in seventeen goals for Tucson, which informed planning and budgeting efforts as the city faced the twenty-first century.

(Table 9.6). Like the Morrison project about Phoenix, *What Matters, Livable Tucson* is similar to many other city projects across the US and provides another model for Arizona communities just now facing growth.

Table 9.6

Livable Tucson touched on many quality of life issues and goals.

<ul style="list-style-type: none"> ▪ Better Alternatives to Automobile Transportation ▪ Engaged Community and Responsive Government ▪ Safe Neighborhoods ▪ Caring Healthy Families and Youth ▪ Excellent Public Education ▪ Infill and Investment, Not Urban Sprawl ▪ Abundant Urban Green Space and Recreation Areas <ul style="list-style-type: none"> ▪ Protected Natural Desert Environment 	<ul style="list-style-type: none"> ▪ Better-Paying Jobs ▪ Clean Air and Quality Water ▪ People-Oriented Neighborhoods ▪ Respected Historic and Cultural Resources ▪ Quality Job Training ▪ Reduced Poverty and Greater Equality of Opportunity ▪ Strong Local Business ▪ Efficient Use of Natural Resources ▪ Successful Downtown
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Source: The Livable Tucson Vision Program, City of Tucson, <http://www.ci.tucson.az.us/livable.pdf>.

Cochise County also has created a tool for its special situation to track quality of life. With the recent debut of the *Quality of Life Index for Cochise County*, this rapidly growing county has a baseline against which to measure itself in the coming years.¹¹ Cochise College, Cochise County, and the Cochise Community Foundation worked together with a broad range of community leaders to determine what should be measured and how. The index includes 24 indicators in four categories:

- Health, Safety, and Security
- Economic Health
- Environmental Health
- Education and Community Health

A survey in 2006 allowed residents to rate the various indicators. The ratings were vital to creating the baseline for the index. In the future, leaders will be able to monitor the region’s trajectories on the indicators. The sponsors say they intend to use the index to improve community programs and public policies.¹²

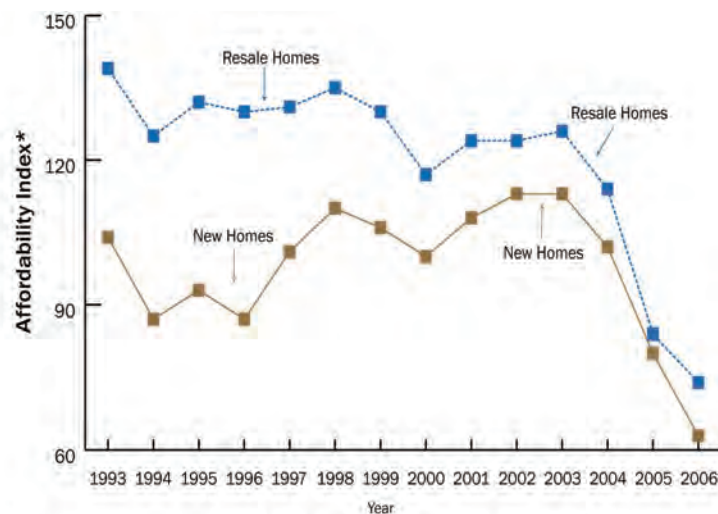
Now, the emphasis on livability is greater than ever before. Scholar Dowell Myers calls livability “an ensemble concept,”¹³ because it embodies the many tangible and intangible inputs that shape residents’ day-to-day existence. Livability takes into account what gives a place distinction, what is worth protecting, and what needs improving. Livability is affected by countless local, collective, and public policy decisions, but it also can be changed by trends and realities beyond local borders. For example, housing experts have attributed the rapid increase in Arizona housing prices in recent years to both in-state demand and national factors. Although prices

are moderating now, the increase has raised concerns about affordability, connections among job quality, housing affordability, and transportation, and their effects on livability.

Housing, Jobs, and Transportation

The term housing carries two related but distinct meanings. One refers to a multifaceted industry integral to overall development. Arizona’s housing industry remains an economic mainstay even as many builders currently are working their way out of a slump. The other meaning represents a basic human need. Arizona’s relatively low housing costs have been a powerful draw for many over several decades, while escalating values have been a boon to owners throughout the state. One of the downsides of the rising cost of renting and owning is its impact on workers and the trade-off many make between commuting and housing. From 2002 to 2007, home prices rose 94% in Arizona, affecting almost every corner of the state (Figure 9.1 and Table 9.7). For example, Flagstaff experienced an increase of 100%, Kingman 112%, metro Phoenix 97%, Prescott 95%, Tucson 82%, and Yuma 97%.¹⁴ The National Association of Realtors pegged the median price of a Tucson home at \$242,000 early in 2007, while in metro Phoenix the median ranged from \$665,000 in north Scottsdale to \$148,000 in some areas near downtown Phoenix, according to ASU Realty Studies.¹⁵

Figure 9.1
Affordability index of homes in Arizona, 1993 to 2006.



*Defined in terms of the median income household. An index of 100 shows that a median income household is able to qualify for a median-priced home. An index of 90, for example, suggests that such a household earns only 90% of the needed income.

Source: “Higher Income Prices Affect Affordability,” ASU Realty Studies, 2006.

Arizona State University real-estate expert Jay Butler noted the trends in housing affordability in a special report:

LIVING IN GROWTH COMMUNITIES: AFFORDABILITY AND LIVABILITY

...Sales and permits slowed significantly from the record pace of the last few years, and the median price remained fairly stable, but the annual median rate of appreciation was at its highest level since the tracking of appreciation rates began in 1981. Given that the Greater Phoenix area is growing amid a fairly positive home buying environment of low interest rates and a wide selection of housing, strong levels of market activity should be expected. The growth comes not only from people moving to the area, but from new households being formed, rental households seeking homeownership, and people seeking investment opportunities. While the area is well known for its affordable housing, with the recent rapid rise in home prices and fairly stable household income, affordability has been significantly impacted.¹⁶

Table 9.7
Median home prices and median family incomes, 2000-2006

In Recent Years, Housing Prices Have Risen to New Levels		
Year	\$ Median Home Price	\$ Median Family Income
2000	140,600	47,800
2001	143,900	49,700
2002	146,000	51,900
2003	156,500	52,700
2004	169,000	53,300
2005	232,000	53,300
2006	244,000	54,900

Source: Arizona Housing Market 2006, Arizona Department of Housing.

By some accounts, many Arizonans were squeezed by housing prices before the steep increases. For example, the US Department of Housing and Urban Development estimated in 2000 that 37% of Arizona renters and 23% of owners were paying more than the recommended 30% of their incomes for housing. A 2002 report for the Arizona Housing Commission calculated that 10% of households in Arizona face a housing “affordability gap.” In other words, there were 10% more households at a particular income level than there were housing units available at that income level. Affordability problems tend to increase crowding for low-income households and stiffen housing competition for middle-income families. Crowding is already an issue in Arizona, the US Census Bureau shows the state is fourth-highest for crowded housing among all states, tied with Alaska and Nevada.¹⁷

The 2002 Arizona Housing Commission noted that affordability problems are especially acute in the state’s rural areas, many of which are experiencing their own growth spurts or are mired in decades-long struggles to provide decent housing. The affordability gap was calculated at 14% in LaPaz County, 15% in Coconino, and more than 17% in Yavapai and Santa Cruz counties. Among American Indians, housing affordability gaps have reached more than crisis proportions with a gap of 57%.

LIVING IN GROWTH COMMUNITIES: AFFORDABILITY AND LIVABILITY

In recent years, the concern for housing affordability has taken on a new dimension. Often referred to as “workforce” rather than “affordable” housing, to differentiate between formal programs for low-income residents and the circumstances faced by workers at a variety of levels, the issue focuses on the inability of workers such as police officers, teachers, and retail and restaurant employees to afford to purchase or rent homes in the cities where they work. This situation often leaves workers without an alternative to long commutes. In addition, living in a community different from the employment community may reduce workers’ ability or willingness to make commitments to both. For Arizona’s high-growth communities, this presents another barrier to residents putting down roots and helping to create a strong sense of community (Table 9.8). The Arizona Department of Housing has used median prices to rent or own and median hourly wages throughout the state to show that police officers, teachers, nurses, firefighters, and wait staff are only able to rent on one income. Retail workers are making too little on one income to either rent or own.¹⁸

Table 9.8

Job and housing balance in metropolitan Phoenix

Jobs and Housing are Not Always Balanced			
	Jobs*	Housing**	Jobs/Housing Ratio
Avondale	5,299	17,528	0.30 : 1
Buckeye	3,393	4,946	0.69 : 1
Chandler	77,761	63,178	1.23 : 1
Fountain Hills	6,096	8,054	0.76 : 1
Gilbert	30,241	51,753	0.58 : 1
Glendale	58,053	52,020	1.12 : 1
Goodyear	7,493	15,541	0.48 : 1
Mesa	129,264	100,169	1.29 : 1
Peoria	25,178	40,881	0.62 : 1
Phoenix	650,145	324,922	2.00 : 1
Queen Creek	3,403	4,647	0.73 : 1
Scottsdale	149,380	65,729	2.27 : 1
Surprise	6,669	33,692	0.20 : 1
Tempe	137,638	30,803	4.47 : 1
Tolleson	8,146	1,162	7.01 : 1
Wickenburg	2,986	1,637	1.82 : 1
Maricopa Total	1,343,387	1,383,276	1.44 : 1

*A ratio above 1:1 means that a community has more jobs than houses. It is likely to import workers.
A ratio below 1:1 means that a community has fewer jobs than houses. It is likely to export workers.*

Sources: *Dunn & Bradstreet; **US Census Bureau, ASU Real Estate Center and Greater Phoenix Economic Council.

Any discussion of housing affordability leads to questions about the quality of Arizona’s jobs and the state’s overall income level. Arizona ranks 38th in per capita income nationally (where first would be best), and 14th for the number of residents living below the poverty level (where 50th would be best). Yet as the Center for Competitiveness and Prosperity Research at Arizona State University has shown, federal government

employment data show that the proportion of high-wage jobs in Arizona is nearly identical to the national average. In the US approximately 15% of jobs provide high wages, defined as at least 50% above the overall average wage. Tom Rex notes:

...In only sixteen states was the proportion of high-wage jobs in 2004 higher than the national average, but several highly populous states were in this group. The highest proportions largely were in states along the Atlantic Coast from Massachusetts to Virginia, but California, Colorado, and Minnesota also were among the top ten. Arizona ranked 17th—in the middle of a group of ‘competitor’ states, but near the bottom of a group of ‘new economy’ states. Arizona is one of the states in which the high-wage end of the employment distribution provides a more favorable impression of its job quality than that based on all employment. Thus, Arizona's sub-par job quality is not due to a scarcity of high-wage jobs, but instead results from lesser job quality in the remainder of the employment distribution.¹⁹

In short, Arizona has more low-paying jobs and a sizable proportion of temporary-help workers, most of whom earn below-average wages. Arizona also has a below-average share of moderately well-paying manufacturing jobs.²⁰

“Getting There” and Livability

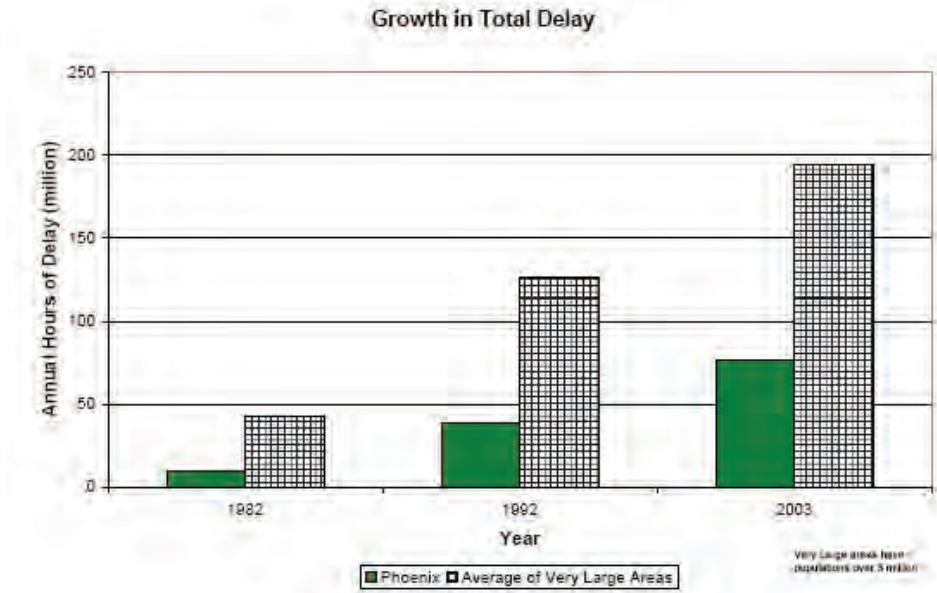
Increasingly, residents and leaders are learning to consider transportation and housing together for economic, environmental, and livability reasons. How far from work one lives and the expense of transportation combine to make a big difference in that personal perspective on quality of life. The length of commutes also affects air quality and public health. As Governor Napolitano has said, commuting and congestion also amount to a “time tax” for workers. The Center for Housing Policy’s recent study: *A Heavy Load: the Combined Housing and Transportation Burdens on Working Families* focuses on the combined costs of housing and transportation. The 2006 study compares the costs of travel and shelter for twenty-eight metropolitan areas, including Phoenix, and puts the costs for families earning between \$20,000 and \$50,000 per year in the spotlight.

- In the US, Center calculations show that “for every dollar a working family saves on housing, it spends seventy-seven cents more on transportation.”
- Longer commutes increase transportation costs. “At some distance, generally twelve to fifteen miles, the increase in transportation costs outweighs the savings on housing and the share of household income required to meet those combined expenditures rises.”²¹

In metropolitan Phoenix, working families spent an average of 30% of household income on transportation and 27% on housing. Among the twenty-eight regions studied, the transportation average was 30%, while the housing average was 28%. In seventeen of the twenty-eight areas, including Phoenix, transportation costs exceeded housing costs. Thus, as concerns increase about housing affordability, transportation costs should also be taken into consideration.

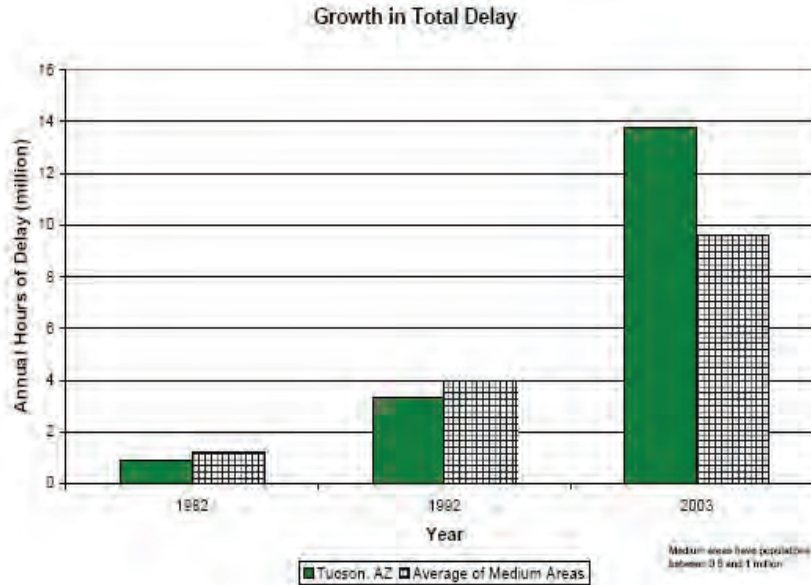
Data over time from the Texas Transportation Institute also underscore the rising impacts and costs of transportation. The Phoenix and Tucson regions both have experienced growth in total transportation delays in excess of the average for similar sized areas (Figures 9.2 and 9.3). In 2003, data for Tucson noted \$233 million in congestion costs, while Phoenix counted \$500 million in such costs. Those figures are just two among many that show the costs of delays to consumers and employers.

Figure 9.2
Annual hours of commute-time delays in Phoenix and other very large areas.



Note: Very large areas have populations over 3 million.
 Source: Texas Transportation Institute.

Figure 9.3
Annual hours of commute-time delays in Tucson and other medium areas.



Note: Medium areas have populations between 0.5 and 1 million.
 Source: Texas Transportation Institute.

Livability Initiatives

Livability is a topic and a catalyst for action on many issues in nearly every corner of the state. Many individuals, agencies, and institutions are responding to the situations of affordability, congestion, job-housing balance, and other issues. For example, light rail through metro Phoenix is expected to benefit many, while the Tucson region's recent voter-approved sales tax for transportation will make many improvements there. The Arizona Department of Transportation is again studying commuter rail, and new transportation plans have been done for Pinal County. Community design demonstration projects, home ownership programs, comprehensive plans, and workforce development efforts are numerous throughout Arizona. However, to continue to address current complex issues and cope with the growth anticipated throughout the state, the focus on livable communities will need to be not just continued, but intensified. It will take more than specific programs to ensure that Arizona's communities maintain and improve their livability. It will take "old-fashioned pride" in places and willingness to work to preserve and improve them. "Ultimately, livability is an attitude, a state of mind, an approach to community... Livability for all depends on an equitable distribution of the good life."²²

Figure 9.4

Characteristics of a livable community

A livable community:

- stimulates the physical, mental, and spiritual potential of individuals
- fosters good schools, jobs, housing, public transportation, clean air, and safety
- encourages a harmonious relationship between man and nature
- helps conserve energy and natural resources
- brings quality to the physical, social, economic, and cultural environment
- encourages a variety of choices and opportunities (balance) among new and old, large and small, intensive and quiet, communal and private
- takes advantage of its unique features – climate, geography, population, history industry – and expresses them through design
- understands a community's roots
- develops a participatory attitude, to involve people in the planning and use of projects

Source: *Livability Today: A Reflection*, Partners for Livable Communities.

Chapter 10

LAND USE AND ENVIRONMENTAL QUALITY

David Pijawka, Anthony Brazel, Edward Cook, Joseph Feller, Susanne Grossman-Clarke,
Subhrajit Guhathakurta, and Matthias Roth

The relationship between land use and environmental quality has long attracted the attention of academics, urban planners, and policy and decision makers. At the turn of the 20th century, crowded urban slums in large cities without adequate environmental infrastructure experienced periodic and serious outbreaks of illness. The emergence of community zoning, city park development, and new professions such as public administration, landscape architecture, and community planning were a reaction to these debilitating conditions. In the 1960's and 1970's, as environmental sciences were becoming recognized, land-use decision making was seen as critical to environmental quality and ecosystem integrity. Currently, with innovations in spatial modeling, Geographic Information Systems (GIS), and remote-sensed satellite imagery, land-use decisions and projections of growth are much better linked to their environmental impacts.

This chapter uses a set of issues, involving social and biophysical conditions, to consider the interrelationships between land-use patterns and environmental quality. The first section outlines the consequences of large-scale urban development for local climatic conditions—how urban surfaces and activities generate an urban heat island effect. The second section considers the social consequences of urbanization, focusing on the unequal exposure of certain groups to environmental risk. In the third section, we show that environmental impacts are not limited to very large cities, and that smaller-scale urbanization is a problem all over Arizona. A prime example is in the San Pedro watershed in southern Arizona, where growth of Sierra Vista is causing the river's runoff to dwindle and riparian habitat to be lost. The fourth section offers the idea of ecological networks as a planning concept to guide future land-use decisions, and the fifth section presents an example from Pima County's Desert Conservation Plan to show how environmental considerations can contribute to creating a landscape that promotes a more compact urban form as well as ecosystem integrity. Section six examines recent court decisions regarding the Clean Water Act to suggest the need for state- and local-level changes in land-use regulation.

The Urban Heat-Island Effect

Cities are usually warmer than their surrounding undeveloped landscapes because impervious urban surfaces absorb and retain heat more effectively than open, undeveloped lands and from the waste heat emitted from air conditioners and automobiles. This condition has come to be known as the urban heat island (UHI). The UHI is most pronounced at night under clear skies and light winds; it stems primarily from differing urban and rural cooling rates. The daytime excess heat received from the sun is stored in building materials and released slowly at night. During the daytime, shading in deep street canyons helps to maintain moderate air temperatures that can result in a negative UHI, i.e., the city center is actually cooler than the surrounding landscape. In Phoenix, parks and irrigated urban areas also are cooler than the surrounding desert during daytime because their more humid surfaces have higher rates of evaporation and thus, lower temperatures.

The maximum difference between the nighttime urban peak temperature measured in the heavily built-up city center and the rural background temperature defines the UHI intensity. In large metropolitan areas there may be several areas with higher or lower temperatures in response

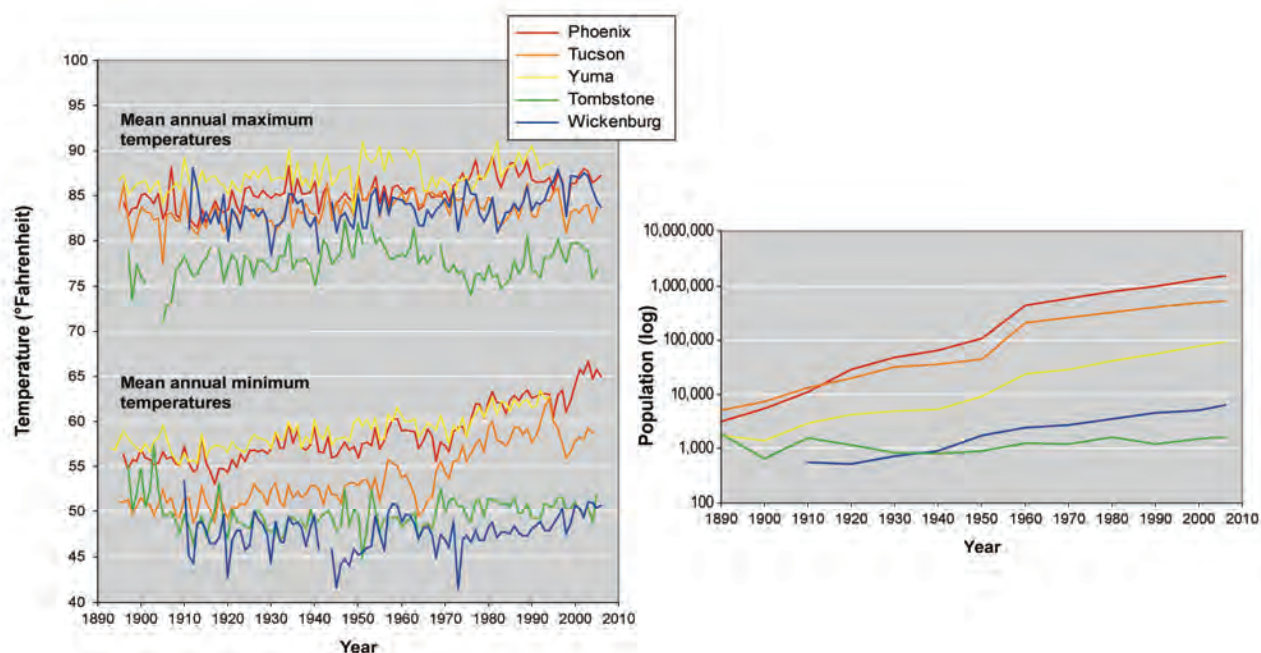
LAND USE AND ENVIRONMENTAL QUALITY

to distinct urban land features such as parks (which will be cooler), commercial and industrial developments (warmer), and topographical features such as hills (cooler). Land-use patterns, development density, building materials, and green spaces are critical factors in determining the intensity and pattern of the UHI.

Five weather stations with long-term records illustrate the trends in local temperatures over time in Phoenix, Tucson, Yuma, Tombstone, and Wickenburg. The urban heat-island effect would not be expected to be large in the latter two less-populated, rural areas (Figure 10.1). In the post-1950 period, the minimum temperature increased by about 10° F in Phoenix and Tucson and 5° F in Yuma, while changing little in smaller cities such as Tombstone and Wickenburg.

Figure 10.1

Annual mean, maximum, and minimum air temperatures (Phoenix downtown, Tucson University of Arizona campus, Yuma airport, edge of the towns of Tombstone and Wickenburg).



Source: Data from Western Regional Climate Center at <http://www.wrcc.dri.edu/> and State climatologist Nancy Selover, Office of Climatology, School of Geographical Sciences, ASU, <http://www.public.asu.edu/~aunj/index.html>.

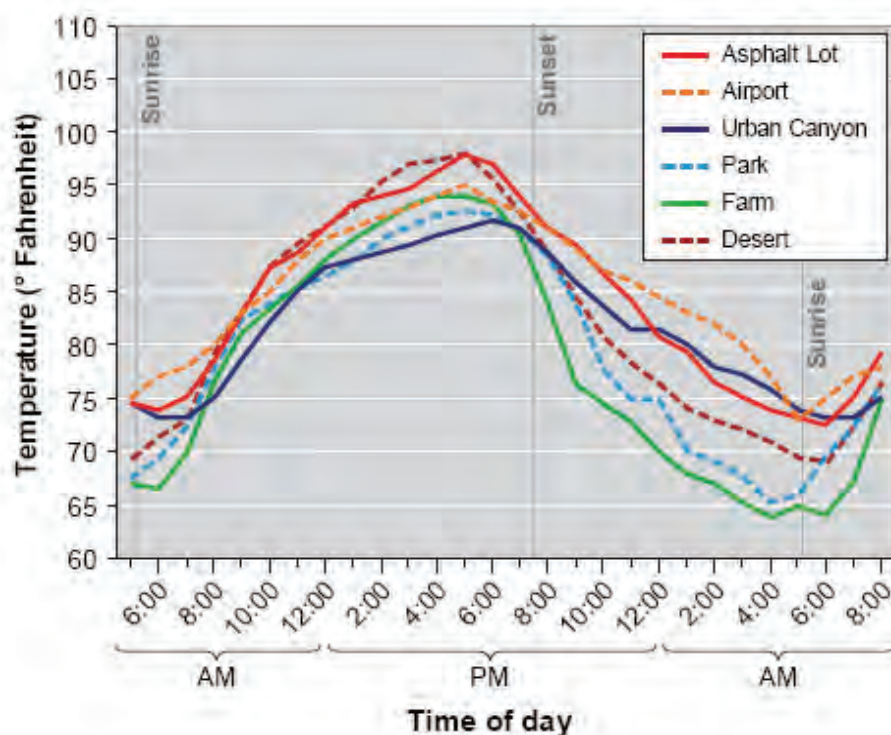
An example of the importance of local land use and land cover for contrasting locations is shown in Figure 10.2. Air-temperature readings are for an ASU asphalt parking lot, Sky Harbor Airport's complex of runways, an ASU campus "urban canyon," Phoenix's urban Encanto Park, a rural area (Queen Creek farm), and the open desert. The ASU "urban canyon" is a narrow space located between two large, north-south-oriented, multi-storied, brick buildings on campus. The largest differences occur after sunset as stored heat in the asphalt, the urban canyon, and at the airport keeps temperatures elevated at night by up to 10-15° F above cooler park and rural farm areas. The exposed surfaces of the airport and asphalt-lot areas absorb large amounts of heat during the day and elevate temperatures; high thermal storage of the pavement does not allow for effective cooling at night.

LAND USE AND ENVIRONMENTAL QUALITY

An urban park with a grass surface exposed to the sun is somewhat cooler during the day due to evaporative cooling.

Figure 10.2

Actual air temperature comparisons for an early-June, clear, calm period of 2001 in the Phoenix metro area and surroundings.



Source: AZMET <http://ag.arizona.edu/azmet/> - Encanto Park, Queen Creek; Office of Climatology, Sky Harbor Airport and desert site; observations on the ASU campus, asphalt lot and urban canyon.

These results point to the kinds of strategies that can be employed for UHI mitigation. Three possible mitigation approaches are: (1) using shade devices and tree plantings to minimize daytime extremes in temperatures, (2) employing planning tools to increase building densities (infill) that would have an impact on climate by providing more pedestrian shading among buildings and on streets, and (3) employing a variety of building materials and pavements that are more reflective and/or do not have high heat-storage properties that cause significant heat retention at night.

Environmental Justice

The distribution of land uses and human activities can contribute to an unequal exposure to environmental risks, such as the risk of heat stress caused by the UHI or the risk associated with living within proximity of landfills; facilities that store, process, and recycle hazardous waste; abandoned industrial plants; and sites with

LAND USE AND ENVIRONMENTAL QUALITY

serious chemical contamination. Environmental justice (EJ) is concerned with these inequities, especially when such land uses result in concentrations of toxic exposure and other risks to low-income and minority populations.

Because Phoenix grew rapidly only after 1950, and because of the (more recent) influx of high-technology firms, the city was thought to have escaped the concentration of smoke-stack industries and their proximity to residential areas that have confronted older cities, especially in the northeast. But since the mid-1990's, several studies have revealed a relationship between class and race and exposure to environmental hazards in the Phoenix metropolitan region.¹ These relationships sometimes are not readily observable. There are a number of reasons for this. Toxic waste sites, including brownfields, hazardous waste recycling and storage facilities, and abandoned industrial plants, may not have been identified by local sources, mapped, or managed by regulatory authorities as part of routine operations. Neighborhoods may not have received information about pollution and exposure, or data may be scant. Moreover, because many of these neighborhoods have not experienced acute hazardous events or accidents, hazards from toxic industries may remain insidious and undiscovered.

One of the first significant hazardous events in Phoenix occurred in the early 1990's as the result of a fire in a high-technology assembly firm, Quality Printer Circuit (QPC), located in South Phoenix adjacent to a poor, African-American neighborhood. A study area of eleven census tracts was designated to examine the impacts of the accident on the population, which at that time was just under 41,000 persons, was unevenly distributed, and had a high proportion of minority residents. The particular census tract where the accident occurred and the resulting toxic plume was located in a tract with a 98% African-American population. Unemployment rates for the study area were roughly twice the average of the City of Phoenix, and the impacted tract had a 38% poverty rate, more than three times that of the city's average at the time. The demand for new housing and employment investments was suppressed. Ironically, the QPC plant was located in the neighborhood to increase the tax base and augment employment in disadvantaged central city neighborhoods.

The fire and toxic plume generated significant political controversy and mobilized the community to act. Over a four-year period, concerns emerged over the adequacy of the emergency response, health risks, clean-up standards, and long-term chemical residues in homes and soil. Underlying these concerns was a persistent and vocalized concern over environmental justice. When South Phoenix was compared to the City of Phoenix as a whole, the area contained 20% of the city's hazardous waste generators while having less than 9% of the city's population. Also significant is that the area's population was 74% minority, in contrast to the 28% minority population of the city as a whole.² South Phoenix is subject to higher-than-normal environmental risk as a result of the disproportionate concentration of hazardous waste facilities located there.

Highly publicized events such as the QPC accident have a tendency to amplify risks when social and political disputes give attention to the area as an unwanted neighborhood with potential health problems. In turn, stigmatized and risky neighborhoods lose out on stability and in property valuation, sometimes many years after the event, and sometimes when the risks due to contamination are no longer evident or have been cleared up. There is strong evidence that housing prices declined significantly from pre-fire levels in the area primarily within the toxic-plume zone, despite clearances from state health agencies that any contamination was within established safety standards. Analysis has shown that home values plummeted by 16% even after governmental assurances of safety. A minority community that was already confronting environmental inequities experienced a significant drop in real capital at a time when the trend for the city and nearby areas was for home prices to rise.

A multi-year environmental justice study of Phoenix used four different types of hazards to test for inequities in the distribution of environmental risks. The results showed a distinct pattern of inequitable distributions of hazards in Phoenix. Census tracts with high numbers of point-source hazards where pollutants come from a definite source were found to have lower average incomes and higher proportions of minority

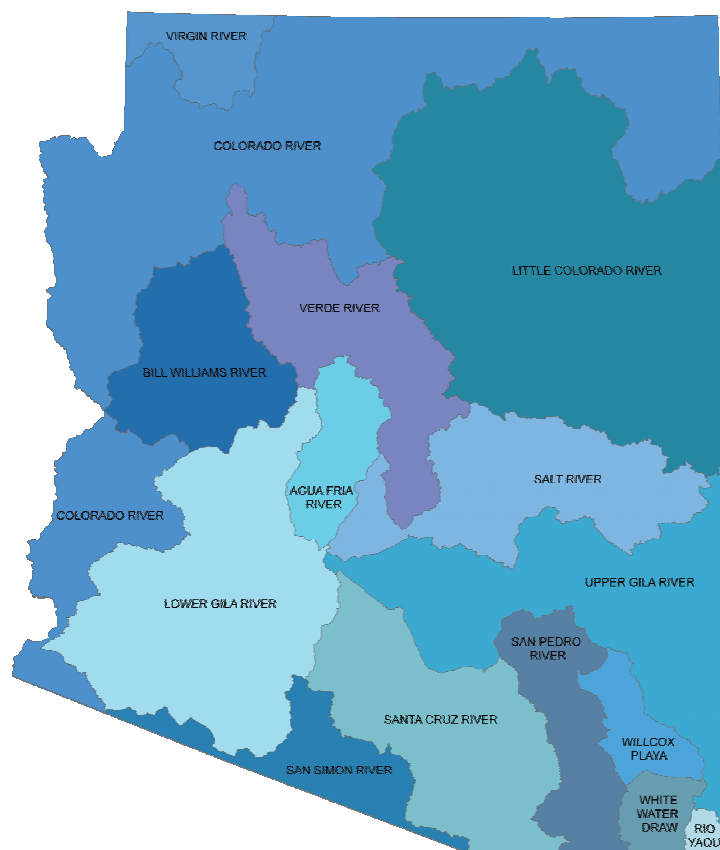
LAND USE AND ENVIRONMENTAL QUALITY

residents than neighborhoods further from these hazards. The work by Bob Bolin and others concluded that the Phoenix risk landscape of multiple-hazard sites includes relatively few census tracts.³ Four census tracts host more than 140 hazardous industrial sites, and 21% of all four hazard types was found in 1% of all census tracts. Minority and poor people live adjacent to these sites, and these populations tend to lack the financial and institutional resources to cope with these risks.

Biophysical Risks of Land Development

The pattern of urban development in much of the arid Southwest has led to ever-expanding metropolitan areas, mostly in the form of sprawling subdivisions of tract homes. Given that landscape patterns are linked to ecological processes, urban land-use planning might be better served if ecological boundaries and environmental concerns were integrated into development plans. One approach for incorporating ecological considerations in land-use planning is to use watersheds as the conceptual unit for planning. The US Environmental Protection Agency (EPA) defines a watershed as an area of land that drains into a common waterway, such as a stream, lake, estuary, wetland, or ultimately, the ocean. Watersheds can be either small river basins or larger basins that include an interconnected flow of rivers and streams. The Arizona Department of Water Resources (ADWR) identifies fifteen river basins or watersheds that are either completely or partially within Arizona (see Figure 10.3).

Figure 10.3
Arizona river basins.



Source: <http://www.azwater.gov/dwr>.

LAND USE AND ENVIRONMENTAL QUALITY

An excellent illustrative example of a bi-national watershed that is severely impacted by land development and has been extensively studied is the San Pedro watershed. The San Pedro watershed is formed by the San Pedro River that begins in the Sierra La Elenita and the Sierra La Mariquita near the historic mining town of Cananea, Sonora, and flows north. Some drainage also begins in the southern Huachuca Mountains, near the US-Mexico border, and flows south into Sonora, then back to Arizona (see Figure 10.4). The upper San Pedro Watershed is about thirty-one miles from east to west, and ninety-three miles from north to south. The area drains almost 2,625 square miles of land, of which 695 square miles lies in Mexico. The ADWR has delineated a number of unique drainage basins located within the main San Pedro watershed, the largest and most critical of these being the Sierra Vista sub-watershed.

This sub-watershed encompasses 1,200 square miles, more than half of which lies within Sonora, Mexico. The sub-watershed is home to approximately 100,000 people and includes two of the largest cities in the watershed, Cananea, Sonora and Sierra Vista, Arizona. The upper San Pedro watershed is internationally recognized for its biodiversity, representing a transition area between the Sonoran and Chihuahuan Deserts. The area supports the second highest known number of mammal species in the world, and provides habitat for more than 390 bird species, according to the Commission for Environmental Cooperation.⁴

The area within the Sierra Vista sub-watershed is undergoing rapid transformation of its economic base and its land uses; population growth in the watershed north of the border occurs at a brisk pace, mostly around the Sierra Vista area. Much of this growth is in non-incorporated areas. This often leads to inefficient infrastructure growth and unregulated demands on the watershed resources. Moreover, as watersheds continue to be paved over with hard surfaces, hydrologic regimes are altered, thereby producing changes in vegetation patterns and wildlife habitats.

Between 1980 and 1990, Sierra Vista grew over 32%. In the same period, the population of communities such as Benson, Bisbee, and Tombstone declined. More recently, however, there has been a positive growth trend in all of the communities mentioned above. This growth is led by Sierra Vista and Tombstone, with growth rates of 23.3% and 36.1% respectively during 1990-2000. The river, ranked as the first of the "Last Great Places on Earth" by the Nature Conservancy, is under considerable stress on several fronts. The burgeoning urban area in and around Sierra Vista is pumping water from the aquifer and changing the hydrology of the region, and dwindling runoff is beginning to threaten the river's very existence.

Assuming population growth as predicted by the Arizona Department of Economic Services (see Chapter 1 for discussion of these figures), the aquifer below Sierra Vista will continue to be depleted under most scenarios modeled. An aggressive program of replenishing the aquifer by recycling 30% of the domestic water through constructed wetlands will not be enough to stop the depletion of groundwater. According to simulation modeling results, by 2050 there will be about 0.5 million fewer acre-feet of water in the aquifer than there were in 1980, and the deficit will continue to grow under a "business as usual" scenario. The diminishing flow of water adversely impacts the riparian corridor. Many of the animal species that thrived in 1980 are now already endangered.

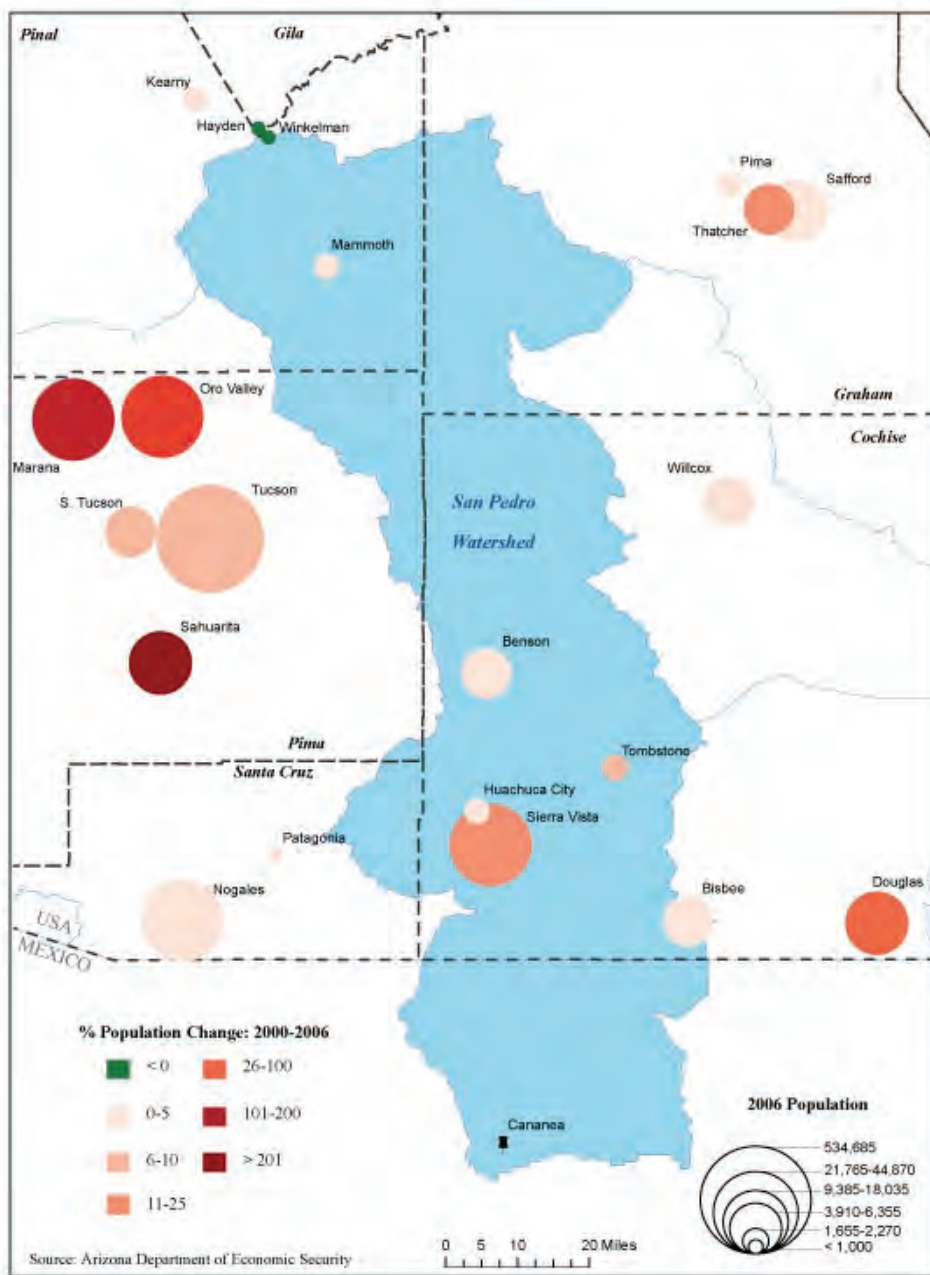
Landscape Ecology and Ecological Networks

The environmental impacts of growth and land development can be mitigated through planning and public policy. The field of landscape ecology considers solutions to the problems of disappearing rivers and depleted habitats. The problems associated with maintaining viable ecosystems in rapidly growing urban areas are significant. Urban landscapes are a finely structured mosaic of property owners and uses, where competing interests for undeveloped land are intense. Over time, cities have largely been formed as a result of political, economic, cultural, and geographical determinants. Resulting urban forms are an amalgamation of the most resilient human creations, ecological processes, and decisions over time. However, nature's deep structure is ever

LAND USE AND ENVIRONMENTAL QUALITY

present in our cities and continues to provide evidence that when ecological processes are ignored in land-use decisions, a natural response is to recapture parts of the city, either through catastrophic natural events or through incremental change. Often, valuable resources are used to hold back the forces of nature or to rebuild urban infrastructure after reoccurring natural disruptions such as floods, soil movement, or weathering.

Figure 10.4
Location of communities in the San Pedro watershed.



Source: Arizona Department of Economic Security.

LAND USE AND ENVIRONMENTAL QUALITY

The goal of planning ecological networks is to preserve or restore the ecological integrity of critical natural systems, while allowing for compatible land uses within the network and continued economically productive use of adjacent lands. (Ecological integrity is a concept that refers to the health of an ecosystem or a landscape.) Some modification to adjacent land would, in most cases, enhance the viability of the network. However, the focus is primarily on the integrity of the network and will only indirectly address adjacent land uses to examine appropriate fit. Noss⁵ notes that, “ecological integrity is what we might call an ‘umbrella concept,’ embracing all that is good and right in ecosystems. It encompasses other conservation values, including biodiversity, ecological resilience, and naturalness.” Noss recognizes that, “although urban areas will never have the biodiversity, naturalness, and ecological resilience of pristine wilderness areas, there are reasonable standards they can meet.”

The planning concept of ecological networks, sometimes described as green networks, green infrastructure, greenways, habitat networks, or ecological structure, embraces urban ecology as an essential determinant of city form that provides a guiding philosophy for sustainable new urban development, and opportunities to retrofit existing urban structure to be compatible with the ecological patterns nature has shaped over time. An ecological network can be described as a system of interconnected or related patches and corridors that provides and sustains ecological values within a human-dominated landscape. It is an emerging planning concept that, when applied effectively, can create an “ecological infrastructure” for cities and contribute to long-term sustainability.

Compact Urban Form and Ecosystem Integrity

Although the origins of Pima County’s Sonoran Desert Conservation Plan (SDCP) lie in the listing of the cactus ferruginous pygmy-owl as an endangered species under the Endangered Species Act, it rapidly evolved into the County’s long-term vision for balancing the community’s economic vitality with the protection of its cultural and natural heritage. A necessary step in this evolution was to identify areas that were: (1) important for maintaining biodiversity and ecosystem integrity and (2) most suitable for current and future development. With guidance from the biological and scientific communities, the Conservation Lands System was created. The Conservation Lands System is based on landscape-scale environmental considerations such as the need for continuous, unfragmented habitats, species movements, breeding and foraging areas, and areas important for the diversity of native species. With adoption of the Conservation Lands System into the 2001 Comprehensive Plan Update, existing land-use policies were augmented to encourage a more compact urban form. Significant mitigation, in the form of natural open space set-asides, is applied to new requests for development in biologically-sensitive areas. Such requests tend to occur in areas removed from the existing urban core and attendant infrastructure. New requests for development closer to the existing urban core, which are typically not in biologically-sensitive areas, are not subject to mitigation. In this way, the Conservation Land System incorporates landscape-scale considerations to promote the conservation of a healthy environment, while encouraging the logical and affordable expansion of growth.

The Effect of Two Recent Supreme Court Decisions on Growth and Development in Arizona

Three federal laws, the Clean Air Act, the Clean Water Act, and the Endangered Species Act, place significant constraints on growth and development in Arizona. The Clean Air Act was addressed in the Background Report for the 88th Town Hall in April, 2006; this section addresses the Clean Water Act and the Endangered Species Act, which have been the subjects of two recent Supreme Court decisions that may substantially affect Arizona.

LAND USE AND ENVIRONMENTAL QUALITY

Background

The Clean Water Act (CWA) forbids “the discharge of any pollutant” without a permit.⁶ “Discharge of a pollutant” is defined to mean “any addition of any pollutant to navigable waters from any point source.”⁷ “Pollutant,” in turn, is defined very broadly to include virtually any substance, including rocks, dirt, or other fill material, as well as sewage or agricultural or industrial waste. Permits for pollutants are called National Pollutant Discharge Elimination System (NPDES) permits and are issued by the US Environmental Protection Agency (EPA) under section 402.⁸ The scope of “navigable waters” covered by the CWA has been a matter of legal controversy for over twenty years. The Act says that “[t]he term ‘navigable waters’ means the waters of the United States,”⁹ thus implying that the term’s meaning is not limited to waters that are actually navigable. The United States Supreme Court, in the 1985 case of *United States v. Riverside Bayview Homes*, stated that “[i]n adopting this definition of ‘navigable waters,’ Congress evidently intended to regulate at least some waters that would not be deemed ‘navigable’ under the classical understanding of that term.”¹⁰ The Army Corps of Engineers has issued regulations that attempt to flesh out the meaning of “waters of the United States.”¹¹ The Corps’ definition includes all tributaries of navigable waters,¹² including intermittent and ephemeral ones that display an “ordinary high water mark.”¹³ It also includes all wetlands adjacent to such tributaries.

The Endangered Species Act (ESA) contains two regulatory provisions designed to prevent private or government action that harms threatened or endangered species of wildlife. Section 9 of the ESA¹⁴ forbids both government agencies and private individuals and corporations from trafficking in or “taking” any member of a threatened or endangered species, where “take” is defined broadly to include many forms of harm.¹⁵ Section 7, which applies only to federal government agencies, requires that before taking any action that may affect a threatened or endangered species, a federal agency must consult with the US Fish and Wildlife Service and ensure that the action will not jeopardize the continued existence of the species or adversely modify the species’ critical habitat.¹⁶

The Importance of the Clean Water Act for Growth and Development in Arizona

As a desert state, Arizona has thousands of miles of streams that are intermittent or ephemeral. Intermittent streams flow seasonally, ephemeral streams flow only during and shortly after periods of rainfall. Although such streams carry water only a fraction of the time, they nonetheless can serve important ecological functions, and the addition of pollutants to such streams can significantly affect more permanent bodies of water that are downstream. Most intermittent and ephemeral streams in Arizona are tributary, directly or indirectly, to such rivers as the Salt, Verde, Gila, and Little Colorado, which are in turn tributary to the navigable Colorado River. Therefore, under the Corps’ definition, such streams are “waters of the United States” if they have an identifiable high water mark.

Many desert developments are in areas crossed by intermittent or ephemeral streambeds. Development plans in such areas often involve placing fill material in such streambeds for building construction, road and utility crossings, drainage or flood control structures, or other purposes. Under the Corps’ regulations, where the streambeds carry enough flow to create a high water mark, the placement of such fill requires a permit from the Corps.

In recent years, this permit requirement has been a significant limitation on development projects that involve the filling or bridging of desert washes. For example, a 600-acre residential development in the Cave Creek area that involves the placement of fill material at sixty-six locations in desert washes that flow through the property was enjoined by a federal court for nearly four years, because the Corps had issued a permit without properly assessing the environmental effects of the development.¹⁵

LAND USE AND ENVIRONMENTAL QUALITY

Two New Decisions of the United States Supreme Court

Two recent decisions of the United States Supreme Court interpreting the Clean Water Act and the Endangered Species Act may have the effect of substantially relaxing the constraints that these statutes place on growth and development in Arizona.

In *Rapanos v. United States*,¹⁶ the Court considered the validity of the Corps' inclusion of wetlands adjacent to tributaries of navigable waters within the definition of "waters of the United States." Five justices of the Court held that the Corps' definition reaches too far. Four of those five joined in an opinion stating that "the waters of the United States" include only "relatively permanent, standing or continuously flowing bodies of water [and wetlands with a] continuous surface connection" to such bodies. These four justices explicitly stated that the protection of the Clean Water Act does not extend to "ordinarily dry channels through which water occasionally or intermittently flows." On the other hand, four other justices joined in a dissenting opinion arguing that the Corps' existing definition of "waters of the United States," which includes many ephemeral and intermittent streams and their adjacent wetlands, should be affirmed.

With the other eight justices evenly divided, Justice Anthony Kennedy cast the deciding vote. Justice Kennedy, in an opinion joined by no other justice, argued that the Clean Water Act should be construed to include some, but not all, wetlands adjacent to ephemeral and intermittent streams. According to Justice Kennedy, the test should be whether there is "a significant nexus between the wetlands in question" and waters that are actually navigable. Such a nexus exists, according to Justice Kennedy, "if the wetlands, either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity" of the navigable waters. The three opinions in *Rapanos* leave the status of ephemeral and intermittent tributaries in doubt. Despite being the view of only one justice, Justice Kennedy's opinion is critical because his is the swing vote. Thus, many commentators have deemed his "significant nexus" test to be the operative rule going forward.

In 2002, the State of Arizona applied to the US EPA for authority to issue NPDES permits (i.e., permits for the discharge of pollutants other than dredged or fill material into waters of the United States) within the state under section 402 of the Clean Water Act. Before approving Arizona's application, the EPA consulted with the US Fish and Wildlife Service (F&WS) pursuant to section 7 of the ESA. The F&WS issued a biological opinion concluding that the transfer of permitting authority from the EPA to the state would not jeopardize the continued existence of any threatened or endangered species. Nonetheless, the F&WS expressed concern that the transfer of permitting authority could indirectly harm some listed species because permits issued by the state, unlike those issued by the EPA or the Corps, would not be limited by the requirements of section 7, since the state is not a federal agency. Thus, although the transfer of authority would not by itself harm endangered species, it could lead to the issuance of permits that would. The F&WS recommended that the EPA consider such indirect effects in deciding whether to grant section 402 permitting authority to the state. The EPA, however, declined to consider such effects and approved Arizona's application.

In *National Association of Home Builders v. Defenders of Wildlife*,¹⁷ the Supreme Court, by a 5 to 4 majority, affirmed the EPA's decision. The Court held that the EPA has no authority to consider any effects on threatened or endangered species when it delegates Clean Water Act permitting authority to states. The Clean Water Act itself lists the conditions a state must meet in order to receive permitting authority. According to the Court, these conditions are exclusive of other considerations. That is, when a state meets the listed conditions, the EPA has no choice but to approve the state's application, regardless of any effects on threatened or endangered species.

The Implications of Rapanos and National Association of Home Builders for Development and Growth in Arizona

The Supreme Court's decisions in *Rapanos* and *National Association of Home Builders* could result in a significant relaxation of federal control over growth and development in Arizona. In response to *Rapanos*, the EPA and the Corps have issued a memorandum advising their local offices how to interpret "waters of the United States."¹⁸ The guidance differs significantly from the Corps' regulations, especially with respect to intermittent and ephemeral streams that are tributary to navigable waters. Application of these guidelines may result in the exclusion of many, if not most, of Arizona's thousands of intermittent and ephemeral streams from the protection of the Clean Water Act. The effects of *National Association of Home Builders* are less certain and are likely to be more subtle. The immediate effect is to affirm the EPA's decision to delegate to Arizona the authority to issue NPDES permits under section 402 of the Clean Water Act. Permits issued by the state, unlike those previously issued by the EPA, will not be subject to scrutiny under section 7 of the Endangered Species Act.

The Supreme Court's decision in *Rapanos*, and to a lesser extent its decision in *National Association of Home Builders*, is likely to reduce the scope of federal regulatory authority over growth and development in Arizona. Such a rollback of federal authority would effectively shift the burden to state and local governments to ensure the protection of thousands of miles of intermittent and ephemeral streams. If the state and local governments fail to assume that burden, these decisions could be a boon to developers but a threat to our desert environment, our wildlife, and the rivers to which these intermittent and ephemeral streams are tributary. On the other hand, if Arizona governments can rise to the occasion, these decisions provide an opportunity for them to demonstrate that our state is capable of protecting its environment without federal supervision.

Summary

This chapter deals with the relationship between land use and environmental quality, including urban and rural examples and considering biophysical and social impacts. Land-use change has altered the local climates of our large cities in ways that affect human comfort and water and energy use. Land use change in smaller cities, such as Sierra Vista, has increased aquifer pumping threatening the San Pedro River and its riparian habitats. Hazards associated with the concentration of toxic materials in cities tend to affect low-income and minority residents most intensely, both because they live near hazardous sites and because reports of key events can reduce property values and stigmatize neighborhoods. The field of landscape ecology offers solutions to restoring the integrity of natural systems in the face of urbanization, and planners must consider the effects of recent Supreme Court rulings for future development. Past development of our state has relied both on land development and environmental quality. Good policy decisions about the future require a clearer understanding of the way land-use practices affect the environment, and of feedback effects in which environmental change affects the state's prosperity and livability.

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9. "Survey on Municipal Form of Government 2006," International City/County Management Association (ICMA), <http://www.icma.org/main/bc.asp?bcid=141&hsid=12&ssid1=2471&ssid2=2475>.
10. E. Gerber and J. Phillips, "Direct Democracy and Land Use Policy: Exchanging Public Goods for Development Rights," *Urban Studies* 41.2 (2004): 463-79; E. Gerber and J. Phillips, "Evaluating the Effects of Direct Democracy on Public Policy: California's Urban Growth Boundaries," Paper presented at the Midwest Political Science Association meeting, Chicago, 2004.
11. Developers of Developments of Regional Impact (DRI) must file an application for development approval with the local government and the RPC. The RPC must submit a report to the local authority making recommendations to local governments for approving, suggesting mitigation strategies, or not approving the DRI. In accordance with the Florida Statutes (section 380.006), the report must state a favorable or unfavorable impact on regional resources or facilities, identifying the applicable regional plan. Also, it must describe any significant impact upon adjacent jurisdictions. Finally, the report should emphasize the extent to which the DRI will affect the ability of people to find adequate housing that is reasonably accessible to their places of employment.

ENDNOTES

Chapter 4 – Proposition 207

1. Kelo v. City of New London, 545 U.S. 469 (2005).
2. Bailey v. City of Mesa, 76 P3d 898 (AZ, 2003).
3. Arizona Constitution article 2, § 17 provides:
Section 17. Private property shall not be taken for private use, except for private ways of necessity, and for drains, flumes, or ditches, on or across the lands of others for mining, agricultural, domestic, or sanitary purposes. No private property shall be taken or damaged for public or private use without just compensation having first been made, paid into court for the owner, secured by bond as may be fixed by the court, or paid into the State treasury for the owner on such terms and conditions as the Legislature may provide, and no right of way shall be appropriated to the use of any corporation other than municipal, until full compensation therefore be first made in money, or ascertained and paid into court for the owner, irrespective of any benefit from any improvement proposed by such corporation, which compensation shall be ascertained by a jury, unless a jury be waived as in other civil cases in courts of record, in the manner prescribed by law. Whenever an attempt is made to take private property for a use alleged to be public, the question whether the contemplated use be really public shall be a judicial question, and determined as such without regard to any legislative assertion that the use is public.
4. Village of Euclid v. Ambler Realty Co., 272 U.S. 365 (1926).
5. Pennsylvania Coal vs. Mahon, 260 U. S. 393 (1922).
6. Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419 (1982).
7. Lucas v. South Carolina Coastal Council, 505 U.S. 1003 (1982).
8. First English Evangelical Lutheran Church of Glendale v. County of Los Angeles, 482 U.S. 304 (1987).
9. Penn Central Transportation Co. v. City of New York, 438 U.S. 104 (1978).
10. Berman v. Parker, 348 U.S. 26 (1954).
11. Arizona’s Prop 207 only represented statutory and not constitutional reform, and in Arizona the “single subject rule” applies only to constitutional amendments.
12. Passed as Prop 105 in 1998, the Voter Protection Act appears in Arizona Constitution Article IV, § 1 subparts 6 (B) and (C).
13. Statistics on the Oregon experience are from a paper entitled “A Primer on Oregon’s Ballot Measure 37” (2007) presented to AZ League of Cities and Towns February 5, 2007 by Glenn Klue and Susan Muhr; Public Opinion Research from survey by David Metz, Fairbank, Maslin, Mallin and Associates, March 16, 2007.
14. Eric de Place, “Summer Property Rights Update,” Sightline Institute, July 13, 2007, http://www.sightline.org/daily_score/archive/2007/07/13/prop-rights-update#more.
15. Arizona League of Arizona Cities and Towns, December 19, 2006.

Chapter 5 – State Trust Lands: The Future of Urban Growth in Arizona

1. The original research and analysis supporting the material for this chapter was funded by the Lincoln Institute of Land Policy – Sonoran Institute Joint Venture on State Trust Lands, a partnership established in 2003 to assist trust land managers in meeting their fiduciary duty in a changing West. The project seeks to broaden the range of land use information, tools, and policy options available to state trust land managers and stakeholders for the long-term, sustainable management of trust lands. The Joint Venture published two seminal works on state trust lands in the West, *Trust Lands in the American West: A Legal Overview and Policy Assessment* (2005) and *State Trust Lands in the West: Fiduciary Duty in a Changing Landscape* (2006).
2. Peter Culp, Diane Conradi, and Cynthia Tuell, *Trust Lands in the American West: A Legal Overview and Policy Assessment*, (Lincoln Institute of Land Policy – Sonoran Institute Joint Venture on State Trust Lands 2005): 2.
3. *Ibid.*

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4. Sean O'Day, "School Trust Lands: The Land Manager's Dilemma Between Educational Funding and Environmental Conservation: A Hobson's Choice?" *New York University Environmental Law Journal* 8 (1999): 176, 174. See generally: Eric T. Freyfogle, "The Owning and Taking of Sensitive Lands," *UCLA Law Review* 43 (1995): 77, 95-97.
5. *Ibid.*
6. New Mexico-Arizona Enabling Act, 36 Stat. 557, § 24 (1910).
7. The reason for the relatively contiguous nature of Arizona trust ownership is related to the predominance of federal land ownership in the state and the relatively late entry of Arizona into the Union. By the time that Arizona achieved statehood, an enormous quantity of public domain land had been granted to Southern Pacific Railroad, largely as a checkerboard pattern across the northern half of the state. As a result, Arizona took only a small amount of its overall grant in the form of reserved sections; the majority was taken as *in lieu* selections that allowed the state to aggregate its holdings in larger, contiguous parcels.
8. New Mexico-Arizona Enabling Act, 36 Stat. 557, § 25 (1910).
9. Arizona State Land Department, "Annual Report 2005-2006" (2006), 36, http://www.land.state.az.us/report/report2006_full.pdf.
10. Culp *op cit.*, 64.
11. *Ibid.*
12. *Ibid.*
13. See generally: Arizona *op cit.*
14. A.R.S. § 37-331.03.
15. A.R.S. §37-331.02.
16. Arizona *op cit.*, 36.
17. *Ibid.*, 5.
18. *Ibid.*, 6.
19. *Ibid.*, 23.
20. *Ibid.*, 24.
21. A.R.S. § 15-977.
22. It is important to note that the evolution of these restrictions was largely driven by the states themselves – virtually all Congressional restrictions appeared first as restrictions on the use of trust lands in state constitutional provisions.
23. New Mexico-Arizona Enabling Act, 36 Stat. 557, § 28 (1910).
24. State ex. Rel. Ebke v. Board of Educ. Lands and Funds (1951).
25. Culp *op cit.*, 37-49.
26. *C.f.Re* Bank of New York, 35 NY2d 512 (1974).
27. As noted by a federal district court in *Branson School District RE-82 v. Romer*, 958 F.Supp 1501 (D. Colo 1997), the state "as trustee, is under no obligation to maximize the benefit of the trust to the current public schools," but should engage in long-range planning that benefits the "common schools both now and for generations to come." *Ibid.* at 1517.
28. For example, see *National Parks and Conservation Association v. Board of State Lands*, 869 P.2d 909 (Utah 1993) finding that the state trustee was required to consider and preserve unique scenic, archeological, and paleontological values on state lands where it was possible to do so, *Id.* at 920-21; see also *Branson School District v. Romer*, 161 F.3d 619 (10th Cir. 1998) upholding a "stewardship principle" that required protection of ecological values on trust lands that was adopted by Colorado voters as consistent with a perpetual trust responsibility, *Id.* at 638.
29. New Mexico-Arizona Enabling Act, 36 Stat. 557, § 24 (1910).
30. *Ibid.* at § 28.

ENDNOTES

31. *C.f.* ARIZ. CONST. Art. X § 3 (interpreted to prohibit exchanges without public auction in *Fain Land & Cattle Co. v. Hassell*, 790 P.2d 242 (Ariz. 1990)).
32. *Deer Valley Unified School Dist. No. 97 of Maricopa County v. Superior Court*, 760 P.2d 537 (Ariz. 1988).
33. *Arizona State Land Dept. v. Superior Court In and For Cochise*, 633 P.2d 330 (Ariz. 1981); *City of Sierra Vista v. Babbitt*, 633 P.2d 333 (Ariz. 1981); *Gladden Farms, Inc. v. State*, 633 P.2d 325 (Ariz. 1981).
34. *Fain Land & Cattle Co. v. Hassell*, 790 P.2d 242 (Ariz. 1990).
35. *Havasu Heights Ranch and Development Corp. v. Desert Valley Wood*, 807 P.2d 1119 (Ariz. 1990).
36. *Kadish v. Arizona State Land Dept.*, 747 P.2d 1183 (Ariz. 1988); *State Land Dept. v. Tucson Rock & Sand Co.*, 469 P.2d 85 (Ariz. App. 1970).
37. *Lassen v. Arizona ex rel. Arizona Highway Dept.*, 385 U.S. 458 (1967).
38. *Culp op cit.*, 11.
39. Sonoran Institute, *State Trust Lands in Arizona*, map generated February 21, 2007.
40. *Arizona op cit.*, 9.
41. *Ibid.*, 7-10.
42. *Culp op cit.*, 71.
43. Jamie Hogue, Deputy Director of the Arizona State Land Department, Personal Communication, July 2007.
44. *Culp op cit.*, 176.
45. *Ibid.*
46. New Mexico-Arizona Enabling Act, 36 Stat. 557, § 24 (1910).
47. Arizona Preserve Initiative goal as expressed by the Arizona State Legislature in House Bill 2555, signed into law by the Governor in the spring of 1996.
48. Conservation is defined as “protection of the natural assets of state trust land for the long-term benefit of the land, the beneficiaries, lessees, the public, and unique resources such as open space, scenic beauty, protected plants, wildlife, archaeology, and multiple use values.” A.R.S. § 37-311.
49. Proposition 303 was referred to the public and passed by the voters in 1998 and provides funding for the public-private matching grant program for 11 years, beginning in July 2000.
50. Although the US Supreme Court held in *Lassen* that the Arizona Enabling Act did not require lands to be sold at auction when they were transferred to public bodies, the Arizona Supreme Court later interpreted identical language in the Arizona Constitution to require auctions to occur even where lands are transferred to public bodies.
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52. *Culp op cit.*, 72.
53. *Ibid.*
54. *Fain Land & Cattle Co. v. Hassell*, 163 Ariz. 587 (1990).
55. See generally: Morrison Institute for Public Policy, *The Treasure of the Superstitions: Scenarios for the Future of Superstition Vistas, Arizona’s Premier State Trust Land in the Southeast Valley*, (Tempe: Morrison Institute for Public Policy, Arizona State University, 2006).
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57. House Concurrent Resolution 2039: NOW state trust lands; public use (Nelson), 2007.

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Chapter 6 – Tribes in Arizona: Growth and Land Use

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5. Susanne Grossman-Clark, Joseph A. Zehnder, and William L. Stefanov, "Urban Modifications in Mesoscale Meteorological Model and the Effects on Surface Energetics in a Semi-Arid Metropolitan Region," *Journal of Applied Meteorology* 44 (2005):1281-1297.
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17. The other hydroelectric facilities include Horse Mesa Dam, which has three conventional hydroelectric generating units rated at a total of 32,000 kW and one pumped storage hydroelectric unit added in 1972 rated at 97,000 kW. Its reservoir covers 2,600 acres when full; Mormon Flat Dam has two hydroelectric generating units, one a conventional unit rated at 10,000 kW and the other a pumped storage unit built in 1971 rated at 50,000 kW. Its reservoir covers 950 acres when full; Stewart Mountain Dam has a 13,000 kilowatt (kW) hydroelectric generating unit operated mainly in the summer months, and 1280 acres of reservoir. On the Verde River, there are two dams, Bartlett and Horseshoe, neither of which has generators. There are also small generators at Waddell Dam, which impounds Lake Pleasant.
18. Now due to drought, the capacity for units at both dams has been reduced. The Hoover power plant has been down-rated by the Bureau of Reclamation by about 12%. So in the summertime (when most customers take their Hoover power), the capacity is in the 1900MW range.

Chapter 8 – Taxes, Incentives, and Fiscal Policy Choices

1. This chapter draws upon the more detailed discussion and references in Carol E. Heim, "Municipal Fiscal Structures and Land-Based Growth in the Phoenix Metropolitan Area," Lincoln Institute of Land Policy Working Paper, January 2007, <http://www.lincolninst.edu/pubs/PubDetail.aspx?pubid=1184>. The Lincoln Institute of Land Policy provided funding for that research.
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Arizona has transaction privilege taxes rather than traditional sales taxes. They are not imposed on the purchaser of the goods, but on the seller for the privilege of conducting business.
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6. This section draws upon the very useful overview in Jack R. Huddleston, "An Introduction to Local Government Budgets: A Guide for Planners," July 2005, <http://www.lincolnst.edu/subcenters/TFDP/materials/huddleston-guide.pdf>.
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