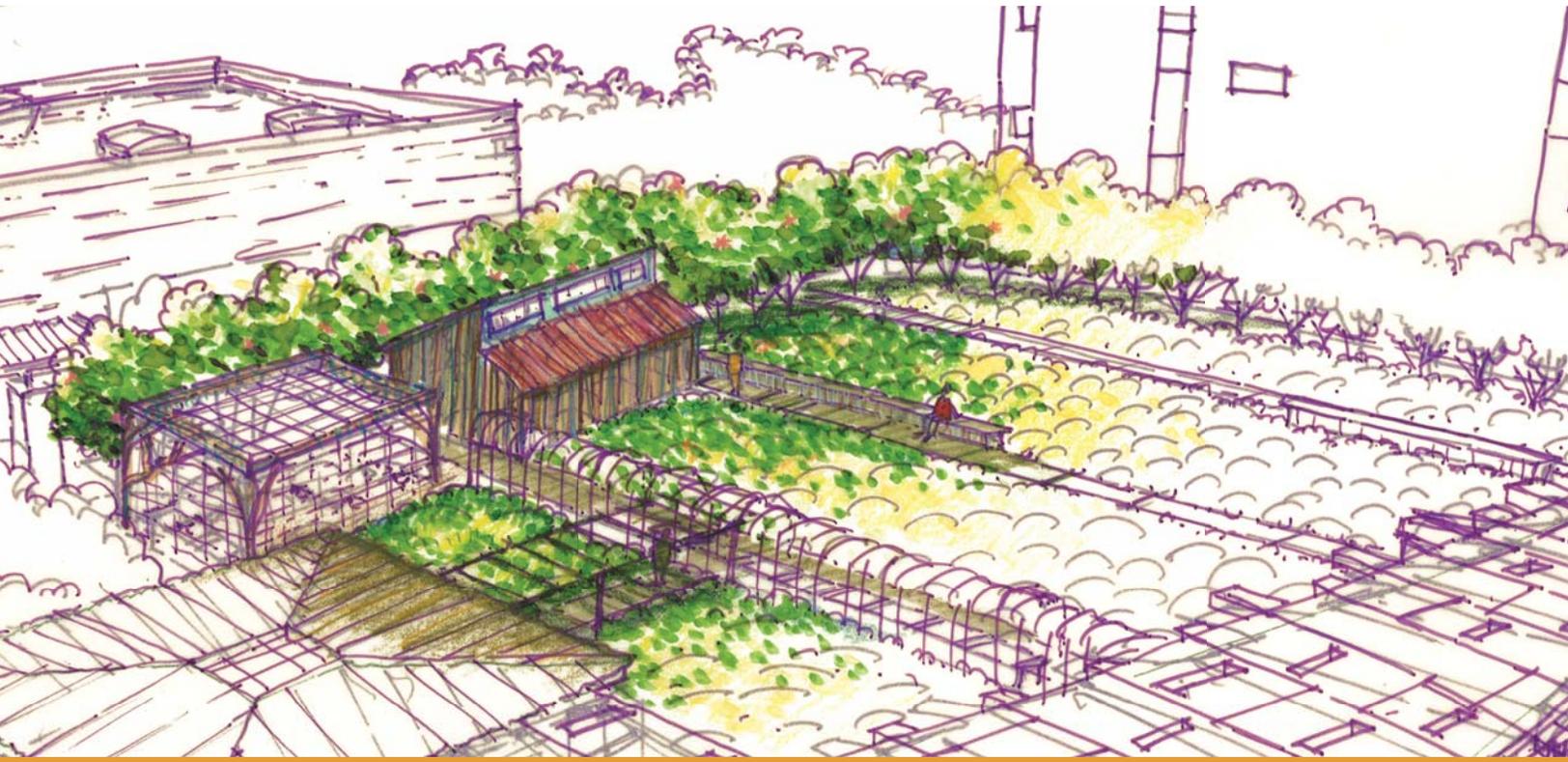


# CPPW

Communities Putting Prevention to Work



## Pima County, Arizona

Built Environment Team  
Summary Report  
March 2012



**Drachman Institute**  
College of Architecture, Planning, and Landscape Architecture  
Community Outreach Partnership Center  
[capla.arizona.edu/drachman](http://capla.arizona.edu/drachman)



# Communities Putting Prevention to Work:

Built Environment Team: Summary Report  
Pima County, Arizona

# CPPPW

Project Director: Katherine Gannon,

Project Assistants: Natalie Mast, Peter McBride, Iylea Olson, Christopher Sharp, Amy Wood,

Students from the College of Architecture, Planning and Landscape Architecture:

Reid Callan, Paul de la Torre, Mark Fleming, Lana Idriss, Laura Jensen,

Michael Northam, Sam Paz, Rudolfo Poe, Yennifer Perry Roman,

Jason Satterly, Chi Talley, Karli Thorstenson, Maria Voris

Brooks Jeffery, Director

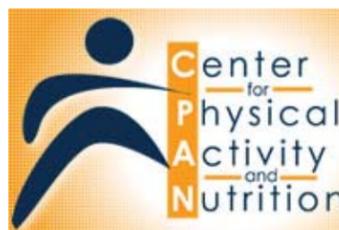
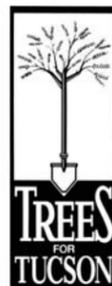
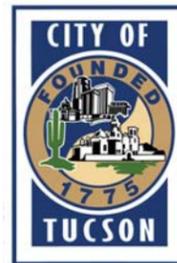
Marilyn Robinson, Associate Director

Laura Jensen, Report Co-Author

Kelly Eitzen Smith, Report Co-Author



Community Food Bank



*Drachman Institute is the research-based outreach arm of the College of Architecture, Planning, and Landscape Architecture (CAPLA) at The University of Arizona. The Institute is dedicated to environmentally-sensitive and resource-conscious planning and design with a focus on under-served and vulnerable communities. As an interdisciplinary collaborative, we engage students, staff, faculty, and citizens to work towards making our communities healthier, safer, more equitable, and more beautiful places to live. We embrace a service-learning model of education serving the needs of communities while providing an outreach experience for students. This model is a fundamental educational goal consistent with the mission of CAPLA and The University of Arizona.*

*All photos, renderings, drawings, charts, GIS layers, or other content were generated by Drachman Institute staff unless otherwise noted.*

*All GIS-based figures utilized publicly available GIS data provided by Pima County.*

Drachman Institute  
College of Architecture, Planning, and Landscape Architecture  
The University of Arizona  
Tucson, Arizona

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# Introduction

In 2009, the Pima County Health Department and Activate Tucson Coalition received a two-year grant funded by the American Recovery and Reinvestment Act of 2009. The Communities Putting Prevention to Work (CPPW) grant supported Pima County efforts to reduce obesity, increase physical activity, and improve nutrition through policy, systems, and environmental change. To approach the obesity epidemic from multiple angles there were seven project teams: food systems; neighborhoods; schools; worksites; health, human services and faith-based organizations; policy; and the built environment.

The focus of this report is the work of the Built Environment Team and efforts to reduce obesity and increase physical activity through new or altered physical structures and infrastructure in target communities.

Using a community-based participatory process, Drachman Institute developed more than sixty design plans for fifteen focus areas in Pima County, Arizona. This report presents three case studies to demonstrate how changes to the built environment can encourage physical activity and attack obesity “from the ground up.”

Strategies to create healthy environments include:

- Joint-use agreements for under-utilized community facilities
- The introduction of healthy food environments such as community gardens, farmer’s markets, and urban chickens
- Viewing schools as “Centers of Wellness”
- Re-design of existing environments with the input of local residents
- The creation of multi-use spaces to maximize space for different functions

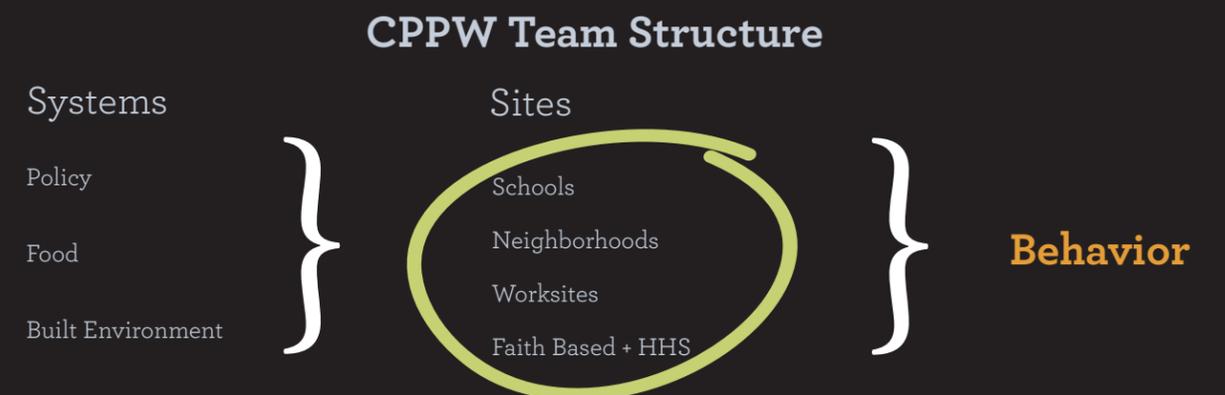


Figure 1.1: The CPPW Team Structure

- Green infrastructure
- The creation of physical activity environments

All individuals make choices about food and activity, but those choices are constrained by many factors. Individual behavior is influenced by genetic factors, cultural belief systems, messages from the media, the food industry, and policy (see Figure 1.2).

The focus of this report is the work of the Drachman Institute and efforts to reduce obesity and increase physical activity through changes to the built environment—the physical structures and infrastructure of communities. The Drachman Institute is a research and public service unit of the College of Architecture, Planning, and Landscape Architecture at the University of Arizona. Using a community-based participatory research process, Drachman Institute developed more than sixty design plans for fifteen focus areas in Pima

County. The following report presents three case studies to demonstrate how community-driven built environment improvements can lay the groundwork for broader systems and behavioral change.

### Background

In 2009, the United States spent more than \$2.5 trillion on healthcare, yet still ranks below many industrialized countries in terms of life expectancy. Many of the United States' most pressing health problems can be prevented through lifestyle changes. According to the National Prevention Council, United States obesity rates have more than doubled in the last thirty years.<sup>1</sup> Currently, more than 68 percent of adults and 32 percent of children are overweight or obese.<sup>2</sup> In fact, more than 20 percent of children between the ages of two and five are already overweight or obese. Obesity leads to a greater risk of many health problems including

heart disease, high blood pressure, and type 2 diabetes. It is estimated that 75 percent of all U.S. health care costs are due to these types of chronic conditions.

The risk of obesity and resulting health problems are not distributed evenly throughout the population. Studies have shown that obesity rates are higher in low-income and minority neighborhoods where there is less access to recreational facilities, fewer full-service grocery stores, and abundant fast-food services.<sup>3</sup> Across the



Source: Huffington Post

### Activity Levels, Nutrition, and the Built Environment

Important strategies to improve health include regular physical activity and access to healthy food choices. The Office of the U.S. Surgeon General recommends that adults engage in 150 minutes of physical activity per week, and children and teenagers one hour per day. The 2010 National Youth Physical Activity and Nutrition Study finds that high school students fall far short of this recommendation, with only 15.3 percent of students getting at least one hour of exercise per day.<sup>6</sup> In terms of race/ethnicity, only 11.8 percent of Hispanic students meet the recommendation.

According to the National Prevention Council, more than half of Arizona students do not attend any physical education classes in an average school week, and 33 percent watch television three or more hours per day on an average school day.<sup>7</sup> Combined with poor nutritional alternatives (especially in low-income neighborhoods), it is not surprising that Arizona ranks 15th in the nation for childhood obesity, although rates vary greatly by region of Arizona, race/ethnicity, and socioeconomic status.<sup>8</sup>

While there are many personal and social factors that influence individual activity levels and food choices, the built environment can serve to either promote or hinder physical activity and healthy eating habits.

The built environment encompasses all buildings, spaces and products that are created or modified by people. It impacts indoor and outdoor physical environments (e.g., climatic conditions and indoor/outdoor air quality), as well as social environments (e.g., civic participation, community capacity and investment) and subsequently our health and quality of life.<sup>9</sup>

## The Social-Ecological Model of Health Behavior

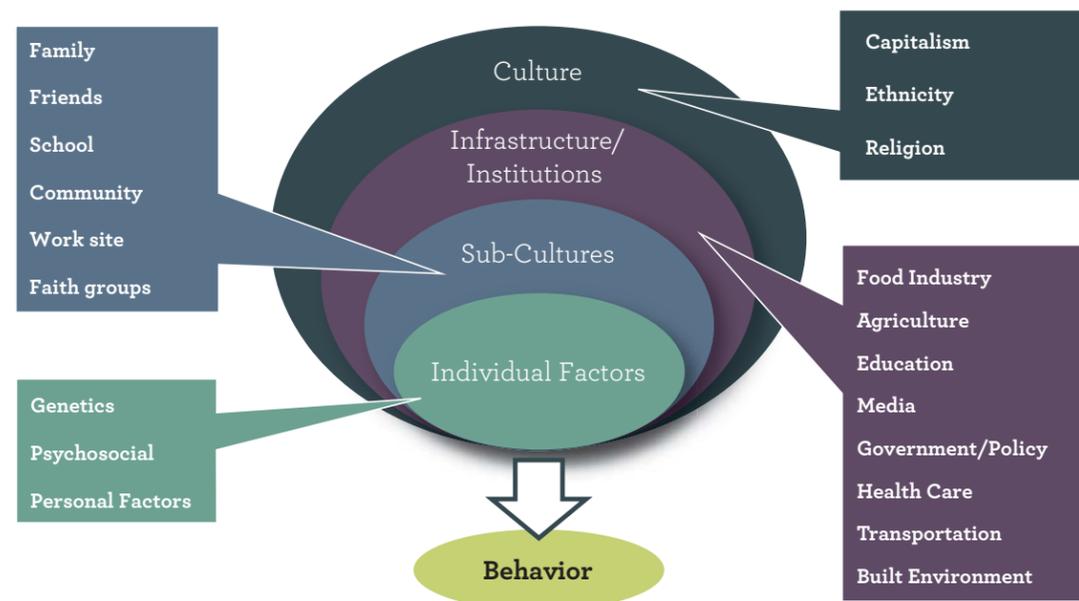


Figure 1.2: The Social-Ecological Model of Health Behavior

1 National Prevention Council. 2011. "National Prevention Strategy." U.S. Department of Health and Human Services, Office of the Surgeon General. Washington, D.C. <http://www.healthcare.gov/prevention/nphppe/strategy/index.html>.  
 2 Institute of Medicine. 2011. "Early Childhood Prevention Policies." (June 23). <http://www.iom.edu/Reports/2011/Early-Childhood-Obesity-Prevention-Policies.aspx>.

country, adult obesity rates for Blacks and Latinos are higher than those for Whites in 40 states and Washington D.C.

The obesity problem is of great concern in Arizona, where approximately 65 percent of adults over age 18 are either overweight or obese. For Arizonans with incomes below 130 percent of the federal poverty level, 70 percent are either overweight or obese.<sup>4</sup> Corresponding with national statistics, Hispanic and American Indian children in Arizona are at a high risk for obesity. Within Pima County, almost one in three poor children is overweight, and 14.4 percent are obese.<sup>5</sup>

6 Centers for Disease Control. 2011. "Physical Activity Levels of High School Students: United States, 2010." Morbidity and Mortality Weekly Report (June 17). <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6023a1.htm>.

7 National Prevention Council. 2011. "National Prevention Strategy." U.S. Department of Health and Human Services, Office of the Surgeon General. Washington, D.C. <http://www.healthcare.gov/prevention/nphppe/strategy/index.html>.

8 Robert Wood Johnson Foundation. 2010. "F as in Fat: 2010." <http://healthyamericans.org>.

9 Srinivasan, Shobha, Liam R. O'Fallon, and Allen Deary. 2003. "Creating Healthy Communities, Healthy Homes, Healthy People: Initiating a Research Agenda on the Built Environment and Public Health." American Journal of Public Health 93(9):1446-1450.

Some of the features of the built environment/community design that might impede physical activity and healthy eating are:

- Poor upkeep and security in local parks, or lack of suitable outdoor spaces for play and exercise
- Lack of affordable indoor recreation facilities
- Urban sprawl/communities that are designed for driving rather than walking or biking
- High traffic speed or volume
- Lack of public transportation
- Lack of adequate sidewalks and street lighting
- Lack of measures to promote pedestrian and bike safety
- Lack of shade and vegetation
- The existence of fresh food deserts and fast-food gluts
- Zoning laws that separate commercial from residential uses

Too often, residents of low-income communities live in environments where the infrastructure does not support physical activity and healthy eating. According to the White House Task Force on Childhood Obesity, “Low-income communities in particular often have a higher number of busy through streets, poor cycling and pedestrian infrastructure, and few high-quality parks and playgrounds—all elements which seem to deter



Source: scottsdalehousepeddler.com

physical activity.”<sup>10</sup> Using the 2007 National Survey of Children’s Health, Singh et al. found that children living in neighborhoods with these types of poor social conditions were 20-60 percent more likely to be obese or overweight.<sup>11</sup>

As a partner within the larger CPPW project, the Drachman Institute goal was to approach the obesity epidemic from the “ground up.” Working with schools, neighborhoods, and faith-based communities, the Drachman Institute staff and students developed plans and implemented projects to improve the built environment and encourage physical activity within each local context.

### A Community-Driven Theoretical Approach

In their review of 103 research studies on the built environment and physical activity, Ding et al. conclude that the environmental influence on physical activity is domain- and context-specific.<sup>12</sup> The Drachman Institute thus approached each project by first learning about the local context from community members and local stakeholders. This type of community-based participatory research (CBPR) “is an approach to conducting research by equitably partnering researchers and those directly affected by and knowledgeable of the local circumstances that affect health.”<sup>13</sup>

This approach greatly differs from the traditional “top-down” models of research where the researchers define the problem, maintain distance and objectivity from their subjects, and decide on the intervention strategy.

Instead, community-based participatory research is a collaborative or egalitarian approach to health issues. This is a fundamental shift from community members being seen as the beneficiaries of

10 White House Task Force on Childhood Obesity. 2010. “Solving the Problem of Childhood Obesity Within a Generation.” Report to the President (May). <http://atfiles.org/files/pdf/obesitykids2010.pdf>.

11 Singh, Gopal K., Mohammad Siahpush, and Michael D. Kogan. 2010. “Neighborhood Socioeconomic Conditions, Built Environments, and Childhood Obesity.” *Health Affairs* 29(3):503-512.

12 Ding Ding, MPH., James F. Sallis, Jacqueline Kerr, Suzanna Lee, and Dori E. Rosenberg. 2011. “Neighborhood Environment and Physical Activity Among Youth.” *American Journal of Preventive Medicine* 41(4):442-455.

13 Horowitz, Carol R., Mimsie Robinson and Sarena Seifer. 2009. “Community-Based Participatory Research From the Margin to the Mainstream: Are Researchers Prepared?” *Circulation* 119:2633.

research to partners and experts who can shed light on local problems and empower their own communities. The end result is that good CBPR ensures that research is community-driven and intervention strategies are culturally appropriate.<sup>14</sup>

Another fundamental aspect of CBPR is that it builds on strengths and resources within a community.<sup>15</sup> All too often neighborhood planning is based on a neighborhood’s deficiencies or needs, rather than building on a neighborhood’s assets. According to Kretzmann, “communities can only be built by focusing on the strengths and capacities of the citizens who call that community home.”<sup>16</sup> The asset-based community development (ABCD) model encourages the use of asset mapping whereby communities “map” their strengths such as the gifts of individuals, the power

### Community-Based Participatory Process

- Charrettes
- Meetings/Focus Groups
- Student Design Contests
- Neighborhood Mapping Exercises
- Idea Walls

of citizen’s associations, and the resources of local institutions. These resources are then harnessed to create a community vision, and the end result is an empowered community that is engaged in the planning process and motivated to solve its problems.

Ultimately, the incorporation of local residents in the planning and implementation process can result in enhanced social capital (networks of

14 O’Fallon, Liam R. and Allen Deary. 2002. “Community-Based Participatory Research as a Tool to Advance Environmental Health Science.” *Environmental Health Perspectives*. 110(2): 155-159.

15 Israel, Barbara A., Edith A. Parker, Zachary Rowe, Alicia Salavatore, Meredith Minkler, Jesus Lopez, Arlene Butz, Adrian Mosley, Lucretia Coates, George Lambert, Paul A. Potito, Barbara Brenner, Mari-bel Rivera, Harry Romero, Beti Thompson, Gloria Coronado, and Sandy Halstead. 2005. “Community-Based Participatory Research: Lessons Learned from the Centers for Children’s Environmental Health and Disease Prevention Research.” *Environmental Health Perspectives* 113(10):1463-1471.

16 Kretzmann, John P. (1995). “Building Communities From the Inside Out,” Shelterforce. National Housing Institute. (September/October). <http://www.nhi.org/online/issues/83/buildcomm.html>.

trust, interaction, and reciprocity among people).<sup>17</sup> Neighborhood social capital is characterized by a shared willingness to intervene in support of the common good and strong ties within the community. Higher levels of neighborhood social capital have been associated with higher physical activity levels and lower obesity risks among children.



Community visioning meeting  
Source: Drachman Institute

Drachman Institute approached each project from the perspective that community engagement in the planning and implementation process would result in local ownership of each project and pride in the results, thus building social capital for sustainable community change.

### CPPW Focus Areas

As previously mentioned, the risk of obesity and resulting health problems is not distributed evenly throughout the population. Obesity rates are disproportionately higher in low-income and minority neighborhoods. These health disparities are closely associated with inequitable investments in education, jobs, and infrastructure. With this in mind, focus areas for the CPPW grant were selected on the basis of several factors:

- Areas at high risk for obesity/chronic disease based on income and ethnicity
- Locations where one or more teams had access to community groups

17 Stout, Michael., John Harms, Tim Knapp, and Lora Vess. 2011. “Measuring Social Capital and Building Community in the Ozarks.” *Contexts* 10(1):20-25.

- Areas provide an adequate reach across the county and within each high risk municipality

Figure 1.3 shows the map of Pima County that was used to identify those areas at high risk for obesity. The darker the shaded areas, the higher the risk and thus an area of interest for the CPPW project teams.

Figure 1.4 shows the location of the built environment plans and implemented projects completed by the Drachman Institute. While the majority of the projects were completed at local schools, there are a number of additional neighborhood projects as well throughout the target area.

The following report presents an overview of built environment strategies and three case studies to demonstrate how a community-based participatory research process can be used to improve the built

environment, encourage physical activity, and attack obesity “from the ground up.”

### CPPW Core: Income & Ethnicity by Census Tract 2000

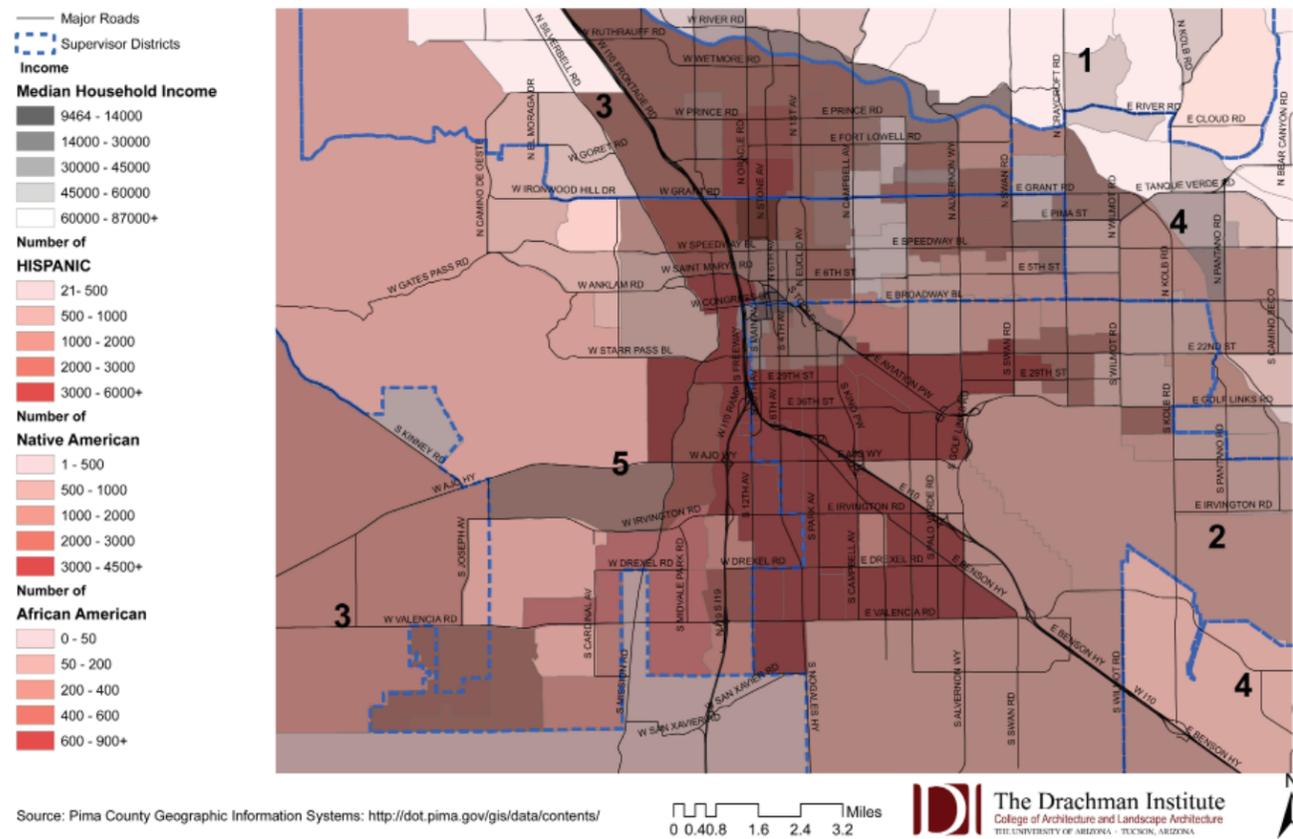


Figure 1.3: CPPW Focus Areas

### Locations of Built Environment Team Projects Pima County Communities Putting Prevention to Work

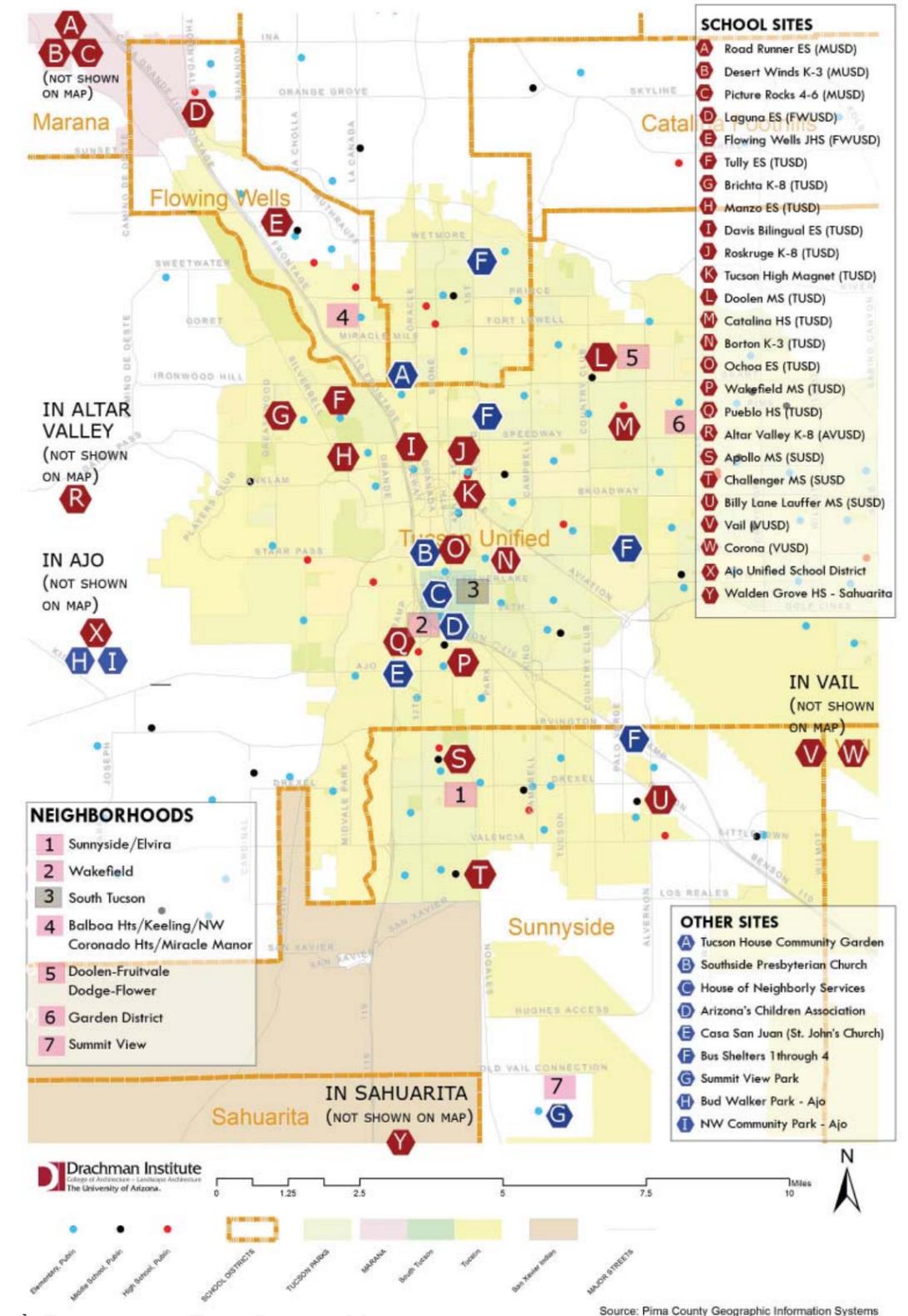


Figure 1.4: Built Environment Team Projects Map

# Built Environment Strategies



To address the features of the built environment that can impede physical activity and healthy eating, Drachman Institute staff and students used the following strategies to create healthy places:

- Joint-use agreements for under-utilized community facilities
- The introduction of healthy food environments such as community gardens, farmer's markets, and urban chickens
- Approaching schools as Centers of Wellness
- Re-design of existing environments with the input of local residents
- The creation of multi-use spaces to maximize space for different functions
- Green infrastructure
- The creation of physical activity environments

## Joint Use Agreements

Many communities lack safe, adequate places for children and their families to exercise and play. Leading public health authorities like the Centers for Disease Control and Prevention recommend sharing existing school and community recreational facilities to promote physical activity.<sup>1</sup>

<sup>1</sup> Robert Wood Johnson Foundation. 2012. "Active Living Research Brief." (April). Online: <http://www.activelivingresearch.org>.

This can be done when schools open their grounds to the community after school hours, or through specific joint-use agreements between organizations. A joint-use agreement is a formal agreement between two separate government entities--often a school district and a city or county--setting forth the terms and conditions for the shared use of public property.

Joint use of public facilities results in space and new opportunities as schools usually have a variety of recreational facilities--gymnasiums, playgrounds, fields, courts, tracks. Many districts close their property to the public after school hours because of concerns about costs, vandalism, security, maintenance, and liability in the event of injury.

In March 2012, Arizona Governor Jan Brewer signed SB 1059 which prevents schools from being held liable for injuries sustained by recreational users of outdoor school grounds, excluding swimming pools and other aquatic features.

Doolen Middle School is an excellent example of a successful joint-use agreement. This Tucson school has a joint-use agreement with the City of Tucson Parks and Recreation Department to open up their grounds after school hours. Another

joint-use agreement exists between the school and Community Gardens of Tucson (a local non-profit) to operate a school-community garden. Local community members (including a population of low-income refugees) can subscribe to garden plots and have open access to the garden.

### Healthy Food Environments

According to the United States Department of Agriculture, 11.5 million people live in low-income areas more than one mile from a large grocery store or supermarket.<sup>2</sup> These areas are known as “food deserts” and are characterized by limited access to fresh fruits and vegetables. At the same time, these high disparity areas often have abundant convenience stores, fast food establishments, and gas stations that offer food high in fat, sugar, and salt. In order to combat this, built environment strategies include the introduction of healthy food environments such as community gardens, farmer’s markets, and urban chickens. At Ochoa Community Magnet School, funds from CPPW were used to build a chicken coop to help teach children about health, nutrition, and nature.



Ochoa Community Magnet School chicken coop

<sup>2</sup> United States Department of Agriculture, Economic Research Service. 2009. “Access to Affordable and Nutritious Food: Measuring and Understanding Food Deserts and Their Consequences.” <http://www.ers.usda.gov/publications/ap/ap036>.

### Schools as Centers of Wellness

Public schools, especially elementary schools, provide the opportunity to reach large numbers of children and youth for at least six hours per day, five days a week. Many school districts are strapped for resources due to state budget cuts and competition from charter schools. However, schools are the ideal place to support access to physical activity and provide access to healthy food in school lunches and classroom gardens. There is much that can be done by simply re-imagining the possibilities.

Design of the school environment itself should strive to maximize the possibilities for movement, activity, and applied learning. Outdoor classrooms can offer students an opportunity for active learning, while installing or improving sidewalks and traffic calming devices can enable families and students who live locally to safely walk or bike to school. As previously mentioned, the opening of schoolyards through joint-use agreements also provides all members of the community with access to quality outdoor space for active recreation and exercise.

### Redesign of Existing Environments

Barriers to health are contextual. Local knowledge is required to identify barriers to good health and develop feasible and sustainable solutions. At each project location, the redesign process began with an assessment of existing conditions as well as interviews with local experts -- such as community leaders, neighbors, students, families, school principals, and maintenance crews. The information gathered from these important stakeholders influenced the direction a given project would take. Successful retrofit projects are the result of a shared vision and investment, and designing places for and with the people who will ultimately use them is crucial to their future sustainability in the community.

In Summit View, for example, Drachman staff and students collected feedback from residents regarding their needs and concerns about health in their community. A “visioning” event resulted in suggested improvements for the area and the neighborhood park. Ultimately, the community received 40 shade trees, signage, and horseshoe pits for Summit View Park.

## Joint Use Agreement/Center of Wellness - Doolen Middle School



Doolen Middle School Before

This Tucson school has a joint-use agreement with the City of Tucson Parks and Recreation Department to open their school grounds after hours.

Through a partnership with Community Gardens of Tucson, a community garden on the Doolen Middle School campus provides 26 plots for the school and the community at large. This turned a large,



Doolen Middle School Community Garden during construction (above), and after planting (right)

open, grassy area into a productive series of garden beds to grow produce and other edibles.

The school courtyard also features seating boulders, which some students use to actively “boulder-hop” from one side to another. A new seat wall and performance stage is a place where students put on performances and gather for lunch.



## Redesign of Existing Environments



Summit Colonia Park

The Summit View neighborhood south of Tucson is an area with little infrastructure, but a strong sense of community involvement. Members of the community were engaged in both the design and implementation phases of improvements to the existing neighborhood park. The park now has more native shade trees and a walking/fitness path with signage.



Tree planting event at Flowing Wells Junior High

The grounds at Flowing Wells Junior High/Centennial Elementary School are open to the public through a joint-use agreement. Part of the school property was enhanced by the addition of shade trees and an outdoor classroom paved with pieces of urbanite, or recycled concrete slabs. An existing running track on the campus was planted with shade trees, and an area nearby the track was



Outdoor classroom at Flowing Wells Junior High

transformed into a shaded seating area by the addition of trees and benches. In an Arizona Daily Star article about the tree planting project, student Amy Alonzo said, “Sometimes we want to cool down because it’s blistering in the sun and the trees will provide shade and keep us cool.” Shade can translate into more time spent being active outside, taking advantage of existing facilities.

### Multi-Use Spaces

A good outdoor space has multiple uses, is inviting, and serves a number of user groups. It is designed smartly to capitalize on the opportunities presented and functions in a way that is resource-conscious and self-sustaining. For example, the House of Neighborly Service (see Chapter 3) offers services to both youth and seniors including social and physical activities, distribution of food boxes, classes, and substance abuse and gang prevention. Thus, the plan for their outdoor space needed to include a multitude of uses for different age groups.

### Green Infrastructure

Where there is water there is life in the desert. In the urban environment, runoff is a valuable resource that supports comfortable and beautiful outdoor environments. Harvesting rainwater for irrigation not only saves resources, minimizes runoff and erosion, and recharges the local aquifer, but can add to the longevity of a desert landscaping project. Improving landscape plants' access to water in the desert helps to ensure their long-term survival, whether or not there is an irrigation system in place. Maintenance budgets and crews change over time, so it is wise to design a landscape that is as self-sustaining as possible.

Shade in the desert is not merely an amenity, it is a necessity. Shade can be created by planting trees or by constructing man-made shade structures. The relatively low initial investment in the planting of small trees makes them attractive for use across large areas such as school yards and walking paths. Shade beneath trees can be significantly cooler than shade beneath a built shade structure. However, in some places and in some applications, built structures are more appropriate than trees, and in all cases provide more shade much more quickly.

At Southside Presbyterian Church in South Tucson, trees were planted and a man-made shade structure was added to an empty playground area to provide immediate shade.

As part of CPPW, Drachman Institute staff and students planted numerous trees on local school grounds. While these will take time to mature, they will provide a more comfortable, shaded environment for years to come.

### Green Infrastructure



Rendering of the Desert Monsoon Garden designed for Altar Valley Middle School

Altar Valley Middle School, located 40 minutes southwest of downtown Tucson, had a large open space on the east side of their campus that was frequently the site of flooding. This excess water would then occasionally overflow into the gym. Student designer Lana Idriss developed a design for the space that would turn this rainwater surplus into an asset. The Monsoon Garden was designed to direct

the storm water into swales and basins and away from the gym, while utilizing this valuable resource to irrigate native and drought tolerant landscape plants.

Several other area schools and faith-based organizations received similar passive water harvesting features on their properties. Active water harvesting strategies were also employed on many



Rainwater cistern in Tucson

campuses, including rainwater cisterns and rain jars. Both of these methods harvest and store rainwater for later use.

### Physical Activity Environments

Active transportation routes, such as multi-use paths and bike boulevards, are ideally located adjacent to green infrastructure. Linking together quality open space and parks with active non-vehicular transportation routes can create an outdoor environment that is much larger and richer than one that consists of several parks in isolation. Providing natural shade and passive water harvesting features (curb cuts and basins) along these routes improves the quality of the outdoor environment to encourage walking and biking between destinations.

At Flowing Wells Junior High, ENERGI systems were installed along the outdoor track to encourage total body fitness for the students and the surrounding community thanks to a formalized community-school joint-use agreement.

Local residents who may not have the resources to join a gym are provided with free and accessible places to exercise and be active with friends and family. The increased enjoyment of being active outdoors has been shown to have greater mental and physical benefits compared to indoor exercise,

as well as increasing the length of time a person exercises and the likelihood that they will do it again.<sup>3 4</sup>

### Physical Activity Environments



Liberty Avenue Bike Boulevard

By providing or improving pedestrian and cycling infrastructure in neighborhoods (sidewalks, streetlights, and crosswalks) the opportunity for and desirability of physical activity is increased. Improving safety and ease of access to local destinations makes it safer and easier to get to work or school by non-vehicular means. This provides community members with more opportunities to be



New shade plants at Flowing Wells Junior High

active during the day. Joint-use agreements between schools and the community make infrastructure improvements on school grounds (walking paths, water fountains, ENERGI systems stations) available to the community at large.

Providing relief from the region's often intense sun, shade trees along pathways



ENERGI system at Flowing Wells Junior High

or ramada structures at resting points extends the season for physical activity and enjoyment of the outdoors by making it safer and more comfortable to be active outside.

3 Kerr, J., JF. Sallis, BE. Saelens, KL. Cain, TL. Conway, LD. Frank, and AC. King. "Outdoor physical activity and self rated health in older adults living in two regions of the U.S.." International Journal of Behavioral Nutrition and Physical Activity 9, no. 89 (2012). <http://www.ncbi.nlm.nih.gov/pubmed/22846594> (accessed May 17, 2013).

4 Maas, J., SM, van Dillen, RA, Verheij, and PP. Groenewegen. "Social contacts as a possible mechanism behind the relation between green space and health." Health & Place 15, no. 2 (2009): 586-95. <http://www.ncbi.nlm.nih.gov/pubmed/19022699?dopt=Abstract&holding=f1000,f1000m,isrcin> (accessed May 17, 2013).

# House of Neighborly Service



Aerial view of the project site before the built environment improvements (Google)



Before and after images of the House of Neighborly Services Project (Drachman)

The House of Neighborly Service (HNS) is a nonprofit Presbyterian mission located at 243 W. 33rd Street, in a residential area in the City of South Tucson. It has been serving the community of South Tucson for nearly 60 years, offering services to youth and seniors. Due to a lack of public parks in the City of South Tucson, HNS is an extremely important resource for outdoor activities in the community.

### Existing Amenities

A wide range of activities is available at HNS, from Ballet Folklorico to Bingo, crafts, games, and pick-up basketball games after-hours.

The facility also offers many services to its largely low-income population, including the distribution of food-boxes, senior social activities, after-school tutoring, and computer literacy programs.

Because the HNS is situated within a residential neighborhood and along the proposed 8th Ave Bicycle Boulevard, it is well connected and heavily used by the community of South Tucson.

### Site Needs

Prior to the start of the project, much of the HNS property remained under-utilized despite the popularity of the facility. There were large areas of

deep gravel, open and exposed spaces with little or no shade, and the large playground structure present at the site was under-used due to lack of shade and not enough seating for caregivers.

### Design Solution

The design process began with a series of community workshops and meetings, some led by Drachman Institute staff and others led by HNS. The participants included senior groups, neighborhood residents, children, and members of a local church. The workshops resulted in a comprehensive programmatic list of elements that HNS and community members wanted to see at the facility.

The student designer from Drachman Institute assigned to the project developed a series of designs that were presented over two more meetings. HNS users were enthusiastic about the designs and eager to get started on the project.

The final design document included a broader conceptual vision for the property: “The House of Neighborly Service campus will offer to its members and the surrounding neighborhood a safe respite replete with amenities to strengthen community by providing a place for gathering, celebration, play, sanctuary, health and learning.”

Therefore, the qualities important to the HNS campus are:

- Gathering** Spaces for celebration, community gardening, performances, practice, exchange, arts and crafts.
- Sanctuary** Spaces for quiet reflection and respite, or perhaps health and spiritually oriented gatherings like yoga, laughter yoga, and meditation.
- Play** Spaces that promote the health, wellness, and developmental qualities of play and nature for children.
- Learning** Spaces for education oriented activities like gardening, outdoor classrooms, or demonstration areas.
- Health** Spaces for exercise and self-improvement.

**Partnerships and Implementation**

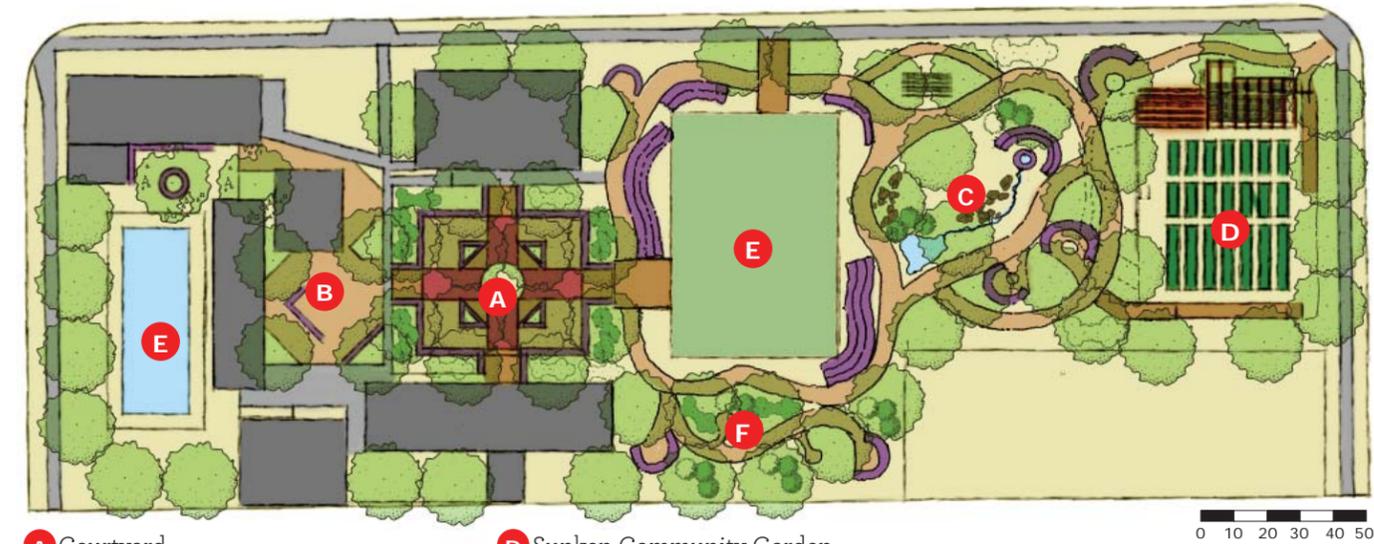
Many of the improvements that happened at the House of Neighborly Service were made possible by the generosity of volunteers, contractors, material suppliers and local organizations, as well as multiple teams within the CPPW project.

**Pre-CPPW**

- HNS won a grant for some facility improvements prior to the CPPW project.
- Through the grant, a local contracting company worked to create a design for the facilities over the course of six weeks which was to be built all in one day.
- Funded solely with money from the grant, the contracting company remodeled some interior spaces, built a ramada, and constructed a garden playhouse by the time the entire HNS project was complete.

**Watershed Management Group (WMG)**

- Drachman Institute contacted WMG early in the design phase for technical support on the project.
- WMG staff served as project manager, coordinating all of the final grading, the installation of all plant materials, and the rip-rap retaining walls.
- WMG staff were instrumental in the coordination with Lil' Johns Excavating, a local company who also worked on the project.
- WMG led workshops on-site in December 2011 and January 2012 to teach water harvesting principles and methods while constructing the project.
- Participants and volunteers in the workshops came from the neighborhood, local church and youth group, students from the University of Arizona College of Architecture, Planning, and



- A** Courtyard
- B** Youth Garden
- C** Nature's Playground
- D** Sunken Community Garden
- E** Community Pool and Multi-Purpose Area
- F** Sanctuary Garden



DeRoussel instructs a team of volunteers during a workshop. (Drachman)

Landscape Architecture, and the Drachman Institute.

- The volunteers built water harvesting earthworks, created a recreational path, planted a meditation garden, and installed a community food garden.

**Mountain States Wholesale Nursery**

- Drachman established a connection with Mountain States Wholesale Nursery during the design phase of the project.
- Wanting to get involved, the nursery generously donated all of the trees and plant materials specified in the project free of charge.

**Additional Partnerships**

- *Las Artes Arts & Education Center*, a program of the Pima County Community Services, Employment and Training Department at 23 W. 27th St. in South Tucson, designed and installed

- all of the tile work in the front entry for free.
- A local bricklayer and mason installed all the hardscape for the project at a discounted rate.
- Salvage concrete was donated by a local junk yard and was used in the construction of retaining walls on site.

Due to the strong community involvement in the HNS built environment project, approximately half of all labor and materials for the HNS project was donated by local companies or members of the community. Reaching out to and engaging community members and volunteers in this and similar projects increases the economic return on investment while teaching valuable skills that can be applied in future community projects. It also creates a sense of collective ownership that can ensure the project's longevity and relevance in the community.



A portion of the House of Neighborly Service property before (left) and after (right) the new design was installed. (Drachman)



# Desert Winds & Picture Rocks

Desert Winds Elementary and Picture Rocks Intermediate are two schools located in Picture Rocks and are part of the Marana Unified School District. The conjoined campuses serve grades K-6, and the two schools routinely share outdoor facilities with one another. They also share many of the problems of other schools in the area -- a lower-income student population, lackluster outdoor facilities with little shade or relief from the sun, and a campus and playground that serves as one of the only public parks in the area.

The schools are located just north of the Picture Rocks Community Center and District Park, about 30 miles southeast of the Ironwood Forest National Monument, and 25 miles northwest from central Tucson.

### Existing Amenities

- Recently installed pedestrian pathways connecting the schools and community center -- a \$1.2 million project funded by ADOT, RTA, and county Highway User Revenue Fees -- allow safe pedestrian and bicycle access to and from school.
- Picture Rocks Community Center is the intermediate school's southern neighbor and a well-used community resource.
- Two large playing fields on the campuses are

available to the community through a joint-use agreement.

- Two playgrounds are shared by the schools.
- The two schools benefit from a large, connected campus and a cooperative, community atmosphere.

### Site Needs

The most pressing need on both campuses was relief from the sun; children at both schools have physical education and recess outdoors where there is little protection from the heat. While the play structure at Desert Winds is outfitted with a shade canopy, it is made of fabric easily compromised by vandals. When the play structure's shade is absent from the playground, there is almost no place to find relief from the sun.

There were also problems with erosion present at both schools. The intermediate school had a large and mostly un-vegetated sandy hill that was eroding onto a sidewalk below. The sand that washed onto the concrete created a fall hazard and needed to be addressed to relieve some of the burden on the already over-tasked maintenance staff.

According to the principal of the intermediate school, some of the older children preferred to sit



The final conceptual design for the two campuses, showing location of trees to be planted and drainage features. (Drachman)

and read or socialize at recess rather than use the playground or the field, but these children had few comfortable places to sit. It was important to provide comfortable seating near the playground.

**Design Solution and Implementation**

After a few visits with the principals of both schools to discuss the design, a list of priorities was drawn up and compared to the total budget available to fund the improvements at both schools. Shade trees were at the top of the list, followed by the seat wall and re-grading to control the erosion issues that existed on the sandy hill at the intermediate school. Other items on the list were a sandbox for the elementary school, new gates, and handwashing stations for both schools.

The work at the schools was done over the course of several weeks. To control erosion at the intermediate school, a local contractor was hired to

excavate a channel to direct stormwater, beginning at the top of the hill near the downspouts and ending at an existing drainage channel to the northwest. A seat wall was installed along the southwestern corner of the hill to contain any additional loose soil. Irrigation lines were installed at a later date, and finally a row of four desert trees were planted behind the hill, to anchor the soil and provide shade for the seat wall.

A school cleanup day was scheduled for December 3, 2011, and advertised to the school population and in community newsletters. The Rotary club of Marana also posted a notice about the volunteer opportunity on its website. Prior to the workday, a local contractor came and installed all irrigation and dug the holes for the trees. Trees were delivered to the site from a locally-owned nursery, and volunteers were tasked with placing the trees and backfilling the holes with soil and mulch.

These improvements were part of a comprehensive design for both campuses that was created as part of the project. The design includes habitat and pollinator zones; a plan to create a more natural drainage feature to replace a concrete one that connects both schools; recommendations for capturing air conditioning condensate for irrigation from the units that flank the school walls that face the playgrounds; and other beautification and enrichment strategies that included planting more vegetation in the playground areas. The schools now have a master-plan for both campuses and can implement the design ideas in the future as desire and funding allows.



Volunteers from the Rotary Club of Marana break for a photo while planting trees at Desert Winds Elementary School on December 3rd, 2011. (Source www.clubrunner.ca)



An initial rendering of playground improvements at the Desert Winds campus. (Source: Drachman)

# UAMC South Campus



In June 2011, the Drachman Institute design team made site visits to the University of Arizona Medical Center South Campus (UAMCSC) (formerly University Physicians Hospital Kino Campus) and the adjacent Kino Sports Complex Stadium District to observe site conditions and meet with stakeholders from both organizations.

Drachman’s work with UAMCSC addressed myriad issues present on the hospital grounds. There were issues with traffic circulation conflicts on and off campus, a landscape full of impervious parking surfaces, and a lack of pedestrian and bicycle connection to nearby resources such as the recreation center (now a YMCA branch) that exists across Ajo Way from the campus.

### Existing Amenities

A walking and jogging loop had been recently added to the campus, and there was a possibility that this route could be linked to the nearby El Paso and Southwest Greenway. The nearby recreation center was already a resource for hospital employees and visitors, but needed better pedestrian and bicycle connections to the UAMCSC campus.

### Site Needs

Some of the most pressing issues present on the

campus at the time of Drachman’s first site visit were related to pedestrian circulation and human comfort. Numerous impervious parking lots dotted the campus, separating buildings and offices from each other and creating large expanses of exposed space ill-suited to the needs of pedestrians. There was little shade and few formalized walkways between buildings, creating challenges for those who wanted to walk from one part of the campus to another.

Conversations with UAMCSC employees and staff revealed that there were few local venues for healthy food options, which became the impetus to design a centrally located food court on campus, complete with vegetable and therapeutic gardens.

Perhaps the most major issue that needed to be addressed at the UAMCSC campus was the vehicular circulation conflicts that occurred during large events at the Kino Sports Complex next door. Heavy vehicular traffic arriving at or leaving sporting events was creating a conflict with emergency vehicles that needed to access the hospital. As part of the UAMCSC plan, the built environment team proposed an alternate route option for event traffic that would potentially alleviate these traffic conflicts.

### Design Process

By late June and into July, 2011, the Drachman team had begun working on some conceptual designs that would address the issues of circulation, pedestrian comfort and access, and availability of healthy food options. These designs and concept ideas were further refined through the late summer and early fall and then presented to UAMCSC staff, Stadium District staff, Pima County Administrator, and District 9 Supervisor in November 2011.

The project objectives throughout the design process were to:

- Assess campus access to reduce conflicts between emergency vehicles and Stadium District event traffic.
- Assess internal circulation patterns for all modes of transportation (ambulance, helicopter, car, public transit, bike, and pedestrian), minimize conflicts between them, and increase opportunities for active transportation.
- Present alternative parking lot configurations that enhance the comfort of campus visitors and minimize the negative effects of large expanses of impervious surfaces.
- Improve pedestrian circulation and increase opportunities for physical activity and active transportation by enhancing existing outdoor spaces and creating circulation links between activity nodes.
- Cultivate a stronger connection between the resources offered on both sides of Ajo Road by proposing additional safe crossing points for bicyclists and pedestrians.

### Circulation Solutions

To solve some of the circulation conflicts between hospital and sports complex traffic, the Drachman team proposed some new circulation arrangements, starting with a change in the location of the sports complex main entrance. The existing route brought traffic around UAMCSC from the north, surrounding the campus with stadium traffic. The proposed solution re-routes this traffic to the south, where the majority of stadium traffic would then avoid much of the perimeter of the hospital campus. The main entrance to the Stadium would then be located at Milber Street and Country Club Road.

Milber is currently wide enough to designate two incoming lanes pre-event with one lane open for egress. Post-event the lanes could switch, two outgoing lanes with one lane open for ingress. Signs along Interstate-10 can help designate the Palo Verde exit as the primary exit for the stadium complex.



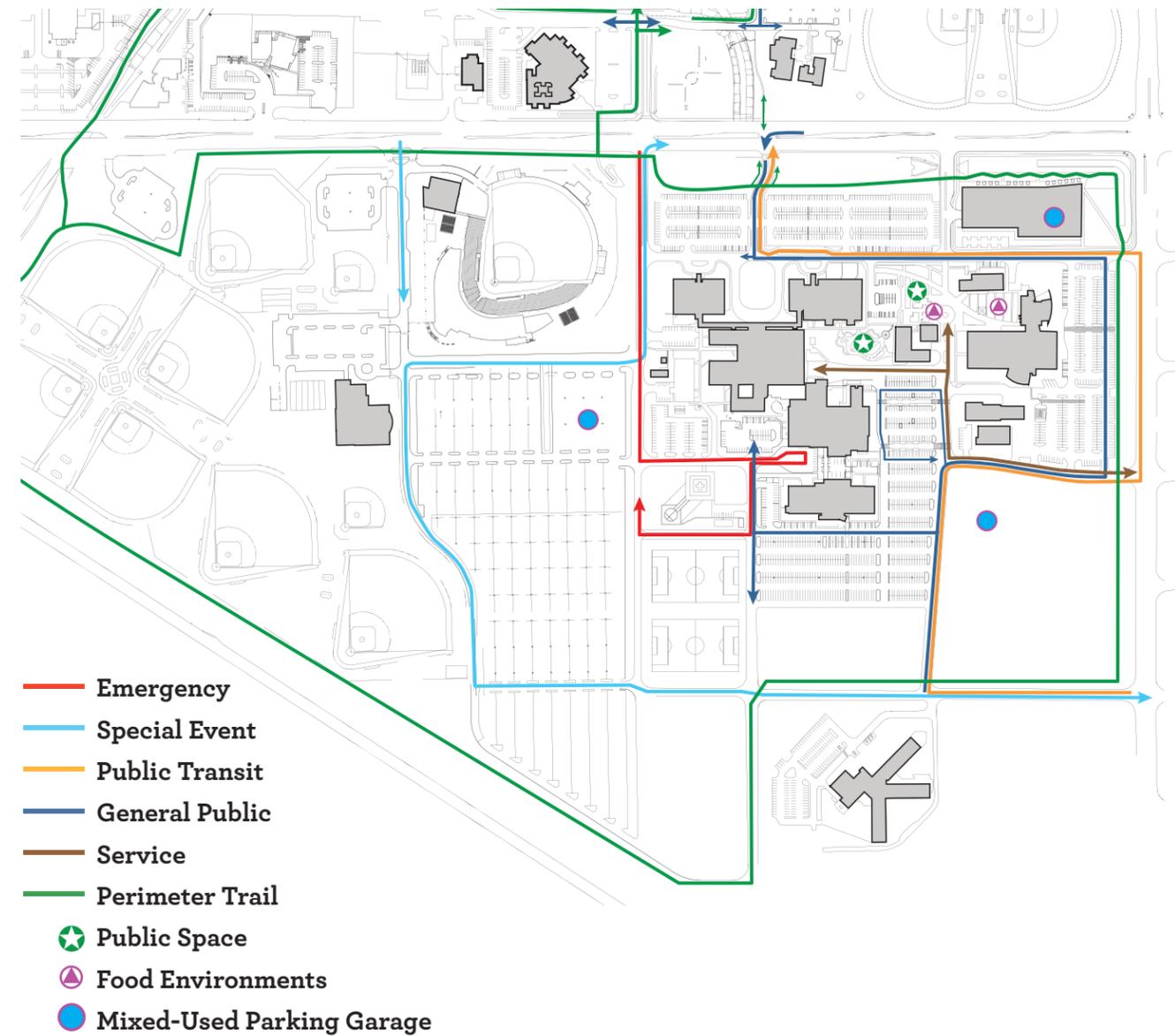
Existing Route to Kino Sports Complex



Proposed Route  
Additional mileage: 1.4 mi; Additional travel time: 1 min

On-campus circulation changes were also proposed in the final design in an effort to reduce barriers to physical activity and minimize conflicts between transportation modes. In the proposed plan, parking lots and vehicular routes within the core of the hospital complex are reduced, conflicting modes of transportation are separated, and linkages between campus resources are created through modification of existing infrastructure and provision of additional safe crossings.

### Updated Circulation Plan - South Campus



Milber gets gateway signage making it easily identifiable as the main entrance to the stadium.

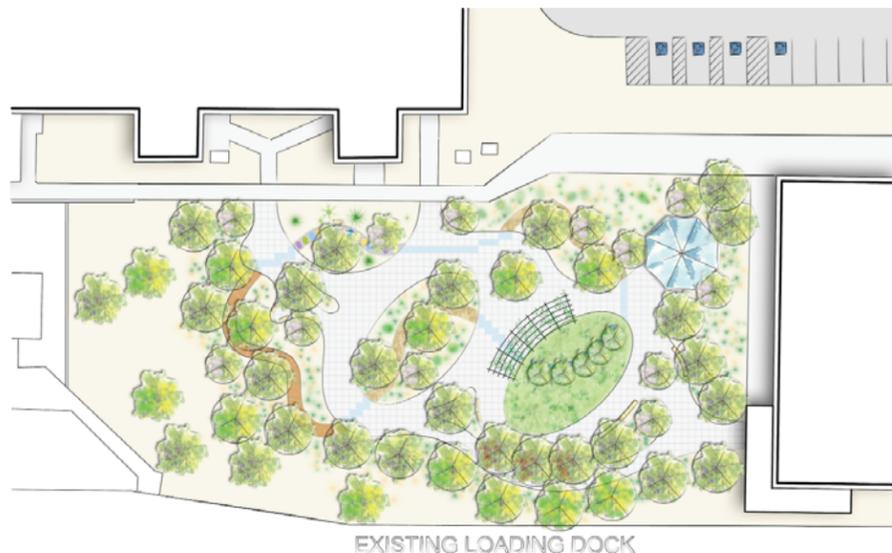
## Health Center to Hospital Sequence



A series of redesigned courtyards and plazas enhance the pedestrian connection between Abrams Public Health Center; the existing hospital, labs, and clinics; and the new psychiatric hospital. These newly vibrant spaces offer opportunities for food production, food consumption, rehabilitation, relaxation, and healing.

### UAMCSC Healing Garden

This courtyard design (*right*) is based on the principles of healing gardens researched by the design team over the course of the project. Key features include an enclosed, residential feel; a system of paved walkways and secondary pathways that vary in material; theme gardens (native medicinal plants, turf, sculptural plants, pollinator plants, songbird plants); a variety of seating (wood benches, concrete seat walls, boulders); and a variety of micro climates.



- 1 UAMCSC Food Court
- 2 UAMCSC Community Garden
- 3 UAMCSC Sculpture Garden
- 4 UAMCSC Healing Garden
- 5 Mixed-Use Parking Garage



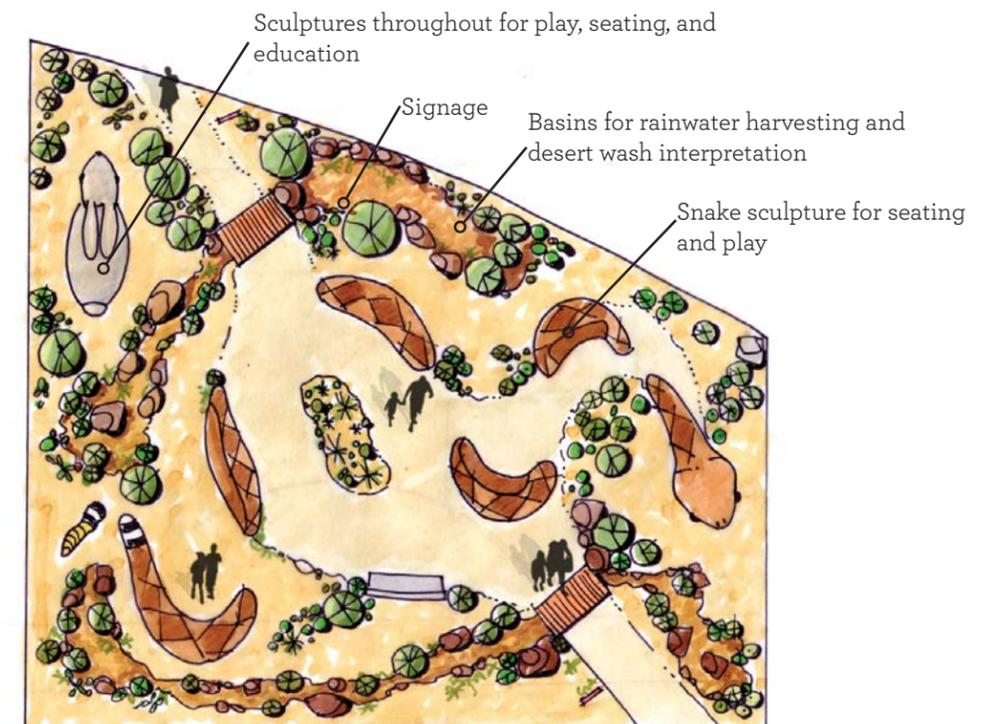
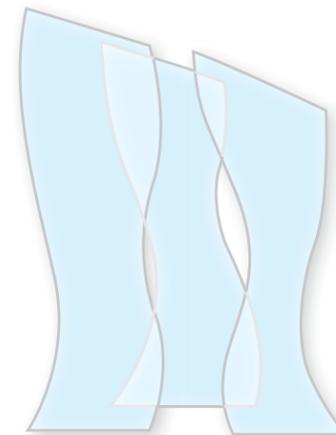
### UAMCSC Food Court

Every day a large concentration of health care workers, Pima County employees, and clients accessing public health services, commute to the Kino Health Campus and are without access to healthy food. Food gardens could enhance the Health Center's health-related services by demonstrating the cultivation of seasonally appropriate, fresh produce to their clientele.

### UAMCSC Sculpture Garden

This space offers a shaded area for seating and play. Sculptural elements invite children to touch and climb.

Overhead shade structures in a wave shape offer movement and pattern referencing the movement of water and the retention basins north of Ajo Way.



# Conclusion



The Drachman Institute's role within the larger CPPW project was to focus on ways to reduce obesity, increase physical activity, and improve nutrition through changes to the built environment. Strategies utilized throughout the various CPPW projects include:

- Joint-use agreements for under-utilized community facilities
- The introduction of healthy food environments such as community gardens, farmer's markets, and urban chickens
- Viewing schools as "Centers of Wellness"
- Re-design of existing environments with the input of local residents
- The creation of multi-use spaces to maximize space for different functions
- Green infrastructure
- The creation of physical activity environments

For more information about the CDC Communities Putting Prevention to Work program in Pima County and nationwide:

<http://www.cdc.gov/CommunitiesPuttingPreventiontoWork/action/index.htm>

[http://www.cdc.gov/CommunitiesPuttingPreventiontoWork/communities/profiles/obesity-az\\_pima-county.htm](http://www.cdc.gov/CommunitiesPuttingPreventiontoWork/communities/profiles/obesity-az_pima-county.htm)

<http://www.healthypima.org/Library/cppwfinalreport.pdf>

To see the UA College of Public Health Target Area Report:

<http://azprc.arizona.edu/sites/azprc.arizona.edu/files/pdf/Pima%20County%20CPPW%20Target%20Area%20Final%20Report.pdf>

This document contains only a small sample of the numerous projects completed under the CPPW program in Pima County. These projects and others would not have been possible without the efforts of a wide range of organizations, businesses, residents, and community leaders.