

# UNIVERSITY OF ARIZONA MEDICAL CENTER SOUTH CAMPUS



Built Environment Assessment  
as of January 27, 2012



# ACKNOWLEDGEMENTS



## The Drachman Institute

Drachman Institute is a research and public service unit of the College of Architecture and Landscape Architecture at the University of Arizona, dedicated to the environmentally sensitive and resource-conscious development of neighborhoods and communities. The Drachman Institute dedicates its research and outreach activities to the proposition that housing is the building-block of neighborhoods, and neighborhoods are the building-blocks of communities.

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## Communities Putting Prevention to Work

Communities Putting Prevention to Work (CPPW) is a national initiative of the Centers for Disease Control and Prevention (CDC).

The goal is to prevent or reduce the spread of obesity and related diseases by increasing opportunities for improved nutrition and active living. The method is implementation of policy, systems and environmental change. Pima County was one of 44 communities nationwide to receive funding for the CPPW grant, part of the American Recovery and Reinvestment Act of 2009.

CPPW is being developed and administered by the Pima County Health Department, in partnership with Activate Tucson, a coalition advocating healthy eating and active living.



## Pima County Stakeholders

Many thanks to all the stakeholders who attended progress meetings, gave input, and guided the design process.

Charles Casey  
Arlan Colton  
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# CONTENTS

## Introduction 4

- Project Goal
- Process

## Research 5

- Healthy Places
- Healing Environments
- Complete Streets
- Place Making
- Smart Parking
- Green Infrastructure + Sustainability

## Case Reviews 11

- Medical Campuses
- Campus Design

## Site Analysis 15

- Local Food Environment
- Roads
- Parking
- Emergency Routes
- Public Transit
- Bicycle + Pedestrian Routes
- Recreation Facilities
- Interior Spaces

## Design 24

- Circulation Concepts
- Forgeus Intersection
- Kino Veterans Memorial Stadium Access
- New Ajo Intersection
- Hospital Transit Hub
- Parking Lot Enhancements
- Internal Circulation
- Psych Parking Circulation
- Abrams to Hospital Sequence
- Mixed-Use Parking Garage

## Discussion

# Introduction

## Outreach Process + Project Timeline

### June 2011

Drachman Institute design team makes site visits to the University of Arizona Medical Center South Campus (UAMCSC) and Stadium District to inventory existing conditions and analyze opportunities and constraints.

Drachman Institute project coordinators meet with UAMCSC and Stadium District stakeholders to discuss project goals and objectives.

### June-July 2011

Drachman Institute design team works on concepts that address the conflicts and opportunities observed on site within the framework of the project goals and objectives presented by UAMCSC and Stadium District stakeholders.

### August 2011

Drachman Institute, UAMCSC and Stadium District stakeholders meet to discuss initial design concepts. The design team begins to refine the designs based on stakeholder feedback.

### October 2011

Revised design ideas are presented to UAMCSC and Stadium District stakeholders.

### November 2011

Design ideas are further refined and presented to UAMCSC staff; Stadium District staff; and Pima County Administrator, Chuck Huckelberry.

## Goals + Objectives

### Overall Project Goal

The goal of this project is to enhance the campus environment through quality public spaces and multi-modal circulation on and adjacent to the Kino Complex, thereby increasing opportunities for physical activity and access to healthy food.

### Project Objectives

- Assess Campus access to reduce conflicts between emergency vehicles and Stadium District event traffic.
- Assess and improve internal circulation patterns for all modes of transportation (ambulance, helicopter, car, public transit, bike, and pedestrian), minimizing conflicts between them, and increasing access to active transportation and public spaces.
- Present alternative parking lot configurations that enhance the comfort of campus visitors and minimize the negative effects of large expanses of impervious surfaces.
- Improve the campus environment by enhancing existing outdoor spaces and creating circulation links between these 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.

# Research

## Healthy Places

Ten key design principles can contribute to an individual's propensity to be physically active, which results in improved health outcomes. When these design principles are integrated and applied correctly they create environments that support greater levels of physical activity, reduce the incidence of obesity and improve mental health outcomes.

1. Active Transportation
2. Aesthetics
3. Connectivity
4. Environments for All Ages + Abilities
5. Mixed Density
6. Mixed Land Use
7. Parks + Open Space
8. Safety + Surveillance
9. Social Inclusion
10. Supporting Infrastructure



A mix of uses and densities provides numerous local destinations.

# Research

## Healing Environments

In 1984 a ground-breaking study by Roger Ulrich showed that surgical patients with views to the outdoors recovered faster and needed less pain medication than patients who did not. A growing body of research documents the therapeutic benefits of well designed outdoor spaces. Health centers are not just for sick people. They should promote health. Christopher Alexander in his 1977 *A Pattern Language* recommends that health centers become **Centers of Wellness**, fusing the ordinary course of local work with recreation: swimming pools, workshops, saunas, gyms, vegetable gardens, greenhouses” (Alexander 1977). Throughout the Kino complex and UAMCSC there are numerous opportunities to create environments that support health and healing.



A view of a water feature at one of three Blodgett Hospital healing gardens in Grand Rapids Michigan. Spectrum Health, the owner, is committed to green initiatives and uses LEED guidelines in construction.

<http://www.flickr.com/photos/spectrumhealth/5126391421/in/photostream/>

### A Variety of Spaces

Giving participants choices increases control in a setting where control can seem lost. Include small group spaces and semi-private spaces for respite, a range of pathway lengths, movable and fixed furniture as well as variety of views and plant types.

### A Prevalence of Green Material

Garden areas should be green with plant materials while hardscape is reduced to a third of the overall space. Pervious surfaces reduce heat and glare.

### Encourage Exercise

An increased sense of well-being has been linked to exercise. Provide paths of various lengths and difficulty and with different opportunities for movement and physical activity in a way users don't overtly think of the experience as exercise.

### Provide Positive Distractions

Plants, water features, and other natural distractions can reduce anxiety. The garden should provide a multi-sensory experience of sights, sounds, and fragrances. Seek plants that attract butterflies and birds, and provide a variety of texture, color, and movement.

### Minimize Intrusions

Keep loud noises, glare, smoke, and artificial lighting to a minimum. Care should be taken to prevent trip hazards for participants with IV poles.

### Minimize Ambiguity

Strive for a familiarity in the elements of the garden space. The garden should feel safe and home-like and use materials that are appropriate to the climate and culture that are neither hot or cold. Keep designs simple and easy to navigate. Design with hospital staff, former patients and family members.



The healing garden at Banner Good Samaritan Health Center in Phoenix, AZ



The Oregon Burn Centre in Portland, OR was designed together with staff. The space is used for therapeutic work and for patients to use for their enjoyment.

# Research

## Complete Streets

### The Many Benefits of Complete Streets

#### economic development

Balanced transportation systems bolster economic growth and stability by providing accessible and efficient connections between destinations.

#### improve safety

Safety improvements reduce conflicts, traffic speed, and crashes.

#### encourage walking and bicycling

Safe and pleasant environments increase physical activity and are an important public health response to the obesity epidemic.

#### ease congestion

Travel choices give people the option to avoid driving and increase the overall capacity of the transportation network.

#### help children

Streets that provide room for bicycling and walking help children get physical activity and gain independence.

#### air quality

Poor air quality in urban areas is linked to increases in asthma and other illnesses.

#### fiscal efficiencies

Integrating sidewalks, bike lanes, transit amenities, and safe crossings into the initial design of a project spares the expense of retrofits later.

<http://www.completestreets.org/>



Vegetated medians collect water runoff and provide a buffer between pedestrians and vehicles.



The street is narrowed and access is restricted to taxis, busses, and bikes along a portion of the street that runs through a density of uses.



Pedestrian design scale is finer than for faster moving automobile environments.

### What is a complete street?

- balances safety and convenience for all road users, including pedestrians, bicyclists, motorists, and public transportation
- considers the needs of all ages and abilities
- makes it easy to cross the street, and walk and bicycle to destinations
- is context-sensitive and responds to adjacent uses; there is no single design prescription
- may include: sidewalks, bus lanes, comfortable and accessible bus stops, frequent and safe crossings, median islands, accessible pedestrian signals, curb extensions, narrower travel lanes, roundabouts

High quality transit stops provide shade and respite for users and promote transit use.



# Research Placemaking

**The Community Is The Expert.** To develop a concept, invite local users to provide valuable into how the area functions and an understanding of the critical issues.

**Create a Place, Not a Design.** A vital “place” has physical elements that make people welcome and comfortable, such as seating and landscaping.

**Look for Partners.** Partners provide invaluable support getting a project off the ground.

**You Can See a Lot Just By Observing.** Learn from others’ successes and failures.

**Have a Vision.** A vision of what kinds of activities might be happening in the space helps create an important place where people want to be. Spaces should instill a sense of pride in the people who live and work in the area.

**Start with the Petunias.** Spaces evolve. Elements such as seating, outdoor cafes, public art, striping of crosswalks, pedestrian havens, community gardens and murals are examples of improvements that can be accomplished and tweaked in a short time.

**Triangulate.** “Triangulation offers stimulus that prompts strangers to talk to other strangers as if they knew each other” (Holly Whyte). The choice and arrangement of different elements in relation to each other can put the triangulation process in motion (or not).

**They Always Say “It Can’t Be Done.”** Start with small scale community-nurturing improvements that demonstrate the importance of “places” and help to overcome obstacles.

**Money is Not the Issue.** After the basic infrastructure of the public space, the elements will make it work (e.g., vendors, cafes, flowers and seating) and won’t cost a lot.

**You Are Never Finished.** Great public spaces are flexible and evolve over time.



Mural projects build community, provide instant results, and are inexpensive to do.



Phoenix Public Market, a non profit venture, has made a big economic impact with minimal investment in infrastructure, at the edge of downtown Phoenix,.



Amenities for public gatherings can be inexpensive; events are easily refined and improved over time.

<http://ourblocks.net/> excerpted from Eleven Principles for Creating Great Community Places

# Research

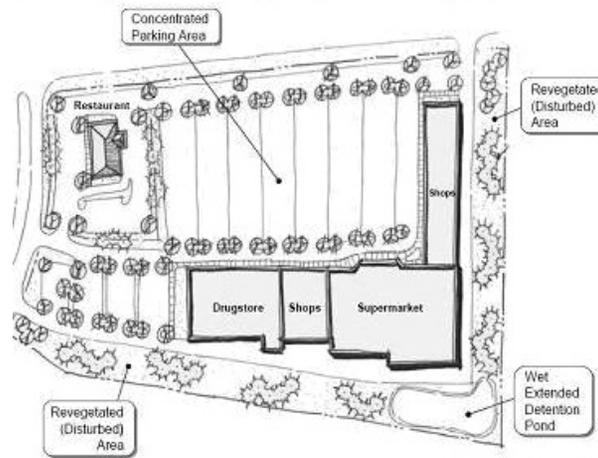
## Smart Parking

### Objectives of Smart Parking Design

1. Place parking facilities in the rear.  
Ensure that vehicles are not the dominant feature.
2. Encourage structured parking and automated parking. Minimize unnecessary impervious surface coverage.
3. Break parking into smaller lots.  
Utilize Low Impact Development techniques.
4. Implement traffic calming measures in and around parking facilities.  
Create a comfortable, safe environment for pedestrians.
5. Don't force pedestrians to follow automobile routes. Provide clear wayfinding for pedestrians through parking areas.

Source: Jeffery Lumin, Nelson Nygaard, EPA Technical Review Our Built + Natural Environments, Jan. 2001

### Conventional Development

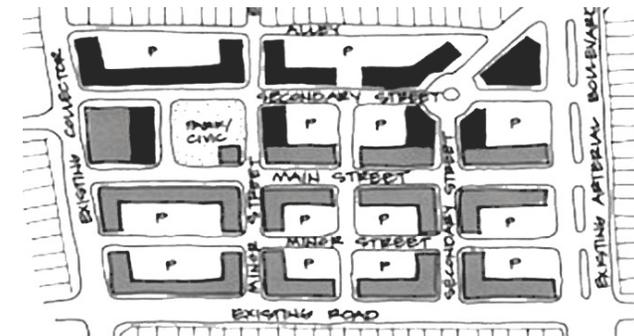
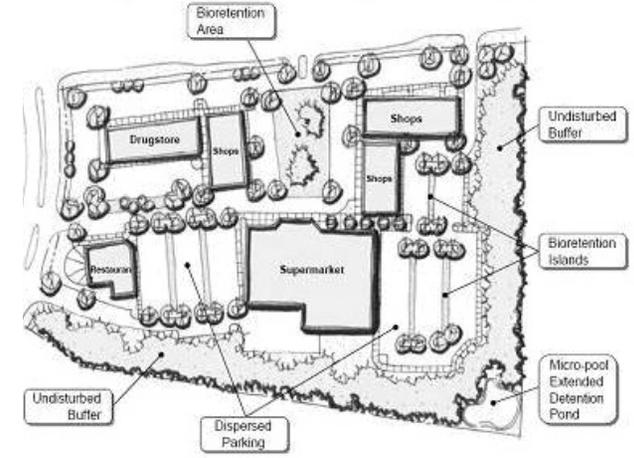


Conventional development results in massive surface lots that are dangerous and uninviting to pedestrians.



Parking rows are separated by vegetated medians that collect parking lot runoff to support shade trees and other native vegetation. A pedestrian walkway is designated at the end of the parking isles.

### Mixed Use, Park Once District



Smart parking design recognizes that all drivers become pedestrians once the car is parked.

# Research

## Green Infrastructure + Sustainability

- Green infrastructure is strategically planned and managed networks of landscapes and open spaces that conserve ecosystem values and functions and provide associated benefits to human populations.
- Low impact development practices (LID) should be integrated at the building, site and landscape scales.
- Green Infrastructure reduces risk and impact of flooding, improves water quality, and supports shade-giving trees, especially important in the arid Southwest.
- Green infrastructure usually costs less to install and maintain when compared to traditional forms of infrastructure.
- Green infrastructure projects foster community cohesiveness by engaging community in the planning, planting and maintenance of the sites.
- Green infrastructure invests in the development of local construction trades.



Permeable surfaces reduce flooding and Urban Heat Island Effect, above and below.



“Green” spaces tend to be more beautiful, better for the environment, more comfortable and inviting and also support locally-grown green infrastructure industries and jobs.

<http://greenvalues.cnt.org/green-infrastructure>



Permeable surfaces provide numerous benefits in urban environments.



Examples of pedestrian-scale solar lighting.



Solar panels in parking lots provide the added benefit of shaded parking.

# Case Reviews

## Medical Campuses

### The Peter and Paula Fasseas Cancer Clinic {Tucson, AZ}

- ~ A variety of spaces
- ~ Seating choices
- ~ A strong sense of the Sonoran desert
- ~ Sensory features

Gathering areas of various sizes are welcome respites, offering families and staff the chance to relax in a naturalistic setting.

Naturalistic paths form pedestrian connections between outdoor gathering areas, offering patients, visitors, and staff opportunities for passive recreation.

Gathering spaces utilize elements that provide sensory experiences enjoyed by patients, visitors, and staff.



# Case Reviews

## Medical Campuses

### Tucson Medical Center {Tucson, AZ}

- ~ Perimeter trail
- ~ Food cultivation
- ~ Buffered pathways



A trail circulates around the perimeter of the health campus, taking advantage of under utilized space to create recreation opportunities for patients, visitors, staff, and members of the surrounding community.

Tucson Medical Center incorporates food production onto the campus by offering an area to be used for community gardening.

Pedestrian walkways are buffered from roadways and parking lots with native vegetation. Pedestrian walkways are continuous and clearly defined throughout the campus.



# Case Reviews

## Medical Campuses

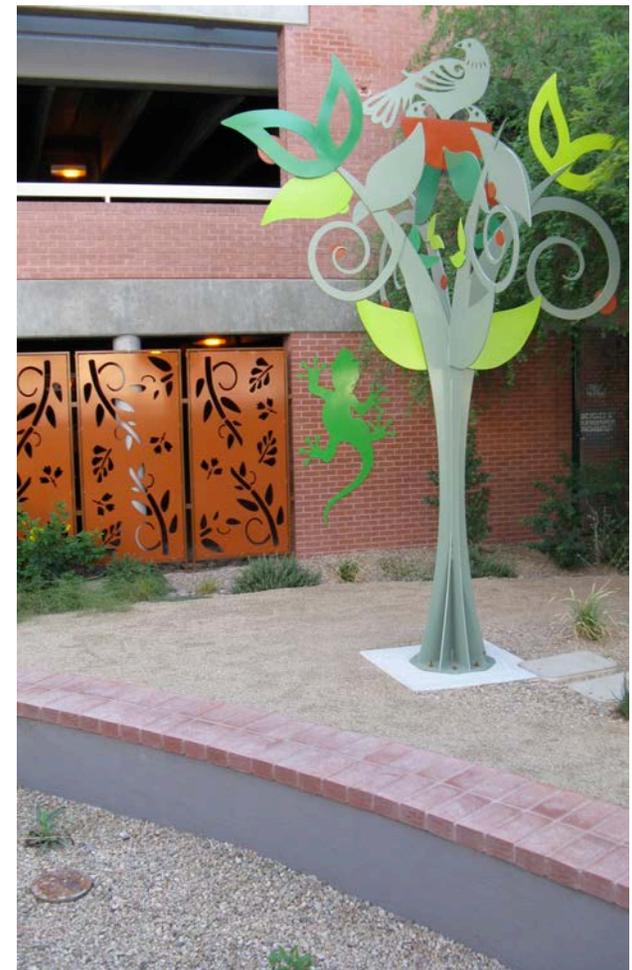
### Diamond Children's Medical Center {Tucson, AZ}

- ~ Playful features
- ~ Use of art + color
- ~ Variety of textures
- ~ Choice of seating

Spaces provide a variety of seating options, from seat walls and solitary benches to boulders and grouped benches.

The content, style, and colors of the art are consistent with the overall theme of the garden and help to enliven the space and make it welcoming.

In addition, art is used for functional elements, such as buffer screens between the parking garage and garden area.



# Case Reviews

## Campus Design (Academic)

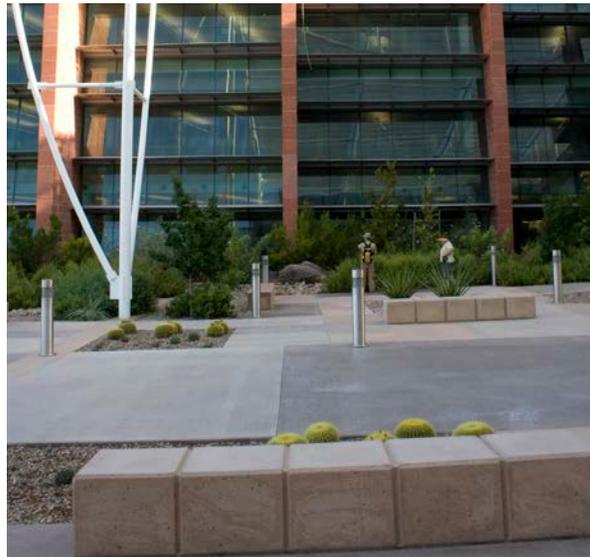
### The University of Arizona BIO5 Institute {Tucson, AZ}

- ~ Use of building adjacencies
- ~ Pedestrian + bicycle support
- ~ Connected, continuous routes
- ~ Shade, vegetation
- ~ Design incorporates use of site runoff
- ~ Pedestrian-scale lighting
- ~ Car-free interior

Automobiles are kept to the perimeter of campus environments. The spaces between and around buildings provide excellent opportunities for comfortable, vibrant spaces that support a variety of outdoor activities.

The U of A campus includes both urban and naturalistic gathering spaces that add variety to the experience of visitors as they travel across the campus.

Bike and pedestrian routes include amenities that enhance the experience and comfort of users: ample bike parking, pedestrian-scale lighting, seating, and shaded routes. Separate bike and pedestrian paths are clearly marked to avoid conflict.



# Site Analysis

## Healthy Food Choices

Kino Health Campus (blue+white star) is within a food desert and an area of somewhat concentrated unhealthy food choices. Exploring opportunities to increase employee and visitor access to healthy food options on the UAMCSC campus is a critical part of promoting health in the community that the health campus serves.

Community gardens, mobile markets, farmers markets, and food trucks increase food security, expand access to healthy food choices, and develop economic and employment opportunities within the local food system.



Community Garden



Mobile markets and farmers markets

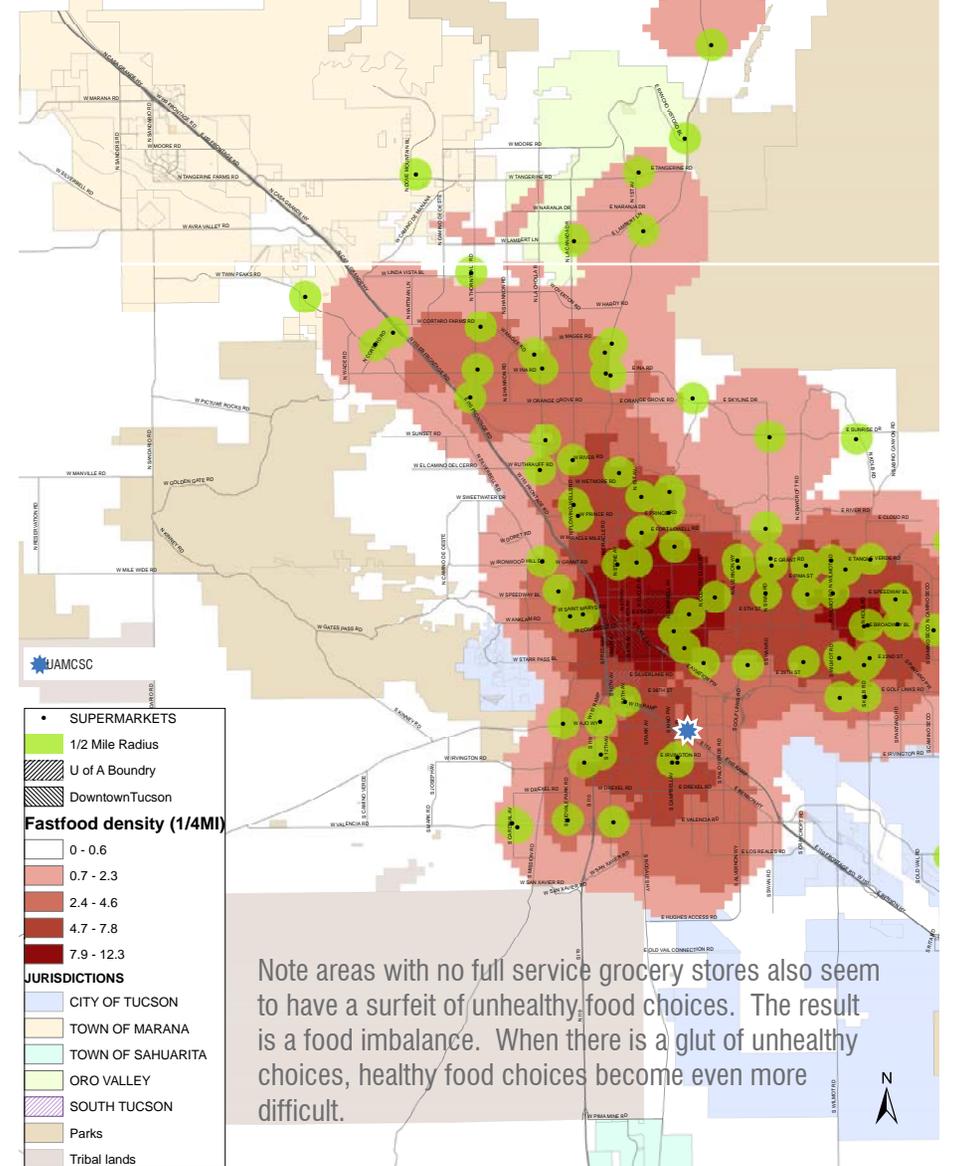


(Healthy) food trucks

## Fresh Food Desert/Fast Food Glut (Metro Area)

supermarkets within 1/2mi walking radius compared to density of fast food outlets per 1/4mi

Full service supermarkets (black dots) and a half mile walking radius (in green), compared to fast food densities (in red), darkest red areas contain **8 to 12 fast food outlets per quarter mile.**



Source: Pima County Health Department



# Site Analysis

## Zoning

The Kino campus is mostly surrounded by residential to the North and South with industrial use to the East

## Design Implications

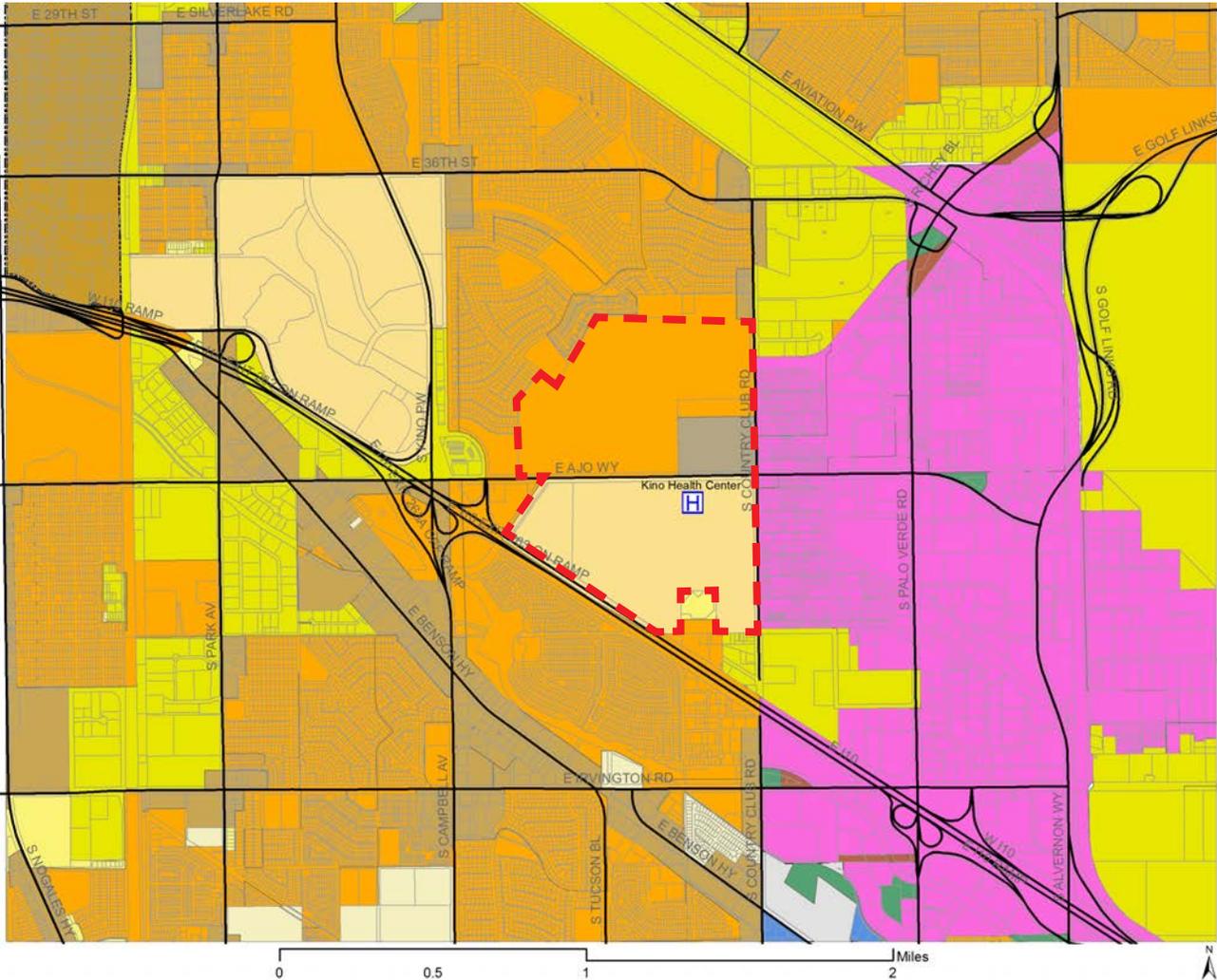
Greater livbltity could be achieved by creating a mixed use enviorment to serve the campus as well as the surrounding community.

### Tucson City Zoning

- commercial
- industrial
- mobile home
- office
- parking
- park industrial
- planed area development
- residence
- south tucson

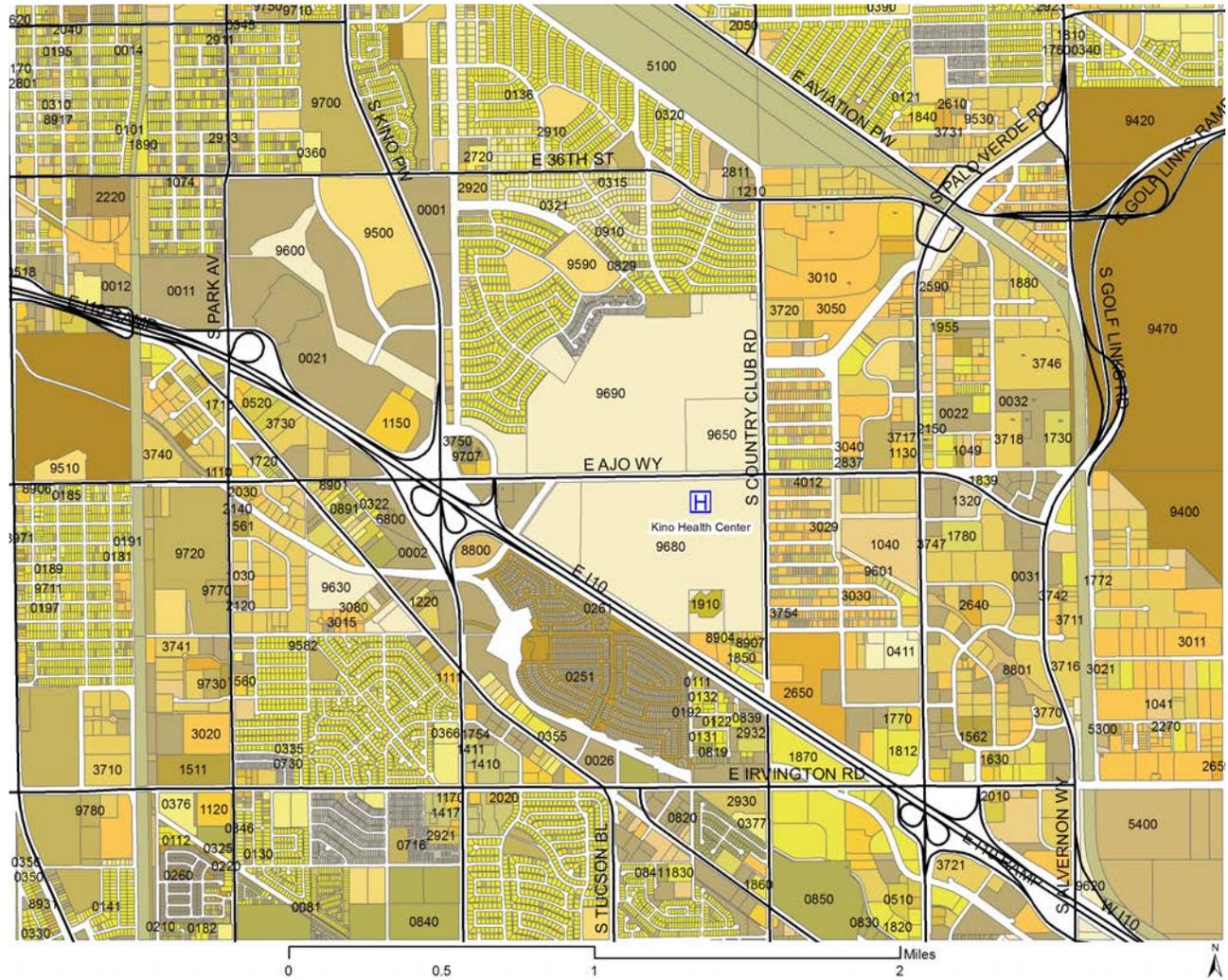
### Pima County Zoning

- business
- industrial
- single residence
- multi-use
- tailor homesite
- kino campus



# Site Analysis

## Land Use



- |  |                                           |  |                                                |  |                                                         |  |                            |
|--|-------------------------------------------|--|------------------------------------------------|--|---------------------------------------------------------|--|----------------------------|
|  | vacant 00__                               |  | supermarkets, convenience, strip stores 11__   |  | hospital, medical, dental, clinic, emergency, vets 21__ |  | railroad property 51__     |
|  | single family <5 acres 01__               |  | store with other use 12__                      |  | race tracks, air field, animal boarding/breeding 22__   |  | pipeline property 53__     |
|  | residential planned unit development 02__ |  | department stores 13__                         |  | theaters and amusement 25__                             |  | gas, electric utility 54__ |
|  | multiple residential 03__                 |  | shopping centers 14__                          |  | parking 26__                                            |  | mineral rights only 68__   |
|  | hotel 04__                                |  | office buildings 15__                          |  | clubs and lodges 27__                                   |  | limited use 88__           |
|  | motel 05__                                |  | banks, savings loan, credit union 16__         |  | partially completed structures 28__                     |  | original use 89__          |
|  | condo townhouse 07__                      |  | service station, truck stop, truck repair 17__ |  | privately owned schools 29__                            |  | federal property 94__      |
|  | manufacture homes 08__                    |  | vehicle sales, leasing storage, parts 18__     |  | industrial properties 30__                              |  | state property 95__        |
|  | salvage improvements 09__                 |  | care facilities 19__                           |  | industrial warehouses 37__                              |  | county property 96__       |
|  | misc commercial 10__                      |  | restaurants, nightclubs, bars, taverns 20__    |  | nurseries, greenhouses 40__                             |  | municipal property 97__    |



# Site Analysis

## Roads

The campus is bordered by Interstate-10 on the south, Country Club on the east, residential development on the north, and Kino Boulevard on the west. Another major road, Ajo Way, runs east/west, bisecting the campus.

Multiple secondary roads transect the campus. The campus development pattern emphasizes travel by car over alternative modes such as walking, biking, and public transit.

## Design Implications

More frequent safe crossing points along Ajo for pedestrians and bicyclists would enhance the connectivity of campus resources.

Partial or full closures of key sections of road would create a more pedestrian and bicyclist friendly campus.



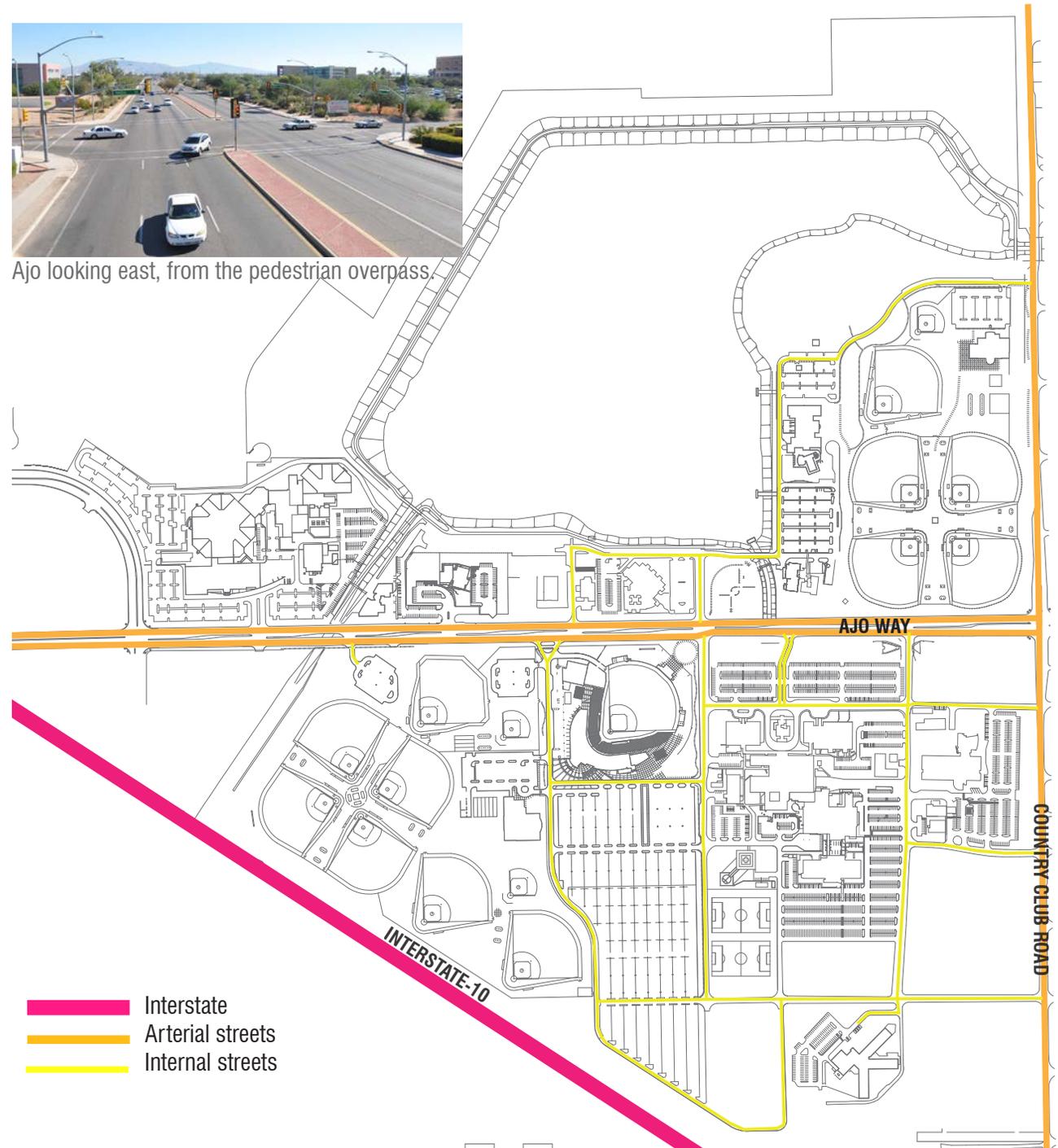
Ajo looking east, from the pedestrian overpass.



Pedestrian experience along Ajo, north of stadium facilities



Pedestrian view along Country Club, east of campus



- Interstate
- Arterial streets
- Internal streets

# Site Analysis

## Parking

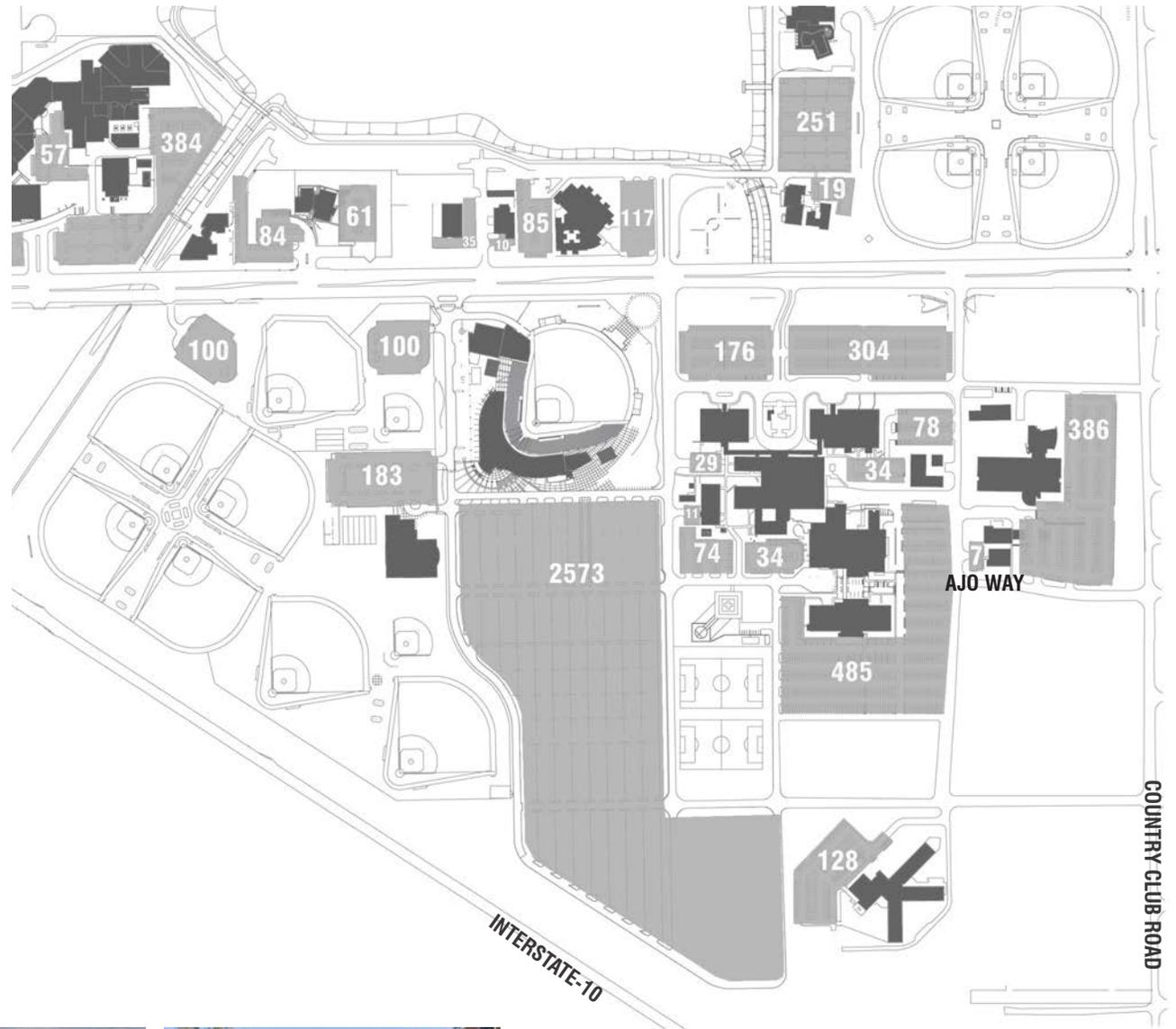
There are many parking lots of all sizes throughout the campus. Parking lots within the campus core increase vehicular traffic in areas that are close to and between buildings, areas that should be more pedestrian. While some lots appear to be under-utilized, there are reportedly parking shortages in other lots.

In general, campus parking lots lack appropriate pedestrian amenities. It is important to keep in mind that even if a person gets to the campus by car, they eventually become a pedestrian in order to get from their car to a building.

## Design Implications

Parking lots in the core of the campus should be minimized, resulting in a more comfortable and inviting pedestrian environment. Fewer, more concentrated lots, located at the periphery, might increase a person's walk time but would increase employee and visitor physical activity, which is a positive outcome. Shading parking spaces at the periphery of the lots would reward those who park the furthest away.

Parking lots should be enhanced with vegetation. Breaking up the large expanses of pavement will help reduce the Urban Heat Island Effect and create shade for people walking between their cars and campus buildings.



Parking lots are shown in light gray, rooftops in dark gray.

# Site Analysis

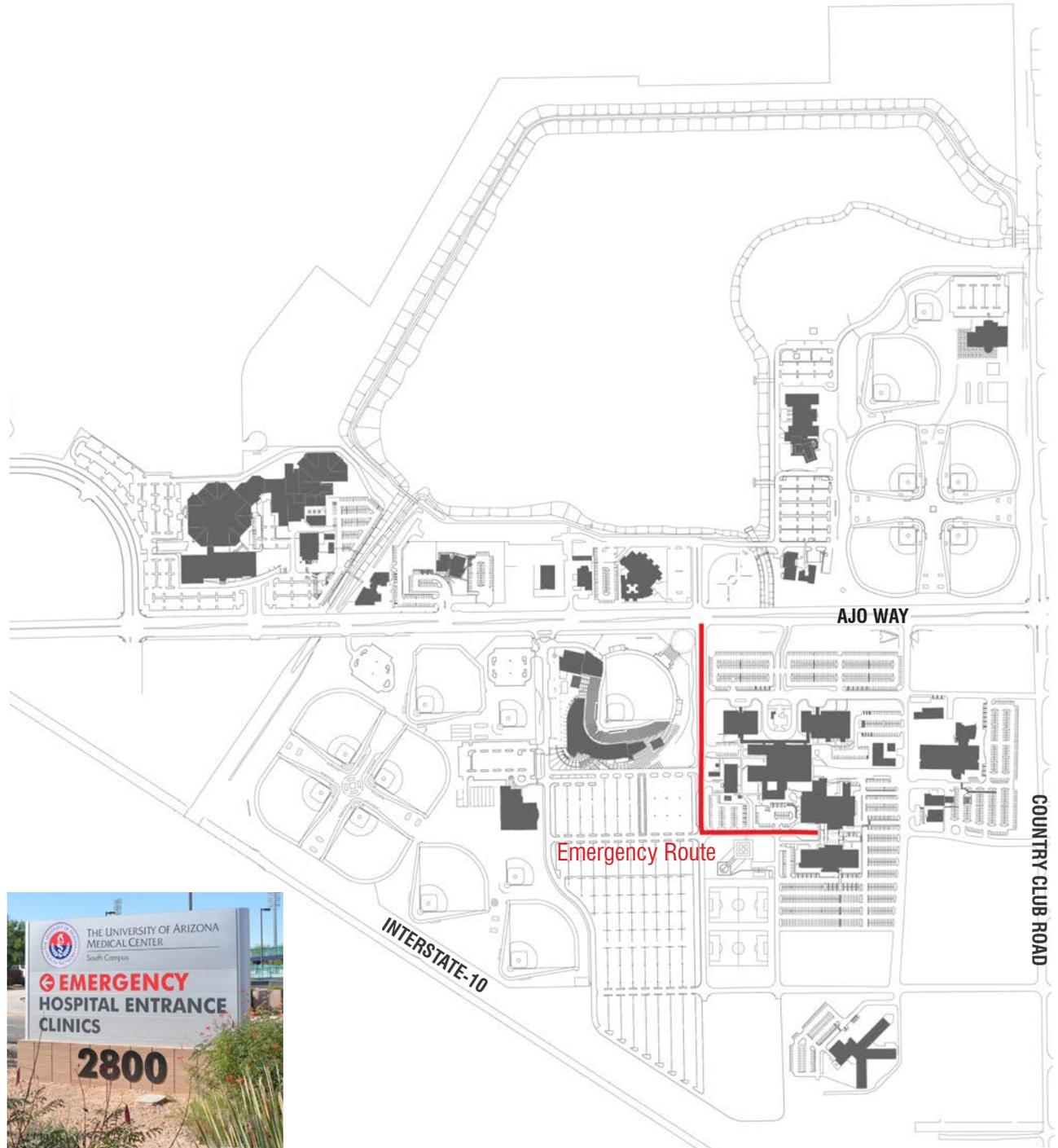
## Emergency Vehicle Route

Emergency vehicles enter the campus at a signalized intersection at Ajo and Forgeus. This is also the main entrance for special events traffic, creating a potential conflict. On special event days, emergency vehicles are re-routed, causing confusion and increasing travel time.

## Design Implications

Emergency vehicles should have a consistent, designated route that is free from conflict with special event traffic.

The route should be as simple and direct as possible.



# Site Analysis

## Public Transit Routes

Sun Tran routes 2 and 11 run through the campus and stop at two designated bus stops. Campus employees report that the buses travel too fast along the internal campus roads.

## Design Implications

The buses could be re-routed to avoid travelling directly through the core of the hospital complex, however, internal bus service improves public accessibility to campus services.

An additional stop placed in proximity to the Abrams Public Health Center could provide better access to Abrams clientele.

As the complex develops further, consider an internal transit system for transportation between buildings and across Ajo. This could be especially useful if parking lots are moved to the perimeter of the complex.



Sun Tran Bus Routes are shown in red, bus stops are denoted by red dots.

# Site Analysis

## Bicycle + Pedestrian Routes (Greenways)

There are currently no well-defined, continuous bike and pedestrian routes on campus but there are excellent possibilities to establish them. A drainage way runs along the north and east sides of the medical campus presenting the opportunity for multi-use trail, or greenway, on campus. Within and around the campus existing sidewalks are narrow, lack shade, and are close to fast, noisy traffic; they are often discontinuous, leaving gaps in the routes between campus resources.

There are infrequent crossing points for pedestrians and bicyclists along Ajo, making resources on either side of the road less accessible than they could be.

## Design Implications

A new perimeter trail around the south campus would provide an opportunity for exercise and enjoyment, and serve as an active transportation linkage. Exercise stations and distance markers could be used to enhance and define the area as a trail.

An internal trail between and around buildings would provide inviting pedestrian routes through campus and link destinations.

Safe, inviting and direct crossing points across Ajo are needed for pedestrians and bicyclist and will increase the connectivity of campus resources.



Connection to the Urban Loop.



Connection to the future El Paso & Southwestern Greenway.



Greenway opportunity north of Kino Stadium.



Bike lockers abound on the medical campus.

Existing multi-use trails, in green, provide active transportation choices and recreational opportunities for the workforce at the Kino Complex and UAMCSC. Two key regional bicycle linkages, the Urban Loop and the El Paso & Southwestern Greenway could be strengthened by connecting to internal campus greenways.



# Site Analysis

## Recreation Facilities

Recreation facilities include baseball fields, soccer fields, basketball courts, a swimming pool, play structures, and a multi-use trail. All of these recreation opportunities are located outside of the medical campus.

## Design Implications

The campus environment can encourage wellness and serve people when they are healthy as well as when they are sick. More recreation opportunities should be available within the core of the hospital complex to create a true center of health and wellness.

Existing regional recreational facilities are shown in green.



# Site Analysis

## Interior Campus Spaces

Opportunities abound for the creation of inviting and vibrant spaces adjacent to campus buildings. In some cases, the formal placement of site furniture would make existing spaces much more functional and enjoyable.



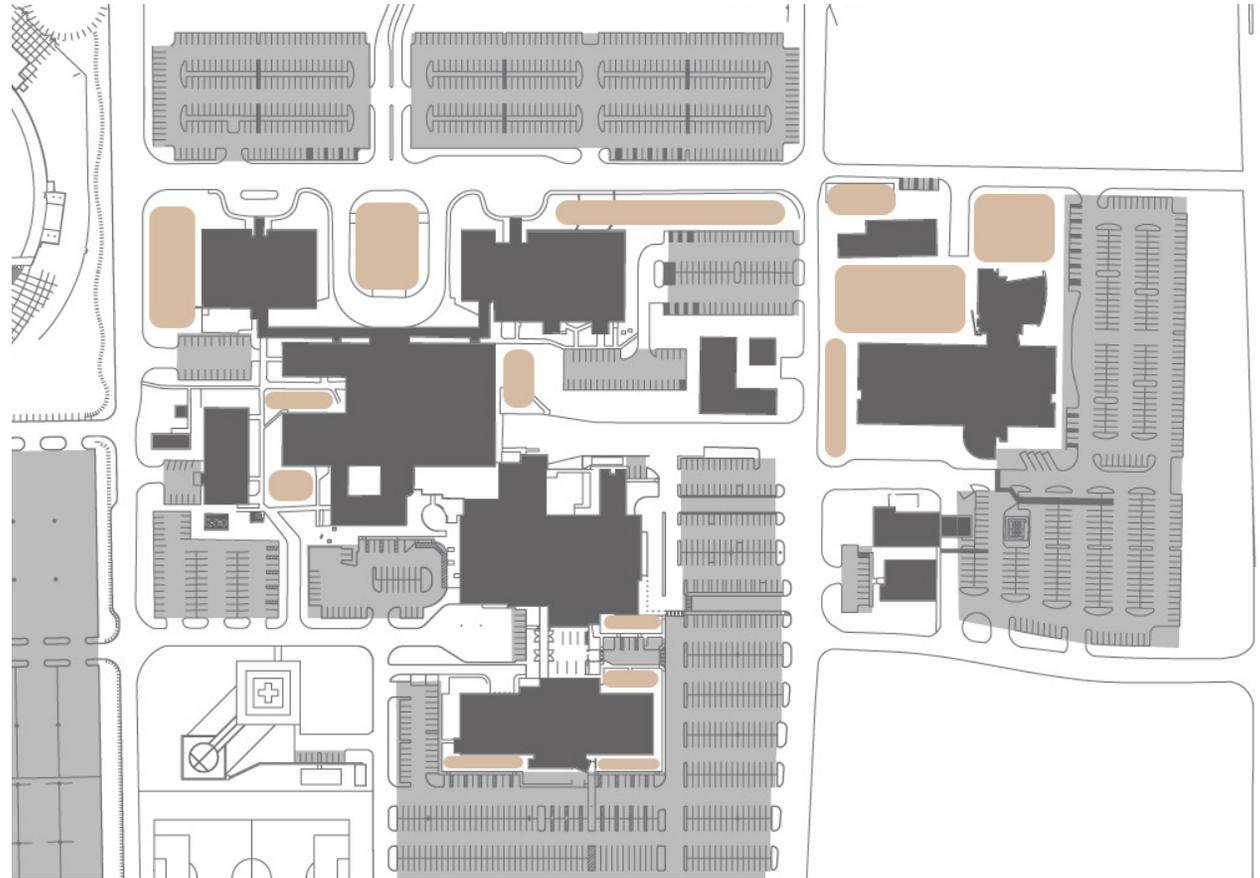
Abrams Courtyard



Tuberculosis Clinic Ramada



Hospital Entry Plaza



South Hospital Lunch Garden



Loading Zone - Psychiatric Hospital

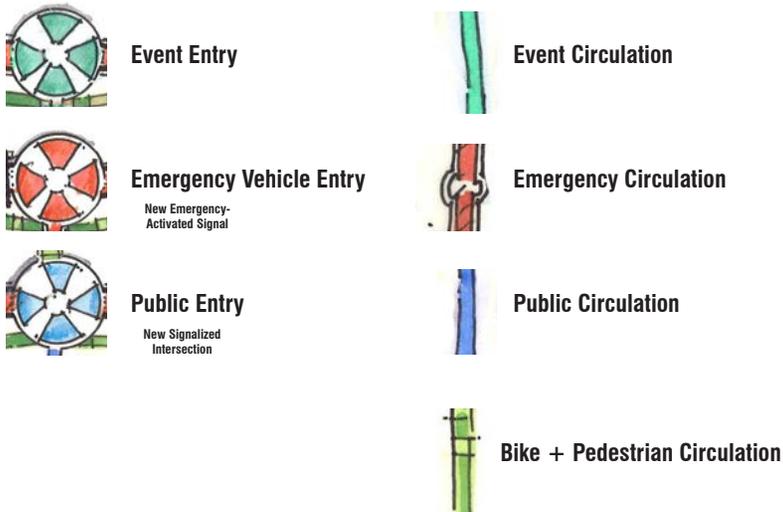
# Design

## Circulation Concept - Kino Complex

### Kino Complex

#### Key Points

- Dedicated emergency vehicle entrance.
- Separate entry and exit points for special events traffic.
- Proposed I-10 ramps at Country Club to increase ease of access for hospital and special events traffic.
- Increased circulation links across Ajo Road
- Perimeter walking and biking trail (2 miles).
- A well marked path continues from the existing pedestrian bridge meeting with the perimeter path that circles the Kino wetland area.

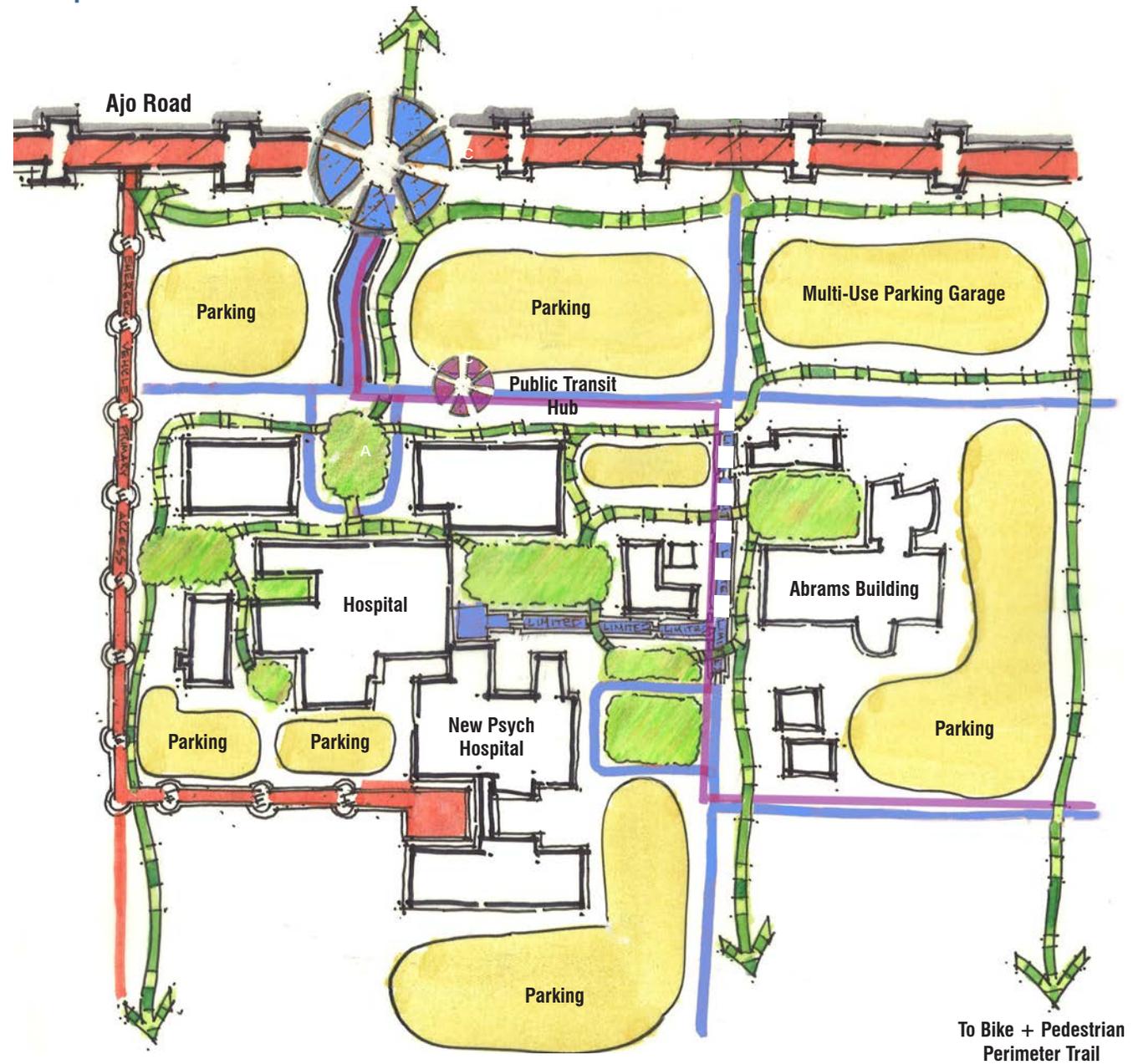


# Circulation Concept - Medical Campus

## UAMCSC Medical Campus

### Key Points

- Connections to perimeter trail and wetlands trail are designated and strengthened.
- Parking pushed to periphery of the Kino Hospital complex, making the interior core more pedestrian friendly.
- Courtyards and open spaces adjacent to buildings are enhanced to increase usable outdoor space.
- Shady greenways connect park and courtyard amenities.
- Partial closure of Bentley, creates more direct, safer pedestrian connection between Abrams Public Health Center, Hospital, and New Psych Hospital, and it creates new opportunities to improve access to healthy food.



# Design

## Circulation

By addressing the circulation issues, barriers to physical activity and healthy food can be reduced. UAMCSC employees expressed concern over circulation conflicts throughout the campus. These conditions were observed by the design team on their numerous visits to the campus at various times of the day. The design approach is to minimize parking and vehicular routes in the core of the hospital complex, to separate conflicting circulation modes, and to create linkages between campus resources through modification of existing infrastructure and additional safe crossings.

### **Emergency Access, Event Access, Public Access**

To minimize confusion and conflict between emergency hospital traffic and leisure special event traffic, the existing main entrance is re-designed to discourage use by the general public. It is proposed that the standard signalized intersection be converted to an emergency-activated signal. Special event traffic would use this intersection only for egress after events. The main event entrance is proposed at Country Club and Milber street.

The main entrance for the general public is between Forgeus and Country Club. This alleviates the load on the emergency entrance at Forgeus.

A new intersection on Ajo, between Forgeus and Country Club, would create a section of road north of Ajo ties into the existing street network. Changes at this new intersection include amenities to enhance the pedestrian and bicyclist connection between north and south halves of campus.

Modification of the intersection at Ajo and Forgeus would enhance the pedestrian amenities on the north side of the street, making the existing pedestrian bridge more usable.

### **Interior Circulation**

Public transit routes have been re-directed to minimize their travel through the core of the hospital complex. Enhancements to transit hubs have been made to increase the appeal of using public transportation.

A partial closure is proposed for a portion of Bentley, further minimizing vehicular traffic through the core and enhancing the walkability and bikeability of the campus.

## Access to Healthful Outdoor Environments (Physical Activity)

The site inventory and analysis revealed a shortage of open space within the core of the hospital complex. Greening parking lots and converting portions of key internal parking lots to public space would achieve the goal of creating an improved, healthier campus environment. Overall, pedestrian safety and enjoyment would increase through the creation of a continuous network of trails and sidewalks that link key destinations and resources. Parking lot enhancements include the addition of vegetation and solar shade structures, making them more attractive and hospitable.

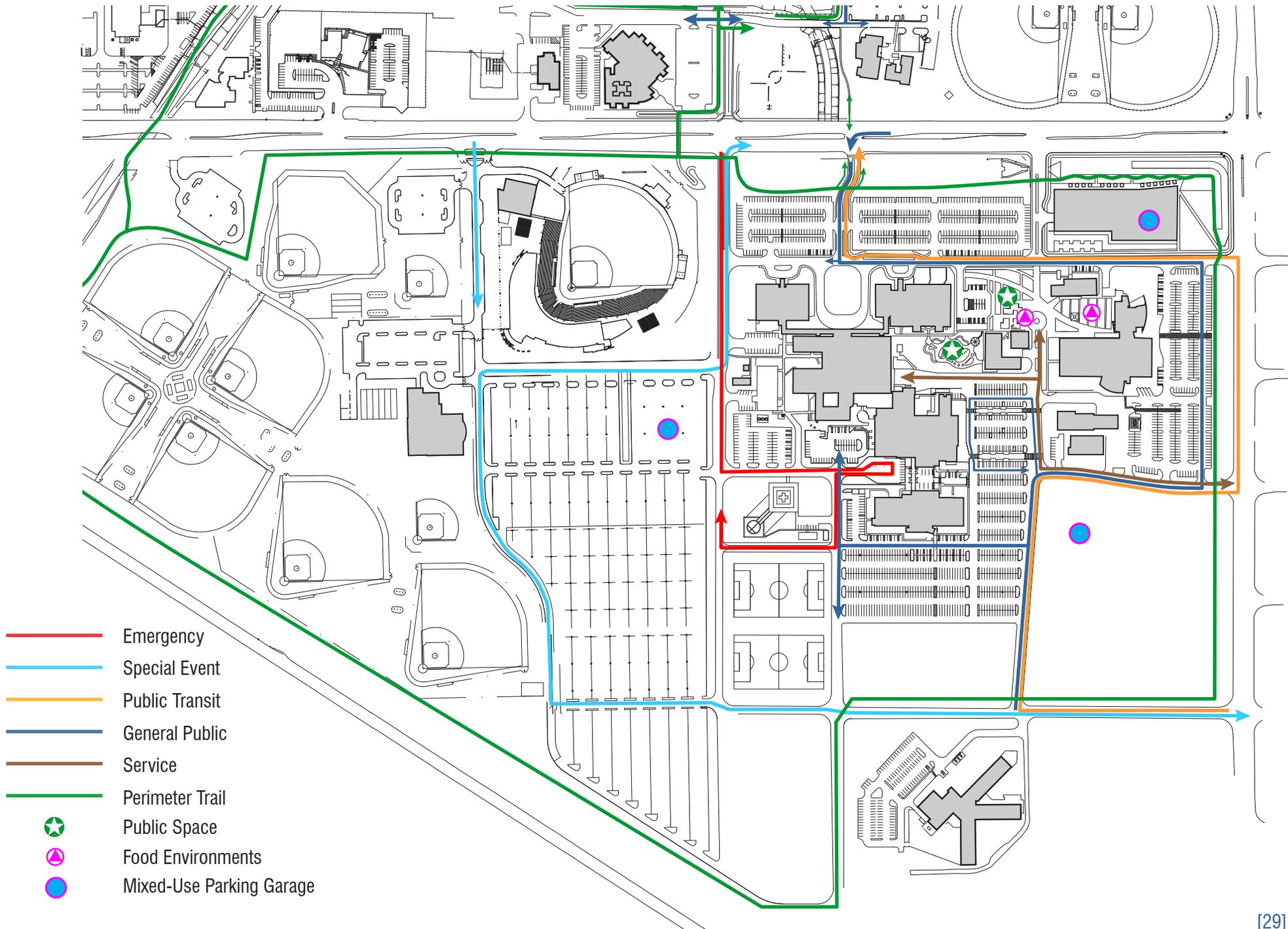
## Expanded Access to Healthful Food (Economic Development)

Food options are lacking, both on the campus as well as adjacent to the campus. The partial closure of Bentley, mentioned previously, is designed to accommodate food trucks that could offer employees and visitors more food options.

The opportunity for people to engage in the production of fresh produce on the campus through the establishment of a demonstration community garden near Abrams Public Health Center is proposed as a means to increase access to and understanding of healthy food choices.

A multi-use parking garage is proposed to provide additional parking (>500 spaces) in addition to retail space on the ground floor, i.e. (healthy) food outlets, a pharmacy, and residential space on the top floors.

# Updated Circulation Plan - South Campus



# Design

## Forgeus Intersection

The Forgeus intersection is currently the main entrance for emergency vehicles, hospital visitors, campus employees, and special events traffic, primarily because it is a signalized intersection.

The existing pedestrian bridge across Ajo is under-utilized for two reasons: 1) there is a traffic signal parallel and adjacent to the bridge so it is more efficient to cross Ajo at street level, and 2) once you cross the bridge to the north, there is no clear continuation of the pedestrian path into the north campus.

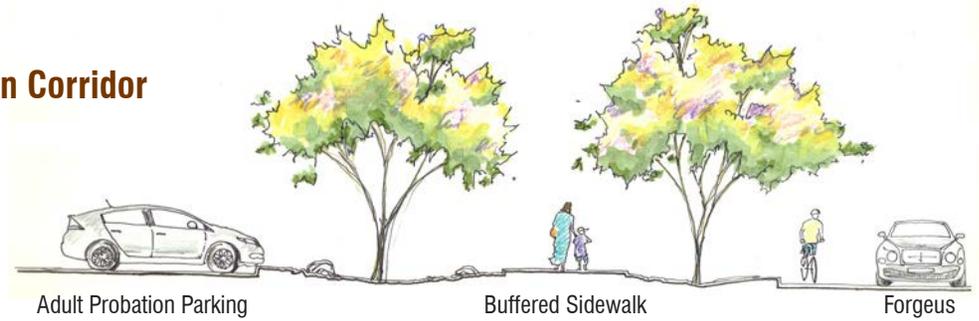
### Key Features

- North of the intersection, Forgeus is narrowed significantly, creating the opportunity to enhance the pedestrian connection from the bridge to the sidewalks and multi-use trail on the north side of Ajo.

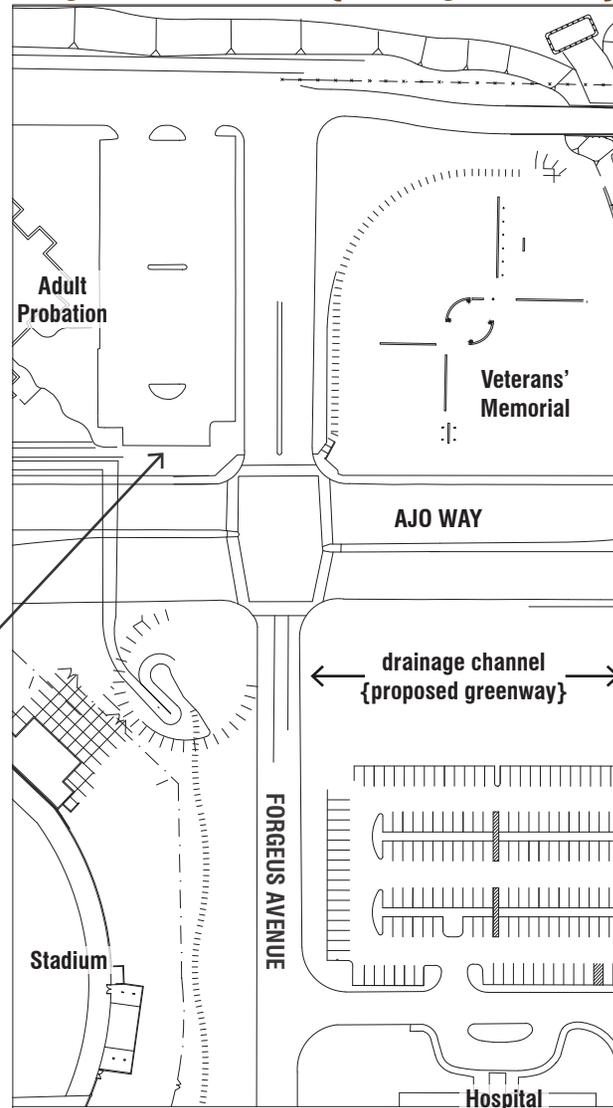


View of Forgeus & Ajo from north side of Ajo.

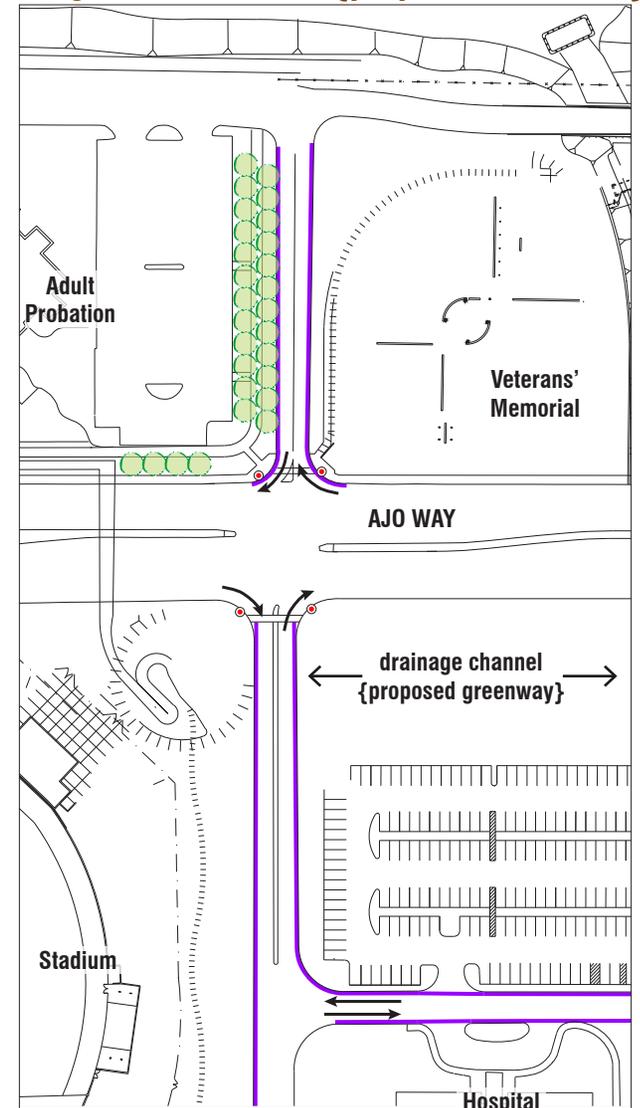
### Tree-Lined Pedestrian Corridor



### Forgeus Intersection {existing condition}



### Forgeus Intersection {proposed condition}



Emergency-Activated Traffic Signal   
 Bike Lane 

# Design

## Kino Veterans Memorial Stadium Main Entrance

### Key Features

- In an effort to reduce Stadium Event traffic on Ajo and minimize conflicts between event and emergency traffic at the Forgeus intersection, it is proposed that the main event entrance be moved to 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.



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

### Existing Route



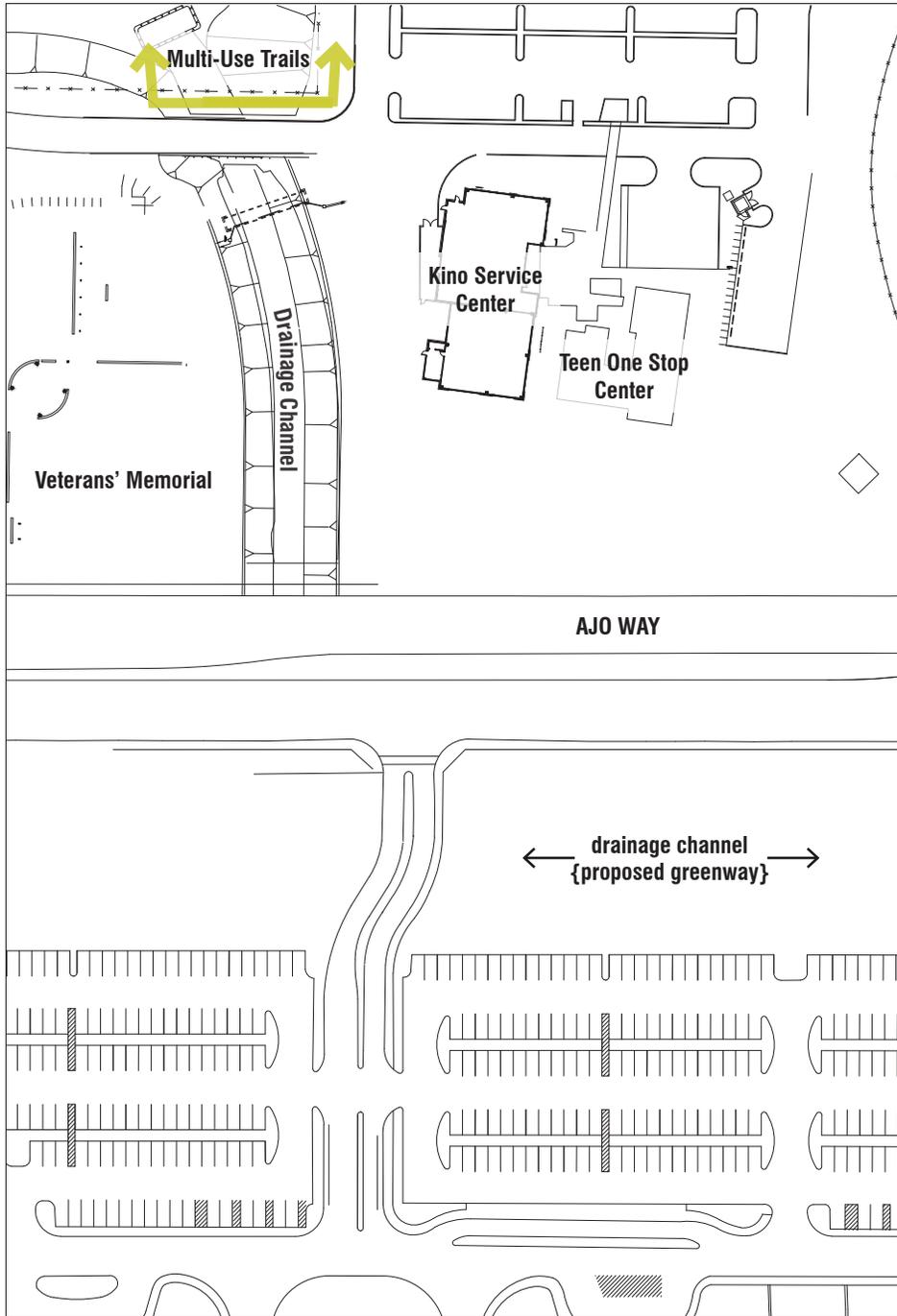
### Proposed Route

additional mileage: 1.4mi, additional travel time: 1min

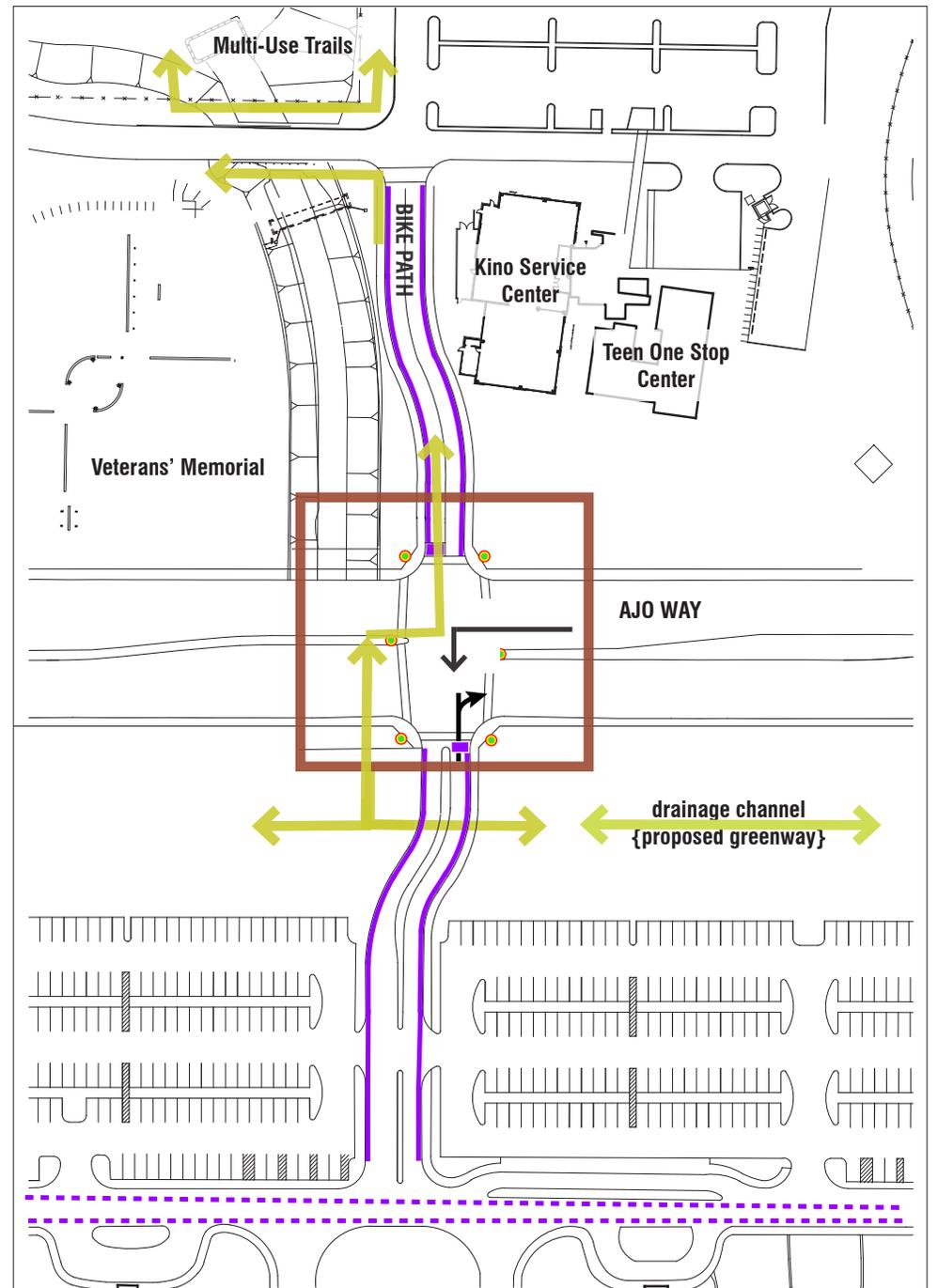


# Design

## New Intersection {existing condition}



## New Linkage to North Campus {proposed pelican crossing}



# New Ajo Crossing

## Proposed Pelican Crossing

A pelican crossing at Ajo and the main hospital parking lot provides a good solution to getting bicycles and pedestrians across Ajo because it stops traffic on the 6 lane arterial in two phases and provides a pedestrian refuge halfway. This solution has tentative approval from Tucson Department of Transportation traffic engineers.

### Key Features

- This proposed crossing provides connection to key bicycle facilities, offering linkages to the El Paso & Southwestern Greenway, the loop and parks around the retention basin, and the gym and swimming pool on the north side of the Kino campus.
- The intersection works well with existing road and building alignments. To the south, the road aligns with the main entrance of the hospital. To the north, the new greenway would align with an existing north/south road that serves as the main access road for many of the facilities on the north half of the campus.
- The Pelican could allow a simultaneous left turn of west-bound Ajo into the hospital parking lot. Encouraging access to the hospital at this entrance would reduce conflict with emergency access at Forgeus.



Example of a Pelican, a two stage crossing device with a pedestrian refuge at the halfway point, located on Campbell Ave. at the University Medical Center.

*City Transportation staff recommend a Pelican Crossing at Ajo and the entrance to the primary hospital parking lot.*



Greenway connections at north Kino Campus.



Potential greenway connection at Kino Service Center.



Looking north across Ajo to greenway connection.

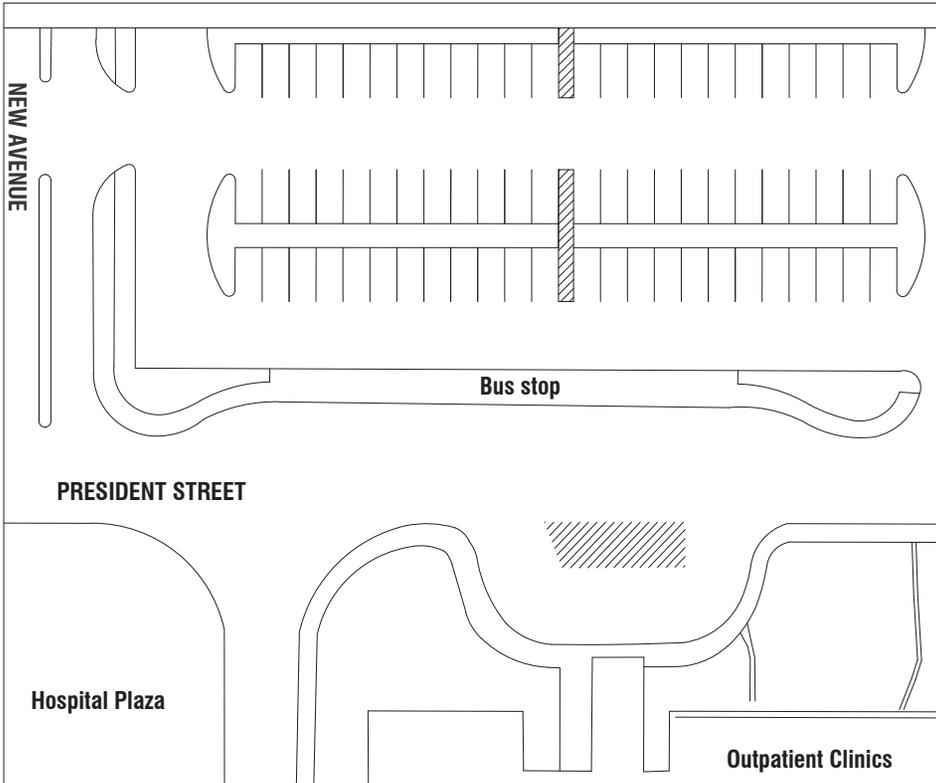


View north from hospital driveway.

# Design

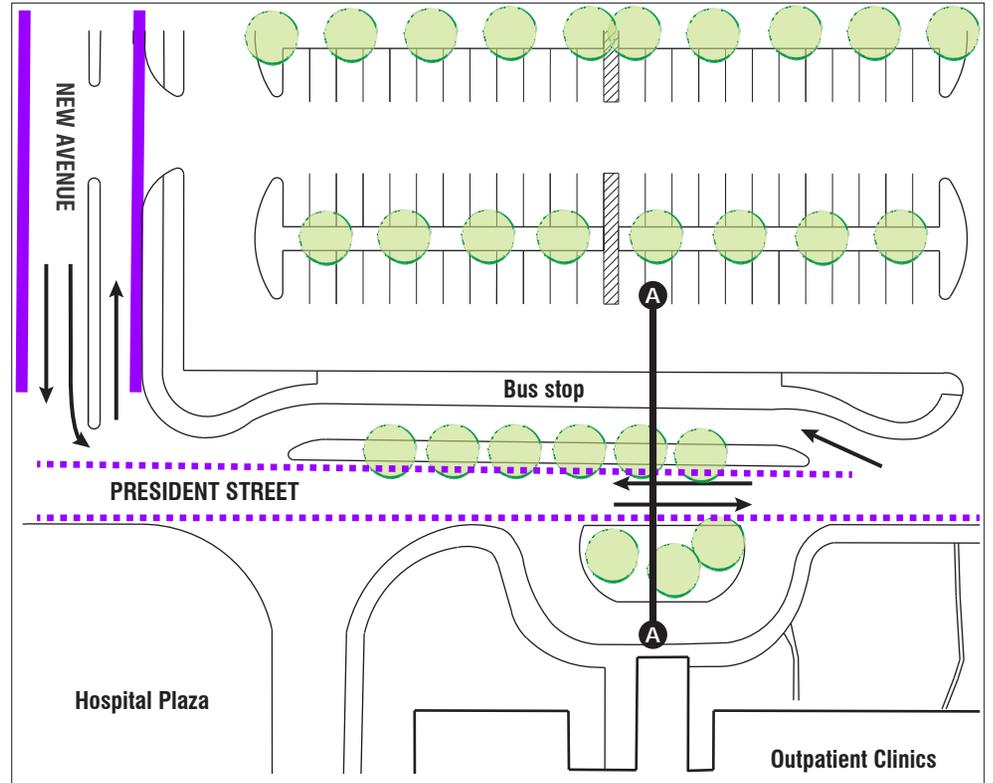
## Hospital Transit Hub

There is currently a Sun Tran bus stop on the north side of President, in front of the main hospital. The road section is very wide here (28 feet typically and 40 feet where the bus pull-out is) and tends to encourage drivers to speed. This is a section of road that has a high volume of pedestrian cross traffic with people walking from their cars to the hospital buildings. Overall, the vast amount of pavement makes it seem more oriented toward cars rather than people.



## Key Features

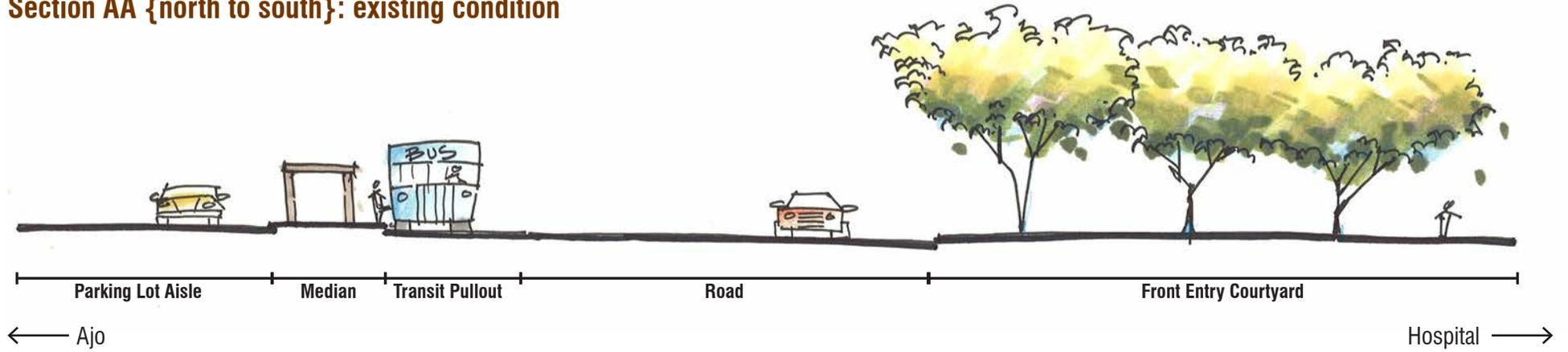
- A new median buffers the transit hub from traffic along President.
- Narrower traffic lanes reduce traffic speed in a place where there is high volume of pedestrian cross traffic, making pedestrian crossings safer.
- There isn't enough road width to accommodate bike lanes, but reduced traffic speed allows bike traffic to share the travel lanes with other vehicles (similar to a bike boulevard on neighborhood streets). Shared-use pavement markings could be added to notify road users that it is a shared roadway.
- The enhanced transit hub could also be used for a future internal transit system (similar to the Cat Tran that serves The University of Arizona).
- This design creates an enhanced clinic drop-off zone.



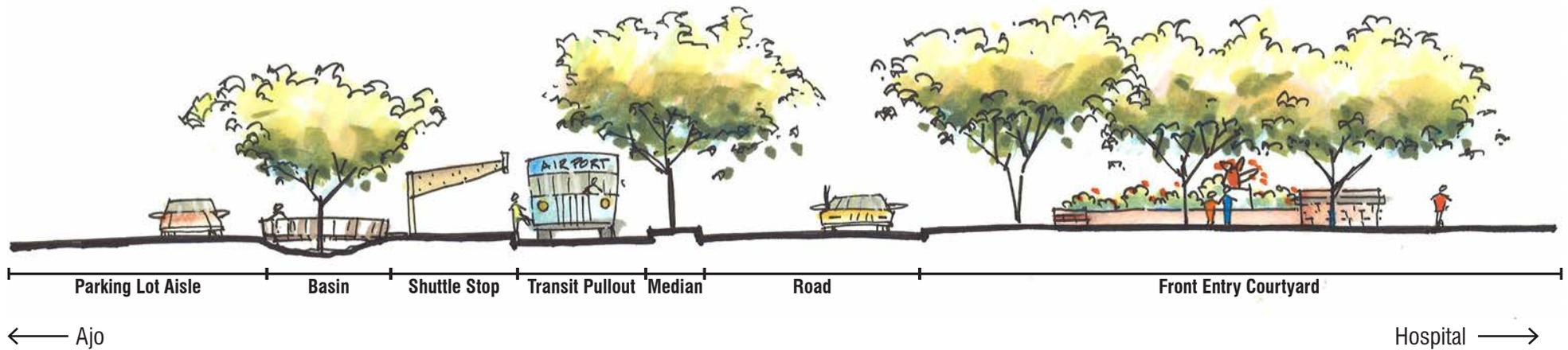
# Design

## Hospital Transit Hub

### Section AA {north to south}: existing condition



### Section AA {north to south}: proposed condition



# Design

## Parking Lot Enhancement

### Techniques

An increase of tree canopy within the parking network, without a decrease in parking capacity, is achieved by shortening stalls by two to three feet each. This allows for the creation of a planted basin between banks of parking stalls. Solar shade structures cover parking rows furthest from the buildings serving as an incentive to walk further.

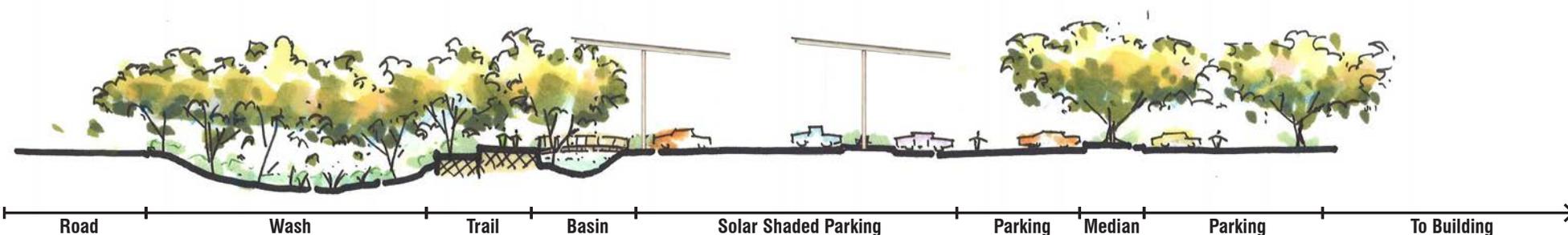
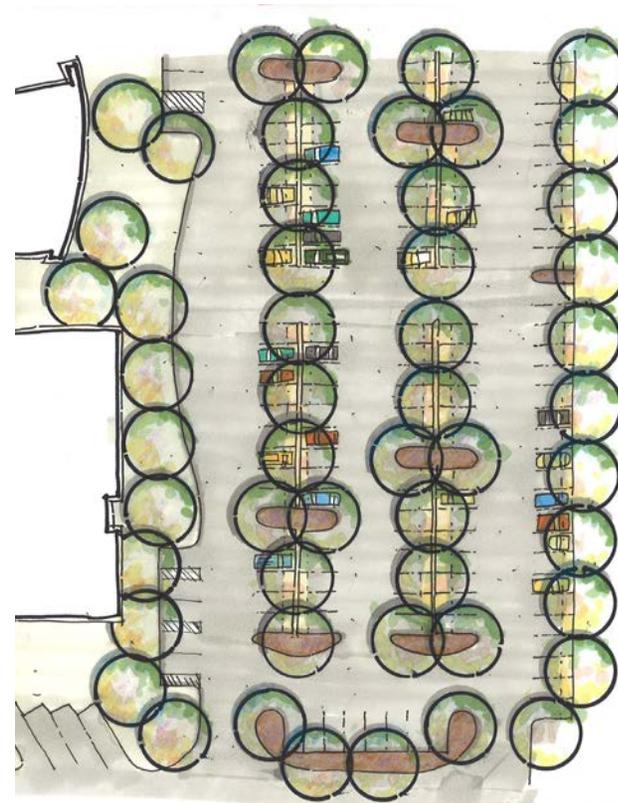
### Benefits

- An increase in shade for parked vehicles.
- More shade for pedestrians as they walk from vehicles to building.
- Each tree median is a water harvesting basin and/or porous paving helps reduce total parking lot runoff.
- Heat absorbed by exposed asphalt is reduced, resulting in an overall cooler micro climate.
- Electricity is generated by solar panels that double as parking shade structures.
- No reduction in number of parking spaces.

### Before



### After



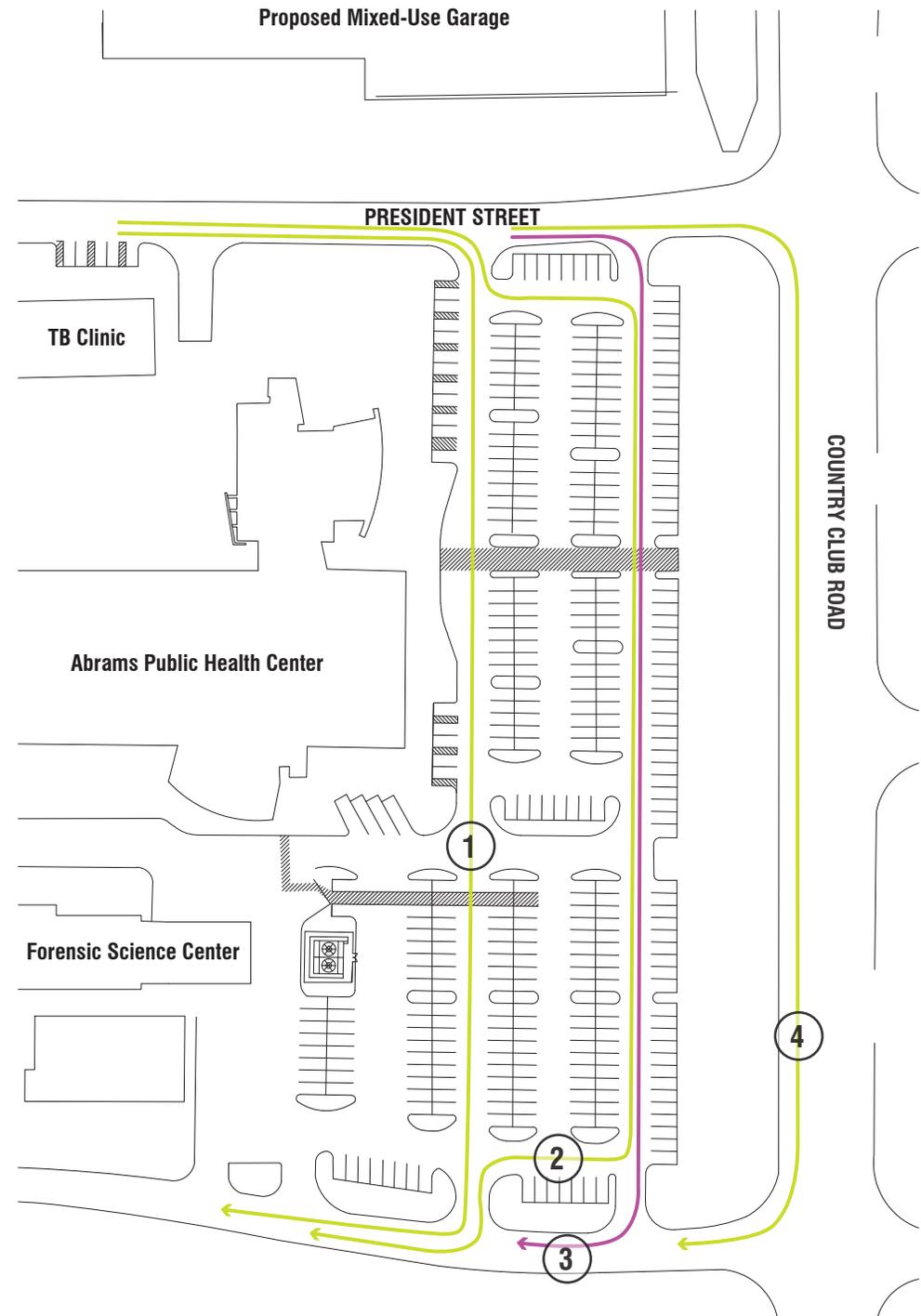
# Design

## Internal Loop

Closing Bentley Avenue to through traffic as proposed creates the need for a new internal vehicular traffic route to access parking lots to the south.

### Route Alternatives

- ① This option utilizes the Abrams parking lot as currently configured, adjacent to the building along the west side of the parking lot. This route is not favorable, it directs traffic to the front entrance of the building increasing conflicts between vehicles and pedestrians.
- ② This option uses the Abrams parking lot as it is currently configured, but directs through-traffic along the eastern edge of the parking lot, away from the building entrance. This route less favorable because it is more awkward for drivers to negotiate past parked and parking cars. Also, it is unlikely that drivers will actually follow the intended route, but rather, take the shortest route, right in front of the Abrams building.
- ③ This emerged as the favored route. It involves creating new entrance and exit points to the existing Abrams parking lot, but makes the route easier for drivers to negotiate. With proper signage, this should function well as an internal vehicular circulation route.
- ④ This option is viable and requires no change to infrastructure. Visitors would exit campus onto Country Club in order to access parking lots to the south, however, once a visitor is within the campus they may find it confusing to be directed out of the campus and in again, in order to reach their destination. Though, with proper signage, this could be a viable route.



# Design

## Psych Hospital {east side}

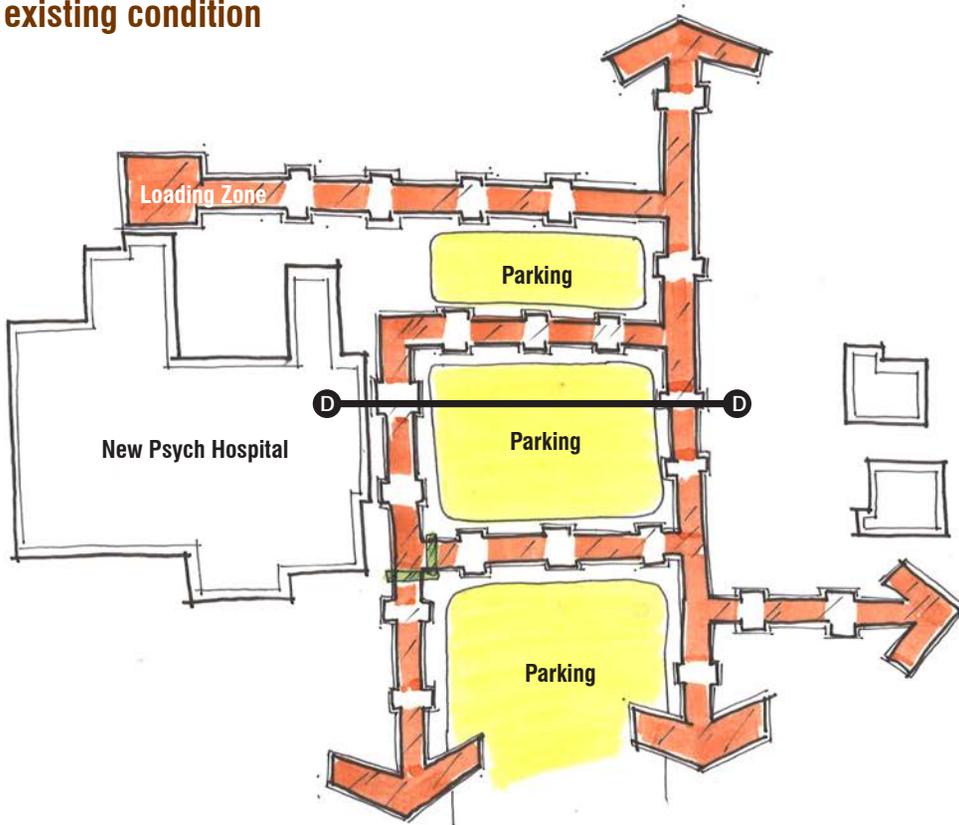
### Simplified Auto Circulation, Pedestrian Spaces

Current circulation east of the new Psychiatric Hospital is inefficient and confusing for pedestrians and motorists alike; its layout creates a gap in pedestrian routes between campus resources.

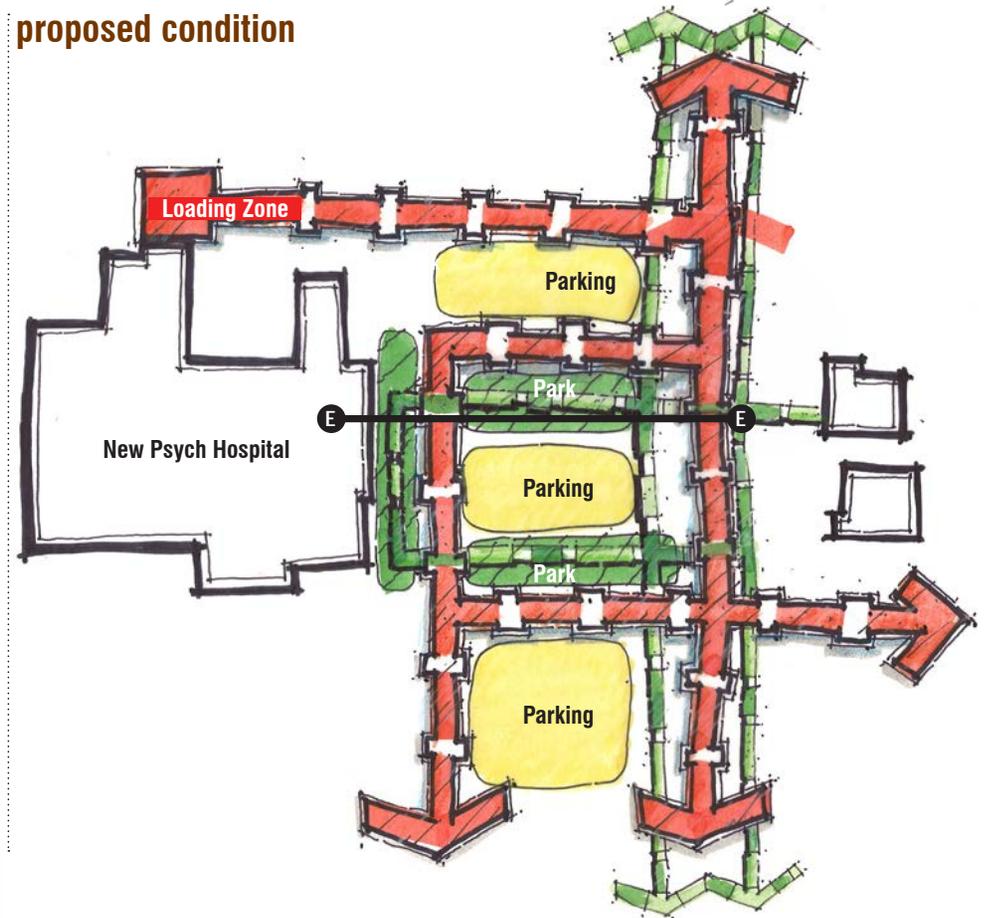
### Key Features

- Simplify and enhance waiting area, drop-off, and circulation by aligning campus streets and entrances.
- Aesthetically enhance building entrance and improve pedestrian connections between campus resources by replacing some pavement with vegetated waiting areas and pedestrian walkways.

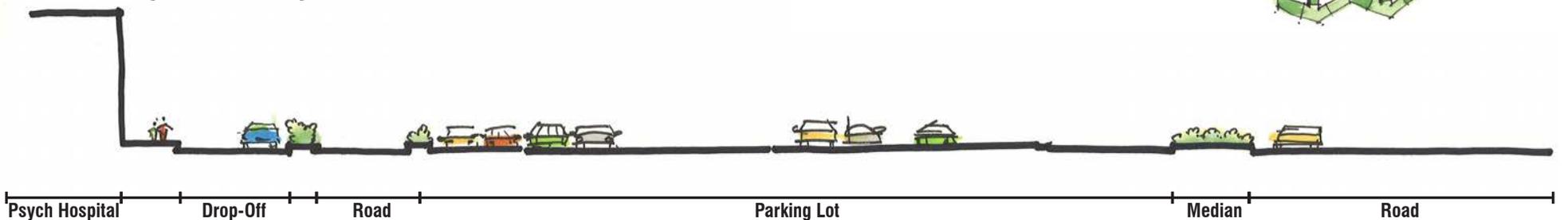
### existing condition



### proposed condition



### Section DD {west to east}: existing condition



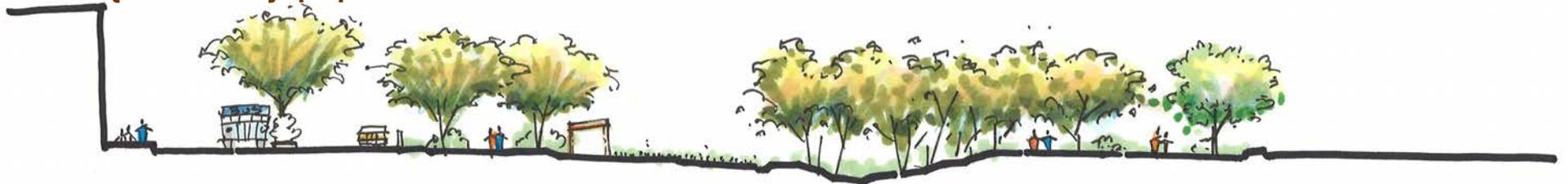
Forensic Sciences →

# Design

## Behavioral Health Pavilion Parking Lot



## Section EE {west to east}: proposed condition



Psych Hospital

Shaded Pedestrian Corridor,  
Drop-Off, and Waiting Areas

Park + Pedestrian Corridor

Road  
Forensic Sciences

# Design

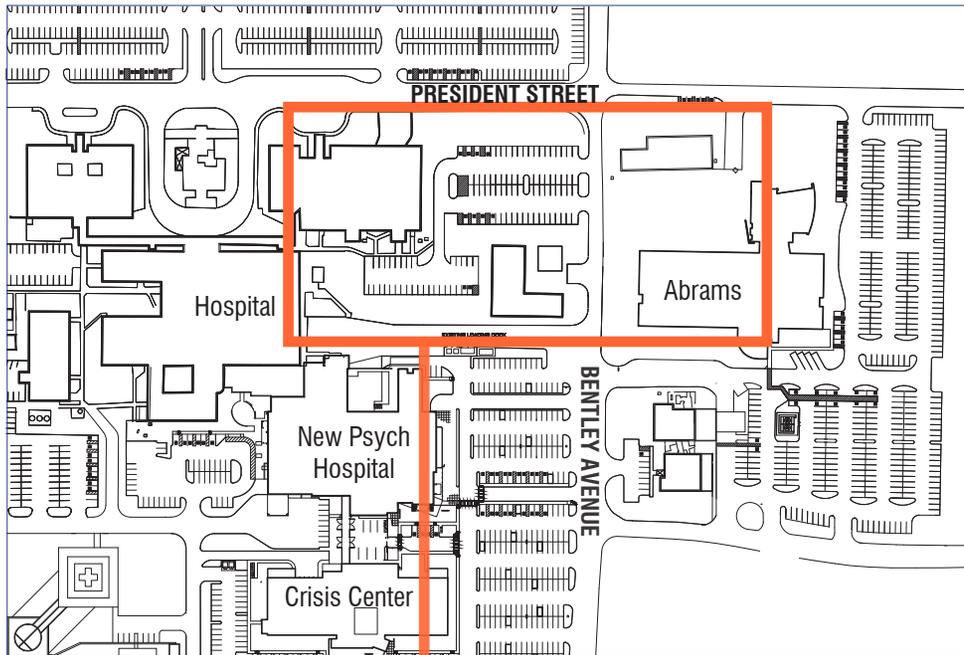
## Abrams to Hospital Sequence

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.

5 Proposed Mixed-Use Garage



# Design

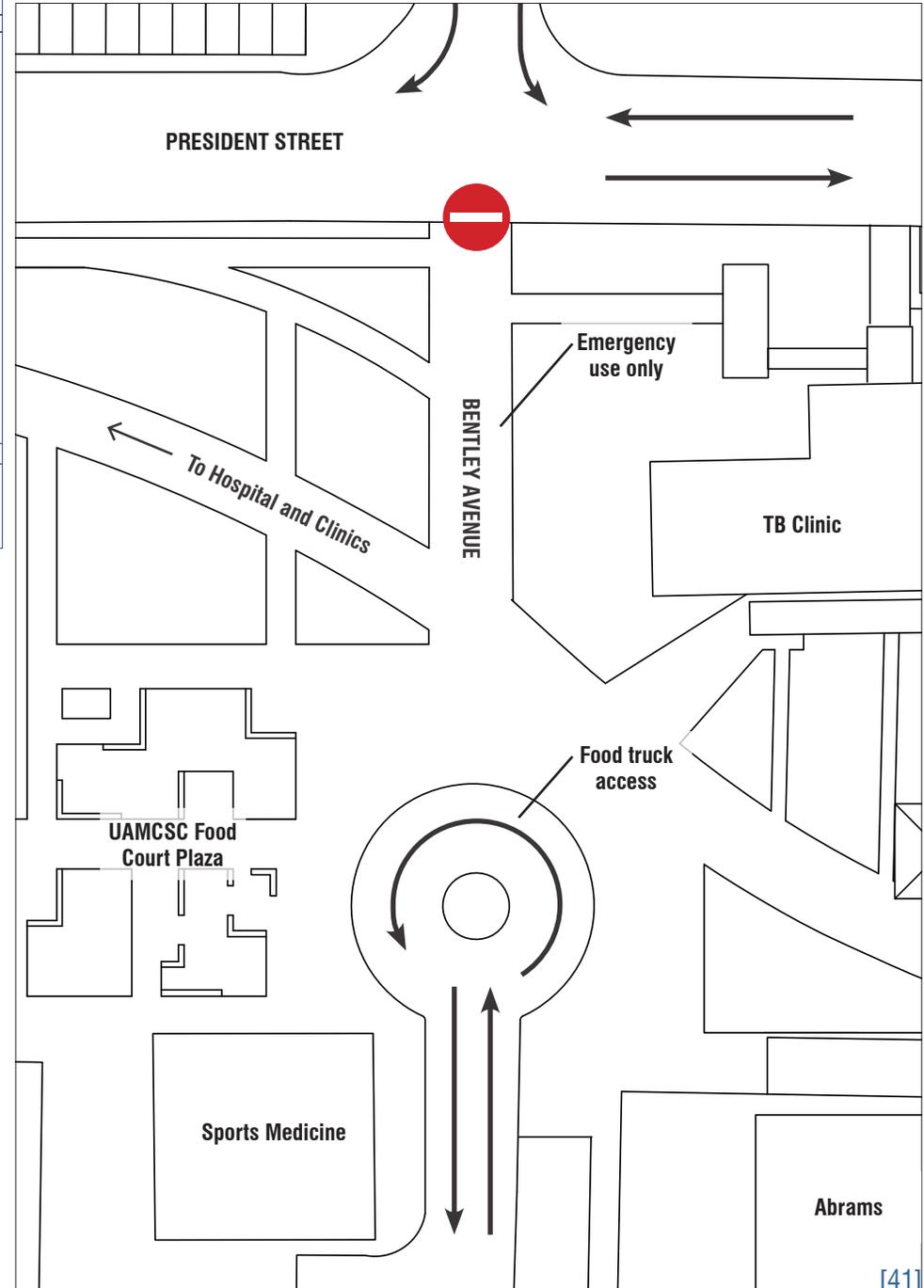


- 1 UAMCSC Food Court
- 2 UAMCSC Community Garden
- 3 UAMCSC Sculpture Garden
- 4 UAMCSC Healing Garden
- 5 Mixed-Use Parking Garage

## Partial Closure of Bentley Avenue

To achieve the goal of creating a safe, comfortable campus for all users, Bentley Avenue has been closed to all traffic coming in from the north. A wide pedestrian lane has been maintained for emergency use only. The closure allows for safe pedestrian passage between Abrams Health Center and other buildings on campus. A round-about has been created for food trucks to park along during the lunch hour. Former parking lots have been reconfigured to allow plaza space for gathering and eating.

## Partial Closure of Bentley Avenue {proposed condition}



# Tucson's Growing Food Trucks Movement



# Redesign Proposal East-West Pedestrian Mall

Envisioning the removal of “temporary” structures permits greater connectivity of pedestrian space between major campus facilities. The resulting pedestrian mall is a series of courtyards and plazas providing a variety of outdoor spaces Abrams Public Health Center; the hospital, labs, clinics; and the new psychiatric hospital. These newly vibrant spaces offer opportunities for recreation, relaxation, healing, gathering, eating, and growing food..



# Design

## UAMCSC Food Court

Every day a large concentration of health care workers, County employees, and clients accessing public health services, commute to the Kino Health Campus and are without access to healthy food.

Imagine a health care campus environment that invites employees and service seekers outdoors at lunchtime with opportunities to view healthy produce under cultivation, gives employees a opportunity to work a garden plot; allows visitors to chose from a variety of healthy, local, gourmet food vendors; or purchase the evening's dinner ingredients from a mobile market, all while enjoying the outdoors in an inviting public space.

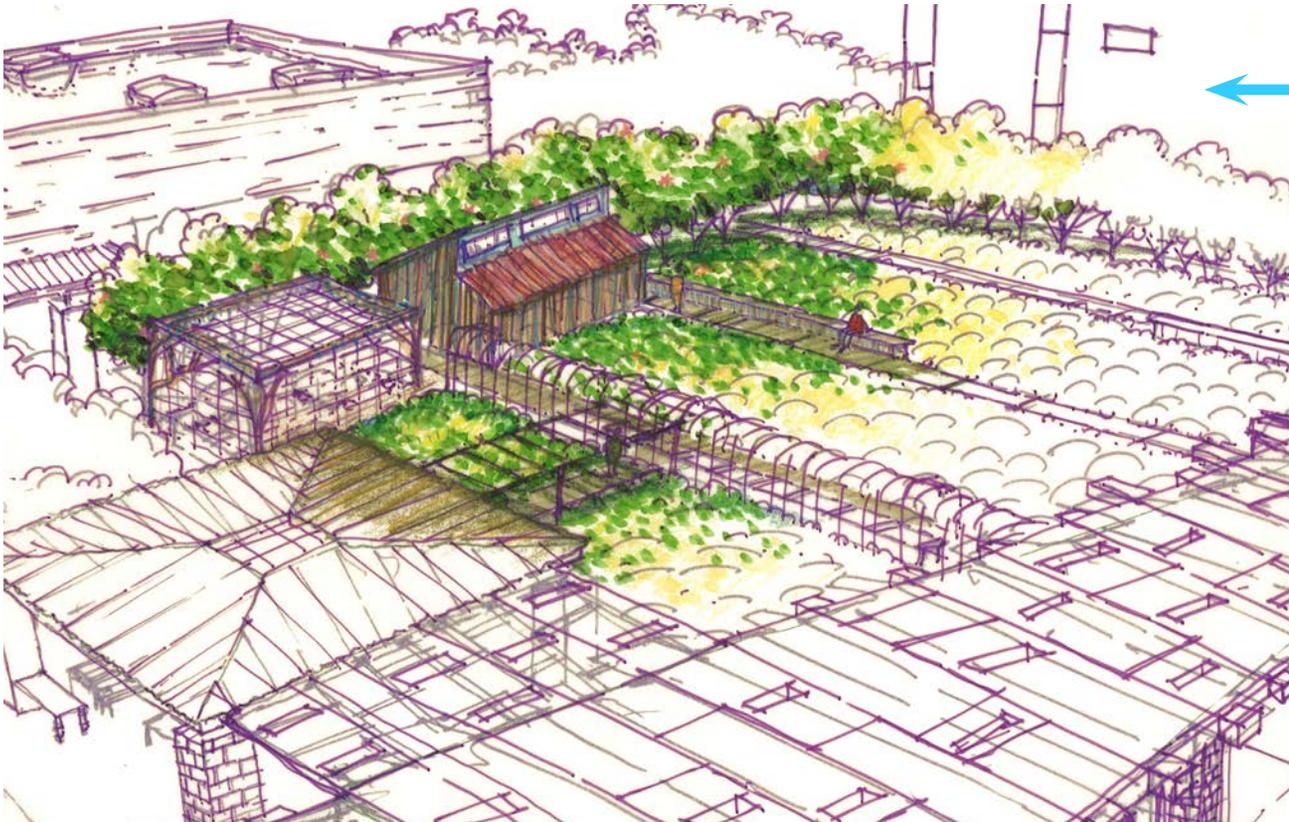
Food gardens could enhance Abrams health-related services by demonstrating the cultivation of seasonally appropriate, fresh produce to Abrams clientele.

A partial closure of a short section of Bentley Avenue, north of the hospital loading dock, lessens vehicular traffic and creates the opportunity for pullouts for food trucks. It is proposed that only public transit, food trucks, and other service vehicles be allowed to travel north along this section of Bentley Avenue. Adjacent to the pull-outs, the new tree-shaded, urban plaza serves as one of the links in the new chain of activity nodes connecting pedestrians to important campus destinations.



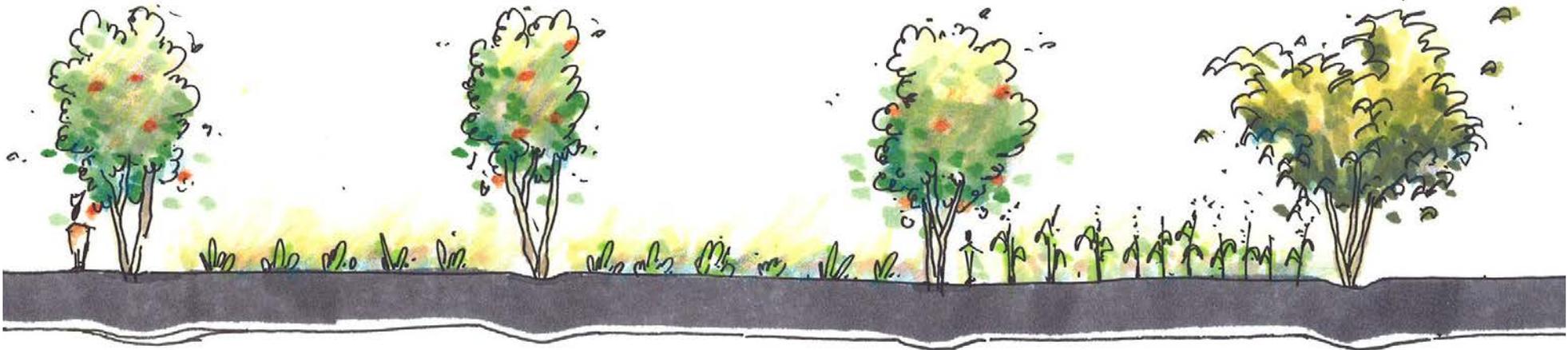
# Design

## UAMCSC Community Garden



### Key Features

- Food production garden beds utilize existing infrastructure.
- A covered walkway extends from Abrams to the new UAMCSC Food Court.
- Shaded gathering spaces create opportunities for social interaction.
- Trellises moderate the scale of the large buildings that surround the garden and make the space more relatable to the human scale.
- A tool storage area allows gardeners to store gardening tools on-site.



Fruit Trees | Vegetable Crops | Fruit Trees | Vegetable Crops | Fruit Trees | Vegetable Crops | Fruit Trees

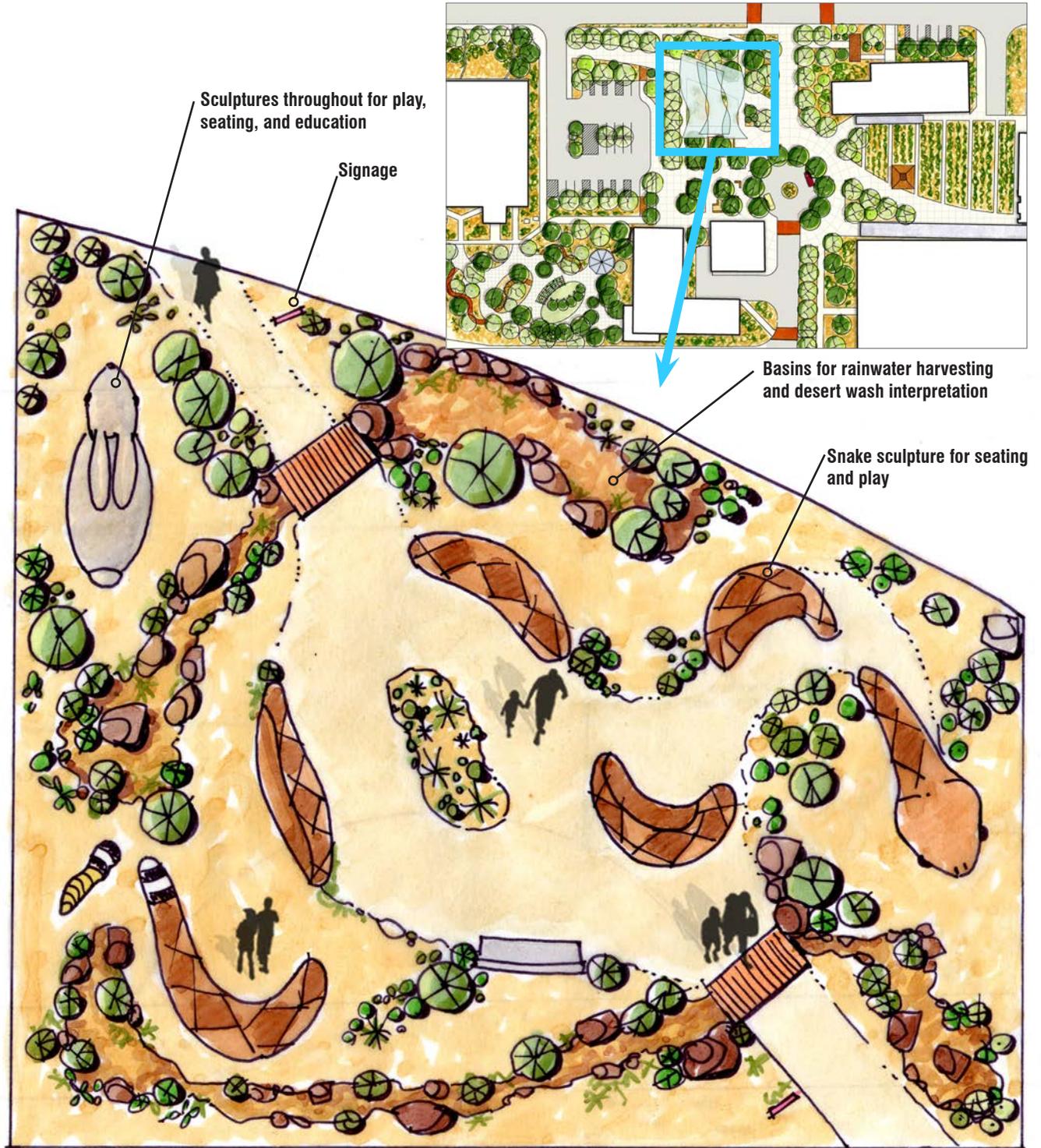
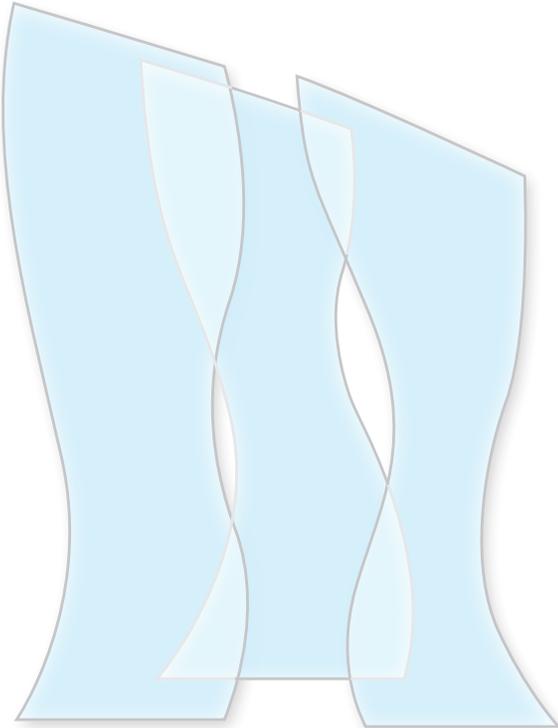
# Design

## 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.





Sculptural elements that reflect the natural surroundings of the region offer opportunities for education as well as play and seating.



Shaded area offers seating and a play area with oversized desert animals, other sculptures, and low-maintenance desert shrubs, cacti, and succulents.



Above, sculptural structures add interest to a space and filter sun, enhancing the micro climate underneath.



Solar fabric may be used for the sculpture garden and pedestrian walkways between buildings.

# Design

## UAMCSC Healing Garden

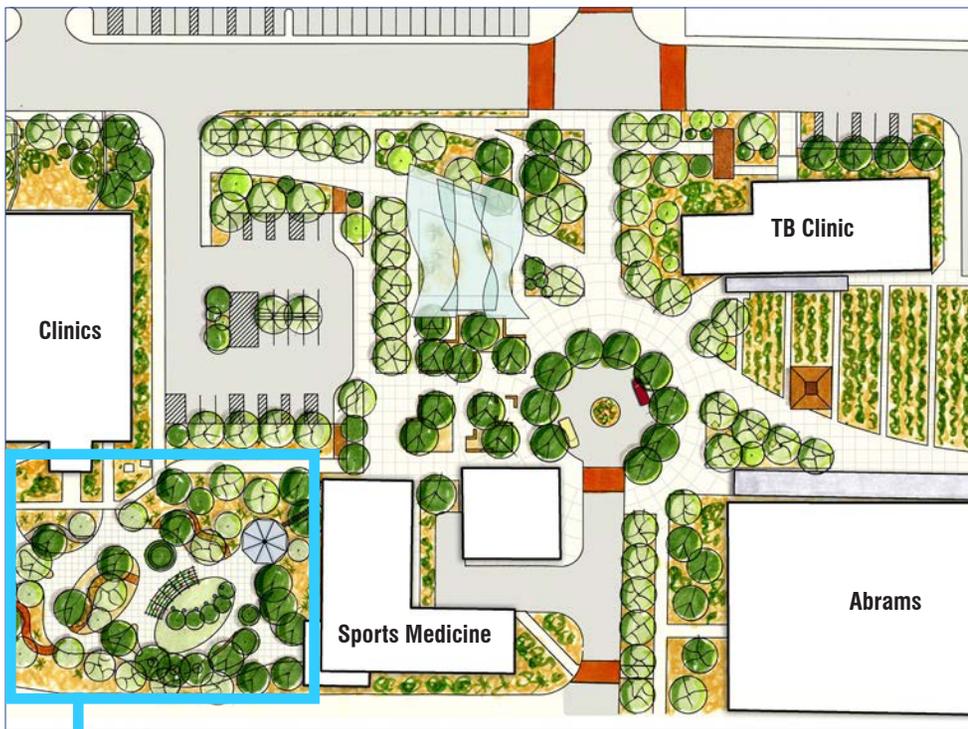
### Principles + Features

This courtyard design is based on the principles of healing gardens presented in the Literature Review Section of this document. 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.

### UAMCSC Healing Garden Legend

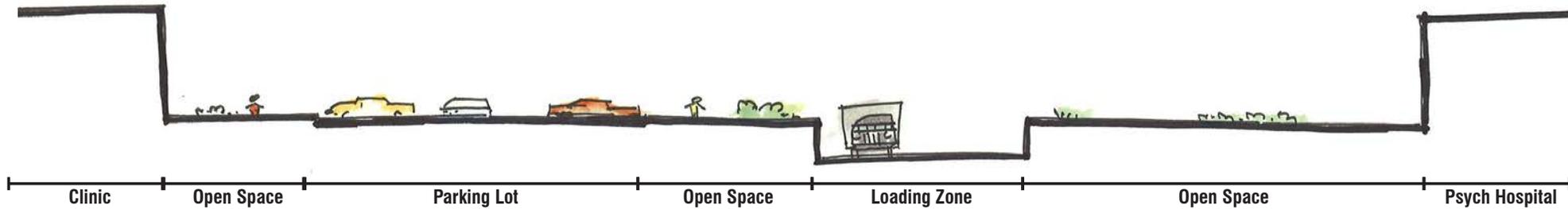
- 1 Stepping-Stone Path
- 2 Tensile Shade Structure
- 3 Songbird Garden
- 4 Turf + Vine Trellis
- 5 Medicinal Plant Garden
- 6 Pollinator Garden
- 7 Sculptural Plant Garden



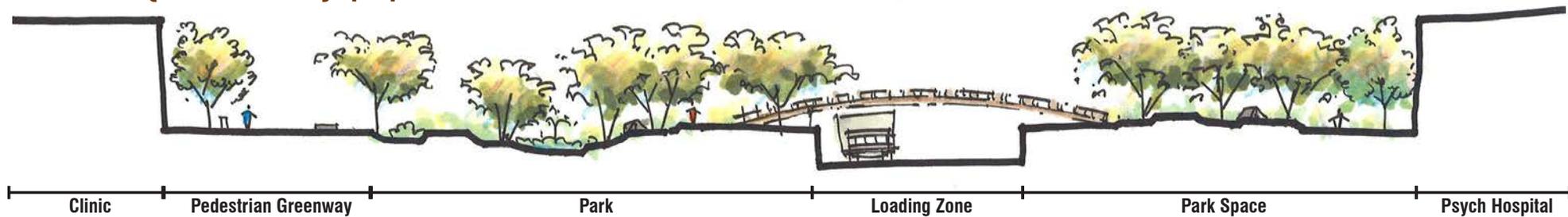


A healing garden offers respite to patients, visitors, and employees alike; and can be enjoyed through views from adjacent buildings.

**Section AA {north to south}: existing condition**



**Section AA {north to south}: proposed condition**



# Design

## Mixed Use Building

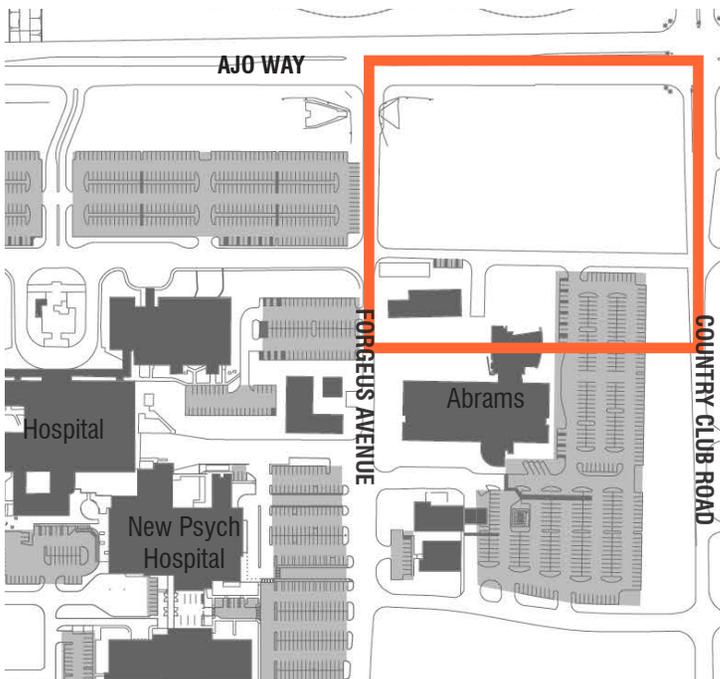
### Principles + Features

A mixed-use building increases the density and mix of uses. It is a form of development that creates vibrant, economically sustainable spaces.

Public plazas surround the building engaging its users and inviting visitors.

### Key Features

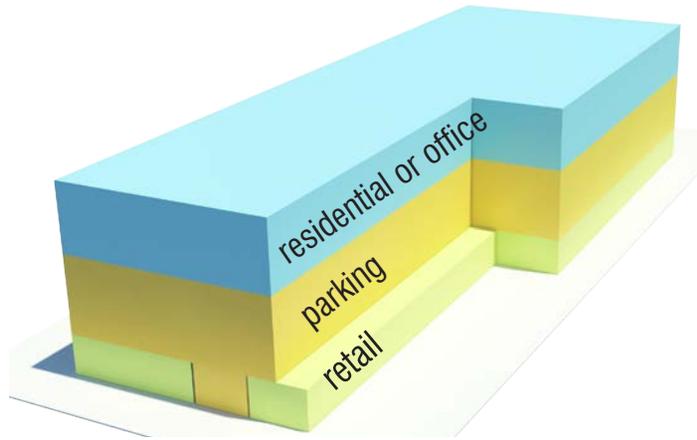
- Restored wash
- Public mini amphitheater and extended courtyard on the north side of Abrams Public Health Center



### Site Plan



# Mixed Use Building



Northwest view from Bentley at Ajo

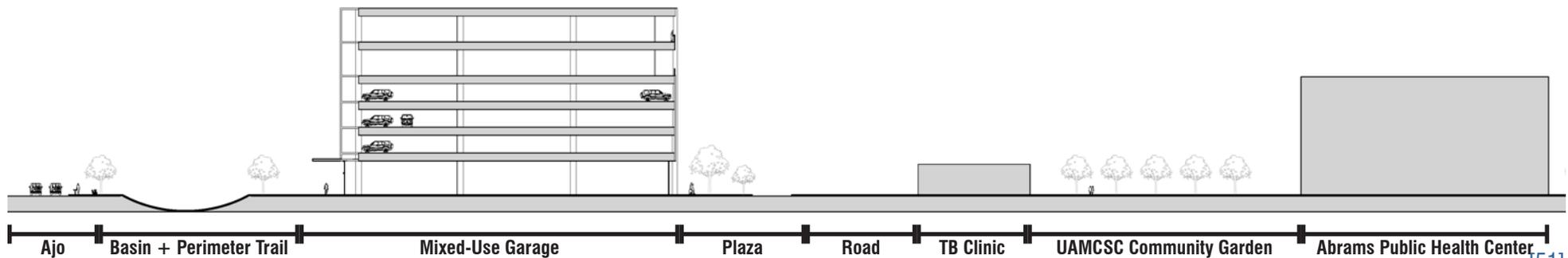


Examples of mixed-use parking, office/medical, and retail buildings.

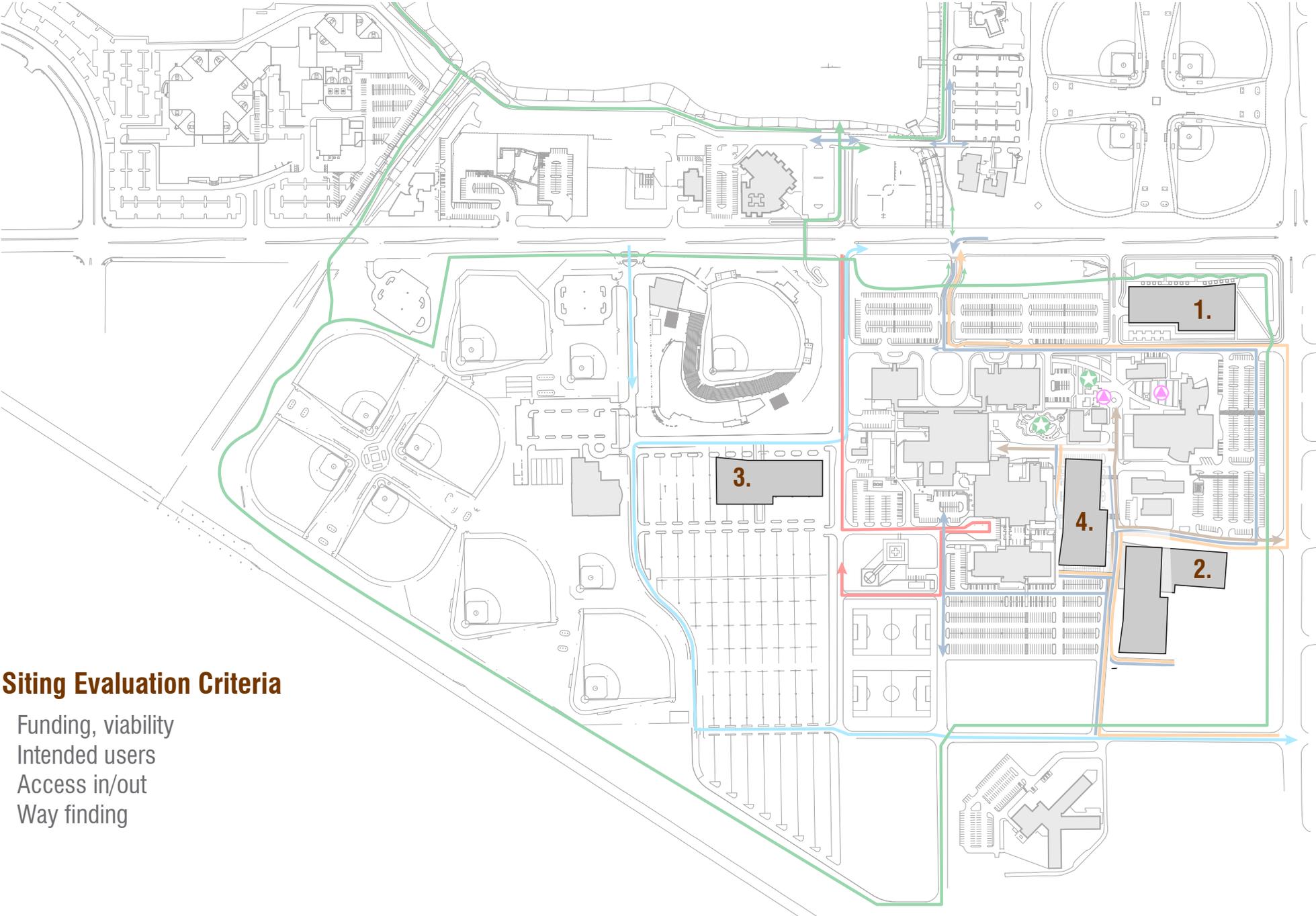


South View of Building and Public Plaza

## Mixed-Used Garage Section {north to south}



# Proposed Mixed Use and/or Parking Garage Locations



## Siting Evaluation Criteria

- Funding, viability
- Intended users
- Access in/out
- Way finding

## 1. NE corner, Ajo + Country Club

### PROS

- Close proximity to Abrams
- Currently unused land
- Close proximity to proposed perimeter trail and proposed Pelican crossing for pedestrian access to ball fields and Kino Service Center north of Ajo
- High visibility from main roads

### CONS

- Distant from Kino Memorial Sports Complex
- Somewhat distant from main hospital buildings

## 2. South of Forensic Sciences

### PROS

- Close proximity to new Behavioral Health Center
- Close proximity to future School of Nursing facilities
- Currently unused land

### CONS

- Not highly visible; retail would likely only have internal support
- Distant from Kino Memorial Sports Complex

## 3. South of Kino Memorial Stadium

### PROS

- Close proximity to Kino Memorial Sports Complex
- Close Proximity to main hospital buildings

### CONS

- Needs to utilize Forgeus, which is the designated emergency route, or Milber west of the stadium, which currently does not have public access from Ajo
- Distant from Abrams
- Would be built over existing surface parking, which offsets the number of new spaces offered by the garage.

## 4. East of the new Behavioral Health Pavillion

### PROS

- Close proximity to campus facilities
- Currently unused land
- Close proximity to future facilities

### CONS

- Distant from Kino Memorial Sports Complex
- Not easily accessible via internal circulation routes
- Not visible from Ajo
- Parking gain offset by loss of surface parking
- Parking structure obscures attractive new architecture

## Parking Garage Siting Summary

**Location 1** is the most favorable for a mixed use facility due to high visibility from Ajo; retail would have internal and external support. This location is also favorable in terms of vehicular circulation because it does not require vehicle to travel through the core of the health complex to access it. In addition, it is most favorable due to its relationship to proposed pedestrian amenities.

**Location 2** is less favorable for use as retail space because of low visibility but could still be a mixed-use facility that incorporates parking with residential, educational, and office space. It is somewhat favorable in terms of vehicular circulation, requiring minimal travel into the core of the health complex

**Location 3** is most favorable in terms of shared proximity between health and sports facilities, but is least favorable in terms of vehicular circulation, requiring vehicles to either use the emergency route along Forgeus or Milber, which currently has restricted access west of the stadium.

**Location 4** is an unlikely location for retail but does locate parking in close proximity to employment center of the campus. This structure more difficult to locate and access with within the campus interior and would most likely serve employees.

*Overall, Locations 1 is the most favorable location for a mixed-use garage at this time.*

# Discussion





# Phasing Legend

(with preliminary cost estimates)

These estimates are conceptual in nature and should not be relied upon.

- 1 Establish and sign preferred routes for emergency vehicle and special event traffic. (Cost of signage: \$50,000)
- 2 Survey employees at Abrams and TB Clinic to establish interest in gardening plot. Establish community garden and rain-harvesting cisterns in Abrams courtyard (\$30,000).
- 3 Place signs and removable bollards that restrict vehicular traffic through the UAMCSC Food Court zone. Use the west lane as food vendor lane and the east lane as the northbound through lane. Recruit food vendors (\$30,000).
- 4 Reconfigure sports medicine parking lot entrance, establish formal traffic circle for the UAMCSC Food Court (\$50,000); develop food court plaza and pedestrian walkway to Abrams (\$200,000); install child-oriented sculpture garden with shade structure (\$280,000).
- 5 Modify existing parking lots to be more pedestrian friendly, including creation of planted medians between parking rows nearest the buildings (\$80,000); contract for installation of solar collection shade structures in main parking lot (cost neutral).
- 6 Add signalized bike and pedestrian (HAWK) crossing to enhance connectivity between services offered on both sides of Ajo (\$180,000).
- 7 Develop perimeter trail and greenway along drainage channel (\$80,000) plus bridges.
- 8 Hospital Transit Hub: \$80,000
- 9 Develop network of campus gardens and plazas based on healing garden principles (\$70,000 each, more with shade structures).
- 10 Construct mixed-use parking garage to increase campus density, allow for a mix of uses, accommodate expansion and reduce the need for surface parking lots.
- 11 (Not shown at right) Modify median and Stadium access point to accommodate a higher volume of special event traffic, including gateway signage (\$80,000)
- 12 Internal circulation route through Abrams parking lot (minimal).

**Rough Estimate ~ \$1,250,000**

