

# Building from the Best of TUCSON



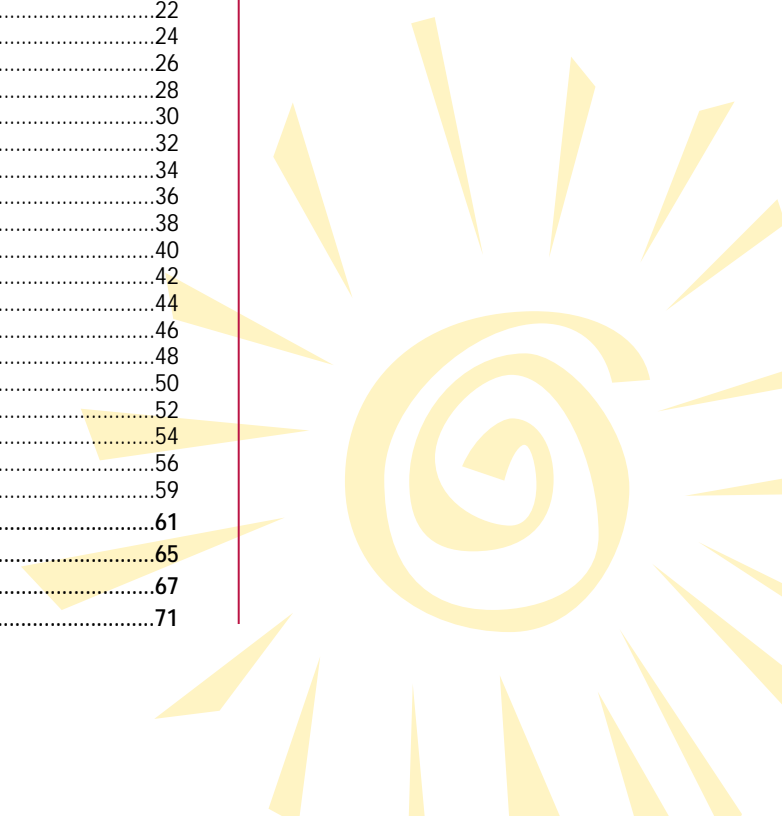
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# Preface

## The CHALLENGE

As one of the oldest communities in the American Southwest, Tucson has a long and proud architectural history. We take pride in our unique Sonoran and territorial style, from San Xavier del Bac and our numerous historic districts to the Old Main Building of the University of Arizona. Our community has grown tremendously since the 1950s, and much of the resulting development lacks a sense of history, culture, and connection with the desert environment. It is not difficult to see; most of us can easily point to recent construction that we believe is not appropriate for our desert community.

The challenge lies not in identifying what doesn't work, but in defining what satisfies our broader civic aspirations and fits in our desert environs. In *Building from the Best of Tucson*, we joined with twenty-two other community leaders to try and do just that. This report celebrates new residential and commercial development that embodies those qualities that we would like to see emulated and even improved upon in future development. It seeks a higher commitment to the best that Tucson offers as a community, and an elevation of standards in local development.

In the near future, residents of the greater Tucson basin will have a number of opportunities to be citizen planners. This November, Tucsonans will be asked to approve the city's general plan, which will guide future development. The following year, local residents likely will vote on issues related to the Sonoran Desert Conservation Plan. Other local jurisdictions also are busy working on new plans that will help them chart new directions for development.

With the release of *Building from the Best of Tucson*, we hope to provide an impetus to discuss those characteristics that make our community a unique place to live, and encourage a higher level of quality development in Tucson. By developing consensus among governing bodies, the development industry, and local residents, our community can craft solutions and policies that assure Tucson provides a superior living environment for its citizens, makes more efficient use of our finite resources, and preserves our cultural heritage.

*Betsy Bolding*  
Tucson Electric Power

*Tom Doucette*  
Doucette Homes, Inc.

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# Acknowledgments

## Community Initiative

*Building from the Best of Tucson* is a community initiative. It is dedicated to stimulating improvement in the quality of development, both residential and commercial, in eastern Pima County. This project draws from previous community efforts, including the City of Tucson's Livable Tucson program, that have sought to define a vision for how we should prosper in the future as a community. We hope to improve the quality of development by:

- Engaging the general public in a discussion of what constitutes quality development in our community
- Celebrating examples of high quality development
- Providing elected and appointed local officials with policy recommendations that will encourage higher quality in future development
- Helping architects, builders, developers, and financing institutions to improve the quality of development projects with which they are affiliated

Our thanks to the staff at Entranco for facilitating this community effort and conducting the research for this report. We also extend our appreciation to the following people for providing their expertise and

counsel at various stages of the report's development: Michael Whitchurch, University of Arizona student; Frank Cassidy, Esq., land-use attorney; Bill Vasko, Planning Director, City of Tucson; John Jones, Rio Nuevo Development, City of Tucson; and Jim Mazzocco, Planning Official, Development Services Department, Pima County.

We are also grateful to Erin Murphy, Theresa Reindl Bingham, Gordon Simmons, and Gordie Hixon for their invaluable contributions to the creation of this report. Finally, we would like to extend a special thanks to Lara Schmit, who was responsible for coordinating the talented people involved in the report's design and publication, and Josh Schachter, whose photographs help convey the best that development in Tucson has to offer.

Any omissions or errors in this report are the responsibility of the Sonoran Institute. Funding for this report was provided by the Sonoran Institute through the generous support of the David and Lucile Packard Foundation.

*Luther Propst and John Shepard  
Sonoran Institute*

## ADVISORY TEAM

Guiding this effort is an advisory team of twenty-four community leaders representing diverse interests and perspectives, including environmentalists, developers, neighborhood activists, public health specialists, members of the business community, and local government officials:

Dante Archangeli, Milestone Homes  
Peter Backus, PB Trading  
Betsy Bolding, Tucson Electric Power  
Carolyn Campbell, Coalition for Sonoran Desert Protection  
Ben Changkakoti, Pima County  
Joan Donnelly, Tohono Chul Park  
Tom Doucette, Doucette Homes, Inc.  
David Eisenberg and Anthony Novelli, Development Center for Appropriate Technology  
Diana Freshwater, Arizona Open Land Trust  
Diana Hadley, Arizona State Museum  
Luis Ibarra, Ibarra/Rosano Design Architects  
Yolanda D. Herrera La Fond, Sunnyside Neighborhood Association  
John Laswick, City of Tucson  
Molly McKasson, Former Tucson City Councilperson  
Mike Munday, Desert Rain Research & Communication  
Gordon Packard, Citizen  
David Peachin, Peachin & Peto CPA's Ltd.  
Luther Propst, Sonoran Institute  
Bill Shaw, Ph.D., University of Arizona School of Renewable Natural Resources  
Lisa Stage, Women for Sustainable Technologies  
Robert Suarez, RS Engineering  
Bryan Williams, Environment, Behavior and Risk Research Lab, Arizona Prevention Center  
Michael Zimet, Vanguard Companies

*(Note: Affiliations are for identification purposes only.)*



# Introduction

## Magnet for GROWTH

Tucson has been one of the fastest growing metropolitan areas in the United States for the last thirty years. Official projections indicate that this growth will continue unabated in the decades to come, spurred by climate, natural desert beauty, and an overall quality of life that few other areas can match.

Most of us acknowledge that Tucson would not be the city it is if it were not for the Sonoran Desert, but this prompts the question: Can Tucson continue to prosper as an urban desert community without compromising the very assets that make it a magnet for growth?

Historically, development in the Tucson area has proceeded with little consideration of limiting growth and with few acknowledgments of the cumulative impact of development. The consequences of this unrestrained expansion are evident in our air quality, increasing traffic congestion, continuing groundwater depletion, and disappearing desert. To many, these are profound indications that a change in development patterns is necessary.

The good news is that a number of promising efforts are underway to preserve and restore what remains of our Sonoran Desert heritage. Pima County's Sonoran Desert Conservation Plan is the most visible of these. Appropriately, these efforts focus on protecting open space, wildlife habitat, and a wide range of cultural resources from the impacts of unplanned growth.

We do not have a compelling vision of how we should develop as a desert community. Many of us can point to residential projects, shopping malls, and office buildings that detract from our desert surroundings. The more difficult challenge lies in defining a positive image of future development so that the places where we live, work, shop, and play reflect our common aspirations for a thriving desert community.

*Building from the Best of Tucson* serves as a practical guide for residents, developers, builders, local officials, and concerned citizens who wish to elevate the quality of proposed development projects. It offers guidelines or "best development practices" that can contribute to a more livable, prosperous community. These are practical recommendations underscored with profiles of local development projects. The report concludes with a discussion of the policy changes necessary to promote the highest quality in new development.

The Sonoran Institute will follow the release of this report with community presentations (a slide show and less formal presentations) that will summarize our findings and hopefully elicit suggestions on what we as a community can do to improve the quality of local development. We also are committed to organizing additional events that will help publicize quality development in our community.

*Terms that may be unfamiliar to the general reader have been highlighted and listed in the glossary.*

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We welcome your suggestions and comments, as well as any ideas on how we can promote higher quality development in our community. Please forward these to:

*Building from the Best of Tucson*  
c/o Sonoran Institute  
7650 E. Broadway, Suite 203  
Tucson, AZ 85710  
(520) 290-0828  
sonoran@sonoran.org

To download a copy of this report, please visit our website at [www.sonoran.org](http://www.sonoran.org).



University Square  
Tucson, Arizona

# A Brief History of Development in the Tucson Basin

## Consequences of GROWTH

Tucson is one of the longest continuously inhabited communities in North America. The ancestors of the Tohono O'odham settled here permanently at least three thousand years ago. In the 1900s, development in Tucson—like that in many western U.S. cities—was a product of our nation's westward expansion, driven by cheap and abundant land. The expansion of railroad lines, especially the Southern Pacific and the Santa Fe, and the introduction of the automobile pushed Tucson's population over twenty thousand following World War I. The city expanded once again during World War II as Davis-Monthan Municipal Airfield became a military airbase.

Most of the early growth in Tucson spread eastward, taking advantage of easily developed valley land offering views of the Catalina Mountains. Once development came up against publicly owned lands, it changed direction, heading northwest of the city. Through the 1990s and into this century, development has continued to follow a similar pattern, extending into areas beyond the metropolitan fringe where land remains cheap and accessible and homes on large lots are relatively affordable.

## THE CURRENT CHALLENGE

Pima County is Arizona's second most populous county. Current population is estimated at 843,746, most of which is concentrated in the eastern portion. Since 1990, Pima County has grown by more than 26 percent. The county projects annual population growth rates of about 2 percent through 2020, which would add another 416,000 new residents. This population surge has contributed significantly to our local economy. In 1999 alone, construction and related services generated nearly twenty thousand new jobs in our community.

Growth has its negative impacts, as well. Each day in Pima County, nearly twelve acres of the Sonoran Desert are lost to sprawling development. The decline in air quality, increased congestion, and draw-down of the water table within the Tucson basin are cited as other consequences of growth.

These changes have generated a broad-ranging discussion in our community about preserving local character in the face of development, prompting local and state initiatives to more effectively manage growth.

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*"As a fourth-generation Tucsonan, I've seen how our community has changed and I'm concerned about the lack of vision for Tucson's future."*

Yolanda Herrera La Fond



### Livable Tucson

In 1997, the City of Tucson initiated a community-wide visioning effort to define a more prosperous, **sustainable** Tucson. Known as *Livable Tucson*, this grassroots effort engaged local residents through a series of workshops on identifying specific community goals that would improve their quality of life. These goals are:

1. Better alternatives to automobile transportation
2. Engaged community and responsive government
3. Safe neighborhoods
4. Caring, healthy families and youth
5. Excellent public education
6. Infill and reinvestment, not urban sprawl
7. Abundant urban green space and recreation areas
8. Protected natural desert environment
9. Better paying jobs
10. Clean air and quality water
11. People-oriented neighborhoods
12. Respected historic and cultural resources
13. Quality job training
14. Reduced poverty and greater equality of opportunity
15. Strong local businesses
16. Efficient use of natural resources
17. Successful downtown

City officials use these goals to set priorities for their \$800 million annual budget and measure their progress in achieving a more livable community.



### Sonoran Desert Conservation Plan

Recognizing the impact of growth in our community, the Pima County Board of Supervisors approved development of a *Sonoran Desert Conservation Plan* in October 1998. The plan's immediate goal is to protect a number of federally listed threatened and endangered species, but the county also seeks to mitigate the impacts of growth over the long term by protecting a wide range of cultural and natural resources. The plan does not fill the need for an effective growth management policy that will guide future land development activities.

The proposed plan has received preliminary support from federal land management agencies, local environmentalists, ranchers, developers, and business leaders. Over the next two years, the county will work with community leaders; local, state, and federal governments; and other interested members of the public to develop specific elements of the plan.

### Statewide Growth Management Measures

Last year the state legislature enacted *Growing Smarter Plus*, adding new provisions to Arizona's existing land-use framework that move Arizona considerably out of the mainstream of American land-use law. Compared to other states' growth management policies, Arizona's newly revised statutes significantly constrain local governments' ability to implement growth management plans.

Two aspects are especially worth noting: 1) Existing Arizona law requires the consent of landowners prior to

any change in zoning that would devalue or restrict their land. The constitutionality of this provision is currently being challenged in court. 2) Arizona law prevents local jurisdictions from establishing development densities more sparse than one dwelling unit per acre without landowner consent.

Since a ballot initiative requiring local jurisdictions to establish urban growth boundaries (*Citizens' Growth Management Initiative*) was defeated in 2000, the debate in Arizona over managing growth will continue unabated.



“I believe the best chance for a constructive outcome in the debate over growth is at the local level. Public awareness about the impact of development is high in Tucson, but there needs to be more discussion about possible solutions.”

John Laswick



Public polls indicate that a majority of the state’s voters would like to see growth more effectively managed. The rapid pace of change in our community ensures that this issue will remain on the “front burner” in the years to come.

## TRENDS IN GROWTH MANAGEMENT AND LAND DEVELOPMENT

Despite the fact that national trends in land development are beginning to influence local land use (most notably in master-planned communities, **green building** technologies, infill development, and regionally appropriate architecture and design), local growth management tools and policies vary, depending on the specific challenges that each community faces. It follows that defining what constitutes effective growth management can be a subjective exercise. However, there are some common elements of effective growth management that are worth reviewing.

### Growth Management

Growth management is an approach to planning that seeks to influence the character of growth in order to achieve specific local objectives for land use. In rapidly growing areas, this generally involves balancing residential, commercial, and industrial development; protecting the environment; and delivering public services. Effective growth management relies on government spending, taxation, regulations, and incentives. Three elements are key to

the success of any growth management initiative: vision, flexibility, and ability to cut across jurisdictions.

Effective growth management is built around a clear *vision* of how a community wants to develop in the future. Too often, debate about growth shifts immediately to specific policies—for example, the use of **zoning** or **impact fees**—without a clear sense of broader local aspirations or desired outcomes. This focus is understandable given our desire to reduce the particular impacts of development, but without a forward-looking strategy, we make land-use decisions in reaction to emerging problems instead of anticipating these challenges.

Another key feature of effective growth management is *flexibility* and a reliance on a wide range of policies and strategies. While regulations are necessary to prevent the worst in development, they do not necessarily bring out the best. Public finance tools and incentives also are necessary to encourage development that is of a higher quality than that demanded by the minimum standards. The most critical requirement is that local governments have the authority to use diverse tools and approaches in addressing their growth management challenges.

Finally, for growth management to be effective, it must *cut across jurisdictions*. As we are learning, the local impacts of growth transcend municipal or county boundaries. Realizing the Sonoran Desert Conservation Plan's land protection goals alone will involve federal and state agencies and several local governments. Regional planning also can help avoid the spillover effects that occur when one

community's more rigorous land-use policies shift development to neighboring jurisdictions.

### Master-Planned Communities

“Master-planned community” is a general term for a large-scale development project that involves a variety of land uses (residential, commercial, recreational, etc.). Since World War II, these planned communities have occurred on the urban fringe, relied heavily on the automobile for transportation, and generally segregated residential neighborhoods from commercial or retail districts (what we have come to call *suburban development*). Rancho Vistoso and Rita Ranch are local examples of these types of master-planned communities. Tucson also includes resort communities like Loews' Ventana, another type of planned community.

### New Urbanism

The last decade has seen the emergence of master-planned communities that reflect elements of traditional urban neighborhoods. Often called *neotraditional development* or *New Urbanism*, this approach mixes residential and commercial uses, provides for walkways and open space that encourage greater neighborhood interaction, and generally reduces dependence on the automobile. This type of development has generated media and public interest because it attempts foster a sense of community that many feel has been lost in conventional suburban development. Civano is a local example of this type of master-planned community.



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“As an incentive to produce an environmentally sensitive development, providing additional density is critical. People may think higher densities are not desirable, but through good planning they can produce higher-quality development than a low-density plan.”

Peter Backus

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## Green Building

Tucson is becoming internationally known for sustainable design and construction. These efforts demonstrate how more practical, affordable, and comfortable homes—better adapted to local conditions—can be designed and built using a wide range of new green building technologies and approaches.

At a minimum, green building includes such features as solar-powered heating systems; various kinds of high-insulation construction materials; nontoxic, natural and/or recycled building materials; energy and water conservation techniques; **xeriscape landscaping**; and **permaculture**. Ideally, green building integrates these features to create homes and communities that are optimally suited to local landscape and climate. While most of the local projects that feature green building technologies are relatively small-scale, there are a few larger development projects that are incorporating green building features, the most prominent of which are Civano and Armory Park del Sol.

## Infill Development

As the amount of land on the urban fringe shrinks and the price of servicing suburban or rural development climbs to prohibitive levels, vacant land and abandoned properties within urban areas become increasingly attractive for development. These infill projects are appealing to developers and local governments because they make use of existing **infrastructure** such as roads, utilities, and schools.

The size and scattered nature of undeveloped land parcels within the City of Tucson may limit the potential for

infill development. There are few vacant lots of sufficient size to accommodate larger subdivisions; most parcels are less than one-quarter acre. However, our aging housing stock and abandoned or underused commercial buildings hold tremendous potential for redevelopment.

### Regionally Appropriate Architecture and Design

Across many centuries, the indigenous peoples of the American Southwest developed a regional architecture and building style well suited to the desert environment. Subsequent Spanish settlers incorporated many indigenous elements into their own Moorish building traditions, which were readily adaptable to the local climate and landscape. These features can be found in many residential and commercial buildings built through World War II. Since then, the increasing dominance of suburban-style development has severed our ties to local building traditions.

However, growing interest in environmentally sensitive development has in turn renewed interest in the traditional architecture and design that is compatible with the desert environment. We can see some of these features in newer Tucson development projects: clustered homes that make efficient use of the land, public spaces that encourage interaction, homes sited to take advantage of the sun and prevailing breezes, and the use of building materials like adobe that reduce energy consumption. These features are often combined with green building technologies that promote water conservation and **energy efficiency**.

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The trends discussed above bode well for future development in the Tucson basin. As noted, many are reflected in some measure in recently constructed residential and commercial projects. The challenge for our community is to capitalize on these trends in a manner that improves the overall quality of development in the years to come.

“The shift from building on open land to infill development and redevelopment is crucial to the future of the community. The continued success of developers is totally dependent upon adequate planning for this transition, which will become obvious as we near the physical limits to growth.”

Tony Novelli



ESTE ES MI VIDA  
ESTE ES MI AMOR  
QUE POR MI VIDA  
SE TRAZA  
Y SE VA  
Y SE VA QUE ME MUERO  
TANTO QUE ME LLEVA  
DE AHI  
HAY A SEGUIR  
FUTURO  
TANTO QUE ME  
OLVIDA ME  
DE TI  
FAMILIA  
MIA

# Best Practices

Early in the *Building from the Best of Tucson* project, the advisory team engaged in an extensive discussion about the current quality of local development. During the discussion, team members identified a number of specific concerns that they felt should be addressed in future development. These included issues related to:

- Preserving historical and cultural resources
- Encouraging social interaction and a greater sense of community
- Promoting the design of buildings and communities, and other functional aspects of development, that are compatible with our desert environment
- Protecting the Sonoran Desert's natural landscape
- Ensuring the equitable distribution of costs and benefits associated with development
- Addressing required transportation issues

Team members also identified various development projects that they thought had made or were making an effort to address these concerns.

Armed with this information, staff at Entranco began researching and evaluating promising local developments and reporting their findings to the team. Over forty projects were reviewed. Assessing these projects helped the advisory team arrive at a manageable number to profile in this report. It also led team members to more specifically define "best development practices" that respond to the concerns they had previously raised.

These best development practices should be considered as guidelines; following these guidelines may lead to higher-quality development. The guidelines will not apply in every situation, but they should be useful for residents, government officials, planners, developers, and builders as a set of criteria by which to judge development proposals and determine whether they raise the quality of development in a meaningful way.

## HISTORICAL/CULTURAL

The Southwest's Native American and Hispanic cultures and traditions are our richest resource for understanding how we have adapted and endured as a desert community. This legacy remains vital as we continue to learn from past practices how to live and build a sense of community in the Sonoran Desert. It is therefore critical that we preserve our unique historical and cultural heritage. The following best development practices can help us to do so:

- Restoring or creatively reusing historic buildings or landmarks
- Preserving on-site cultural resources and educating the public as to their value
- Considering historical land uses and architecture on adjacent lands when planning for development
- Protecting public spaces, including plazas, courtyards, trails, or irrigation waterways
- Adapting traditional building practices so that they meet current development standards





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## SOCIAL

Since its early days, Tucson has exhibited a strong sense of community, epitomized by its resilient barrio neighborhoods and numerous active neighborhood associations. Now that the city has evolved into a major metropolitan area, we are challenged to maintain this sense of community. There are good examples of local projects that are striving to meet this goal. Even so, we will have to promote development that builds community by creating discrete neighborhoods with nearby shopping, recreational, and job opportunities.

The following best development practices can help stimulate a greater sense of community:

- Clustering residential development around compact commercial centers or districts
- Integrating well-designed **affordable housing** and multi-family housing among **single-family** homes.
- Designing streets as narrowly as possible with smaller front yards
- Incorporating public spaces—including parks, libraries, and schools—within residential areas
- Providing access to public transit
- Creating a safe, convenient, and attractive network of trails and paths for pedestrians and cyclists

## FUNCTIONAL

As a desert community, we are blessed with an abundance of sun and challenged by a scarcity of water.

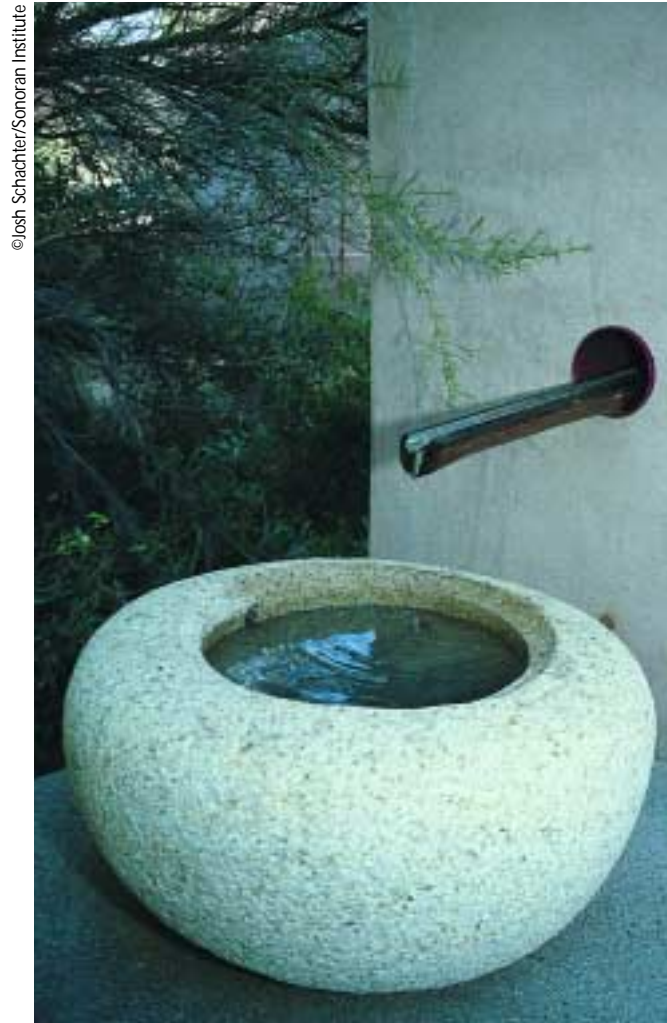
These defining features of our natural environment should guide us in how we design our homes and neighborhoods, from our choices of building materials to the infrastructure we develop to support our growth. The good news is that there are new technologies and approaches that can help take advantage of those resources that are abundant, while making more efficient use of those resources that are not.

The following best development practices can help us build and grow in a manner that acknowledges the Sonoran Desert's riches and limits:

- Capitalizing on existing and emerging renewable energy and water conservation technologies
- Using indigenous, energy-efficient building materials and techniques, including adobe and **rammed-earth** construction
- Building where there is existing infrastructure to minimize the additional costs associated with servicing new development
- Increasing densities around new and existing infrastructure to maximize our investment in public services

## PHYSICAL

Development in the Tucson basin should strive to preserve, protect, and restore the unique features that comprise our Sonoran Desert environment. Riparian areas—the rivers, washes, and streams that weave through the basin—are particularly important to the desert's wildlife, as they serve as home and refuge for



“Promoting regionally appropriate architecture is a worthy goal, but we need to remember that this architecture is part of deeper cultural tradition. The ‘barrio’ isn’t just a building style. It’s about families, neighborhoods, and a sense of place.”

Diana Hadley

“It is critical that our connections to the natural world be represented in our planning efforts.”

Tony Novelli

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©Randy Prentice



many animals and as critical corridors for their movement through our urban areas. As we learn more about the fragility and diversity of life in the Sonoran Desert, we have come to appreciate and value the importance of protecting the inextricably linked elements of our landscape. Integrating conservation into future development activities in all areas—from the ironwood forests to the desert foothills—is essential, and the following best development practices help us to do so:

- Considering the environmental impact on nearby existing or proposed land uses when planning for new development
- Preserving natural open space, particularly riparian areas, and linking these to other natural open space on adjacent lands
- Restoring or enhancing natural open space that has been previously damaged by human activities
- Using **native plants** and xeriscape techniques for landscaping
- Using water-harvesting techniques to collect rainwater for landscaping and recharging groundwater
- Designing with wildlife in mind, such as preserving urban washes as habitat and corridors

## ECONOMIC

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The best practices described above are not without benefit, but they also have costs, as do all parts of any development. Costs can be lessened or increased due to local government decision-making, which can make

implementing these best practices simple or difficult, and due to consumer choices, which can add up to trends for or against using the best practices. However, beyond strict government regulation and the influence of market trends, there are steps that can be taken by all parties—developers, builders, local jurisdictions, communities at large, homeowners—to encourage higher quality development in a way that is financially viable, appropriate for the market, and affordable. The following best practices can help us to do so:

- Identifying emerging consumer preferences and market trends that support best development practices
- Educating financing institutions, local officials, and others about the potential economic benefits of best practices, including presenting a comparison of initial costs versus long-term savings
- Taking advantage of a wide range of government and private finance and assistance programs to realize as many best practices as possible
- Providing financial incentives and awards to encourage all parties associated with development to implement best practices
- Ensuring that costs associated with best practices are equitably allocated, and linking these explicitly to specific benefits provided to the community at large or the individual homeowner
- Streamlining regulatory processes to reward innovation

**“If we are going to encourage developers and builders to follow these ‘best practices,’ then we should also encourage city and county officials to do the same with their projects.”**

Peter Backus



# Case Studies

## Development PROFILES

The projects profiled in the following pages represent a wide range of the development found in our community. Each reflects one or more of the best development practices previously discussed. We have grouped these case studies into five types of development that will comprise much of our future growth. These include:

- **Preservation & Open Space**, which includes a range of development activities that protect local natural, historic, or cultural resources. *Preservation* refers to projects that maintain the distinctive attributes of particular sites, including unique landscape features, historic buildings, or cultural landmarks. *Open Space* describes projects that protect the Sonoran Desert for wildlife habitat, flood control, trail access, or other public purposes.
- **Appropriate Regional Architecture**, which includes development activities that are responsive to the culture, climate, and landscape of the Sonoran Desert region, incorporating design features, building materials, or stylistic elements accordingly.
- **Urban Redevelopment & Adaptive Reuse**, which include projects in urban areas that have been economically depressed or stagnant—

either the building of new structures or, more often, the renovation of existing buildings and structures. *Urban Redevelopment* in which existing buildings and structures are rehabilitated for new uses is called *Adaptive Reuse*.

- **Infill Development**, which includes single-structure or large-scale development projects on vacant inner-city lots or suburban land parcels that are surrounded by existing development. Like much of Urban Redevelopment, *Infill Development* projects rely on existing infrastructure.
- **Mixed Use**, which combines different land uses into one project, as simple as a two-story structure with commercial businesses on the ground floor and residential or office spaces on the second, or as complex as a large-scale project that intermingles residential areas with small-scale commercial or retail centers, or open space with public facilities.

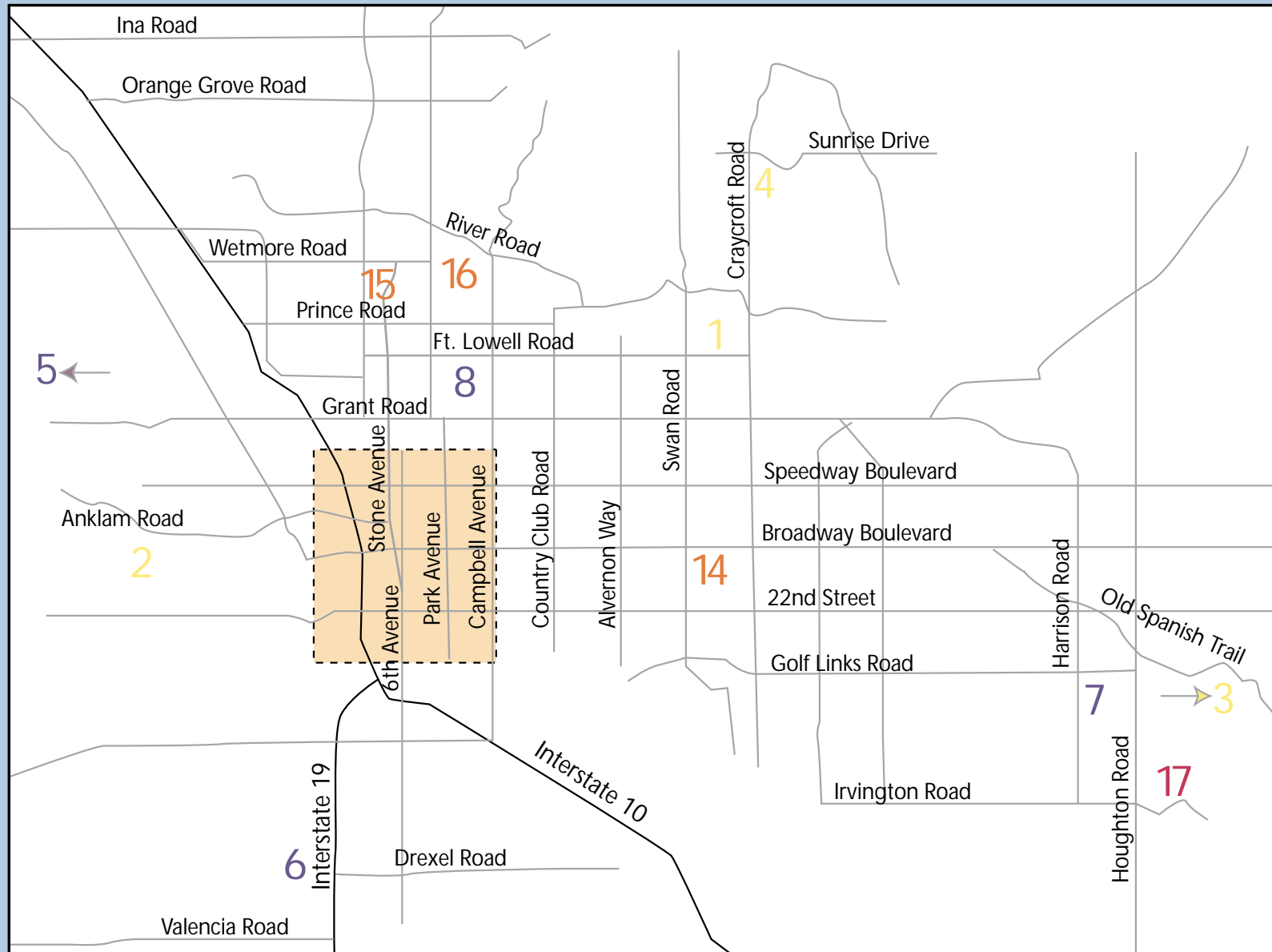
While the case studies that follow have been grouped into one of the five categories, we should underscore that these groupings are not clear-cut. Many of the projects profiled could be included in more than one of the categories listed above.

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# Building from the Best of Tucson

## CASE STUDY LOCATION MAP



# Case Studies

## PRESERVATION & OPEN SPACE

1. Adobes del Bosque
2. Milagro
3. Coyote Creek
4. Fairfield Sunrise

## APPROPRIATE REGIONAL ARCHITECTURE

5. Arizona-Sonora Desert Museum Restaurant
6. Pima Community College Desert Vista Campus
7. Golf Links Municipal Center
8. The Nature Conservancy Corporate Office

## URBAN REDEVELOPMENT & ADAPTIVE REUSE

9. 6th & 6th Warehouses
10. Posadas Sentinel
11. Coronado Hotel

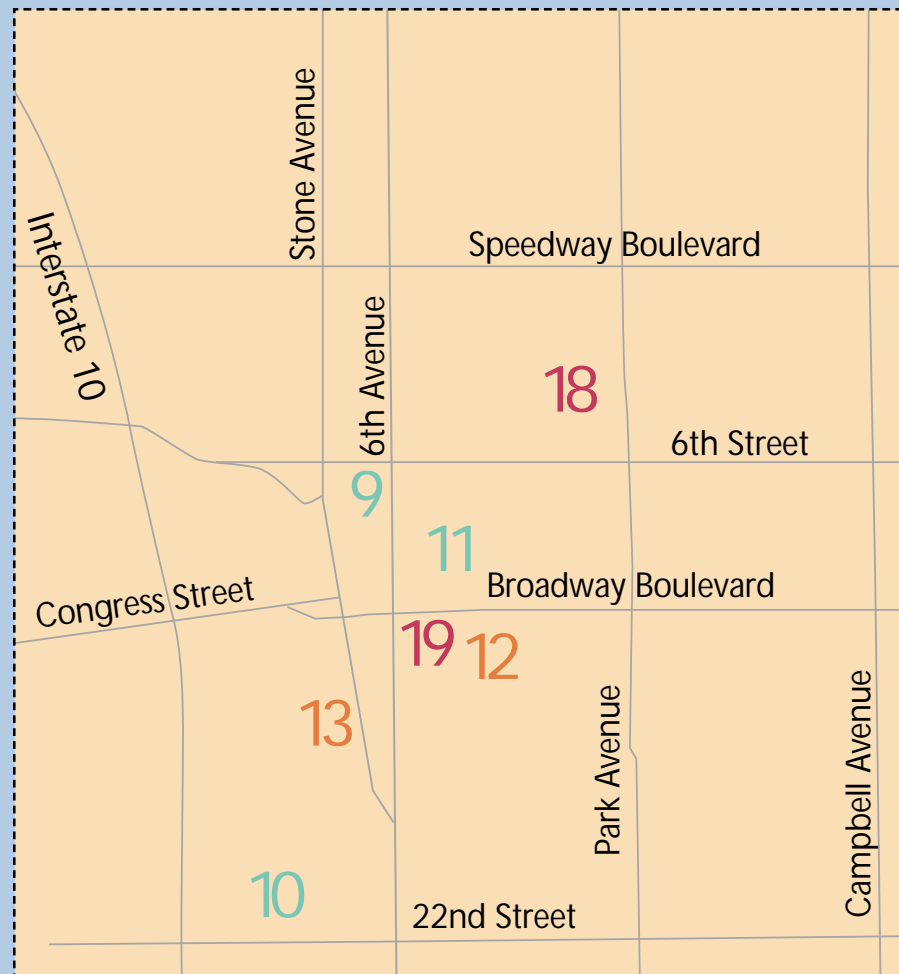
## INFILL DEVELOPMENT

12. Armory Park del Sol
13. Meyer Avenue Project
14. The Presidio
15. Sonora Cohousing
16. North Mountain Park

## MIXED USE

17. Civano
18. Main Gate Center
19. Julian Drew Complex

## MAP INSET



# Adobes del Bosque

North Craycroft Road and Fort Lowell Road

PRESERVATION & OPEN SPACE

## DEVELOPER:

Adobes del Bosque, LLC

## PLANNER:

Planners Ink

## ENGINEER:

Greg Carlson Engineers  
(hydrology)

Environmental Engineering  
Corp. (civil)

Presidio Engineering

## STATUS:

Construction ongoing;  
projected completion  
spring 2001

## TYPE:

18-unit, single-family  
residential subdivision  
on 8.4 acres

The developer of Adobes del Bosque, located near the Rillito River in the historic Fort Lowell neighborhood, made extensive and meticulous efforts to preserve a riparian mesquite bosque. These ecologically sensitive areas are becoming less common in the Tucson basin as they are converted to residential development and as groundwater is diverted to meet the needs of our growing population.

Adobes del Bosque's developer sought to save as much of the site's original vegetation as possible and made an additional commitment to replant disturbed areas with native plants. At the time of the developer's purchase of the land, a significant number of the bosque's trees had been cleared by previous owners or were dying due to the lowering water table. The developer preserved 30 percent of the site, which includes 60 percent of the historic bosque, under a [conservation easement](#). As a result, 1,200 of the 1,400 original trees were saved.

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## Historical/Cultural

Homes are designed to be compatible with Fort Lowell's historic architecture, a style that includes mostly stucco houses with walled courtyards, lush vegetation, and mesquite trees—an old Mexican hacienda feel. The development reflects the historic character of the area's landmarks, including the nearby San Pedro Chapel, designated a state and national historic landmark in 1982, and La Capillita, a tiny chapel in the mission revival style built by Mexican settlers in 1915.

## Social

The developer worked closely with neighborhood groups, including the Fort Lowell Planning Committee, which were generally supportive of the project. The developer agreed to sell two parcels from the property to a neighboring school, which will build on one parcel and use the other as a buffer between the development and the school. A proposal to link Adobes del Bosque to the nearby Rillito River Linear Park via a nature walk was not completed because the local neighborhood planning committee raised concerns about privacy and crime.

## Functional

The streets have inverted crowns that harvest rainwater from homes and streets to irrigate neighborhood trees and plants. The concrete mix used on street curbs looks like gravel, minimizing visual impact.

## Physical

In addition to placing 30 percent of the site under a conservation easement, the developer also managed to preserve an additional 30 percent of the site's vegetation by limiting the size and location of building lots. Additional funds were voluntarily committed by the developer for revegetation.

## Economic

As with many development projects in environmentally sensitive areas, Adobes del Bosque targets the higher end of the residential market. Homes are priced between

\$300,000 and \$400,000. The high quality of development has spurred sales; only two homes have yet to sell.

## Issues

Some of the project's innovative elements required additional consultations with city staff. The rainwater harvesting system, for example, uses ponds for collecting the water, which the city categorized as a flood plain. This required each house to be elevated on a pad, which would normally mean removing more of the site's original vegetation than the developer wanted to remove. However, builders found a method for installing each pad with minimal disturbance to vegetation.

## Lessons Learned

The developer's experience underscores the need for a [development review](#) process that encourages innovation, especially where water conservation is involved. As Adobes del Bosque and other case studies illustrate, there are numerous promising technologies that can help us make better use of our water resources.

Working with area neighborhoods during the planning process will ultimately create positive relationships.

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# Milagro

2920 North Goret Road

## PRESERVATION & OPEN SPACE

### DEVELOPER:

CEL Development, LLC  
(Community for Ecological Living)

### ENVIRONMENTAL DESIGN CONSULTANTS:

Sustainable Design and Development  
Permaculture Consulting, Education & Design

### ARCHITECT:

Morton and Mackey

### BUILDER:

Ollanik Construction, Inc.

### STATUS:

Design completion in 2000; project construction to begin spring 2001

### TYPE:

28-unit, single-family cohousing development on 43 acres

Milagro, nestled in the Tucson Mountains about 12 minutes from downtown, describes itself as “a community in balance with nature.” This development clusters its homes in order to preserve the natural desert, maintaining approximately three-quarters of the property as open space—an exceptional commitment to protecting our desert environment.

As a **cohousing** development, Milagro seeks to foster a sense of community by incorporating walkways connecting each home, a common house for social events, and a community garden, orchard, and pool. The project also will develop wetlands that will be used to treat wastewater on site. Other environmental features of the project include permaculture techniques and native landscape design.



### Historical/Cultural

Begun in the late 1960s in Denmark, cohousing projects are designed to promote a sense of community and facilitate social interaction among residents. Typically, private dwellings include their own kitchens and living-dining rooms, but also provide extensive common facilities, including a large dining area and recreation facilities; child care is usually shared with the large group. Cohousing communities are designed and managed by the residents.

### Social

Milagro's clustered homes, walkways, and common spaces encourage interaction and build a sense of community among homeowners. The community gardens and

orchard are expected to provide a hundred pounds of edible produce every year for each resident.

### Functional

Milagro uses a wide range of building techniques that are appropriate for our Sonoran Desert environment. Homes will include adobe walls, concrete floors, and galvanized steel roofs that help keep indoor temperatures within a comfortable range all year. Residences will be oriented to take advantage of **passive solar heating**, and solar collectors will provide homes with hot water.

### Physical

Approximately 62 percent of the site is preserved as natural desert. Adding the wetlands, orchard, and other landscaped areas, the amount of open space on the property extends to more than 75 percent. Landscaping will include native vegetation, while homegrown produce will rely on water harvesting systems that preclude using any groundwater.

### Economic

Milagro's developer required the commitment of a certain number of home buyers, above and beyond what is typical for more conventional residential projects, before going forward with design and financing (due to the project's unique design and community-building features).

### Issues

A number of the project's environmental features did not comply with the city's building and development

codes, which are geared toward conventional suburban development. Because these features deviated from existing standards, they required applications for **variances**, delaying the approval process, generating additional expenses for the developer (and eventually the home buyer), and increasing the project's overall financial exposure. For example, Milagro's attached units required a variance, which had to be renewed because the need to secure commitments from homebuyers delayed the development's final approval. In order to avoid amending the Regional Wastewater Treatment Plan, the developer was involved in more than six months of consultations before the proposed wetlands was approved.

### Lessons Learned

Project delays created a disincentive, and innovations required additional costs for the developer. The developer estimates the project's innovative features added 18 months to the review process and \$70,000 in additional consultant expenses.

# Coyote Creek

14901 East Old Spanish Trail

PRESERVATION & OPEN SPACE

## DEVELOPER:

PB Trading Company

## STATUS:

Platted in 1999; sale of lots currently in Phase I; ongoing construction

## TYPE:

395-unit, single-family master-planned development on 1,000 acres with lots ranging from one to four acres

Coyote Creek is located in the Rincon Mountain foothills, adjacent to Saguaro National Park in eastern metropolitan Tucson. The site is near the Rincon Creek and surrounds Coyote Wash. It includes significant riparian areas that serve as wildlife corridors from the mountains to the desert floor.

Coyote Creek is designed for nature lovers and horse-back riders. The project calls for setting aside 75 percent of the development as open space, either privately held or for common use. It includes community and equestrian centers and a network of trails for hiking, biking, and horse-back riding. Coyote Wash and its tributaries link a variety of on-site trails amid the area's gently rolling hills.

Each building seeks to capture the surrounding views of the upland Sonoran Desert landscape, while roadways and lots are situated so as not to compromise the distant views of the Rincon Mountains from outside the development.

©William Lesch



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## Historical/Cultural

Coyote Creek lies in the midst of a popular recreation area: in addition to nearby Saguaro National Park, the famous Arizona Trail, which links Mexico to Utah, is only one mile from the development. The developer has made a concerted effort to preserve access to trails used for years by Tucsonans and visitors to the Sonoran Desert.

## Social

The project's equestrian center will offer residents a fully staffed contemporary facility, complete with stables, work-out rings, and show arenas. Fifteen percent of the homesites will be permitted to have individual horse facilities.

## Functional

No fences are permitted along the perimeter of any lot. Streets, lots, and **building envelopes** were surveyed

three times to preserve individual views. Variances were granted for roadway widths, shoulders, and sidewalks to minimize impact on the desert. No building envelopes are allowed on ridges. Building envelopes may not be moved without the consent of the architectural committee and comments from neighbors. There are specific rules regarding the treatment of roads, roofs, walls, and utilities.

### Physical

**Conditions, covenants, and restrictions** (CC&Rs) dictate that future homeowners cannot develop areas outside of the approved building envelopes within their lots, thereby preserving the desert landscape and scenic views. When combined with other areas that cannot be built on or have been set aside, these building lot restrictions leave three-quarters of the entire 1,000-acre property as open space.

### Economic

The project is currently in the initial stages of development. Roads and model homes are the extent of construction at this time. As with many development projects in environmentally sensitive areas, Coyote Creek targets the higher end of the residential market. The lots are priced between \$90,000 and \$170,000.

### Issues

The developer requested and received approval for a higher-**density** development. According to the developer, increasing the density made it economically feasible to produce a more environmentally sensitive and appealing project.



### Lessons Learned

Increasing density for certain projects may be appropriate if the resulting benefits are clearly defined and consistent with the community's broader aspirations for development.

# Fairfield Sunrise

Craycroft Road and Sunrise Drive

## PRESERVATION & OPEN SPACE

### DEVELOPER:

Fairfield Development, Inc.

### LANDSCAPE

### ARCHITECT:

The Acacia Group

### STATUS:

Completed in late 1970s

### TYPE:

Single-family residential cluster development on 1,500–1,600 acres

Developed in the mid-1970s, Fairfield Sunrise was one of the first projects to take advantage of the Pima County land development code's new **cluster development** option. The property includes numerous exposed ridges and steep, narrow canyons that thread down to the Rillito River. Within this sensitive landscape, the developer grouped homes on small building lots and designed narrow streets that help preserve open space and views of the city below.

Fairfield Sunrise ended up with considerably more open space than other one-acre subdivisions built during the 1970s. As a result, it succeeded in preserving the Catalina foothills' needed wildlife corridors and drainage areas that presently allow coyotes, javelinas, mule deer, and Eastern cottontails to migrate between desert and mountains.

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### Historical/Cultural

N/A.

### Social

The development has a number of homeowners' associations that place strict controls to help preserve cityscape views and maintain the appeal of the homesites. While the clustering design seeks to encourage neighborhood interaction, houses are oriented to provide privacy for individual homeowners. Neighborhood streets are dominated by driveways, garage doors, and walkways to entry doors, which may limit interaction.

### Functional

Single-stacked streets allow for staggered building lots along hillsides. Homes include concrete-block duplex units with patios and small gardens, as well as individual single-family residences. Portions of the project are on septic systems for waste disposal.

### Physical

Fairfield Sunrise's cluster housing, unlike more conventional suburban development projects of the time, did not encroach on washes and other environmentally sensitive areas. Preserving wildlife corridors was an unplanned benefit.

### Economic

When Fairfield Sunrise was built, land in the foothills was relatively cheap. Because the project's design reduced the number of roads, overall infrastructure costs were kept low. At the same time, city views turned out to be more marketable than originally assumed. These factors combined to make Fairfield Sunrise a financial success. The project continues to appeal to homebuyers who are interested in smaller-sized homes that are easy to maintain. Property values have increased steadily, and homes resell quickly.

### Issues

Cluster developments are not popular among the high-end real estate markets that dominate the foothills area. In general, this market prefers one-acre homesites. Cluster developments often look like townhouse com-

plexes, which does not hold much market appeal, especially in rural areas. According to county staff, only five development projects have opted to use the cluster zoning approach in the past five years because of the lack of interest in the market.

### Lessons Learned

While the use of the cluster zoning approach has not been a viable option for many developers, it is good that the county has provided a range of options for the development community to choose from.

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# Arizona-Sonora Desert Museum Restaurant

2021 North Kinney Road

## APPROPRIATE REGIONAL ARCHITECTURE

### ARCHITECT/BUILDER:

Line and Space, LLC

### ENGINEERS:

Turner Structural Engineering Co. (structural)  
GLHN Architects and Engineers (mechanical and electrical)  
Progressive Food Services (kitchen)

### STATUS:

Completed in 1994

### TYPE:

20,000-square-foot museum restaurant and gift shop

The Arizona-Sonora Desert Museum Restaurant is an award-winning example of environmentally sensitive design that blends into the Sonoran Desert landscape. The two-restaurant facility sits unobtrusively on the southwestern edge of the museum complex, located west of Tucson on the border of Saguaro National Park. The restaurant provides diners with expansive views of the surrounding uplands, Avra Valley, and the Baboquivari Mountains.

The clean and simple lines of the building married with the appropriate use of native stone create elegant spaces both inside and outside the building. Floor-to-ceiling windows and shaded patio areas provide numerous opportunities for patrons to enjoy desert vistas.

©Henry Tom



### Historical/Cultural

N/A.

### Social

The restaurant's setting, open interior, and intimate outdoor dining areas make this a popular place for museum visitors to relax and enjoy the unique Sonoran Desert environment.

### Functional

Stone for the exterior walls was salvaged from a nearby elementary school. The heating/cooling system allows temperatures to be adjusted in different parts of the restaurant. Exhaust air, averaging 85 degrees, is recycled during the summer for cooling outdoor patio areas. Wastewater from sources approved by the Arizona Department of Environmental Quality (see "Issues") and rainwater are recycled and used to flush toilets and irrigate plants.

©Josh Schachter



## Physical

The building was designed and built around existing vegetation in order to minimize disruption of the site. The stone wall design allows the structure to blend comfortably with the surrounding environment.

## Economic

The restaurant cost \$2.25 million to build—approximately \$112 per square foot—which is comparable with other buildings of this type. No extraordinary expenses arose from the innovative design.

## Issues

State officials at the Arizona Department of Environmental Quality, concerned about health risks associated with the improper disposal of wastewater, did not approve the proposed recycled wastewater system until it was redesigned to their satisfaction.

## Lessons Learned

When proposing to implement innovative recycled wastewater projects, consulting with the Arizona Department of Environmental Quality in advance can help save time and money. Regulatory agency staff should use the precedent established by this project to streamline the review and approval process for similar projects in the future.

© Colby Campbell



# Pima Community College Desert Vista Campus

5901 South Calle Santa Cruz

## APPROPRIATE REGIONAL ARCHITECTURE

### ARCHITECT:

Burns & Wald-Hopkins  
Architects

### BUILDER:

Sundance Design and  
Construction

### ENGINEERS:

MMLA, Inc. (civil)  
Turner Structural  
Engineering Co.  
(structural)  
SMU Mechanical  
Engineering (mechanical)  
Monrad Engineering, Inc.  
(electrical)

### LANDSCAPE

#### ARCHITECT:

McGann & Associates

### STATUS:

Completed summer 2000

### TYPE:

Educational facility  
on 51 acres

Pima Community College's Desert Vista Campus is an open and inviting educational campus at the site of a former high-security computer equipment manufacturing plant. The project was designed to meet two specific goals: designing a visually appealing campus for the community, and meeting a high level of energy efficiency.

The campus includes two buildings, one new and one renovated. The new Plaza Building, which houses the library among other things, is roofed with metal shingles; the exterior and the courtyard canopy are painted in strong earth colors. A sculpture will be installed at the front of the building in the future. The renovated Pueblo Building houses offices, classrooms, labs, and the new bookstore and eatery. On October 6, 2000, officials formally dedicated the Plaza Building and held a celebration honoring the changes in the Pueblo Building.



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### Historical/Cultural

A pit house was discovered beneath the parking area during construction. It dates back to 900–1300 A.D., when the Hohokam—the first residents of the Tucson basin—farmed along the Santa Cruz River. Little is known about the Hohokam, who vanished long before the first Spanish expeditions entered this region. The site has been preserved and an interpretive station designed to educate the public on Hohokam culture and pit houses.

### Social

Walls, structures, and other features of the former high-security facility have been eliminated to create more open space for gatherings and encourage social interaction.

## Functional

The campus meets the stringent energy efficiency standards of both the Environmental Protection Agency and U.S. Green Building Council. Building materials used included adobe, recycled cellulose wall insulation, high-performance insulating glass, and steel roofing. Where possible, builders incorporated recycled and biodegradable building materials to minimize construction waste and maintain indoor air quality.

## Physical

N/A.

## Economic

For the first three years of operation, Pima Community College and the architect each will receive an equal portion of the money saved due to the project's energy efficiency. The college also has allocated funds to underwrite future energy-efficient measures.

## Issues

Pima Community College is not subject to the county's development review process. The project is exempt from local land development codes, but still must adhere to national Uniform Building Codes.

## Lessons Learned

The government does not have to be the sole provider of incentives; the developer and builder can structure these, as well. In this instance, Pima Community College perceived there was value in certain energy-efficient improvements that contributed to the project's overall quality. It is too early to assess the return on their investment.

©Dave Burms



# Golf Links Municipal Center

Golf Links Road and Harrison Road

## APPROPRIATE REGIONAL ARCHITECTURE

### ARCHITECT:

Burns & Wald-Hopkins  
Architects

### BUILDER:

Giles Construction, Inc.

### ENGINEERS:

MMLA, Inc. (civil)  
Turner Structural  
Engineering Co.  
(structural)  
Adams and Associates  
(mechanical)  
Monrad Engineering, Inc.  
(electrical)

### LANDSCAPE

#### ARCHITECT:

Wheat Scharf Associates

### STATUS:

Completed in 1999

### TYPE:

26,281-square-foot  
municipal branch library  
and police substation

The Golf Links Municipal Center reflects the city's efforts to consolidate community services where appropriate, in this case by having a library and police substation share space. The center's contemporary design relies primarily on earth-toned materials to reflect typical desert hues.

This public project reflects a strong sustainability ethic. Dirt excavated from the site now forms a rammed-earth wall that shields the library's west-facing windows. Recycled glass paves the walkway from the parking lot to the entry plaza. Rainwater from the parking lot and roofs flows to planted areas. Metal canopies provide shade in key open areas between the two buildings.

© Dave Burns



© Dave Burns



### Historical/Cultural

N/A.

### Social

The library faces the main street; the police substation is located behind the library and several layers of security. The facilities share an entry breezeway, meeting room, and restroom facilities. The center's master plan allows for the future addition of other city services.

### Functional

The large, east-facing wall of the library is shielded by a 16-foot overhang and solar-activated, electrically operated rolling shades.

## Physical

The library offers information about desert planting and rainwater harvesting.

## Economic

The project cost approximately \$3.7 million—approximately \$140 per square foot—which is comparable with other facilities of this type. The city expects to generate savings over time by consolidating multiple services on one site and using energy-efficient technologies.

## Issues

Construction of public buildings must go through a competitive three-bid solicitation process. It is often difficult to secure three bids that respond to a project's design requirements. There may not be enough builders who are familiar with the building materials and/or who can manage larger construction projects. Also, there may not be enough material available for large construction projects of this nature. It took considerable effort to find suppliers and contractors who could handle the rammed-earth wall and recycled glass pathway.

## Lessons Learned

The city procurement process for public buildings should encourage and respond to innovative design. There is a need for training and education on the long-term savings of energy-efficient designs and other innovations. Any number of entities—private, public, or nonprofit—can step up to educate developers and builders. An increase in the



©Brett Drury

number of knowledgeable developers and builders can also increase demand, ultimately reducing per-unit cost.

# The Nature Conservancy Corporate Office

1510 East Fort Lowell Road

APPROPRIATE REGIONAL ARCHITECTURE

## ARCHITECT:

The Architecture Company

## STATUS:

Completed in 2000

## TYPE:

12,500-square-foot commercial office building (three floors)

The Nature Conservancy Corporate Office building, located on Fort Lowell Road between Mountain and Campbell Avenues, was designed to creatively and pragmatically reflect the organization's commitment to the environment. The building wraps around an open courtyard, the focal point of the design. It incorporated an existing dance studio, small adobe residence, and circular garden, as well as areas of undisturbed desert.

In addition to utilizing numerous energy-efficient technologies, the project includes a water-permeable paving system in the parking area that allows more water to soak in and replenish groundwater. The paving system also reduces the amount of heat reflected from the ground (helped by the numerous nearby trees), thereby further reducing energy bills.



©Gill Kenny, Courtesy The Architecture Company



©Gill Kenny, Courtesy The Architecture Company

## Historical/Cultural

N/A.

## Social

The open design encourages social interaction. Over forty volunteers from the University of Arizona's environmental sciences and landscape architecture departments installed the natural rock paving system in the parking area.

## Functional

The office building saves energy by using thermal double-paned windows and fifteen separate air conditioning zones. Recycled and recyclable materials were used throughout the construction process.

## Physical

The landscaping incorporates native vegetation and rainwater harvesting.

## Economic

The project cost \$1.2 million—approximately \$96 per square foot—which is in line with comparable projects.

## Issues

While the alternative paving system GravelPave2 is found throughout the country, this was the first time it was used in Tucson. At the time, it was not acceptable under Tucson's land use code. Even though the system would exceed the city's requirements for stormwater retention, it required a considerable amount of time to educate city staff about its benefits. The Board of Adjustment eventually unanimously approved its installation and may incorporate this type of paving into its land use codes.

## Lessons Learned

GravelPave2 is performing as anticipated. There has been some gravel migration and compacting due to the settling of the material, but more gravel has been added to make up for this problem. The building and construction community has provided positive feedback on this alternative pavement material. The city is flexible where alternative building materials are concerned and would consider modifying its code to include GravelPave2 as acceptable, but as yet has made no formal efforts to do so.

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# 6th & 6th Warehouses

Sixth Street and Sixth Avenue

URBAN REDEVELOPMENT & ADAPTIVE REUSE

## DEVELOPER:

Firestone Buildings, LLC

## STATUS:

Renovation began in 1998

## TYPE:

Commercial warehouses  
(13,000 and 21,000  
square feet) with 18  
lease spaces

The two large brick warehouses on the east and west corners of Sixth Avenue and Sixth Street, originally built in the 1930s, provided storage for goods distributed via the nearby railroad. In October 1999, the surrounding area known as the “warehouse district” was listed on the National Register of Historic Places because of its historic role as a center of local commerce and industry, and because of the presence of a number of Sonoran-style adobe structures dating back to the first half of the twentieth century.

The proximity of 6th & 6th to Fourth Avenue, the downtown area, and the arts district make it a particularly attractive neighborhood for younger people and progressive entrepreneurs and their clients. The current owners were inspired by urban redevelopment efforts in the Pacific Northwest and decided to try to replicate that success in Tucson. The two warehouses have been under renovation for three years. They are already home to art galleries, an advertising agency, a computer business, a tile company, and artists’ studios.



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©Josh Schachter/Sonoran Institute

## Historical/Cultural

The warehouses’ exterior facade received a thorough cleaning to highlight the masonry construction and steel-framed windows. As with most warehouse renovations, most of the refurbishing focused on interior spaces in order to comply with contemporary building codes.

## Social

The current owners received a \$30,000 low-interest loan from the Downtown Arts District for renovation expenses. In exchange, the owners agreed to provide studio spaces as part of the renovation.

These contemporary-use warehouses have enhanced the area’s social appeal.

## Functional

Recycled crushed concrete pieces were used as pavers between parking areas and at unit entrances.

## Physical

Prior to initiating the renovation process, the previous owners of this warehouse secured an Environmental Protection Agency (EPA) **Brownfields** grant to identify on-site sources of pollution. (The buildings had at one point housed an auto parts store and a tire store.) The grant was approved and cleanup completed in advance of the purchase by the current owners.

## Economic

The current owners assumed responsibility for all maintenance and still manage to maintain reasonable rents. (In other nearby complexes, rents are lower, but tenants are responsible for building maintenance.) This arrangement ensures proper upkeep of the buildings. The warehouses' affordability and maintenance enhance their appeal in the market for small commercial spaces in and around the downtown area. Since 1998, almost all available spaces have been under lease.

## Issues

The "warehouse district" is part of an overlay-zoning district (I-1/custodial-use zoning) that can be approved by the city planning director through a streamlined administrative process as an incentive to redevelop. The overlay district also limits the need to acquire certain variances for parking, use, and density. The previous owner's Brownfields grant increased the later marketability of the building within the overlay district.

## Lessons Learned

The overlay district does allow for the combination of artists' living and working spaces. However, in cases where artists' work (metallurgy, for example) may not comply with zoning regulations, conflicts may arise between the underlying zoning, which is light industrial, and that of the overlay district.

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# Posadas Sentinel

Greater Barrio Santa Rosa Neighborhood

URBAN REDEVELOPMENT & ADAPTIVE REUSE

**ARCHITECT:**

Poster Frost Associates, Inc.

**DEVELOPER:**

City of Tucson Community Services Department

**STATUS:**

Design and construction 1998–2001

**TYPE:**

Public-private partnership providing affordable housing on lots totaling 320 acres

Posadas Sentinel, formerly known as Hope VI–Barrio Santa Rosa/Connie Chambers Revitalization Plan, is an ambitious community revitalization plan that will provide low-income housing and support services to families in the greater Barrio Santa Rosa neighborhood, located north of Twenty-Second Street between Interstate 10 and South Sixth Avenue. A hallmark of this project is the conversion of the Connie Chambers public housing project into a 120-unit, mixed-income neighborhood, and the additional construction of affordable rental housing in higher-income neighborhoods, which is to be made available to families in the Connie Chambers project.

This initiative breaks from traditional public housing projects that segregate families in need of assistance from the broader community. The emphasis on integrating housing, social services, and other community improvements reflects a long-term commitment to community revitalization in our core urban areas and some of our most neglected neighborhoods.



## Historical/Cultural

The initial proposal for Posadas Sentinel sought to include various design features that would promote a stronger sense of community. Some of these features were eventually dropped from the project because they conflicted with the city's existing building and land development codes. Others required special review and approval as a part of the development review process. (See "Issues" for a discussion of how these goals were modified to meet code requirements.)

## Social

New community facilities developed under Posadas Sentinel will address the residents' education, job training,

business development, health, child care, and recreation needs. The breadth of social service programs is designed to ensure the integration of families into the community. In addition to revitalizing housing, the plan includes construction of a new community center and park, a supermarket, a multi-service child care center, and numerous infrastructure improvements.

### Functional

All new buildings are expected to meet specific energy efficiency standards that are well above the Uniform Building Code (UBC) standards to which the city adheres.

### Physical

**Reclaimed water** will be used to irrigate onsite landscaping. This required that every unit include a backflow preventor that ensures reclaimed water does not contaminate drinking water. The city's water department agreed to pay for these devices and track the use of reclaimed and drinking water over time.

### Economic

Posadas Sentinel's improvements, expected to total more than \$48 million over the next few years, are considered a long-term community investment. The project is a public-private partnership involving federal and local governments and the not-for-profit community. (Funding sources include federal Hope VI funds, City of Tucson's Community Development Block Grants, Pima County Community Services, and Angel Charity.) It will be privately

managed through a community nonprofit corporation that will administer the project and ensure its implementation.

### Issues

The project designers intended to include narrow streets with raised-landscape medians. This original design concept was altered by the city's minimum street width standards for emergency vehicle access.

In order to create the feeling of a single-family development with multi-family units, the project designers hoped to provide duplex and triplex homeowners with individual trash receptacles and on-street parking. The city ultimately required large dumpsters for trash removal, but allowed on-street parking. The project designers also hoped to set homes closer to the street. Parking lanes are included in calculating how far homes must be set back from moving traffic, so by including on-street parking, designers were able to achieve the desired result.

The city had initially determined that the project would have to pay for backflow preventors to ensure that reclaimed water used for irrigation would not contaminate drinking water. By agreeing to pay for these units' installation in all homes, the city kept the project from adding \$600–700 to the cost of each residence.

### Lessons Learned

The city's attempt to create an innovative project was constrained by local development codes and Uniform Building Codes (UBC), which affected the project's ability to meet several design objectives.



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# Coronado Hotel

402 East Ninth Street

URBAN REDEVELOPMENT & ADAPTIVE REUSE

**DEVELOPER:**

Downtown Development Corporation

**ARCHITECT:**

CDG Architects

**STATUS:**

Renovation completed in 1991

**TYPE:**

16,659 square feet historic renovation and adaptive reuse

Built in 1928, the Coronado Hotel, located near the Fourth Avenue underpass on Ninth Street, is one of the last remaining hotels built around Tucson's downtown railroad station. It was listed on the National Register of Historic Places in 1982. It is located in a neighborhood that is a mix of old residences and commercial shopping.

With renovation completed in 1991, the building was converted into subsidized single-room occupancy units for low-income residents. There are forty-one efficiency apartments for older adults and disabled adults who are capable of living independently. The project has helped meet the needs of some of our most vulnerable populations while also ensuring that our downtown areas remain vital, livable neighborhoods.

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Courtesy CDG Architects, LTD



### Historical/Cultural

The architect worked closely with the Arizona State Parks Historic Preservation Office to follow the Department of Interior's regulations for historic preservation. The building received the Governor's Award for Historic Preservation and a certificate of recognition from the Tucson-Pima County Historical Commission for its preservation efforts.

### Social

The single-room occupancy (SRO) units provide housing for local special needs populations, such as those with handicaps and mental illness, as well as recovering alcoholics, battered women, and elderly people on fixed incomes.

### Functional

Every precaution was taken to ensure that building materials were regionally appropriate and historically relevant. The renovation complies with the Americans with Disabilities Act.

### Physical

N/A.

### Economic

The City of Tucson contributed various grants for the \$1.3-million renovation, and also provides rental subsidies for residents. The complex financing plan included Historic Rehabilitation Investment tax credits, Low Income Housing tax credits, and Section 8 Mod-Rehab certificates.

### Issues

No significant issues were raised during the development review process.

### Lessons Learned

Because of their low rents, SRO projects do not yield profits for building owners. Assistance from local governing bodies and private nonprofit organizations through Housing and Urban Development (HUD) grants is therefore essential to make SRO projects a reality. HUD's SRO program also provides Section 8 rental assistance payments to landlords who provide rehabilitated residential units to homeless people.



# Armory Park del Sol

East Sixteenth Street & South Third Avenue (Armory Park Historic District)

## INFILL DEVELOPMENT

### DEVELOPER:

John Wesley Miller  
Company

### COLLABORATORS:

Tucson Electric Power  
Global Solar

### STATUS:

Construction is ongoing

### TYPE:

99 single-family residential  
subdivision on 14 acres

Armory Park del Sol is a sustainable infill community situated on a previously vacant parcel of land. The project will consist of affordably priced **detached homes**, ranging in size from 800 to 1,671 square feet, which will be set close to the street and feature exterior facades that match neighboring historic residences. Close proximity to Tucson's downtown will allow residents to walk to jobs, shops, and restaurants.

Armory Park del Sol will incorporate innovative energy saving and water conservation technologies. Each home will use solar technology to generate electricity and to heat both household water and the home itself. In addition, the development will feature Tucson Electric Power's (TEP) Guarantee Program for new construction, where TEP calculates annual heating and cooling costs and refunds homeowners' expenses that exceed their estimate.

Former Tucson mayor George Miller and the city council approved the project because its location near downtown met their goal of creating a more livable inner city. The project represents a cooperative venture between the developer, John Wesley Miller Company, TEP, and its sister company, Global Solar.

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### Historical/Cultural

Specific architectural features of the 1890s (pre-World War II territorial architecture) will make homes consistent with residential structures found in the historic district.

### Social

The project's scale and overall design is compatible with the adjacent neighborhood. Narrow streets, front porches, extensive walkways, and driveways accessed through back alleys will help create an intimate feeling that encourages interaction among new and long-time residents.

### Functional

Armory Park de Sol is a "demonstration site" for a national private/public initiative (PATH, or Partnership for Advancing Technology in Housing), which encourages use

of innovative sustainable technologies, including those that conserve water and rely on solar energy. Solar collectors are expected to reduce the amount of electricity used per house by 75 percent. Homeowners will rely on conventional power during off-peak hours, further reducing their utility bills. Reclaimed water will be piped in and used in publicly landscaped areas for **drip irrigation**.

### Physical

This project will incorporate drought-tolerant native plants, thereby decreasing water use, while sustainable high-density urban infill development techniques will preserve open spaces. The community's extensive walkways will encourage pedestrian traffic, reducing the negative effect of vehicle emissions on the environment.

### Economic

Homes will be priced in a range consistent with the neighborhood's current land and home values. Because of the homes' energy-saving features, heating and cooling costs are expected to be as low as \$1.10 per day—less than \$35 per month—so homeowners will be eligible for “green” mortgages, which take into account future energy savings as part of the financing process.

### Issues

The developer has had over one hundred public meetings—from the conceptual stage on—to discuss how to integrate the project into the historic neighborhood, address concerns about the project's design and density,

and foster support. The project has had an inquiry list of over 125 people for some time, indicating a strong interest among potential homebuyers.

### Lessons Learned

Adjacent neighborhood approvals can be obtained when appropriate processes and design decisions involve the adjacent communities early on and continuously.

Home prices in this development are appropriate to the historic neighborhood character and reflect involvement with existing neighborhoods and awareness of adjacent land use.

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# Meyer Avenue Project

Meyer Avenue between Eighteenth and Nineteenth Streets

## INFILL DEVELOPMENT

### ARCHITECT/BUILDER:

Rammed Earth  
Development

### STATUS:

Ongoing (began in 1989)

### TYPE:

15-plus, single-family resi-  
dential

The intent of the Meyer Avenue Project was to extend the Mexican village ambience of neighboring Barrio Viejo. Using a previously vacant site, the developer has built various rammed-earth houses, including a duplex, two triplexes, and one adobe guesthouse, as well as single-family homes. Although designed for individual clients, the layout of the homes and their close proximity to one another help ensure that these multiple households constitute an interactive community.

Homes in this project embrace the Mexican custom of small, contained outdoor spaces. Houses are designed with patios or courtyards that encourage outdoor activities during mild weather. Some homeowners have chosen bright exterior colors that reflect the barrio tradition and further enhance the neighborhood's appeal.

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### Historical/Cultural

Barrio Viejo has not been designated a historic neighborhood, but its homes do have a defined character. Layout and construction of the Meyer Avenue Project are consistent with the feel of the barrio neighborhood.

### Social

Minimal setbacks, front porches, and off-street garages help create opportunities for interaction among new and long-time residents. A balance of family residences and rental apartments also encourages diversity in lifestyles and income groups living within the neighborhood.

### Functional

Buildings are oriented to take advantage of passive solar heating. Rammed-earth and adobe walls, metal roofs, and high-performance insulating windows keep indoor temperatures comfortable and ensure that homes are energy efficient.

### Physical

N/A.

### Economic

Home prices are comparable to those of neighboring homes. Energy bills are expected to be about a third of those for standard frame and stucco homes of similar size.

### Issues

The city required homes to be set back twenty feet from the street, the conventional approach for suburban-style development. The developer sought minimal setbacks consistent with the layout of Barrio Viejo. Because a different client had purchased each lot, each building was considered a separate project. Variances had to be obtained on a case-by-case basis, which lengthened the process by up to six weeks per house despite the fact that variances requested for each client were often the same.

### Lessons Learned

The lot-by-lot variance process is costly. There needs to be a way to consolidate variances.



# The Presidio

Williams Center, Sixteenth Street and Rosemont Boulevard

## INFILL DEVELOPMENT

### DEVELOPER/BUILDER:

Doucette Homes, Inc.

### ARCHITECT:

KTG Group

### STATUS:

Platted June 1996; phased construction completed in November 1999

### TYPE:

153-unit, single-family homes; gated community on 15.8 acres

The Presidio is inspired by the style of the traditional Presidio del Tucson dwellings. The original 1776 Presidio was used by Spanish soldiers to protect settlers and travelers from the dangers of frontier life. Walls surrounded the settlement, which included closely-built colorful homes, small gardens, and a chapel, plaza, and store at the center of the community.

The new project, built on one of the more sizable vacant lots within the city, achieves a high level of density without compromising homeowners' privacy. Colorful one- and two-story homes, varying in size from 1,167 to 1,812 square feet, are clustered around common courtyards or individual driveways. A distinctive wall defines the community, with the traditional presidio's central plaza replaced by an elegant pool and gathering area. Residents and visitors enter the development through a gate.

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### Historical/Cultural

The Presidio is adjacent to neighboring development, which includes the Williams Center (a retail and office complex), a Barnes & Noble superstore, and conventional suburban homes.

### Social

Strong design elements including narrow streets, clustered homes, and a community pool were incorporated for onsite community interaction. While The Presidio is a **gated community**, gates are closed only at night.

### Functional

Patio walls and common landscaping areas, as well as strategically placed windows, are designed to ensure privacy. Homes meet Tucson Electric Power's "Good Sense" energy efficiency standards.

### Physical

Before The Presidio was built, the site was barren except for native creosote bushes. The developer added all-native vegetation for landscaping and buffering.

### Economic

The project cost approximately \$21 million. Three years ago, home prices ranged from \$110,000 into the \$140,000s. Homes currently run \$120,000–165,000. The project is completely built out, indicating a strong market for this type of housing.

### Issues

The developer was able to site homes at just under ten units per acre, well above the density for typical development throughout the city. As a result, the project required a number of variances for street development standards (fire lane, postal delivery, and trash pickup), as well as setback requirements. While these were eventually resolved to the satisfaction of the city and the developer, variances and administrative relief were granted on a lot-by-lot basis, which lengthened the development approval process and ultimately increased the cost of development.

### Lessons Learned

The development review process required individual negotiations with staff from different departments. The inconsistencies in this process created a great deal of uncertainty about the project's final outcome.

It can be difficult for infill developments to incorporate broader community values, and to provide opportunities for social interaction with adjacent pre-existing neighborhoods. Public meetings and a developer's availability to adjacent neighborhood residents are essential for achieving community consensus.

©Robb Miller



# Sonora Cohousing

501 Roger Road

## INFILL DEVELOPMENT

### DEVELOPER:

Wonderland Hill  
Development

### STATUS:

Anticipated completion  
in spring 2001

### TYPE:

36 multi-attached,  
single-family residential  
cohousing community  
on 4.7 acres

Founders and community members of Sonora Cohousing intend to strike a balance between promoting a shared sense of community and respecting individual privacy. Built on a vacant lot in the midtown area, the project includes ten clustered residential buildings containing thirty-six attached homes.

The residential buildings surround a large common house. Pedestrian pathways link all areas of the site, including the parking lots on the periphery. Other common areas include a swimming pool and spa, play areas, a workshop, an organic garden and orchard, and placitas that serve as small gathering areas.

Other single-family residential homes and apartment dwellings surround the site, which is located on Roger Road west of First Avenue. This location is convenient to major bus lines and services, and is in an area good for bicycling.

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### Historical/Cultural

The development integrated into the existing neighborhood seamlessly. Sonora Cohousing sent informational flyers and invitations to adjacent residents and businesses to educate the public about the project's concept. Representatives from Sonora Cohousing answered neighbors' questions at weekly open houses.

### Social

Cohousing neighborhoods are designed to create a community where everyone knows each other. Sonoran Cohousing's pedestrian focus, its involvement of the residents in the design and management of the neighborhood, and its extensive common facilities help foster that sense of community. Planned and spontaneous activities

such as games and picnics are encouraged in the common areas. The midtown location provides convenient access to public transit.

### Functional

Metal roofs, high-performance insulating windows, and cellulose insulation keep indoor temperatures comfortable and ensure that homes are energy efficient. These features should reduce energy costs by as much as 30 percent. Builders made efforts to reduce the use of toxic materials in the construction process. Poor planning on adjacent properties required that Sonora Cohousing retain all rainwater onsite to prevent flooding of the surrounding area.

### Physical

Professionally designed landscaping uses desert and low water-use plants. The site was previously a chicken farm, with limited native vegetation.

### Economic

As a cohousing project, Sonoran Cohousing was required to have 75 percent of the homes sold before obtaining financing. Through strong marketing, all homes (ranging in price from \$100,00 to \$230,000) were sold prior to completing construction. The project cost approximately \$5 million.

### Issues

The entire development process took approximately seven years. Site selection occurred only a few years into the process, in part because Tucson infill properties of this size are limited.

The project's use of alternative building materials and the community-building elements contributed to minor permitting and plan approval problems.

### Lessons Learned

In cohousing, people are looking for something different from the traditional single-family residential environment. There is a market for this type of development.

Future roadblocks to creating this type of development could be eliminated with the creation of an intermediate government entity that is responsible for interpreting regulations and modernizing codes to emphasize new and alternative building techniques. Such an entity could also be an information resource for building professionals and clients wishing to pursue innovative projects.

Tucson has many innovative building and land-use resources to draw on. However, it can be difficult to find accurate and timely information about the cost of alternative materials, and can make it hard to use them, particularly in a cost-constrained, production-oriented development.

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# North Mountain Park

Mountain Avenue and Prospect Road

## INFILL DEVELOPMENT

**DEVELOPER/BUILDER:**

Contravest Properties, Inc.

**ARCHITECT:**

Robinette Architects, Inc.

**STATUS:**

Completed fall 1999

**TYPE:**

17 single-family residences;  
gated community on  
5 acres

North Mountain Park is adjacent to the Rillito River Linear Park, approximately three miles north of the University of Arizona, on a lot that had been used as a local dumpsite. The project's seventeen homes are built around two oversized cul-de-sacs with central islands.

The project provides homebuyers with the best of both worlds: a combination of urban amenities (shopping, downtown, the university, and schools are close by) and rural amenities (the adjacent linear river park with unfettered mountain views). The project's architectural style mixes traditional barrio features with high-pitched metal roofs. Homes are designed with vibrant exterior colors chosen by each homeowner.

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### Historical/Cultural

North Mountain Park's architectural style borrows from the barrio tradition: stucco construction with the appearance of adobe, front porches, and a compact, clustered design.

## Social

Most homes have active side yards instead of back yards, which encourages social interaction. Bike paths can be found nearby both on Mountain Avenue and along the Rillito River. The development is a gated community.

## Functional

Some homes have open floor plans with exposed beams and/or ductwork, contributing to a spacious interior. Porch overhangs and strategic window placement provide shade and help keep indoor temperatures comfortable.

## Physical

As part of the development approval process, the developer dedicated an easement along the Mountain Avenue Wash to the City of Tucson, providing pedestrian and bicycle access to the Rillito park.

## Economic

Homes are priced in the low- to mid-\$200,000s, making these relatively expensive homes in an area with low-to-moderate prices. While the development industry was skeptical about the demand for higher-priced homes in this area, houses sold out in less than a year.

## Issues

The city had originally requested a sixteen-foot easement for bicycle and pedestrian access to the Rillito as a condition of use and approval of permits, but eventually settled with the developer for a twelve-foot easement.

## Lessons Learned

There is a viable market demand for this type of infill residential development, which appeals to those in the higher income bracket desiring to live in an urban area.

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# Civano

5301 South Houghton

MIXED USE

## DEVELOPER:

The Community of  
Civano, LLC

## BUILDERS:

T.J. Bednar Homes  
Doucette Homes, Inc.  
Contravest Properties, Inc.  
Richmond American Homes  
Solar Built

## ARCHITECTS & PLANNERS:

Community Design  
Associates  
Moule-Polyzoides  
Ross Sutherland  
Design Build Consultants

## LANDSCAPE DESIGNERS:

Steve Martino  
Civano Nursery  
McGann Associates

## STATUS:

Platted in early 1990s;  
ongoing phased  
construction

## TYPE:

Mixed-use, neo-traditional  
planned community on  
1,140 acres

Civano incorporates elements of a traditional urban neighborhood into a large-scale development project—the first such development in Tucson, and the largest master-planned community currently under construction in the United States that requires compliance with ambitious standards for energy and water conservation, waste and travel reduction, job creation, and affordability. Civano integrates homes with local shopping, offices, a school, and a conference center, along with parks and natural open space, which are vital to the enjoyment and relaxation of residents.

Over the next decade, Civano will build 2,600 homes for more than 6,000 residents and provide one million square feet of commercial and industrial space. Four neighborhood centers are planned to serve the entire community, each of which will include gathering places such as coffee shops and small commercial enterprises. Most will be within walking distance.

Civano includes a wide range of architectural styles that draw from southern Arizona's diverse building tradition. Construction will emphasize energy efficiency and water conservation. Homes are clustered together along narrow streets with alleyways providing access to garages. With cars parked in back, and front porches luring people outdoors, residents are likely to have greater contact with their neighbors and feel a part of a larger community.

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## Historical/Cultural

Civano has many historic architectural adaptations, usually with environmental as well as social benefits. For example, front porches with roofs both shade homes and invite social interaction.

## Social

Civano has set a goal of creating one job for every two houses built. By facilitating walking and biking, integrating shops and commercial spaces, and creating permanent employment within the development, the project hopes to reduce auto travel onsite by 40 percent.

## Functional

The project has numerous environmental performance requirements for its construction. It hopes to achieve a 65 percent reduction in energy use by relying on energy-efficient building materials, including **RASTRA**, **straw-bale**, recycled steel, and foam. Every home includes solar water heating and is wired to accept photovoltaics. Civano will strive for a 54 percent reduction in potable water demand through the use of reclaimed water for irrigation, and a 30 percent reduction in solid waste generated by recycling construction and household waste.

## Physical

Thirty-five percent of the development will be preserved as open space, a portion of which will be used for parks and the pedestrian pathways and bike trails that link homes to neighborhood centers.

## Economic

The project estimates that 20 percent of the homes sold will be affordable housing (under \$120,000) or moderate-income housing (\$120,000–150,000).

## Issues

The City of Tucson spent \$3 million on initial infrastructure investments, which it hopes to recoup through revenues generated by the development, and through the savings made by avoiding new infrastructure costs in the area in the future. Any future assessment of Civano's success must determine whether the actual return justified

this level of investment. It also remains to be seen whether the market will allow for similar development projects in the future without similar public investments.

Existing building codes sometimes conflict with Civano's environmental performance goals. For example, flood control and water drainage regulations often hindered the siting of homes to take advantage of passive solar heating. These building codes should be revised to provide greater flexibility with an emphasis on outcomes rather than on specific requirements in meeting environmental standards. Also, issues of street widths and emergency vehicle access created delays and forced redesigns.

## Lessons Learned

This project's true success is in question, given market interest, percent of sales per phase, and whether the project is on track for expected sales. However, Civano remains a valuable case study as Tucson's first "New Urbanist" development project.

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# Main Gate Center

800 Block of East University Boulevard

## MIXED USE

### DEVELOPERS:

J.L. Investments, Ltd.  
Marshall Foundation

### STATUS:

Begun in 1994; ongoing

### TYPE:

Mixed-use, high-density  
redevelopment over a  
four-block area

The homes that grace University Boulevard west of the main gate of the University of Arizona convey the former affluence of this historic neighborhood. In the early part of the twentieth century, this tree-lined residential street was flanked by beautiful homes and dotted with small shops conveniently accessed by an electric trolley. The area experienced a decline after World War II. By the 1980s, many of the graceful old homes were gone, and remaining structures needed substantial repair or demolition.

In the 1990s, a group of investors joined with the university and a local foundation to initiate Main Gate Center, a major redevelopment effort several blocks long, extending from Fifth Street north to First and from Park Avenue west to Euclid. The one-square-block from Euclid Street east to Tyndall and Second Street south to University Boulevard is almost completely redeveloped, with thriving retail businesses, the university's administrative offices, and a new high-rise Marriott Hotel at the core. This stretch of University Boulevard has been developed to accommodate pedestrian and bicycle traffic, as well as the vintage electric trolley service connecting Main Gate Center to restaurants and shops along Fourth Avenue and downtown.

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### Historical/Cultural

The vintage electric trolley car service uses the central lanes on Fourth Avenue and University Boulevard, providing service from the Coronado Hotel to the Main Gate area. A volunteer organization, Old Pueblo Trolley, restores and maintains the historic electric streetcars. The new commercial/entertainment district is composed of buildings that reflect the architecture, scale, and ambience of past centuries.

### Social

Developing Main Gate Center involved significant coordination with city, university, and neighborhood

groups. The end result provides for a vibrant street life, attracting visitors and people from all over town. The University Boulevard streetscape design has preserved the attractiveness of the neighborhood, enhancing the social scene.

### Functional

University Boulevard's streetscape, which includes broad sidewalks, crosswalks, and an experimental back-in street parking design, helps create a relaxed atmosphere for shopping and dining. The innovative on-street parking helps keep traffic slow-moving and creates a safer area for bicyclists.

### Physical

N/A.

### Economic

Main Gate Center is a partnership of J.L. Investments, the University of Arizona, and the Marshall Foundation. J.L. Investments is the developer, responsible for managing the project and securing tenants. The university is a lead tenant. The foundation, which owns the land, is responsible for providing project funding. When completed, the project will cost upwards of \$70 million.

### Issues

The city's current development codes and regulations pertain primarily to suburban development projects. These codes are not specifically designed to accommodate urban infill or redevelopment projects. A variance was required in

each instance where the developer sought to duplicate existing building structures that predate current codes and regulations.

### Lessons Learned

Higher density is appropriate for certain areas of the urban/village core. The mixed-use concept can be utilized in many areas of the city, such as the corridors of Fifth and Sixth Streets and Stone Avenue.

Large-scale redevelopment can help contribute to the resurgence of declining neighborhoods. Future infill development projects can look to Main Gate Center as a quality project.



# Julian Drew Complex

186 East Broadway Boulevard

MIXED USE

## ARCHITECT:

Bill Mueller  
Bill Taylor

## BUILDER/AGENCY:

Business Development  
Finance Corporation  
(BDFC)

## STATUS:

Renovation completed in  
1994 (original construction  
in 1917)

## TYPE:

18,000-square-foot ware-  
house, subdivided into  
11 apartments, 14  
warehouse spaces, and  
4 commercial spaces

Located on the southwest corner of Broadway Boulevard and Fifth Avenue, the two-story Julian Drew Complex was built originally in 1917 with commercial space on the ground floor and a hotel on the second floor. At one time it housed Tucson's first indoor auto showroom. At the time of renovation in 1994, the hotel was no longer in use, and much of the commercial space, including an adjoining warehouse space to the south, was vacant.

Today the building has been completely renovated, with a newly reinforced structural system. An architect's studio, an art gallery, and other small businesses occupy the commercial spaces on the ground floor, and low-income apartments occupy the upper level. The remainder of the warehouse has been divided into fourteen spaces of varying sizes that are used primarily as artists' studios.

A parking area, screened with a rammed-earth sculpted wall, fills the space between the Julian Drew building and the adjacent warehouse structure. During evenings and weekends, various Broadway Boulevard community groups, including the Tucson Arts District Partnership, transform this space with open-air activities. Owners of the Julian Drew Complex not only have restored one of Tucson's historic downtown structures, but also look to restore downtown alliances and public events by encouraging a range of activities onsite.

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## Historical/Cultural

The Julian Drew building formerly housed the old Lewis Hotel, and some of its old fixtures, including the lobby electrical box and working above-door transoms, were saved. Its traditional territorial architecture with red-brick facade (common to turn-of-the-century western mercantile buildings) dominates the corner of Broadway Boulevard and Fifth Avenue, contributing to a unique historic downtown environment.

## Social

Julian Drew Complex management has shown an interest in the maintenance of surrounding buildings and structures by painting their facades and organizing an annual rotating mural project that is displayed on neighboring buildings. The parking area of the complex is used during "Downtown Saturday Nights" for fine arts markets

and musical events. The complex is also home to several youth projects, including Second Chance, an assistance program for at-risk high school students.

### Functional

The parking area's rammed-earth sculpted wall not only encloses the space, buffering it from Broadway Boulevard, but also enhances the streetscape with its native mesquite trees, which provide shade and complement the surrounding landscaping.

### Physical

N/A.

### Economic

The Julian Drew Complex was funded partially through a federal grant from the Department of Housing and Urban Development's (HUD's) HOME program, which finances affordable housing projects. The program requires that funded projects remain as affordable housing for a minimum of ten years. The Business Development Finance Corporation (BDFC), a nonprofit group that assists small businesses with financing, also secured funding for the renovation. BDFC initially worked with the Tucson Arts Coalition, which developed the original concept for this project.

### Issues

The Mayor's "Back to Basics Program" recently awarded BDFC \$40,000 for streetscape development along Arizona Avenue between the Julian Drew Complex and Congress Street.

### Lessons Learned

This building was financially infeasible for rehabilitation until the Uniform Rehabilitation Building Code was adopted. The use of the interior rooms violated previous conservative codes and thus made renovation impossible.

This project owes its success to its creative financing, efforts to maintain the main structure and the structures surrounding it, and the coalitions formed to increase the downtown's open-air activities.

While the Tucson Arts Coalition developed the initial concept and the BDFC assisted in the financing of the project, partnering with the city for HUD financing was critical for completion.

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# What We Learned

It is worth noting the “Lessons Learned” that appeared more than once in our case studies, as they helped us craft the policy recommendations that follow. They include the following:

- There is clearly a market for projects that deviate from conventional suburban-style development. However, the extent of that demand has not been quantified.
- Developers benefit from working with adjacent neighborhoods and landowners in the conceptualization and design of proposed projects. Local support facilitates the development review and approval process.
- Building and land-use codes should be more responsive to the needs of the community. This requires that all parties understand the health and safety standards established by these codes and how innovative development projects would meet or exceed these standards. Incentives and flexibility would encourage innovation.
- Local agencies should staff development services with specialists in green building systems and the biological sciences in order to enhance their ability to review and approve innovative projects.

As the amount of available land for development decreases, there will be increasing pressure to make more efficient use of land that is developable and to build in a more environmentally sensitive fashion. Redevelopment, infill development, and mixed-use development will become more viable options. Furthermore, as growth extends beyond the Tucson basin, it will affect a larger number of local jurisdictions. There will be a need for more regional planning among jurisdictions.

We must anticipate the opportunities and challenges that lie ahead and prepare for both. Currently, we are growing without a clear roadmap for the future, during a period when our population is expected to increase by 50 percent or more within twenty years. Our policy recommendations provide some initial steps toward creating that roadmap.

“I don’t think we can understate the general difficulties of the development review process, the inconsistencies of regulations and departmental missions. It’s essential that these conflicts be brought to light and addressed.”

Tom Doucette



# Policy Considerations

## Civic Quality of Development

Tucson's public debate over land use has focused primarily on the impact of development, and has typically arisen in reaction to proposals for new development. As mentioned previously, we rarely frame discussions of land use in terms of how future development could reflect our aspirations as a prosperous, livable, and beautiful city.

To a great extent, the tenor of public debate is a product of our land-use policy. The public is traditionally brought into the review and approval process too late for an effective outcome, frustrating local residents, generating uncertainty and additional expenses for developers, and creating a political minefield for elected officials and local planners. The end result is the lowest common denominator, rather than a reflection of our highest aspirations.

The most frequent concern heard from landowners, developers, builders, and others interviewed for the case studies in this report is that current land-use policies are largely designed to promote one type of development—suburban. Projects that attempt to respond to a broader range of local values must still submit to the same review and approval criteria. As a result, those projects that deviate from suburban development, such as Milagro, face additional costs and delays that can jeopardize their success.

Posadas Sentinel and other case studies highlight concerns about specific land-use codes that constrained innovation. A number of community-enhancing features—for example, narrower streets and setbacks—were deemed to be in conflict with health and safety considerations, while newer water harvesting, paving, and heating/cooling systems consistently ran afoul of current building codes. However, as we have noted, exceptions are made on a case-by-case basis if the landowner's proposal achieves or exceeds existing health and safety standards. Our challenge is to determine how these exceptions can become the rule for future development.

In the process of preparing this report, many issues arising from local land-use policies—ranging from comprehensive regional planning to specific building codes—were raised and energetically debated. While the advisory team was prepared to put forward specific recommendations for changing individual ordinances and regulations, it concluded that a more profound change was necessary to dramatically improve the quality of development in the Tucson basin.

**Simply put: *There needs to be greater attention given to the civic quality of new development—specifically, the extent to which land-use policy reflects and contributes to local values.***

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“Regulations are essential to set a minimum standard for development; however, regulations don’t bring out the best in new development. That requires incentives in the development review process, as well as a desire by developers and financial institutions to do it right.”

Luther Propst

**1. LOCAL JURISDICTIONS** must *define a vision for future development* that reflects and contributes to a broad set of community values.

As Pima County and local municipalities revise their comprehensive plans (as required under recent state legislation), they should provide greater guidance on what future development should look like. Each jurisdiction should identify the type of development they wish to encourage (infill, mixed-use, environmentally sensitive, etc.), identify areas where these types of development will be promoted, and establish policies that explicitly support them.

**2. LAND-USE POLICIES** must *provide landowners with greater flexibility* in developing their property as long as they *meet specific performance criteria* (“standards”) for development.

Based on development priorities outlined in the revised comprehensive plans, land-use policies should include a set of clear and consistent performance standards for preferred types of development, including but not limited to:

- Infill development
- Redevelopment and adaptive reuse
- Mixed-use development
- Open space development

At the same time, some performance standards should apply to all development, and as such should be encouraged and rewarded across our entire community.

These include specific, measurable green-building performance standards related to, but not limited to:

- Water usage
- Energy usage
- Solid-waste generation
- Light pollution
- Air pollution

They also include community-enhancing performance standards related to, but not limited to:

- Appropriate regional architecture
- Housing affordability
- Alternative transportation
- Protection of views
- Protection of open space

For this approach to work, there must be incentives to encourage landowners to pursue preferred types of development, as Pima County has done in its Conservation Subdivision Ordinance. These incentives should include but not be limited to:

- Density bonuses
- Eligibility for public financing, funding, and assistance
- Waivers for impact fees

This approach also will benefit from a streamlined development review and approval process. Collapsing ordinances, as Pima County is attempting to do with its proposed Environmentally Sensitive Land Ordinance, is an important step forward. Other key improvements may result from:



- Early and frequent involvement of the public in delineating neighborhood values, choosing among alternative project designs, and participating in the modification and final approval of projects
- Greater coordination between land-use policy development, code updates, and the review and approval process
- Where possible, consolidation of zoning districts or planning areas
- More effective use of development agreements as planning tools
- Additional planning staff for local jurisdictions
- Additional training opportunities for planning staff

**3. LOCAL JURISDICTIONS** must *work together* to ensure that everyone benefits from high-quality development.

A key challenge in “raising the bar” for local development is that one jurisdiction’s improvements can simply shift lower quality development to other jurisdictions if they do not follow suit. It is also important to recognize that many of the impacts of growth and development—such as transportation planning, water policy, or endangered species protection—cut across jurisdictional boundaries and require collaborative solutions.

Collaborative planning should reflect the following:

- Consistency among jurisdictions in the development of land-use regulations and building codes
- Formal commitments among local jurisdictions in realizing specific regional planning goals

- Measurable indicators and benchmarks for all jurisdictions to assess progress in realizing regional planning goals
- A statewide planning framework that provides greater financial and technical assistance to local jurisdictions

“What it takes to get by” is often the level of creativity and innovation fostered through our traditional land-use policies. Beyond minimum levels of performance, the current land-use framework provides few inducements or rewards for excellent design and high-quality development. Land-use policies that provide incentives and flexibility in realizing specific performance standards can help realize a higher level of quality in local development.

“We need regulations that respond to particular places and recognize the possibility of good news—that if done in a deeply integrated and caring way, development can enhance and even help restore and regenerate damaged places.”

David Eisenberg



# Conclusions

*Building from the Best of Tucson* initiates a process for further discussion about the future of development in our community. We will follow the release of this report with broader public outreach to invite ideas and suggestions on how we can realize a higher standard for development.

Too often, debate in our community over development has been divided by class, neighborhood, heritage, or economic interest. Issues related to environmental quality have been separated from issues pertaining to social equity and economic viability. These concerns must be addressed hand in hand. Only through honest debate and the consideration of diverse perspectives can we build upon rather than

polarize our community, effectively addressing the issues we have struggled with for decades. If local residents recognize the legitimacy of various interests in how our community develops, then we may experience a successful shift in development.

This is a timely and necessary discussion. We have witnessed local government leadership constructively addressing the impacts of growth. A wide range of community leaders are willing to craft solutions that address our economic, environmental, and social needs. We commend these leaders and challenge everyone interested to help create a more livable, more environmentally and economically sustainable, more inclusive, and more prosperous community.

*"We need to shift our thinking about building and development regulations away from the focus on trying to prevent the wrong things from happening to trying to facilitate and ensure that the right things do."*

David Eisenberg



# Glossary of Terms

**Affordable Housing**—Newly constructed or rehabilitated residences that can be purchased or rented at an annual cost that does not exceed 29 percent of the gross annual income of a person who earns 115 percent or less of the county median income.

**Attached Units** or **Attached Housing**—Two or more dwelling units sharing an outside wall (for example, townhouses, cluster homes, stacked flats).

**Brownfields**—Abandoned, idled, or underused industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination.

**Building Envelope**—The area within a lot that may be built upon or otherwise disturbed during construction.

**Cluster Development** or **Cluster Housing**—Development that concentrates buildings within a small area of a property, with the remainder of the property often maintained as open space. Cluster housing can be used to reduce the visual and environmental impact of development.

**Cohousing**—Residences that combine the privacy of single-family dwelling units with extensive common facilities such as kitchens, dining rooms, children’s playrooms, and/or laundry facilities, thus enhancing a sense of community. Residents often come together to identify a site and raise predevelopment funds, making the development process much different from the norm.

**Comprehensive Plans**—Long-range plans prepared by a local or regional government encompassing the entire jurisdiction and integrating all elements related to its physical development, such as housing, recreation,

open space, and economic development (sometimes referred to as “general plans” or “master plans”).

**Conditions, Covenants, and Restrictions (CC&Rs)**—A declaration filed by a developer that specifies his/her intended restrictions on what one can or cannot build on a property.

**Conservation Easement**—A legal agreement that a landowner makes to limit the type and amount of development on his or her property. Except in special instances, these restrictions are attached to the land and transfer to subsequent property owners in perpetuity. Conservation easements may be gifted or sold to appropriate private or public agencies.

**Density**—The degree to which buildings are concentrated in a particular area. Often expressed as a ratio (e.g., six dwelling units per acre).

**Detached Home**—A freestanding dwelling unit, normally single-family, situated on its own lot.

**Development Review**—The process of reviewing specific development proposals in the context of local land-use and building codes, zoning and subdivision regulations, and comprehensive plans, culminating in issuing or withholding a building permit.

**Drip Irrigation**—An above-ground, low-pressure watering system that releases small, steady amounts of water to individual plants.

**Energy Efficiency**—The process of minimizing the use of energy for space cooling, heating, and lighting, and water cooling and heating. Energy efficiency is measured in

“energy ratings” that provide information on the degree to which a feature, product, or device requires energy to perform its function.

**Gated Community**—Developments enclosed by remote-controlled gates, walls, or fences; predominantly built and maintained privately.

**Green Building**—A holistic approach to building that seeks to reduce energy consumption and minimize the environmental impact of constructing buildings and maintaining them throughout their entire life.

**Impact Fees**—Fees levied on developers by local governments to pay for the cost of providing the infrastructure that the development requires.

**Infrastructure**—Services and facilities provided by a municipality or private entity, including roads, highways, water, sewage, emergency services, schools, parks, recreation facilities, and so forth.

**Native Plants** or **Native Vegetation**—Plants or vegetation that occur naturally within a given location (e.g., saguaro cactus).

**Passive Solar Heating**—Generally refers to features in the design and construction of buildings that absorb the sun’s natural thermal energy, usually through radiation, conduction, and natural convection. (With active solar heating, collectors absorb heat from the sun, which is then transferred by pumps or fans to a building or to a storage unit for later use.)

**Permaculture**—A holistic approach to community development—with a long-standing emphasis on food production and land stewardship—that stresses the

ecological connections between human activities and the natural environment.

**Rammed-Earth**—A building technique for exterior walls where earth is “rammed” (or pressed down) between forms. Certain mixtures of moistened earth that are used in this technique harden under pressure and form a strong solid wall that is then covered by a coat of waterproofing material.

**RASTRA**—A material made from recycled plastics and cement that offers the structural strength of concrete with high insulation, soundproofing, and fire protection values.

**Reclaimed Water**—Wastewater that is given a high degree of treatment, resulting in high-quality water that can then be reused beneficially. Reclaimed water is delivered to homes and businesses through an underground distribution system entirely separate from the drinking water system.

**Setback(s)**—The part of zoning regulations that prohibit building within a specified distance from the property frontline or edge of the public street; thus, the structure must be set back a given number of feet from the frontline.

**Single-Family**—An adjective used for dwellings, either attached or detached, that are designed for use by one family. Single-family residences or housing units do not share heating facilities or other utilities with any other dwellings, and each has direct access to a street.

**Straw-Bale**—A building technique for exterior walls where straw bales (not hay) are stacked, reinforced, and interlocked, forming thick, highly insulated walls.

**Sustainable**—The ability to meet current residents’

needs without compromising possibilities for meeting future generations' needs. This implies that the actions we take to meet our basic needs—food, shelter, clothing, etc.—must not jeopardize the natural systems that support all life. Understanding the nature of the interdependence of the human and natural environment is paramount to understanding sustainability.

**Variance**—Permission to depart from the literal requirements of a zoning ordinance.

**Wastewater**—Water that is discharged from homes and businesses from sinks, toilets, washers, showers, etc. It is treated through a series of separation and aeration processes.

**Water Harvesting**—The rain that falls on a roof or yard and is channeled by gutters or channels to a storage tank. The first wash of water on a roof is usually discarded and the subsequent rainfall is captured for use if the system is being used for potable water. Good quality water is then available by this method.

**Xeriscape Landscaping** or **Xeriscaping**—The use of drought-tolerant plants instead of water-thirsty grasses to create a visually attractive landscape. Xeriscaping reduces outdoor water use by 30–80 percent and requires less maintenance than traditional turf landscaping.

**Zoning**—Dividing a municipality into districts and establishing regulations governing use, placement, spacing, and size of land and buildings.

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The Sonoran Institute, founded in 1990, is a nonprofit organization that works with communities to conserve and restore important natural landscapes in western North America, including the wildlife and cultural values of these lands. Through an innovative approach known as community stewardship, the Institute works collaboratively with local people and other interests to advance conservation, engaging diverse partners such as landowners, public land managers, local leaders, and nongovernmental organizations. The Sonoran Institute seeks lasting results through its work, including healthy landscapes and vibrant, livable communities that embrace conservation as an integral element of their economy and quality of life.

The Sonoran Institute maintains offices in Tucson, Arizona, and Bozeman, Montana.

7650 E. Broadway Boulevard, Suite 203 • Tucson, Arizona 85710 • Telephone: (520) 290-0828

201 S. Wallace Avenue • Bozeman, Montana 59715 • Telephone: (406) 587-7331

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# Building from the Best of Tucson

If you live in or around Tucson, no doubt you can easily point to recent construction that you believe is not appropriate for our desert community. While it's not difficult to see what doesn't work, it can be hard to identify what does work. What sorts of developments satisfy our civic aspirations? Which buildings fit best in our desert environment? What construction projects best celebrate the cultures and histories that make our community unique?

By profiling residential and commercial developments that draw on the wealth of Tucson's environment, history, and cultures while simultaneously striving to preserve those features, *Building from the Best of Tucson* encourages public discussion that might begin to answer the above questions. Open its pages and get a glimpse of what developments are working best for Tucson and how Tucson might encourage its future developments to further raise our quality of life.

