

Drachman Institute

NATIVE PEOPLES PROJECTS

P O R T F O L I O O F W O R K S



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MARCH 2014

Drachman Institute
NATIVE PEOPLES PROJECTS
P O R T F O L I O O F W O R K S

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The University of Arizona
Tucson, Arizona



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.

Drachman Institute
Brooks Jeffery – Director [2009-Present]
Corky Poster – Director [2003 - 2009]
Marilyn Robinson – Associate Director [2003 - Present]

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

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March 2014

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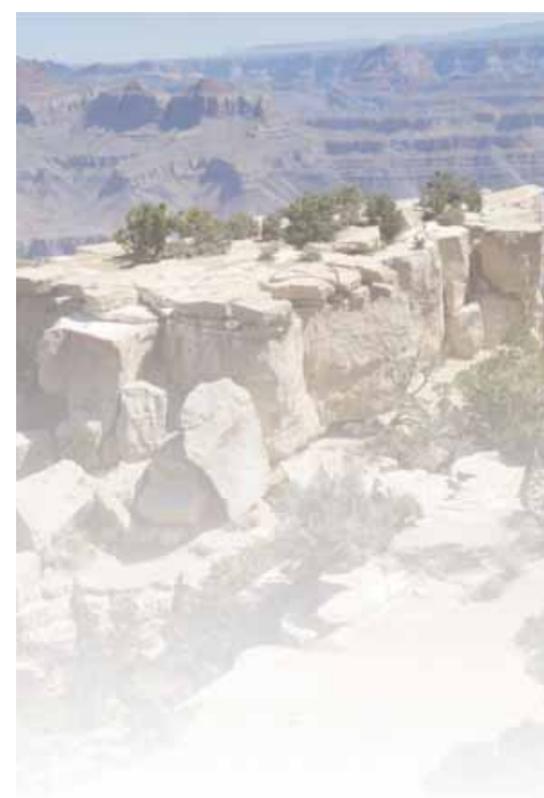


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INTRODUCTION

Drachman Institute is the research-based outreach arm of the College of Architecture, Planning, and Landscape Architecture (CAPLA) at the University of Arizona. As our mission statement indicates, we are dedicated to environmentally-sensitive and resource-conscious planning and design with focus on under-served communities. We are interdisciplinary and work with students, staff, faculty, and citizens to make neighborhoods and communities healthier, safer, more equitable, and more beautiful places to live. We practice a service-learning model of education, providing service to communities and a valuable outreach experience for students.

In addition to our professional staff, we have access to the expertise of outstanding faculty and students, in our college and in partner colleges and departments.

We have a variety of partners at the federal, state, and local level, both public and private. Through these partnerships, we receive projects and funding that enable us to provide planning and design experience for our students with communities around the state.

In this document, we share with you a number of our projects in Arizona Indian Country from the past several years. These projects are divided into design projects – architecture and landscape architecture – and planning projects. Some of the projects, you will note, fall into both categories.

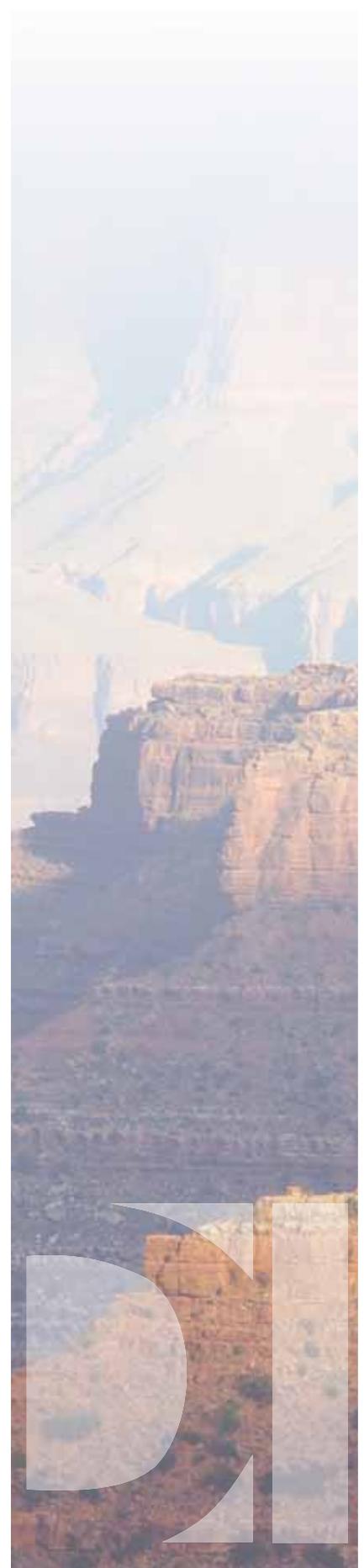
The primary reason for Drachman’s outreach work is to give our students practical, hands-on experience in their chosen professional fields – architecture, planning, and landscape architecture. In some cases, they do the work as part of a class within the educational curriculum for credit toward their degree. In other cases, they are hired by Drachman Institute and paid for their work as student employees.

Our projects in Arizona Indian Country have been funded in numerous ways. Some projects that include housing were funded by the Arizona Department of Housing (ADOH). Others were funded by other contracts or grants or by the Drachman Endowment. More recently, as funding from all sources has diminished, our native projects have been funded by the University’s Native Peoples Technical Assistance Office (NPTAO) in coordination with project-specific Native community grantsmanship.

The Native Peoples Technical Assistance Office (NPTAO) provides a comprehensive, multi-collaborative program of technical assistance in partnership with tribal communities in the areas of community/economic development; coordination and co-management of Indigenous legal-based outreach and educational programs; and research and research capacity building with Native Nations across the State of Arizona and beyond. As a primary component of our mission, the Native Peoples Technical Assistance Office engages in community/economic development collaborative projects with Native communities and functions as a resource conduit between Arizona’s Native constituents and the diverse and talented cadre of University of Arizona professional, academic and graduate student personnel.

A highly valued partner, the Drachman Institute has teamed up with NPTAO and Native communities throughout Arizona on several projects over the past years. As revealed in the following pages, the Drachman Institute has gained a reputation of excellence and expertise in providing culturally relevant planning and design services to Arizona’s Native Nations and communities. NPTAO and the Drachman Institute recognize and acknowledge the importance of our commitment to enhancing the University of Arizona’s relations with Native Nations through consultation and collaboration.

For additional information on the Native Peoples Technical Assistance Office, please consult our website at www.NPTAO.arizona.edu.

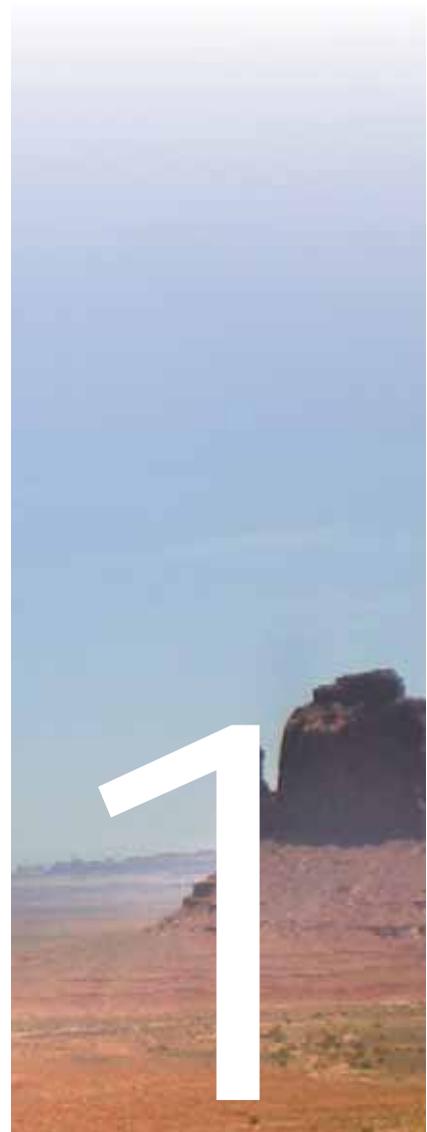




NATIVE PEOPLES OF ARIZONA
COMPREHENSIVE MAP OF ARIZONA INDIAN RESERVATIONS



SOURCES:
 American Indian Tribes and Communities in Arizona.
http://www.epa.gov/region9/air/maps/images/AIR1100040_2g.gif
 Arizona Tribal Lands and Reservations
http://www.epa.gov/region9/air/maps/images/AIR1100040_2g.gif



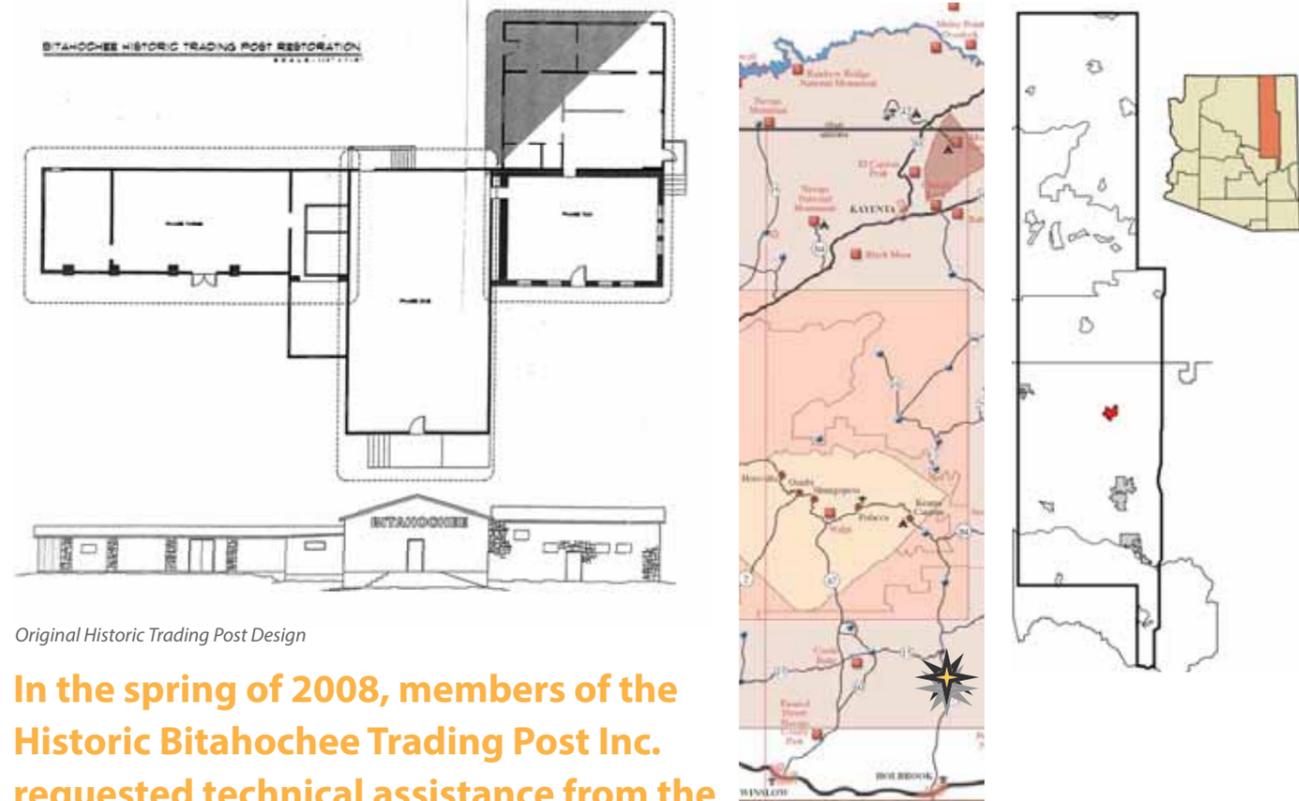
ARCHITECTURE + LANDSCAPE ARCHITECTURE

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Bitahochee Trading Post Adaptive Reuse

NAVAJO NATION | JUNE 2009



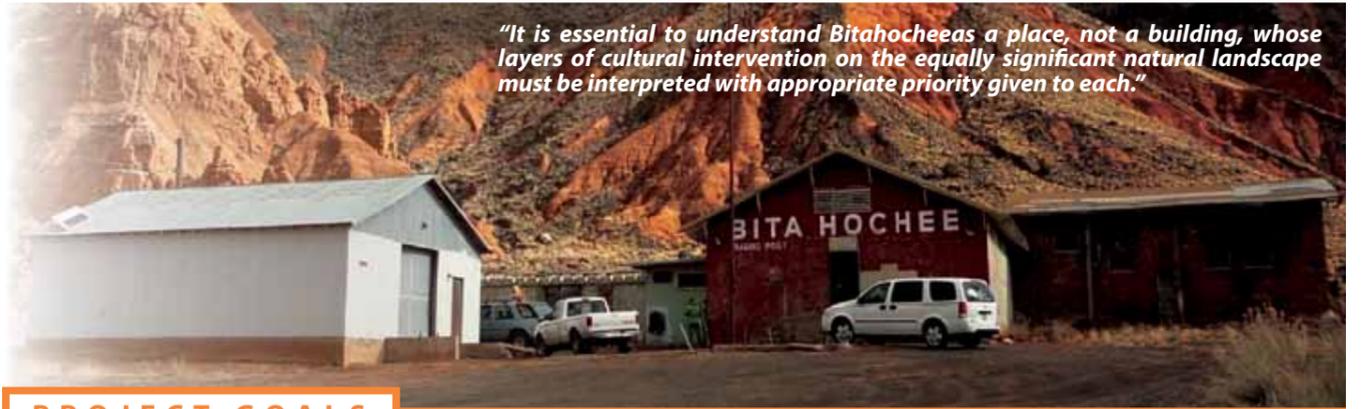
Original Historic Trading Post Design

In the spring of 2008, members of the Historic Bitahochee Trading Post Inc. requested technical assistance from the Drachman Institute, University of Arizona, to create a plan for adaptive reuse of the historic trading post. As opposed to restoration, which implies returning a building or site to its original condition and use, ADAPTIVE REUSE focuses on renovating historic structures so that they can be brought back into use, often in ways that differ from the original uses or conditions.

During World War II, the trading post served as an enlistment post for men going off to war, including some of the famed Diné Code Talkers. During this time and for many years after, Bitahochee was the central meeting place for people from this part of the Navajo Nation...a general store, bus station, post office, bank, and community center.

PROJECT INFORMATION

"It is essential to understand Bitahochee as a place, not a building, whose layers of cultural intervention on the equally significant natural landscape must be interpreted with appropriate priority given to each."



PROJECT GOALS

- To establish a center for the creation, exchange, and learning of fine art by native and visiting artists.
- To create a center for the preservation and teaching of traditional Navajo arts and culture.
- To revive the historic trading post, drawing on valued memories of what it once was to transform the future of the surrounding community.

HISTORY

- The trading post fell into decline in the 1980s, and was closed in 1994.
- Redwing Ted Nez, an established Diné artist, envisioned the old trading post in a new way – as a place where Navajo fine arts and traditional arts could be exchanged.
- Since the year 2000, Redwing ardently pursued the restoration of the Bitahochee Trading Post.
- In 2008, the Historic Bitahochee Trading Post, Inc. (HBTP) received 501(c)(3) status as a non-profit organization.

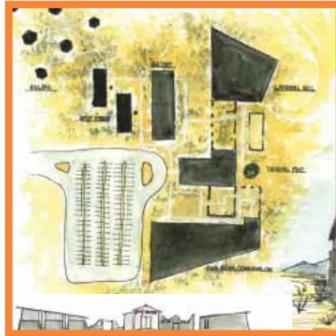


Linear Site Plan Concept



Courtyard Site Plan Concept





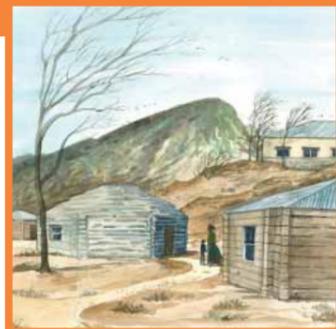
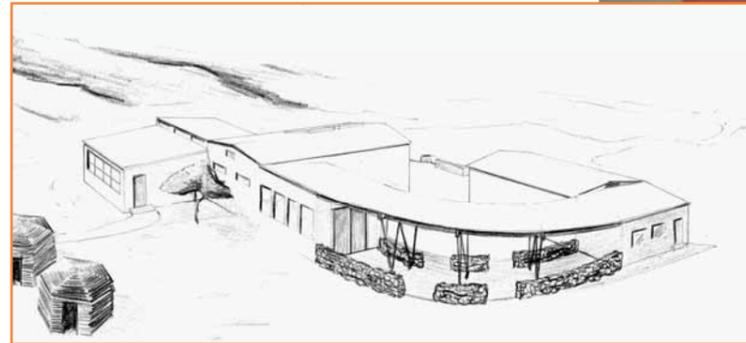
Charles Mueller

MAJOR ELEMENTS FOR MAIN BUILDINGS:

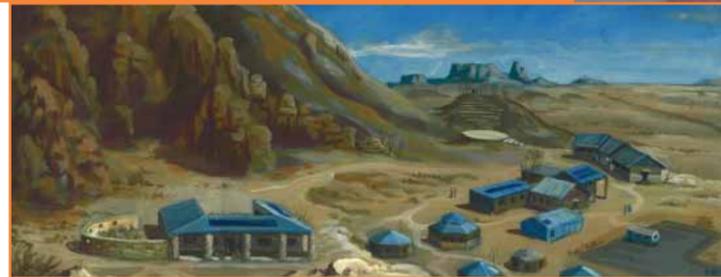
- Gallery and Sales area for artwork of various types
- Studio space
- Museum display space
- Gathering, community event area(s)
- Traditional arts learning areas/classrooms
- Visitor/artist residences (limited number, longer term)
- Visitor hogans (shorter term)



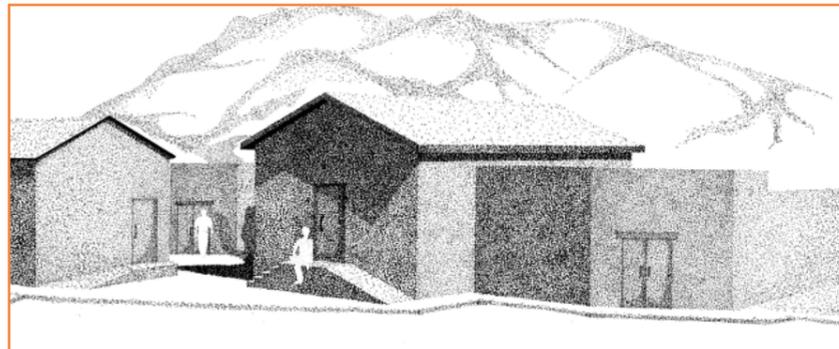
Colleen Cummings



Glenn Buack



Jenn Rios



Amanda Spear



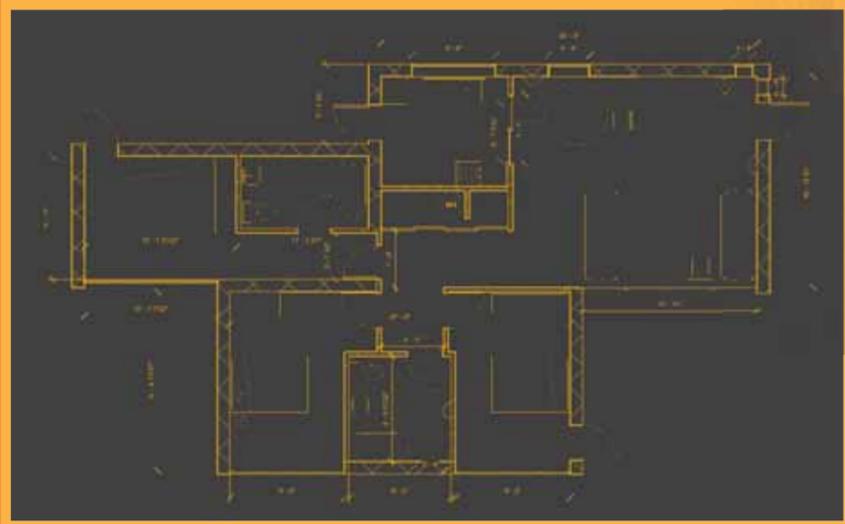
PROJECT DETAILS

The significance of the Bitahochee Trading Post is inextricably linked to the landscape and cultural expression of place. The name 'Bitahochee' means "red in between," referring to the butte, which is known by Navajo Medicine Men as a pillar of healing. There are many layers of cultural expression that represent the values of each generation occupying this site. The material features of these expressions are as varied as:

- Transportation networks
- Dwelling and communal spaces
- Food distribution and wool production

The prominent landscape feature created an important gathering place for Navajo peoples. Later, the location became a stop along military supply routes, becoming a cultural intersection. The post embodies hybrid acculturation of Native and Euro-American building forms, emphasizing its role as both a gathering place for Navajo people, and place of cultural exchange with the outside world. Local materials used for the original buildings (sandstone, timber). Hybrid architectural forms and craftsmanship

The second trading post structure was built around 1948. During that same time period, 6 additional buildings incorporating imported materials were constructed: the wool shed, living quarters, a storage room, butcher's shed, employee quarters, and the log hogan which was built for one of the first Navajo rangers. This post-WW II era of use is the one best remembered by people today.



PROJECT GOALS

- Create viable living solutions for Navajo Veterans using local materials and incorporating traditional tribal values.
- Utilize sustainable design solutions to create both economic and environmentally friendly housing options.
- Design housing options that encourage community while preserving programmatic elements that preserve the essentials of a good home.



In Spring 2008 Drachman Institute received a request from the Senior Planner of the Department of Navajo Veteran Affairs to update Veteran housing floor plans for new homes. The plans were to include 2, 3, and 4 bedroom dwelling units with all required material listings. A team of 4th year architecture students at the UA School of Architecture led by Shane Smith teamed to provide housing design assistance.

PROJECT INFORMATION

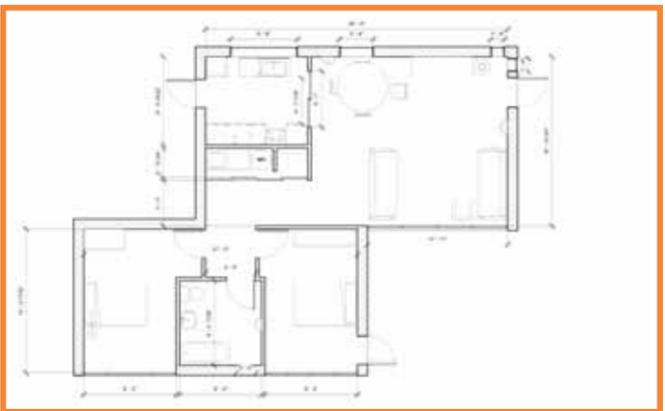
MATERIAL CONSIDERATIONS

- adobe
- aluminum frame
- bamboo flooring
- batt insulation
- clay/tile flooring
- corrugated polycarbonate sheets
- flexcrete
- metal panels
- plywood
- paper faced gypsum board
- rammed earth
- straw bale
- vermiculite
- vinly framing



SUSTAINABLE DESIGN FEATURES

- PASSIVE SOLAR UTILIZATION
- THERMAL MASS
- LOCAL MATERIALS
- NATURAL MATERIALS
- WATER HARVESTING



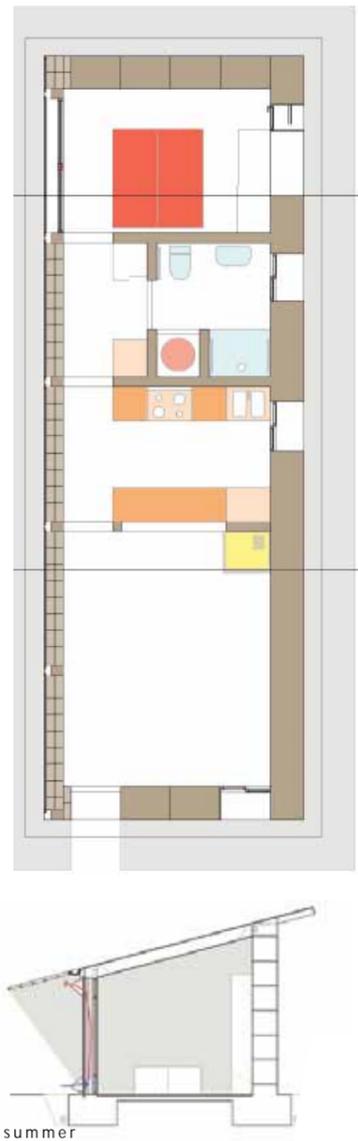
Source: Navajo FlexCrete. Web. Accessed May 2014. <http://www.navajoflexcrete.biz/SedonaHome.html>



EWA ALSBIEI
1 bedroom
406sf

MATERIALS
rammed earth
insulation
waterproofing
concrete foundation and flooring
wood structure
glazing

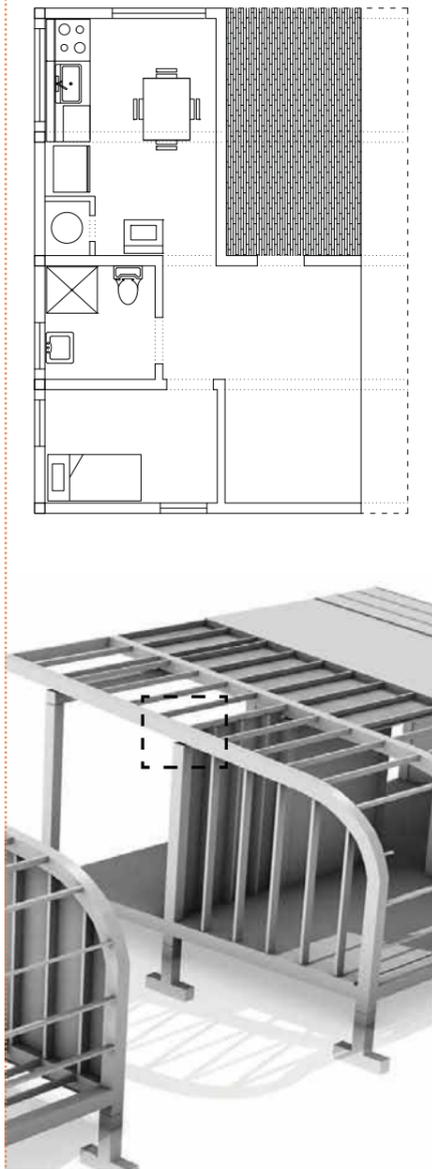
SUSTAINABLE FEATURES
passive solar utilization
thermal mass
local materials
natural materials
water harvesting system



ALICIA CARVAJAL
1 bedroom
546sf

MATERIALS
staw bale
adobe
wood structure
insulation
concrete foundation and flooring
glazing

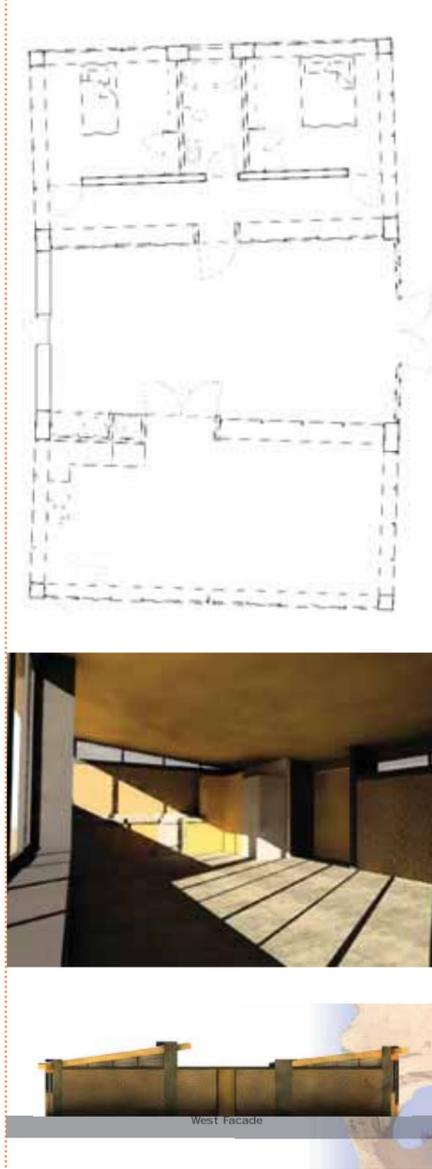
SUSTAINABLE FEATURES
passive solar utilization
thermal mass
local materials
natural materials



LUAT DUONG
1 bedroom
476sf

MATERIALS
24 gauge steel structure
batt insulatiion
plywood interior finish
glulam structural members
glazing

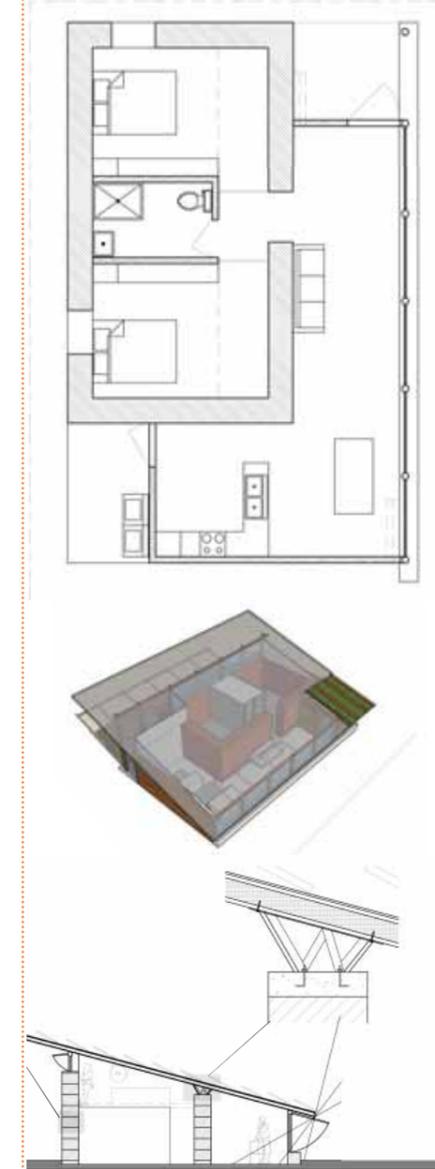
SUSTAINABLE FEATURES
passive solar utilization
local materials



ANDREW BENSON
2 bedroom
880sf

MATERIALS
hay bale
concrete block
insulation
waterproofing
concrete foundation and flooring
wood structure
glass and polycarbonate glazing

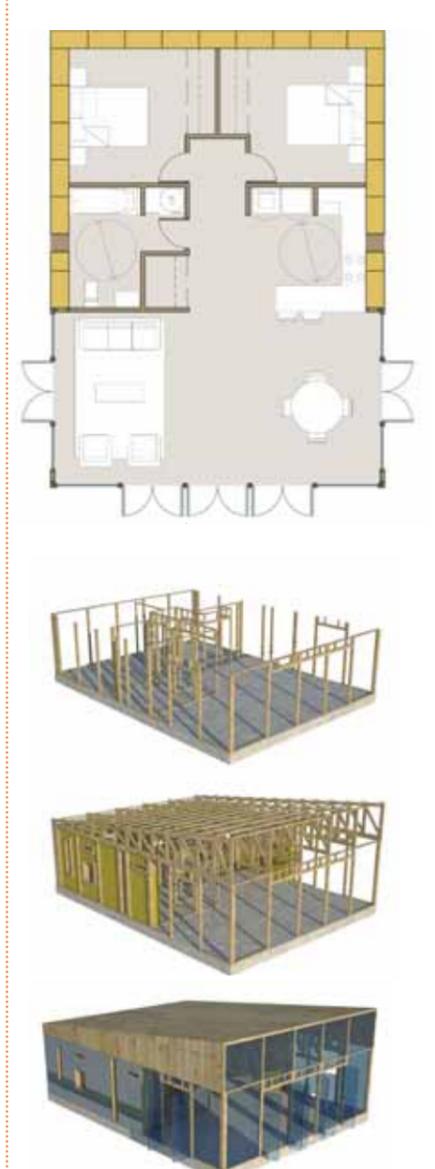
SUSTAINABLE FEATURES
passive solar utilization
thermal mass
local materials
natural materials



FRANK LEVYA
2 bedroom
842sf

MATERIALS
straw bale
sip panels
wood panel interior finish
polycarbonate panel interior finish
batt insulation
waterproofing
concrete foundation and flooring
wood framing
glazing

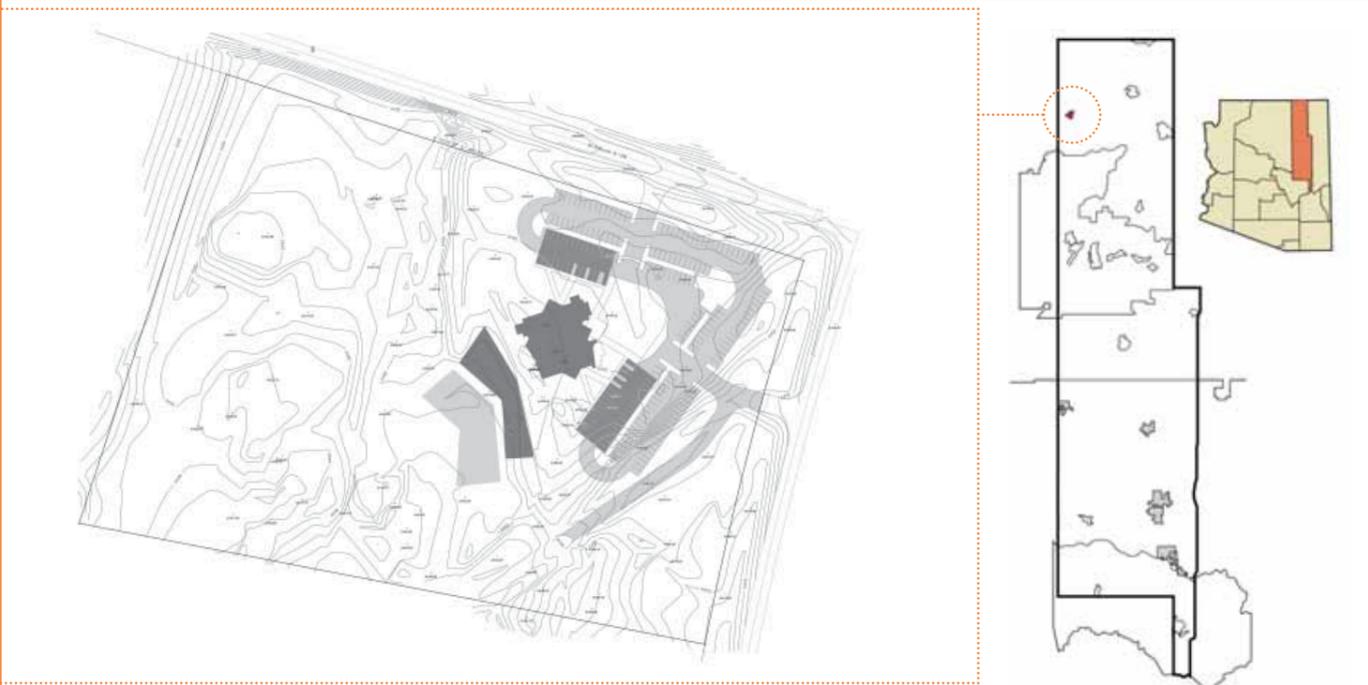
SUSTAINABLE FEATURES
passive solar utilization
thermal mass



PAULINA CARVALLO
2 bedroom
838sf

MATERIALS
straw bale
waterproofing
plywood sheet roof
concrete foundation and flooring
wood framing
corrugated metal sheet
glass and corrugated
polycarbonate glazing

SUSTAINABLE FEATURES
passive solar utilization
thermal mass
local materials
some use of natural materials

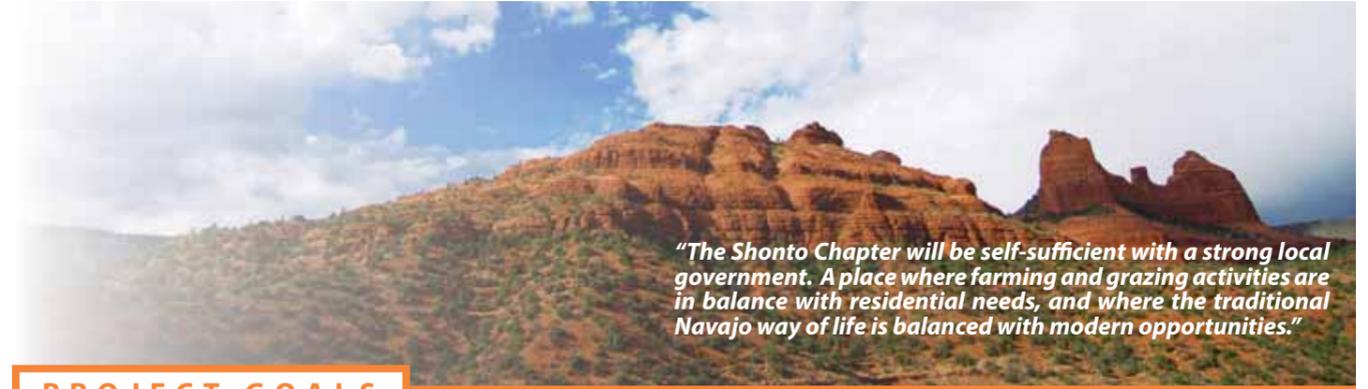


The design process which began in September of 2005 and was completed in May of 2006 included site analysis, historical and cultural study, review of the Shonto Chapter Comprehensive Plan, a community survey and several public meetings to insure public input and consent.

This project was accomplished through a cooperative effort between the Arizona Department of Housing, the Shonto Community and the Drachman Institute at the University of Arizona. The result is a public service and residential design that truly respects the land and the Shonto community while addressing their needs, looking toward their future, and symbolizing this unique and visionary community.

PROJECT INFORMATION

18 acres of land has been withdrawn and approved by the Bureau of Indian Affairs for the Sháá'tóhí Public Service Complex. Under the auspices of the Arizona Department of Housing, the University of Arizona's Drachman Institute completed the Master Plan for the entire site.



"The Shonto Chapter will be self-sufficient with a strong local government. A place where farming and grazing activities are in balance with residential needs, and where the traditional Navajo way of life is balanced with modern opportunities."

PROJECT GOALS

- Preserve Shonto & Navajo identity in all development, structural types, textures, and colors.
- Establish housing and educational services of the highest possible level.
- Preserve a sense of history and long-standing Navajo values.
- Provide housing that is diverse, affordable, and safe.
- Promote renewable energy and provide access to basic infrastructure.



COMMUNITY SERVICE FACILITY

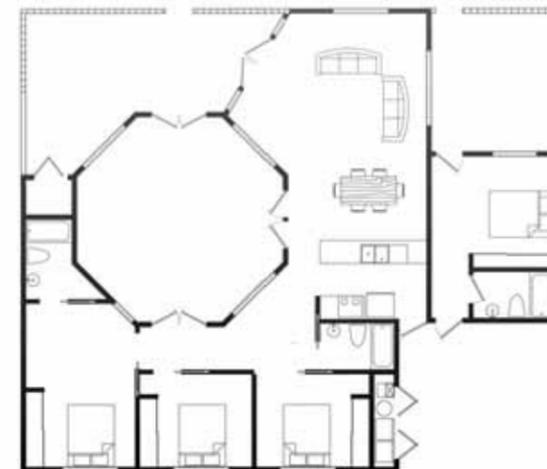
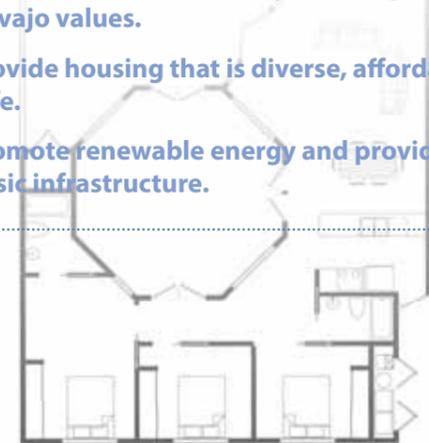
A collaboration between agencies with a focus on health, wellness, and prevention, with activity centers for youth, elders, and families.

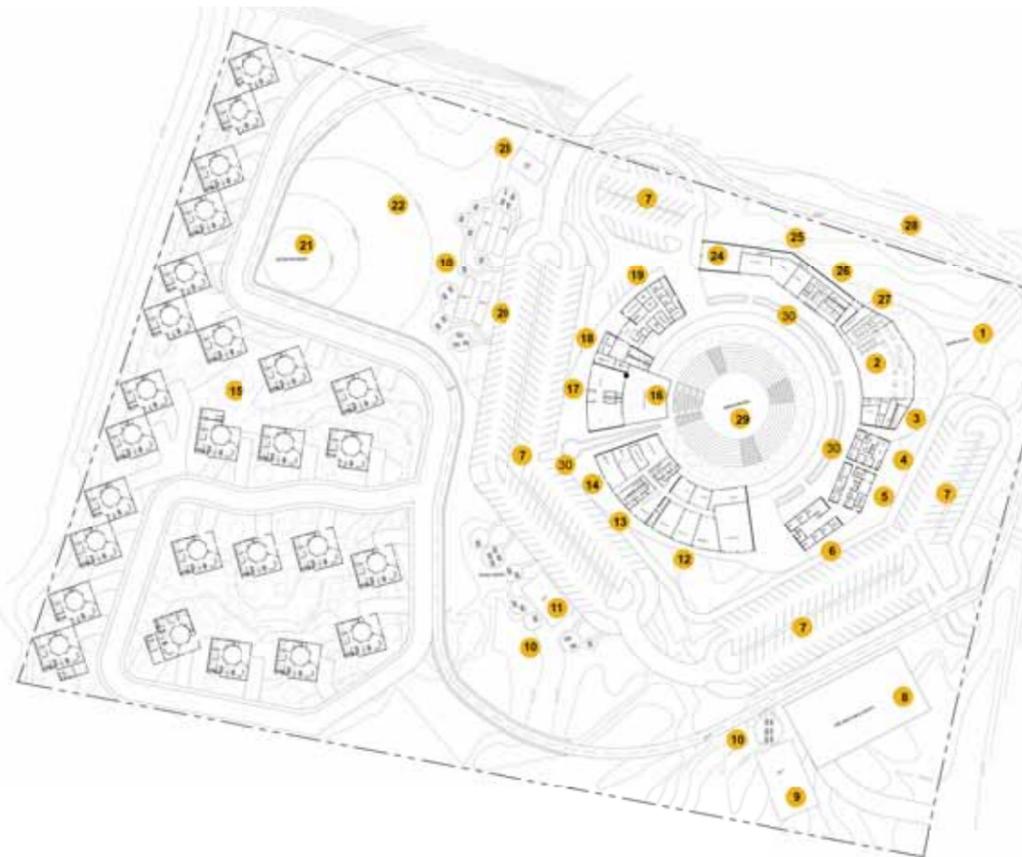
PUBLIC SAFETY FACILITY

A Public Safety Facility that houses fire, police, and emergency medical services.

OUTDOOR AMENITIES

Spaces for community activities, including amphitheatre, healing garden, walking path, play structures, and sculptures.





1. Entry plaza
2. Tourism, visitor info, multipurpose hall, exhibit space, vendor space
3. Court room
4. Civic offices, government sub-offices
5. Civic offices, veterans, recruitment, legal aid, employment and business services
6. Lease office space
7. Parking
8. Fire and public safety
9. Basketball court
10. Picnic
11. Volleyball court
12. Senior, youth and pre-teen centers, multipurpose gymnasium, art, music, craft, workshops
13. Locker rooms
14. Weight training, exercise studios
15. Single family 3 and 4 bedroom homes
16. Children's play area
17. Day-care
18. Social services, food distribution
19. Health care
20. Horseshoe courts
21. Retention basin, wetlands
22. Park
23. Hitching post
24. Service, delivery, maintenance
25. Classrooms, video classroom
26. Education center, testing, computer lab
27. Cafe
28. Multi-use trail
29. Amphitheater
30. Cistern (also located at each housing unit)

The native vegetation is dominantly Sand Sagebrush and sparse areas of Mormon-tea, Blackbrush, Rabbitbrush, Indian Rice Grass, Sand Dropseed, Galleta, Grama Grasses, Threewawn, Russian Thistle and other annual weeds and grasses.

A few scattered stands of Juniper and Pinyon Pine grow in rocky areas.

Big Sagebrush
Artemisia tridentata

Sagebrush is good forage for sheep and wildlife on winter ranges. It is a food source and important wildlife habitat. It is essential to sage grouse, which prefer the short forms. For food and cover. It is used as a tea substitute, general tonic, for hair and eye wash, in treating colic and diarrhea, and as an antiseptic for wounds.

Rocky Mountain Beepoint
Cleome serrulata

Young shoots, leaves and flowers are cooked and used as potherbs. The seeds may be eaten raw, cooked or can be dried and ground into a meal to be mixed with flour to make bread. Medically: an infusion of the plant is drunk in the treatment of fevers and stomach disorders. A poultice made from the pounded, soaked leaves has been applied to sore eyes.

Pinon Pine
Pinus Edulis

The seeds of the Pinon Pine are important wildlife food for several songbirds, quails, squirrels, chipmunks, black bears, and mule deer. The seeds were a staple food in American Indian diets and were eaten raw, roasted, or ground into flour. They were made into candies, cakes, and cookies. The needles were steeped for tea. Today incense is made from crushed cones. Native Americans still use the pitch as a caulking compound for watertight baskets and as glue for turquoise jewelry.

Rabbitbrush
Chrysothamnus nauseosus

Rabbitbrush contains rubber. Southwest native Americans chewed the roots of rabbitbrush as gum.

Utah Juniper
Juniperus Osteosperma

Juniper "berries" or berry-cones, are eaten by jackrabbits, foxes, and coyotes. Many bird species depend on juniper berry-cones for fall and winter food. The foliage is grazed by mule deer when other foliage is scarce and during periods of deep snow.

Utah juniper has long been used for construction, fence posts, firewood, pencils, Christmas trees, and other purposes. Utah juniper wood is highly decay resistant. The cones are edible.

Mormon Tea
Ephedra

The fruit may be eaten raw and has a sweet flavour. The seeds may be cooked or can be roasted and ground into a powder and used to make a bread or mush. A delicious tea is made by steeping the green or dried twigs in boiling water. Mormon Tea has many traditional medicinal uses. The stems are food purifier, diuretic and tonic. An infusion has been used in the treatment of coughs and colic, anemia, rheumatism, stomach ulcers, asthma, and other disorders, kidney problems. The dried, powdered stems are used as a dressing on sores and burns. The twigs, boiled with alum, produce a light tan dye.

Brown Spined Prickly Pear Cactus
Opuntia Phaeacantha

A versatile cactus with uses ranging from food to building materials. Both the fruit and the pads of the prickly pear are edible and used in many ways. People enjoy the fruit raw or cooked, boiled into jelly, or even fermented to make alcohol. Full of tiny black seeds that are edible, many Native Americans would dry out the seeds and grind them into pastry flour. The pads are also eaten raw or cooked. Native Americans also found other parts of the cactus useful. The strong skin fibers of the pads were dried and woven into baskets, mats and fans. The large spines made good toothpicks, needles and pins. Even the woody skeletons left after the flesh dried was used to make furniture and to construct houses. The medical community pays attention to the prickly pear as well. Some studies have shown that the pectin in the prickly pear pulp lowers "bad" cholesterol while leaving "good" cholesterol levels alone. The pectin, some say, also lowers a diabetic's need for insulin. Both the fruit and the pads are rich in slowly absorbed soluble fiber that helps stabilize blood sugar.

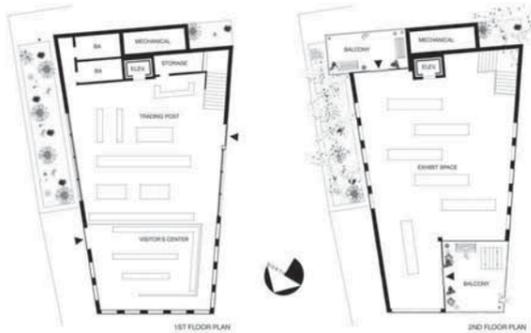
Shonto Artist + Travel Plaza Master Plan Design

NAVAJO NATION | SPRING 2006



PROJECT INFORMATION

A 10-acre tract of land for commercial and industrial development on the south side of the highway at the junction of Arizona SR98 and US160. SR98's designation as an Arizona Scenic Road makes the area eligible for funding from the Federal Highway Administration. Traveler services are needed because there is no public rest stop or tourism information available for many miles in each direction in this rural region. Plans for the site include a visitor center, an artisans plaza, restaurant, and other locally-owned businesses. SCG is organizing an Entrepreneur Council to advise on business development and potentially manage this site.



PROJECT GOALS

- Create a feeling on the site that conveys the spirit of Shonto
- Promote respect for Shonto as a community as a unique place
- Welcome and educate tourists
- Create dynamic spaces for both the visitor and the retailer



OVERVIEW

The property adjacent to the site is owned by Dine Propane and houses a large propane tank. A drain field is proposed for the northeast corner of the site. No other improvements have been made and no other significant features are currently on site.

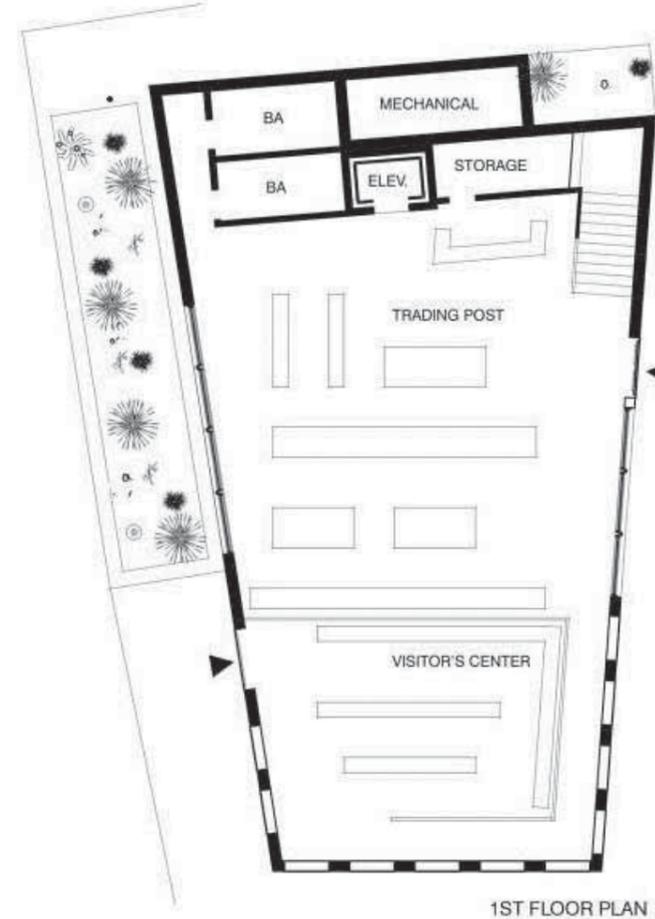
CONCEPT - GATEWAY TO SHONTO

The concept of creating a "gateway" to Shonto suggests that this site should provoke a feeling similar to what one feels in Shonto. The site should have shady places and lush landscape similar to that in the Shonto Canyon. It should have unique structures and reflect the creativity seen in the artists that Shonto is famous for. Currently, the site lacks any of these characteristics.

A gateway can only function if it is easy to see. The design of this site has to be strong enough to stop 60 mph traffic on US 160. A major point of criticism regarding the site plan as shown is that it fails to take advantage of street frontage by locating a large parking area to the front of the site and pushing the buildings to the rear. This configuration hinders visibility of the structures from the road and with a large concentrated parking area, one risks having the area look "dead" or inactive when the parking area is not full.

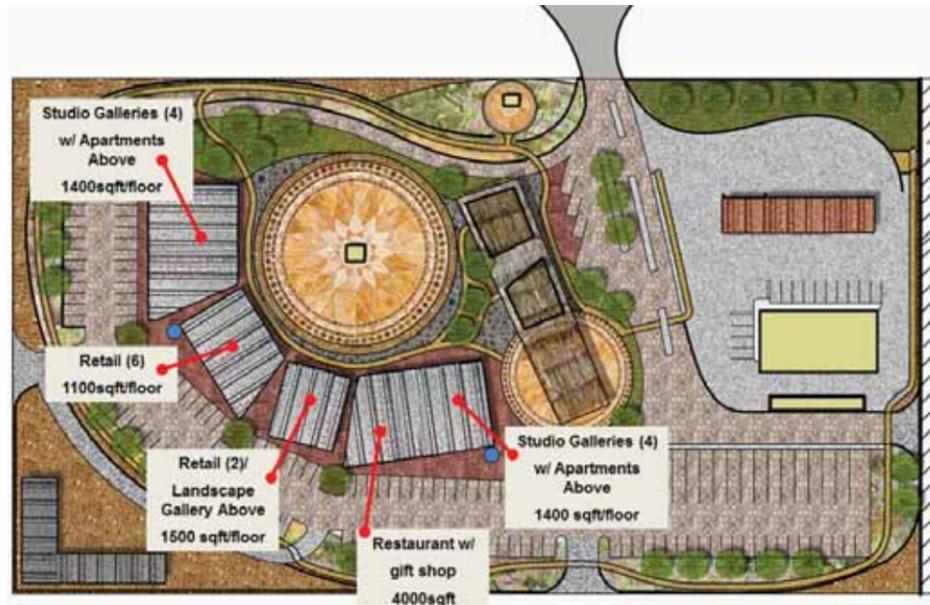
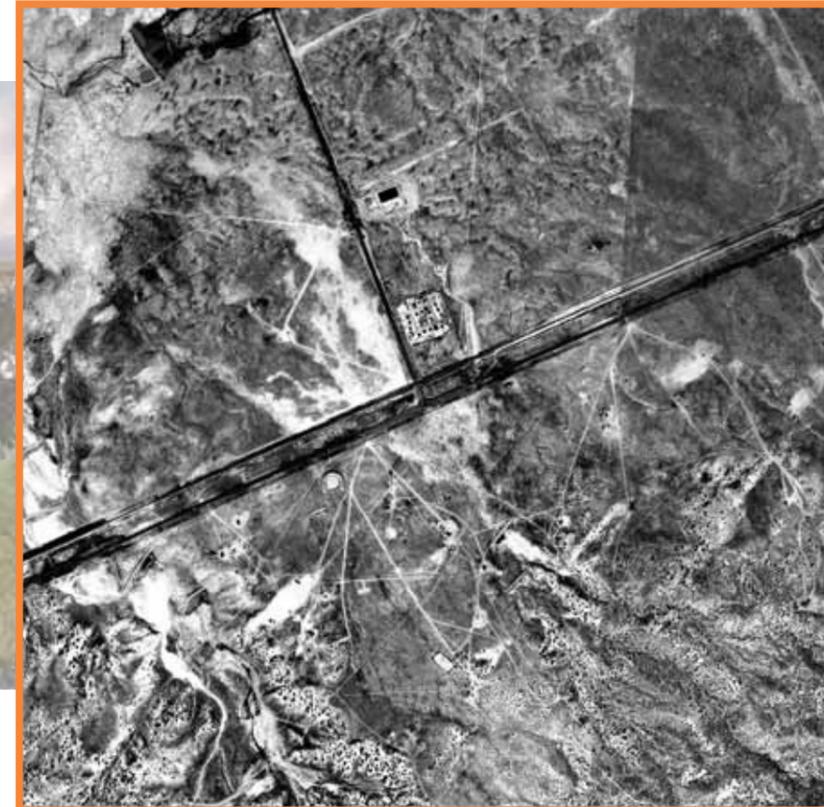
PROGRAM

- Visitor's Center
- Coffee / Ice Cream Shop
- Outdoor Food Vendors
- Live / Work Galleries
- Retail Spaces
- Restaurant
- Vendor Village
- Facilities Maintenance
- Convenience Store / Fueling Area

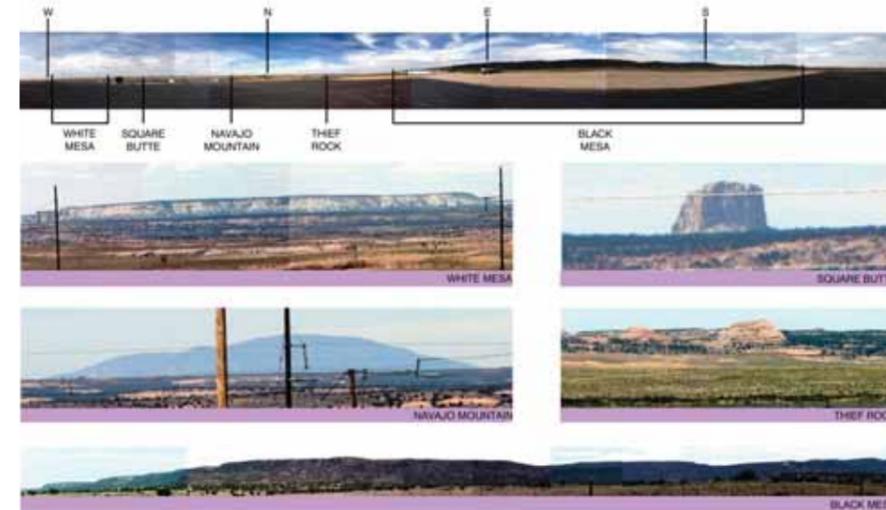
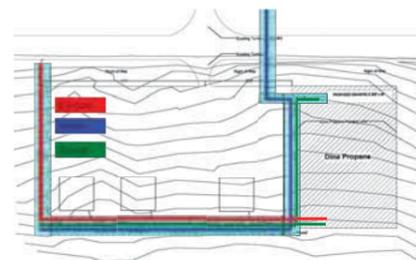
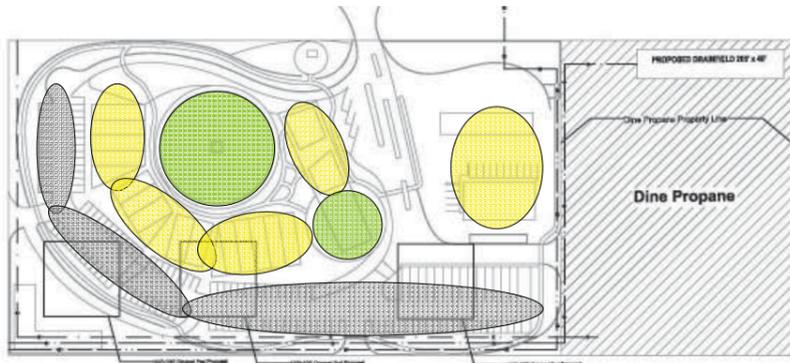


Shonto Artist + Travel Plaza Master Plan Design

NAVAJO NATION | SPRING 2006

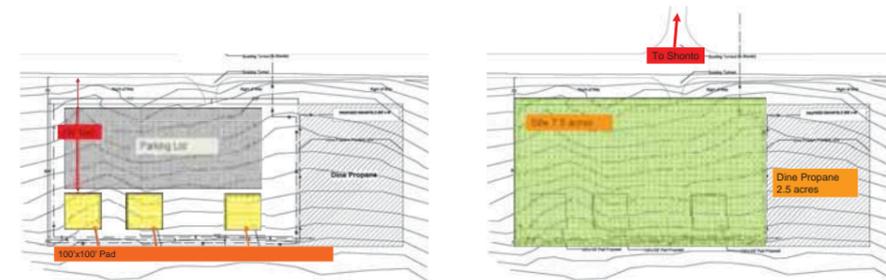


Contributions include: Abandoned Mine Lands Reclamation (AML), \$300,000, water, sewer line, and power lines; Arizona Department of Transportation, \$50,000, pullouts and turn lanes from US HWY 160; Arizona Office of Tourism, grant for a visitor kiosk; Drachman Institute, \$40,000, Master Plan and documents; Native Peoples Technical Assistance Office, construction support, training, and video for visitor kiosk; Tuba City RBDO, invaluable technical assistance and on-going support. Max Bighorse Consultant Engineer has completed the engineer's site plan and infrastructure design. GIANT Industries is interested in the gas station and convenience store site. Dine Propane, Inc. has leased 2.5 acres of the 10-acre site. Potential lessees will be selected and lease documents are estimated to be completed by the end of 2006.



“Utilize innovative concepts in design, construction, and management, and incorporate community cultural values into the overall project. Apply renewable energy, conservation strategies and ‘green’ building techniques in all aspects of the design and landscaping.”

-Shonto Community Development Corporation

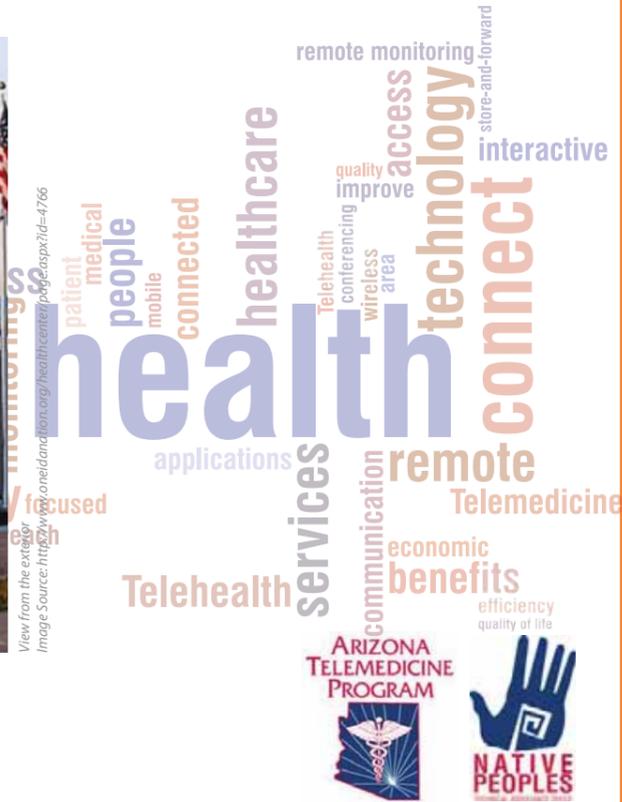




Oneida Community Health Center

The idea of using televisions to improve health care has been around since the late 1950's. However, it isn't until more recently when advances in technology, price reductions in equipment costs, and improved data transmissions have allowed telecommunications technologies to become a much more feasible option. As a result, telemedicine and telehealth have been able to spread rapidly as a health care solution.

The biggest benefit of telehealth is that it provides access to health services for areas that have traditionally had limited or no access due to lack of availability and/or other barriers such as travel distance. The benefits of telemedicine can be explored through three different perspectives: economic development and quality of life, patients, and providers.



PROJECT INFORMATION



La Clinica Monument (Concord, CA): View from the exterior
Image Source: <http://www.roebbelen.com/la-clinica/>



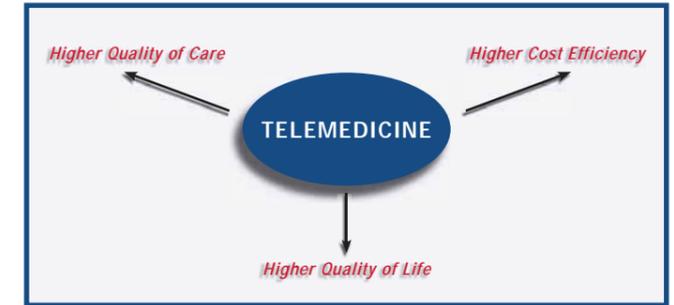
La Clinica Monument (Concord, CA): Lobby/waiting room
Image Source: <http://www.roebbelen.com/la-clinica/>



La Clinica Monument (Concord, CA): Dental examination room
Image Source: <http://www.roebbelen.com/la-clinica/>

PROJECT GOALS

- 10 GOALS OF TELEMEDICINE**
- Enable more informed decision making and enhanced quality of care
 - Save lives through remote consultations, whether urgent or diagnostic
 - Create more efficient, convenient and potentially more cost effective delivery of care
 - Facilitate earlier – and more accurate – diagnoses
 - Provide greater, and faster, access to a patient's medical history, reducing the risk of negative drug interactions or poor response to a course of treatment
 - Improve administrative efficiency and coordination
 - Allow rural residents to receive expert diagnosis and treatment from distant medical centers
 - Increase timeliness of treatment and decrease transfer rates while reducing medical costs through video technology
 - Support real-time treatment by first responders through the use of wireless devices
 - Enhance senior wellness and preventative care through telemedicine and remote in-home monitoring



ACCESS TO HEALTHCARE

Access to quality health care is an important achievement in establishing health equity for Americans. Improving health care access is shown to have a positive impact on people's lives by:

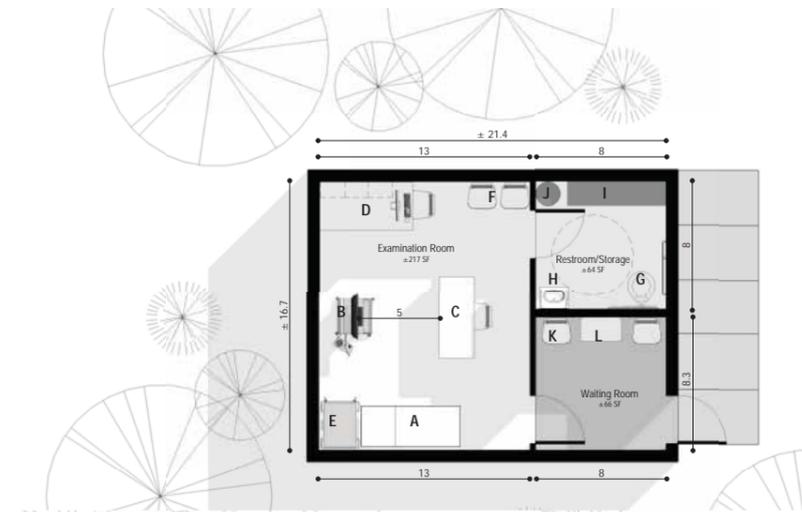
- Improving the overall physical, social, and health status
- Preventing diseases and disabilities
- Improving the detection and treatment of health conditions
- Improving quality of life
- Decreasing the number of preventable deaths
- Increasing life expectancy



One of the ways that access to health care can be expanded to areas with limited or no access to medical care is through the provision of telehealth and telemedicine services.

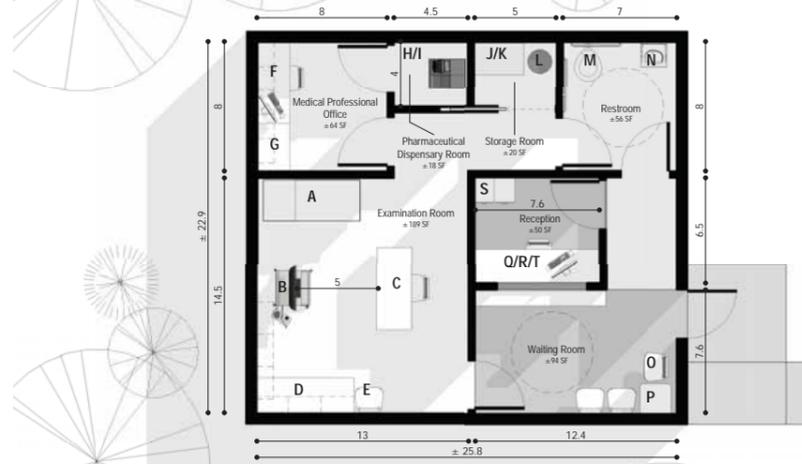
Telemedicine Prototype Facility Planning & Design

RURAL ARIZONA TRIBES | MARCH 2013



Prototype 1 Area Analysis

| Room Name | Net Area |
|------------------------------------|------------------|
| Examination Room | 220SF |
| Restroom Storage | 64SF |
| Waiting Room | 66SF |
| Total Net Area | 350SF |
| Grossing Factor* | 1.3-1.5 |
| Total Calculated Gross Area | 455-675SF |



Prototype 2 Area Analysis

| Room Name | Net Area |
|------------------------------------|------------------|
| Examination Room | 190SF |
| Medical Professional Office | 64SF |
| Pharmaceutical Dispensary Room | 18SF |
| Storage Room | 20SF |
| Restroom | 56SF |
| Reception | 50SF |
| Waiting Room | 94SF |
| Total Net Area | 492SF |
| Grossing Factor* | 1.5-1.75 |
| Total Calculated Gross Area | 740-860SF |



Prototype 3 Area Analysis

| Room Name | Net Area |
|------------------------------------|--------------------|
| Examination Room | 315SF |
| Medical Professional Office | 75SF |
| Pharmaceutical Dispensary Room | 18SF |
| Telehealth Room | 300SF |
| Restrooms | 190SF |
| Reception | 50SF |
| Waiting Room | 100SF |
| Total Net Area | 1048SF |
| Grossing Factor* | 1.5-1.75 |
| Total Calculated Gross Area | 1570-1835SF |

Specialties Offered Via Telemedicine

- | | | |
|----------------------|--------------------------|-------------------------|
| Allergy/Immunology | Family/General Practice | Orthopedics |
| Anesthesia | Gastroenterology | Pathology |
| Cardiology | Infectious Diseases | Pediatrics |
| Critical Care | Internal Medicine | Psychiatry |
| Dentistry | Maternal/Fetal Medicine | Pulmonology |
| Dermatology | Mental/Behavioral Health | Radiology |
| Otolaryngology (ENT) | Neurology | Rehabilitative Medicine |
| Emergency Medicine | Oncology/Hematology | Rheumatology |
| Endocrinology | Ophthalmology/Optometry | Urology |

POSSIBILITIES - PROTOTYPES

The nature of the Telehealth design model allows for a vast variety of layouts, from a minimal stand-alone telemedicine clinic that can be inserted almost anywhere in a community to a telemedicine facility with standard medical examination capacities and Telehealth/TeleEducation components for community education and advancing community health programs. This section shows the potential of this design model by highlighting a few prototypes of minimum requirements that are possible across this range.

METHODOLOGY

Each prototype is described with the following information:

- Its potential application in the community
- Minimum spaces/rooms required are described and annotated as needed
- Minimum equipment for each space/room listed and referenced to Prototype plan
- Basic design issues and impact on site and community
- Prototype plants
- Prototype area analysis

Plans are design to convey the following:

- Basic minimum prototype layout
- General space/room relationships
- Minimum equipment required per space/room annotated and referenced to the list in description
- Dimensions in feet indicate each space/room's minimum practical dimensions
- Space/Room relationships, equipment area and facility design.
- Design Program and initiation of the Design Phase

Area Analysis includes the following:

- Net area (interior area) of all space/rooms
- Total facility net area (square feet)
- Grossing factor range (percentage used to determine approximate gross area)
- Gross area range for the Prototype incorporating minimum required space/rooms and equipment.



Interactive telemedicine can be achieved using both complex equipment (neurosurgery application shown above) or simpler video conferencing equipment (general practitioner application shown below).

Image Sources:
<http://neurosurgerycns.wordpress.com/tag/telemedicine>
<http://clinicianstelmed.com/telemedicine/>

Yaqui Housing Design + Master Plan

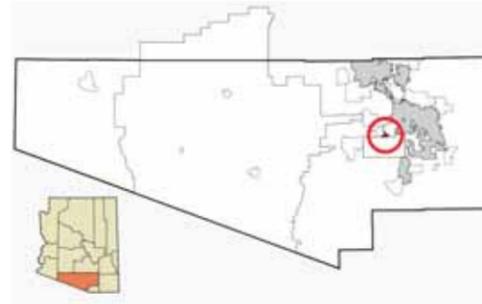
PASQUA YAQUI | SPRING 2006



Yaqui Housing is a comprehensive design project in Tucson used by the Barrio Libre Yaqui community for religious and community congregations. The housing in addition to a youth/senior center, new plan for a kitchen, dining hall, storage and restrooms facilities will supplement the existing buildings on site resulting in a holistically integrative plan.

The project was undertaken as a senior capstone project and was pursued by Danielle Salazar whose interests are rooted in affordable housing and cultural and place responsive design. The following document includes cultural and historical research, site analysis and a master plan as well as prototypical housing designs for the Yoeme Barrio Libre Community.

Pascua Yaqui Tribe
7474 S. Camino De Oeste
Tucson, AZ 85746
Phone (520) 883-5000
contact@pascuayaqui-nsn.gov



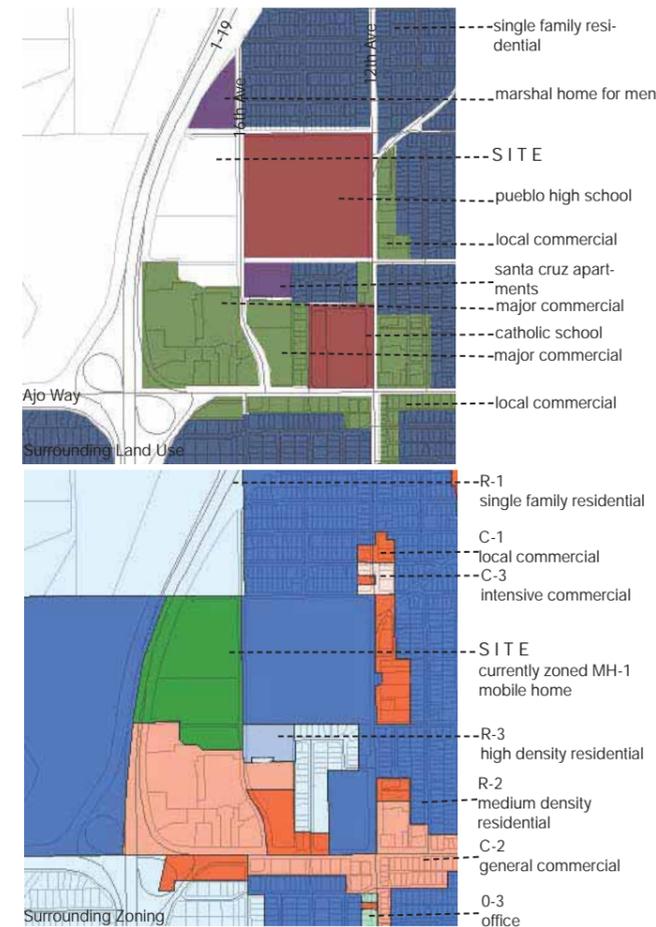
PROJECT INFORMATION

The intention of "Yaqui Housing" for the Barrio Libre community is to design a master plan that integrates housing and community infrastructure with the existing buildings on site. The Yaqui people, after migrating to the United States from northern Mexico, settled in small villages along the Santa Cruz River as well as in and around Tucson and Phoenix. Barrio Libre is one of these original settlements in Tucson. Libre represents a typical Yaqui settlement in that it is centered around a church. The church in the Yaqui community is central to the cultural survival of the community as much of their indigenous practices are centered around the community church.



Providing for Community Infrastructure & Cultural Sustainability.

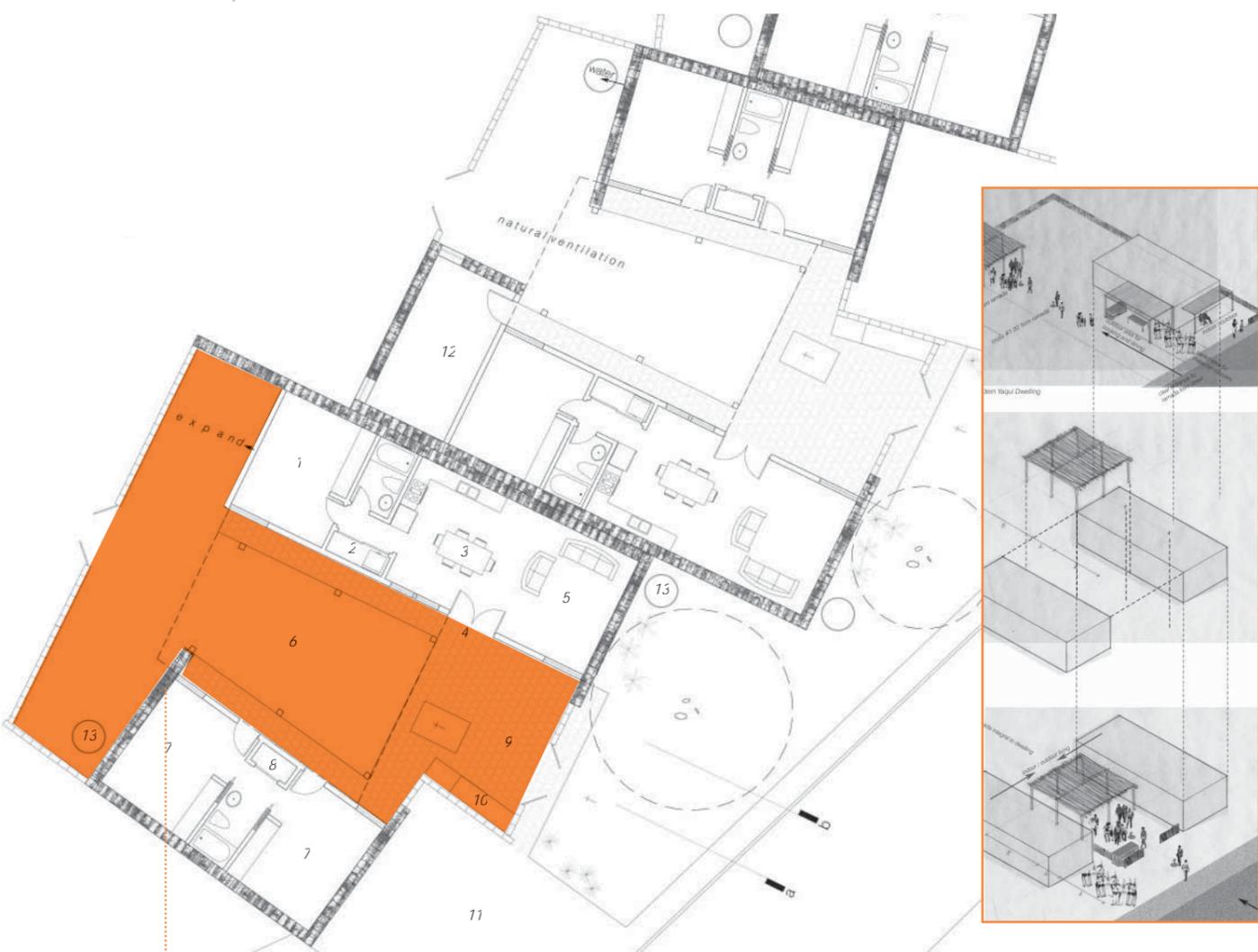
PROJECT GOALS



The Yoeme Barrio Libre Community Council (YBLCC) requested assistance from the Drachman Institute in their desire to improve the existing structures on a site within the Tucson city limits owned by the Pascua Yaqui Tribe. This site is located on 16th Ave and 44th St. adjacent to I-19 and just north of Ajo Way. The YBLCC requested a new plan to replace the existing kitchen on site in addition to restrooms and storage with the primary intent to meeting city codes and responding to growing community and cultural needs. A request was also made to examine a master plan for the site which also consisted of a senior/youth center in addition to housing.

Originally, Barrio Libre was one of the largest Yaqui settlements. However, the construction of the I-10 freeway in 1958, as well as the granting of tribal recognition and reservation land in 1978, displaced individuals living on this site to various locations including the larger reservation at New Pascua. The construction of safe, sanitary housing that is responsive to the Yaqui culture and customs, issues related to affordability and community needs, is suggested for the Libre site as a way to encourage individuals who were displaced to return. If individuals who are of the Barrio Libre community are given a place to live and share in closer proximity, culture and ways of life inherent to this community and once alive on this site, will again flourish and be sustained into the future.

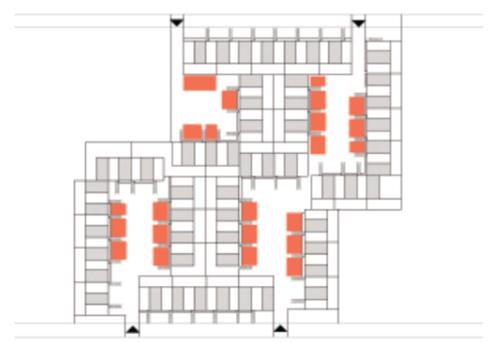
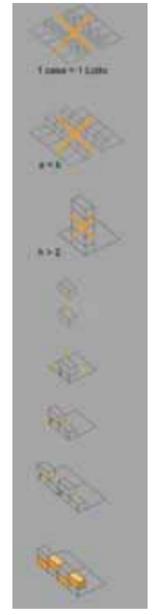




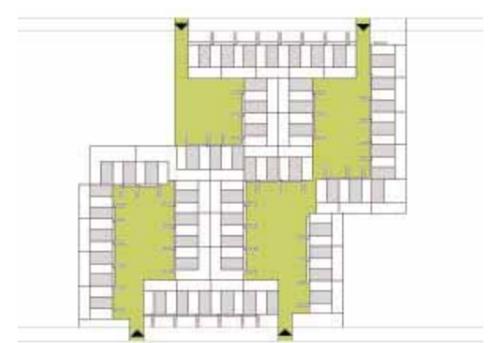
- 1 Master Bedroom
- 2 Mechanical / Laundry
- 3 Kitchen / Dining
- 4 Entrance
- 5 Living
- 6 Ramada
- 7 Bedroom
- 8 Mechanical
- 9 Outdoor Dining
- 10 Grill
- 11 Driveway
- 12 Expansion Bedroom
- 13 Cistern for Water Harvesting

HOUSING DESIGN METHODOLOGY

The design of the housing was influenced by both traditional and modern Yaqui dwelling. The process and evolution of the design is mostly explained through the drawings to the right. The first drawing describes the necessities of a contemporary Yaqui dwelling. The **ramada** is integral to the dwelling unit and is a pivotal point of departure for the overall planning of the house. The houses' program is split in two with public functions on one end and private functions on the other, allowing for expansion of the unit at the ends. The ramada allows the space in the center of the dwelling to be usable outdoor living space in addition to serving ceremonial needs. The cultural necessity for indoor/outdoor living spaces is apparent in traditional and modern Yaqui dwellings. The indoor living area can extend onto the outdoor patio where there is an outdoor cooking space. Adobe was chosen for the primary building material because it served as one of the traditional Yaqui building materials in the past and because the tribe has adobe block making capabilities, therefore fostering a tribal enterprise. The dwelling also incorporates methods for water harvesting, and is mindful of solar orientation and natural ventilation.



Site plan diagram indicating parking



Site plan diagram indicating "collective space"

TIMELINE OF HISTORICAL EVENTS

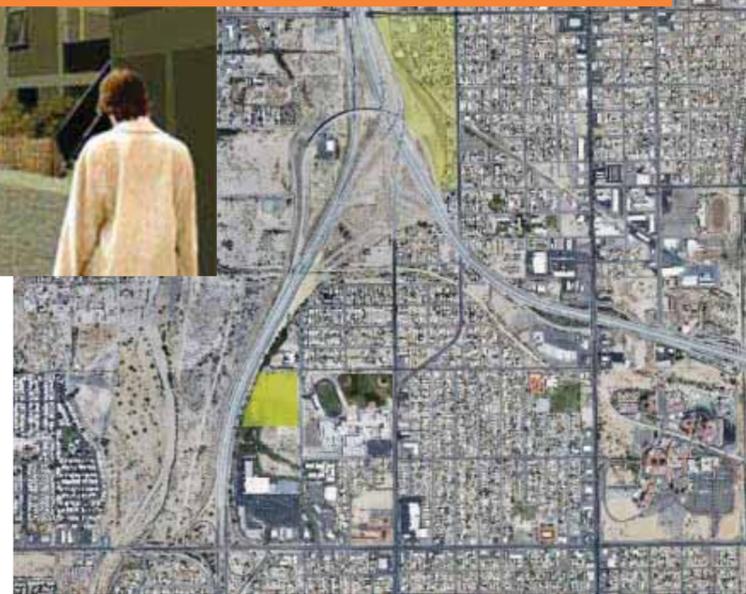
| | | |
|--------------------------------|----------------------|---|
| 1533-1617 RANCIERIA PERIOD | 1414 | Beginning - Itom Achai gives land to Surem along Rio Yaqui |
| | 1533 | Spanish arrive - give name Yaqui to the Yoemem |
| | 1608-10 1610 | Yaqui defeat Spanish soldiers Repeated attacks on Yaqui by Spanish Invite Jesuit missionaries to return |
| 1671-1767 MISSION PERIOD | | Introduction of Christianity |
| | | Establishment of 8 villages along Rio Yaqui |
| | | Blending of Christian ritual with traditional Yaqui beliefs |
| | | Increased production of agriculture |
| | 1634 1730 1740 | Silver mine discovered Increase in mining attracts Spaniards Yaqui, Mayo revolt against Spanish |
| 1740-1897 AUTONOMOUS PERIOD | 1740 | 5,000 Yaqui killed at the Hill of Bones |
| | | Spanish build Chapel on edge of Yaqui country |
| | | Spanish soldiers withdraw to fight Seri Indians |
| | 1767 | Jesuits expelled from New world |
| | | Modification of Jesuit institution to fit Yaqui needs |
| | 1771 | Yaqui resistance to government taxation |
| | 1810 | Spanish War for Independence |
| | | Yaquis begin to relocate |
| | 1820 | Increased warfare, results in decline of Yaqui agriculture |
| | 1821 1825 | Mexico gains independence Unification of Yaqui, Mayo, Pima, Opatas - move to establish independent indigenous nation |
| 1897-1907 RELOCATION PERIOD | 1850 | Juan Banderas drove all non-Yaquis out of Yaqui territory |
| | 1850 | Opening of Yaqui land to settlement |
| | 1868 | Massacre of 120 Yaquis |
| | 1887 | Mexican military occupation in Yaqui towns - displacement/deportation of Yaqui to other parts of Mexico (Yucatan, Oaxaca) |
| | | Some Yaqui choose to assimilate into Mexican population |
| | | Some begin to move to United States and begin to settle along the Gila and Santa Cruz River |
| | 1897 | Peace treaty signed at Ortiz, Sonora between Yaquis and the Mexican government, still deportations/violence continue. |
| | 1900 | Guadalupe established (Phoenix) |
| | 1903 | Old Pascua established (Tucson, Grant and Oracle) |
| | 1906 | Establishment of Barrio Libre (South Tucson) and Yoem Pueblo (Marana) Receive political asylum in US |
| 1910-20 | 1910-20 | Mexican Revolution - cause of much violence |
| | 1927 | Cerro del Gallo - last battle with Mexico |
| | 1939 | Sonora, Mexico grants north bank, portion of south bank of the Rio Yaqui, and the Bacatele Mountain Area legal status of indigenous community |
| | 1978 | Receive tribal recognition and reservation land |



DESIGN OVERVIEW

The master plan was influenced by a number of things noted in the project introduction, through precedent study, site analysis, and as observed through the analysis of traditional Yaqui planning in addition to modern and traditional Yaqui dwellings. With this in mind, the master plan of the site also needs to respect the existing conditions and uses on the site, namely the chapel, the plaza and the Easter Ceremony organization. As mentioned, the master plan introduces a new kitchen, Senior/Youth Center, designated parking areas, and housing. In the plaza area, the new plan keeps the ceremonial ramada in the same place and moves the kitchen and dining hall adjacent to it to create a more traditional plaza arrangement.

The Senior/Youth Center is then located on the opposite side to further define the plaza. The plan for the housing on site respects the existing topography and takes advantage of the heavy vegetation that lies toward the west and southwestern edge of the site as shown on page 48. Locating as many of the housing units as possible along this edge allows the residents to take



advantage of the cooler micro climate that this area offers. This was determined to be the most desirable area of the site due to this unique condition. Because the eastern and southern edges of the site are barren, these areas are reserved for overflow parking as needed during large events.





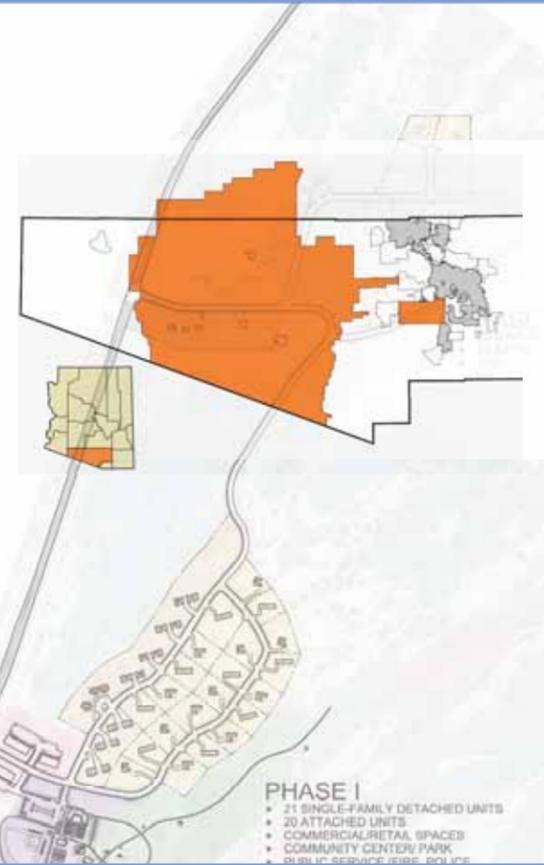
MASTER PLANNING

| | |
|---|----|
| Gu Achi Housing + Master Plan | 28 |
| Hia-Ced O’odham Master Land Use Plan | 32 |
| Hia-Ced O’odham Community Master Plan & Housing Design | 36 |
| Kaibeto Creek Community Senior Housing & Master Site Plan | 40 |
| Sipaulovi Village - Lower Village Community Master Plan | 44 |



Gu Achi District Housing Master Plan

TOHONO O'ODHAM NATION | SEPTEMBER 2009



Through the constraints map and coordination with TOKA, the Drachman Institute developed a multi-phase Master Plan site concept that included single-family and multi-family housing.

The primary focus of this plan is the provision of 80 affordable home sites. To support the housing community, other amenities such as commercial development, a community center and recreation area, public service facilities, and water supply and waste water treatment facilities have been incorporated. Additionally, Drachman staff and Architecture faculty led five 4th-year professional architecture students in an intensive four-week design studio project at the University of Arizona School of Architecture (ARC402 class) in the spring of 2009. Through the class, students developed different housing designs for both multi-family and single-family units. These housing designs were presented to staff from TOKA, the Tohono O'odham Housing Authority and will be used to demonstrate how affordable housing can be culturally and environmentally responsive and meet the needs of members of the Gu Achi District and the Tohono O'odham Nation who live in the beautiful Sonoran Desert.

PROJECT INFORMATION

Established in 1996, the Tohono O'odham Ki:Ki Association (TOKA) is the Tribally Designated Housing Entity (TDHE) of the Tohono O'odham Nation and is responsible for the development of affordable housing in accordance with the Native American Housing and Self Determination Act (NAHASDA). TOKA requested that the Drachman Institute - through a technical assistance grant from the Arizona Department of Housing (ADOH) - provide master planning and design for a 640-acre site in the Gu Achi District.

"There is a word for our way of life: Himdag, our way of life is based on the land and living in harmony with the land."

- Kristina Pyclik and Jennifer Leibig
Living in No-Man's Land,
September 13, 2006, Cultural Survival Quarterly, Issue 30.3)

PROJECT GOALS

- Provide affordable housing while preserving both cultural and natural features of the landscape.
- Maintain setbacks from floodplain without under utilizing site development opportunity.
- Utilize natural, sustainable materials to create unique and appropriate dwellings.

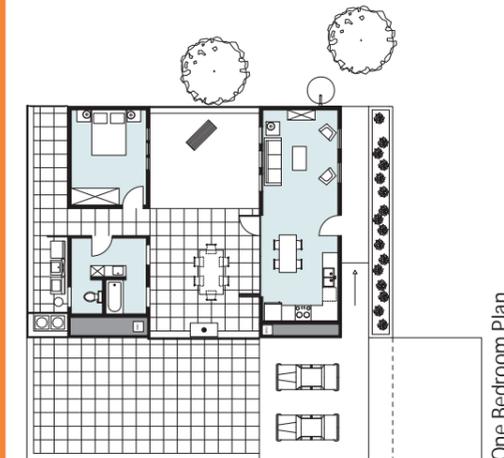
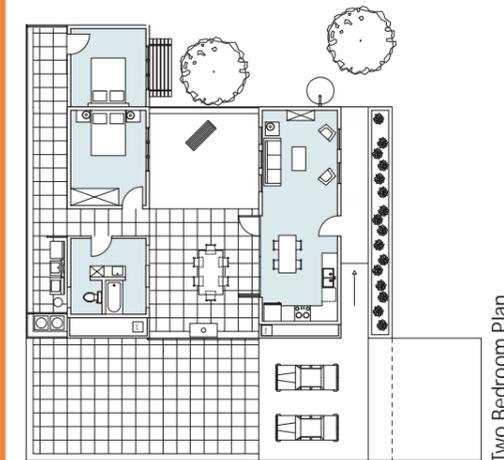
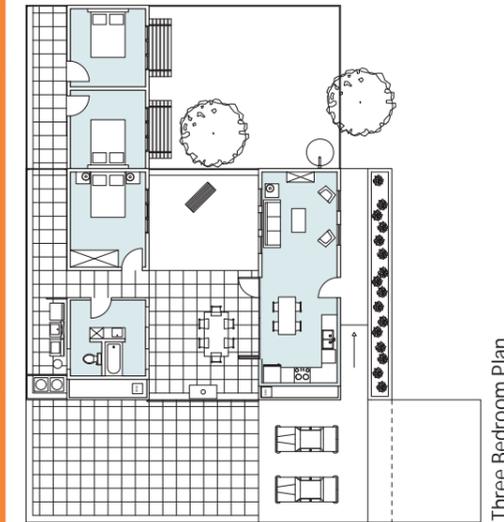


OPPORTUNITIES

Careful attention and response to a culture and environment as unique as are found in the Tohono O'odham Nation can result in affordable, sustainable, healthy communities and architecture. Aspects such as the traditional grouping of related dwellings, the incorporation of outdoor spaces for daily use and the use of local, natural, sustainable materials provide opportunities to create unique and appropriate dwellings which meet the needs of both the community being served and the sponsoring entities.

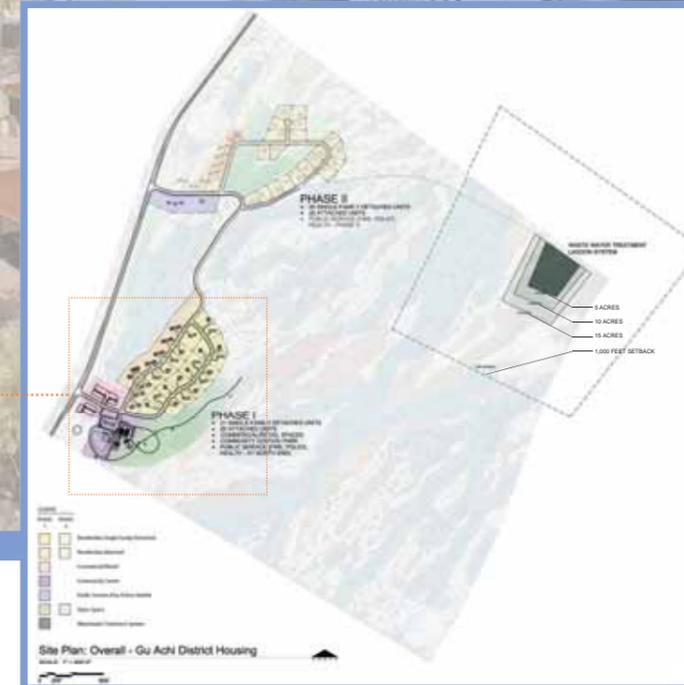
PROGRAMMATIC ELEMENTS

- 80 residences - 40 attached - 40 single-family detached
- Commercial space
- Community center
- Public services
- Open space
- Wastewater treatment facilities



Gu Achi District Housing Master Plan

TOHONO O'ODHAM NATION | SEPTEMBER 2009



HOUSING CONSIDERATIONS

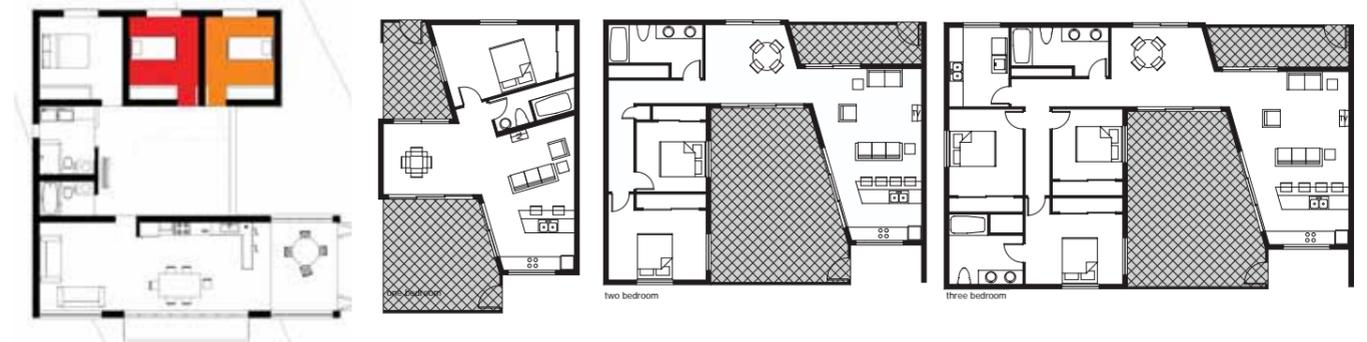
The Drachman Institute led five 4th-year professional architecture students in an intensive four-week design studio project at the University of Arizona School of Architecture (ARC 402 class). Students worked with staff from the Tohono O'odham Ki:Ki Association and the Drachman Institute to design both single family and multi-family housing prototypes.

The first step in the process was a period of intense research, through which students gained an understanding of the Tohono O'odham culture, especially with regard to their relationship with the built and natural environments – how they both influence and are influenced by their culture and society. Students then developed conceptual diagrams to abstractly and graphically demonstrate the merger of cultural significance with modern application. These diagrams became the conceptual generator for the students' architectural design response.

Finally, each student developed a culturally and environmentally sensitive design for one particular housing type. Two students designed multi-family units while three students developed single-family homes. After review by the Drachman Institute, the designs were presented to staff from the Tohono O'odham Ki:Ki Association for their review and feedback.

DESIGN CONSIDERATIONS

- Accessibility
- Thermal comfort
- Material/labor cost and local availability
- Cultural appropriateness - finding a balance between traditional and modern lifestyles as desired by residents
- Environmental appropriateness
- Integration of outdoor space
- Flexibility of design to accommodate different/ changing family sizes
- Environmental sustainability (water-harvesting, solar collection, passive solar strategies, thermal mass)
- Economic sustainability (cost of maintenance, cost of utilities, support of local economy)



Hia-Ced O'odham Master Land Use Plan

TOHONO O'ODHAM NATION | APRIL 2005

The 2005 Master Land Use Plan includes 176 lots, each between one and two acres, as seen on the right

The 2005 Master Land Use Plan was designed to be completed in 4 phases (from darkest to lightest areas, shown below):

- Phase I: 116 residential lots; park/community center
- Phase II: 60 residential lots; linear park
- Phase III: cemetery; churches
- Phase IV: economic development of commercial parcels/ additional residential lots



This Master Plan is intended to serve the purpose of expressing the Hia-Ced O'odham and Tohono O'odham Nation's desire to manage growth and establish short and long-term objectives for future development.

The plan will engage and serve the Tohono O'odham Nation, the Hia-Ced O'odham Program and Hia-Ced O'odham Advisory Committee, those charged with the development of the property, and current / future residents as a guide for everyday decision-making on issues affecting the future development of Hia-Ced O'odham ancestral land base.

WELLS



EXISTING ZONING



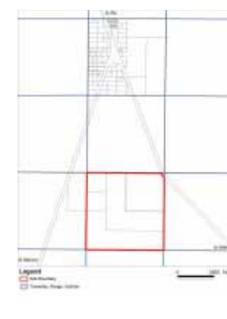
ADJACENT PROPERTY



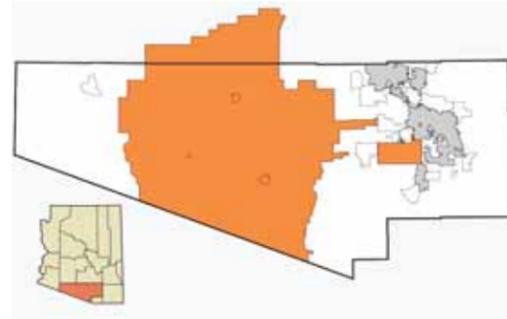
LAND OWNERSHIP



LOCATION & VICINITY MAP



Hia-Ced O'odham Program Office
Tohono O'odham Nation
P.O. Box 837
Sells, Arizona 85634

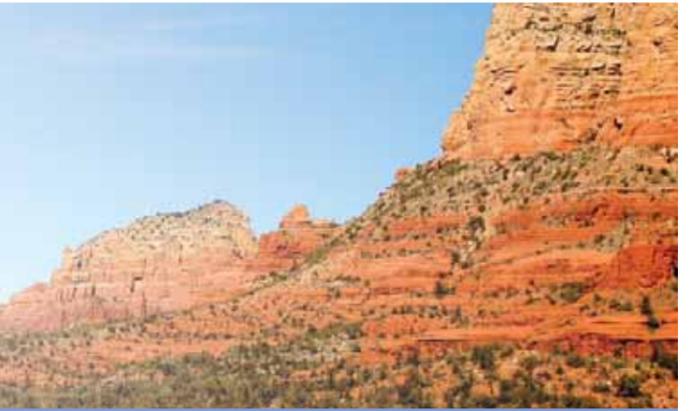


PROJECT INFORMATION

This Master Land Use Plan is written, in part, as a response to a request made to the Drachman Institute, College of Architecture and Landscape Architecture, University of Arizona, to provide outreach-planning assistance for the development of a 634-acre parcel owned by the Tohono O'odham Nation in cooperation with the Hia-Ced O'odham Program and Hia-Ced O'odham Advisory Committee.

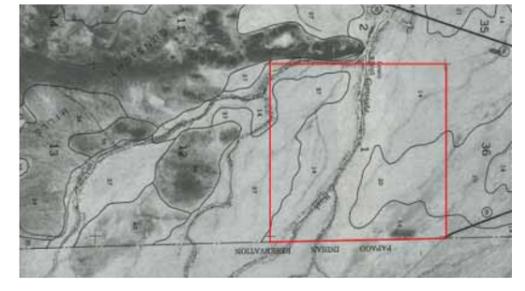
PROJECT GOALS

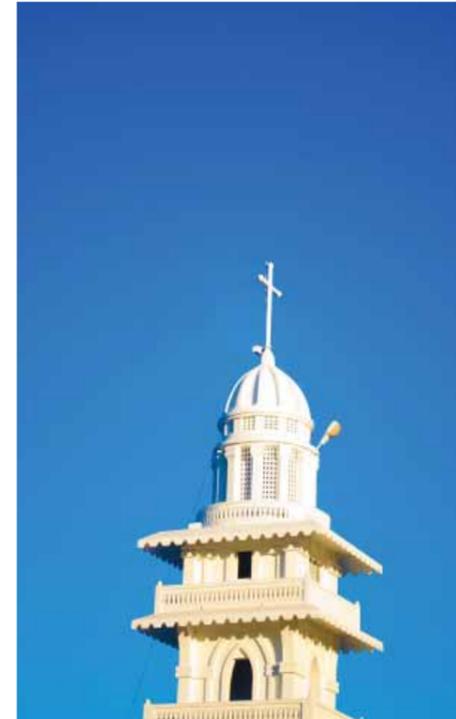
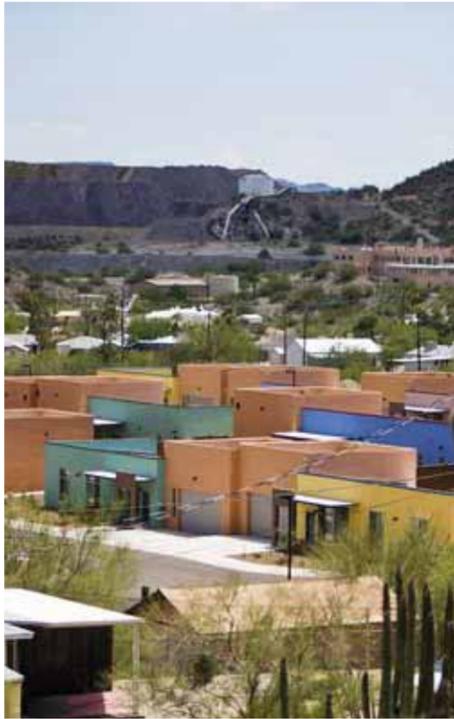
- Adequately separate residential uses from commercial land uses without sacrificing access to infrastructure.
- Encourage the clustering of extended families with shared sacred, cooking, and ceremonial spaces.
- Buffer residential/commercial lots with open space/parks.
- Reduce the grid layout of modern tract home communities by designing curvilinear streets that provide flexibility of housing setbacks.
- Provide roadways with a balance of traffic between pedestrian, bicycle, and automobile.
- Use open space/parks to encourage interconnectivity of the whole site.
- Preserve cultural and natural resources unique to the Hia-Ced O'odham.



PROJECT DETAILS

The project consists of developing a Master Land Use Plan for the reintroduction of the Hia-Ced O'odham Community to a portion of their aboriginal homeland. Incorporating studies of demography, land use, infrastructure, economics, housing, and community facilities will lead to the establishment of goals, objectives, and culturally appropriate land development strategies. The unique character of this project requires proper management and development policies established through analysis of existing conditions and an interactive participatory process to identify community needs and visions for the future.





1. RESIDENTIAL Neighborhood Concept

The Hia-Ced O'odham residential land use is based on the concept of self-sufficient neighborhoods, where people cluster their homes around family and community gathering areas with linkages to places of work, socialization, and recreation within a self-contained community. It is modeled after traditional Hia-Ced O'odham lifestyle, where walking, not driving, was the way for neighbor to visit neighbor, and where a plaza, ramada, or park is the focus of community life. The neighborhood concept functions like a Planned Unit Development or master planned community in that the neighborhood includes single-family dwellings, open space, church sites, agricultural uses, and park and playground areas. The Hia-Ced O'odham neighborhood concept should offer an alternative to urban/suburban sprawl by providing its residents with a range of attractive homes close to parks, work places, community activities, ceremonial grounds, healthcare, elder and youth centers, and locally owned shops.

Goals for open residential development:

- Provide an adequate supply of quality, safe, and sanitary housing for Hia-Ced O'odham.
- Promote quality residential development.
- Promote home ownership opportunities.
- Provide adequate housing opportunities for special needs groups and make housing available to residents of all income levels.
- Encourage the possibility of clustered extended family development.
- Discourage commercial or any other uses of land that would substantially interfere with the development or continuation of residential uses in close proximity of residential uses without the provision of appropriate buffers.

2. OPEN SPACE / PARK

The Hia-Ced O'odham is committed to developing a comprehensive open space, park, recreation facility, and trail system that will serve residents and visitors of all ages. The natural characteristics of its landforms and drainage ways will also provide numerous opportunities for parks, scenic corridor development, and a multi-use trail system that can link parks, open spaces, neighborhoods, and economic development throughout the Hia-Ced O'odham land.

The open space / park element provides a framework to identify and enhance a system of open space areas and recreation facilities within the Hia-Ced O'odham land. The system is intended to provide an appropriate level of open space / parks, identify connectivity and linkages necessary to serve existing and future residents through the use of multi-use trail corridors, and provide both passive and active recreation areas allowing the use of alternative transportation modes that enhance social interaction.

Goals for open space / park development:

- Create a balanced, accessible, and integrated system of open spaces, parks, trails, and recreational opportunities to serve the current and future needs of residents and visitors.
- Promote environmental quality through the utilization of sustainability principles that promote water and energy conservation, ensure natural habitat preservation, and protect environmentally sensitive lands.
- Protect watershed, washes, wildlife habitats, and other such resource conservation uses.

3. COMMUNITY CENTER

Safe, healthy, and well-educated individuals are the basis of a prosperous and high-quality community. Community services and facilities are vital to the economic prosperity and quality of life of Hia-Ced O'odham. The community center is intended to be the focus point of the community where people naturally gather. The community center could house functions such as a: Cultural Center, Museum, Elderly Care Center, Counseling and Rehabilitation Center, Health Services Clinic, a outdoor Cooking Area, and to serve as a temporary church location. The community center is also intended to provide expanded education and childcare opportunities, through the possible introduction of a library or day care facility. Connectivity to residential areas is very important and must include pedestrian and bicycle paths.

Goals for the community center development:

- Promote and educate others about the history of the Hia-Ced O'odham.
- Provide a full range of educational opportunities that foster a positive cultural identity.
- Provide access to a broad array of social services including counseling, day care, and healthcare.

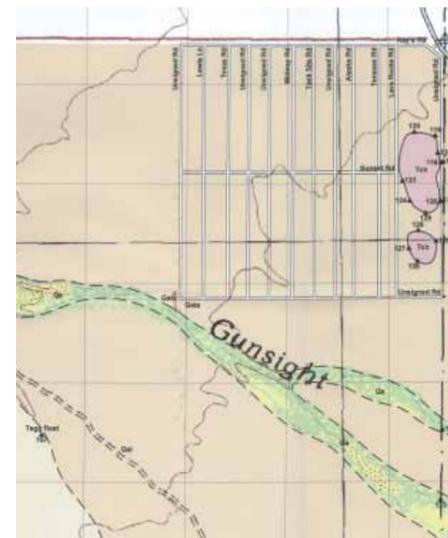
4. AGRICULTURE USES

Agriculture Uses Concept

All areas within the FEMA Floodplain are designated for agricultural uses, whether on private or public property. Agriculture uses are intended to include storing or grazing of animals, growing of seasonal crops, and recreational uses such as equestrian riding. The reintroduction of agriculture uses on-site also provides an educational opportunity for youth.

Goals for agriculture uses development:

- Reintroduction of agricultural traditions on native Hia-Ced O'odham homeland.
- Allow residents to grow and foster their own food.
- Provide adequate space for housing of animals.



5. CHURCH SITES

Church Concept

Introduction of a variety of religious opportunities on-site will further develop the concept of a community. Two to three churches will be scattered throughout the residential area in close proximity to residential homes. Community members shall be encouraged to volunteer in the construction and operation of the church functions.

Goals for church development:

- Provide a diversity of religious opportunities on-site.
- Place in close proximity to residential uses to encourage residents to walk and bike to church.

6. CEMETERY

Cemetery Concept

An important component of cultural heritage are burial traditions, because they often include cultural artifacts and items that are of significance to the people. Ceremonial grounds are traditional cultural places or landscapes that have significant meaning to a cultural group and often incorporate aspects of the natural and the human-made worlds.

Goals for cemetery development:

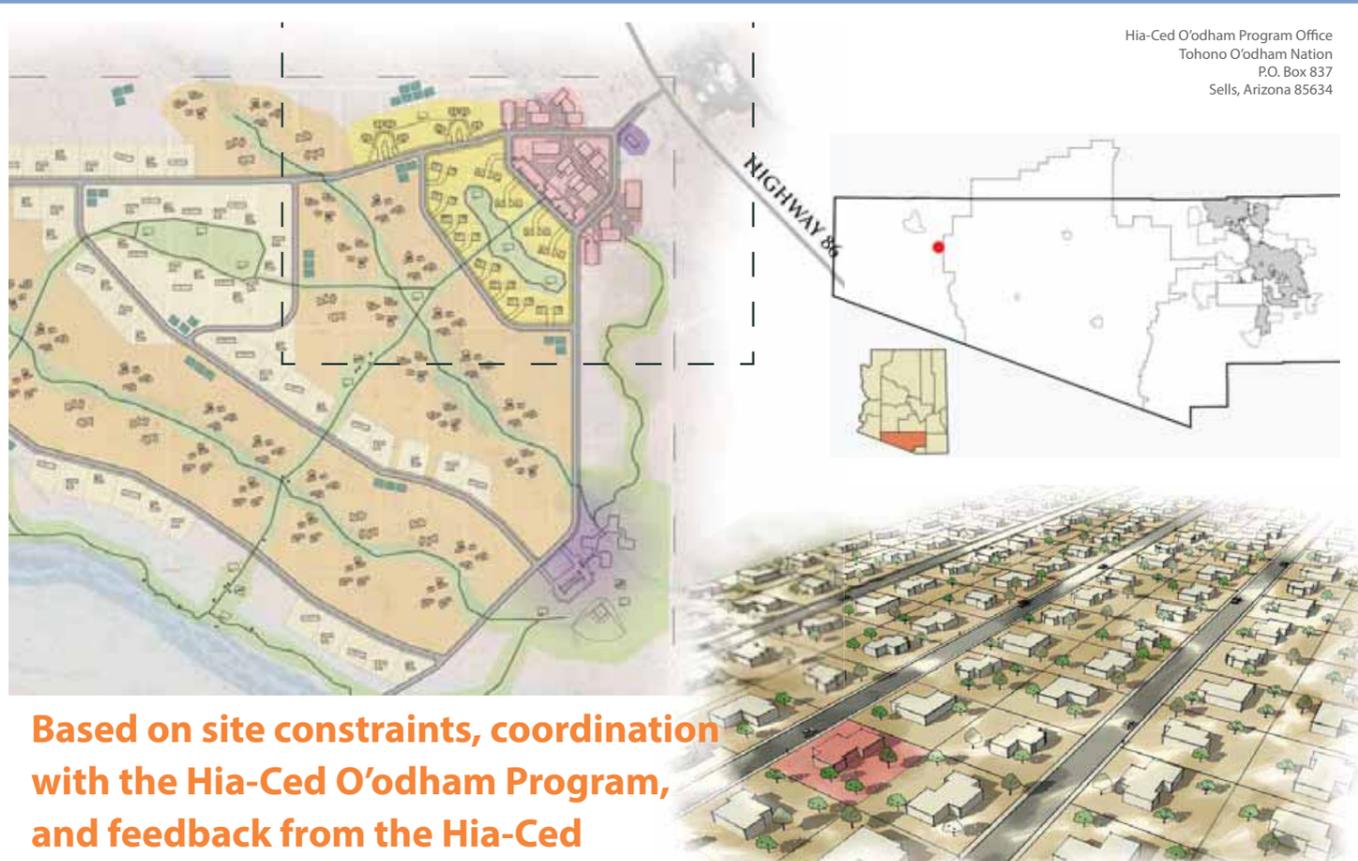
- Conserve, protect, and preserve cultural resources.
- Preserve, support, and reinforce Hia-Ced O'odham traditions.
- Integrate elders into the cultural education of younger Tribal Members.
- Promote a secluded Hia-Ced O'odham cemetery.

7. COMMERCIAL Commercial Concept

The economic developmental vision of the Hia-Ced O'odham is to become a vital economic center. Focused economic developmental efforts can lead to a strong and diversified economy, resulting in quality jobs, viable and safe neighborhoods, planned communities, a sustainable natural resource base, adequate infrastructure, ample entrepreneurial opportunities, sufficient capital, a nurtured cultural heritage, a well-educated and highly trained labor force, and an expanded tax base. The commercial land use designation is established to include various types of commercial activities that provide the outlets for commodities, personal services, professional services, gaming, and other business.

Goals for commercial development:

- Encourage services, economic opportunities, economic diversity, and meaningful employment by supporting a competitive advantage for economic growth and job creation for the Hia-Ced O'odham.
- Diversify the Tohono O'odham Nation's economic base.
- Foster entrepreneurial environment of productivity and innovation that promotes start-up business among Tribe Members.
- A labor force qualified to meet the present and future needs of the Tribe.



Hia-Ced O'odham Program Office
Tohono O'odham Nation
P.O. Box 837
Sells, Arizona 85634

Based on site constraints, coordination with the Hia-Ced O'odham Program, and feedback from the Hia-Ced O'odham Advisory Committee and other community members, the Drachman Institute developed a series of alternate site plans that included residential, commercial, and community development. The primary focus of this plan was to develop a prototype community that exemplifies the best of sustainability, culture, community connectivity, and appropriate land use.

The site, housing, and community designs and principles were presented to the Hia-Ced O'odham Advisory Committee and other community members through a series of public community meetings. Their feedback resulted in a final recommended master site plan and multiple housing design concepts.

PROJECT INFORMATION

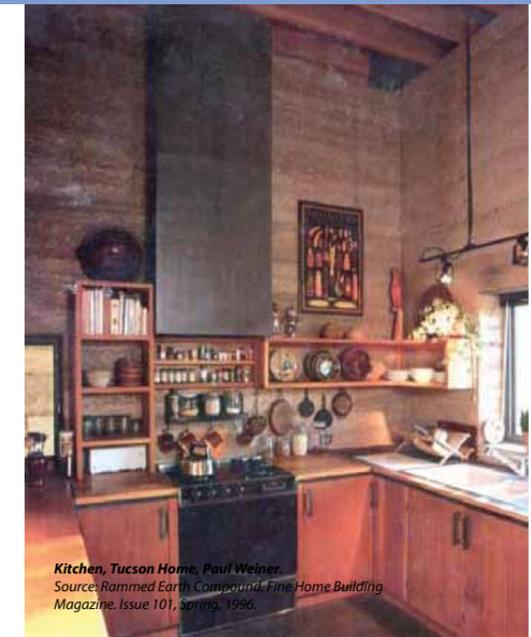
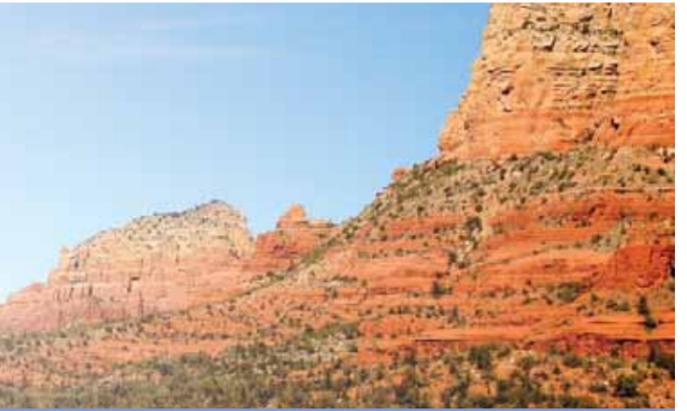
In 2003, based on the work of the Hia-Ced O'odham Program to acquire aboriginal lands of the Hia-Ced O'odham, the Tohono O'odham Nation purchased a 642.27-acre site near Why, Arizona as a "home base" for the Hia-Ced O'odham. This parcel of land recently received Federal Trust Land status, and as such has all the legal rights and privileges of land within the Tohono O'odham Nation. The site is located in southern Arizona, one mile south of Why, Arizona. It is contiguous to the western border of the Tohono O'odham Nation and can be accessed directly from Highway 86. The site's western boundary is within close proximity to Highway 85. The site is a full section of land - approximately one square mile or 642.27 acres.

PROJECT GOALS

- Establishing and sustaining a sense of community unity, and longevity.
- Allow for ease of residential expansion and development while respecting existing housing.
- Expressing the ideals of the Hia-Ced O'odham in use of materials and uniqueness of place.

HOUSING DESIGN

The traditional lifestyle of the Hia-Ced O'odham is inherently sustainable. Life adapts to the changing of the seasons and to the particular landscape. Structures are small, built with local, natural materials, and use properties of thermal mass and shade to stay cool. While modern civilization offers new amenities and technologies, the principles that have made life and building sustainable in the past should not be ignored. The Hia-Ced O'odham community must offer safe, affordable housing options for its members. Designing affordable homes for the desert should be an exercise in material applications, passive solar strategies, and creating indoor/outdoor spaces. The homes should be expressive of the Hia-Ced O'odham culture and appropriate to the place.



*Kitchen, Tucson Home, Paul Weiner.
Source: Rammed Earth Compound, Fine Home Building Magazine, Issue 101, Spring, 1996.*

SITE PROGRAMMING AND PHASING

The main programmatic focus of the Hia-Ced O'odham community is residential development. Residential life however, must be supported by a vibrant community and economy. A combination of residential, commercial, and community services must be brought together to create a healthy and balanced community.

CONNECTION TO LAND AND PEOPLE

Offering affordable housing does not mean sacrificing quality, cultural relevance, or environmental responsiveness. The Hia-Ced O'odham community homes should evoke a sense of place, reflecting the uniqueness of this community. The Hia-Ced O'odham culture is expressed in the language, the crafts, and the spirituality of the people. It should also be expressed in their homes. Distinctive aesthetic and material choices should serve to create a sense of place and allow for individual expression in the home. Designs should facilitate family gatherings and ritual ceremonies in order to facilitate the further expression of culture and traditions.

Hia-Ced O'odham Community Master Plan + Housing Design

TOHONO O'ODHAM NATION | JANUARY 2010

HOUSING CONCEPTS

Home designs are focused on the integration of indoor and outdoor space, long-term affordability, and ease of expansion and renovation. In the following diagrams, spaces are colored as indicated:

PARK

These single-family homes incorporate lots of outdoor space and ease of expansion through addition of bedrooms.

RADIAL

These homes can be built separately or share walls. The design accommodates growth through the easy addition of bedrooms.

COURTYARD

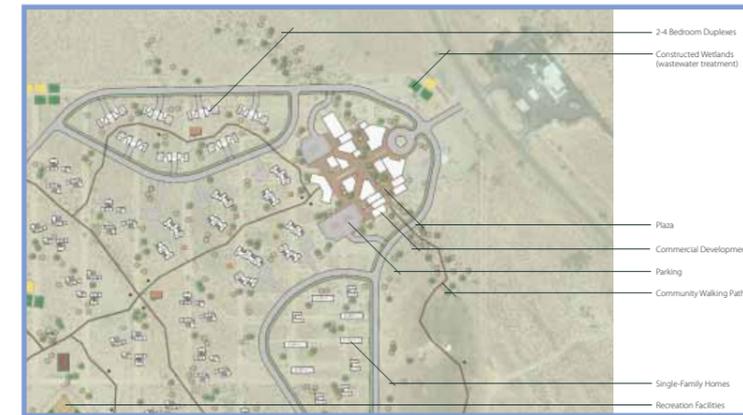
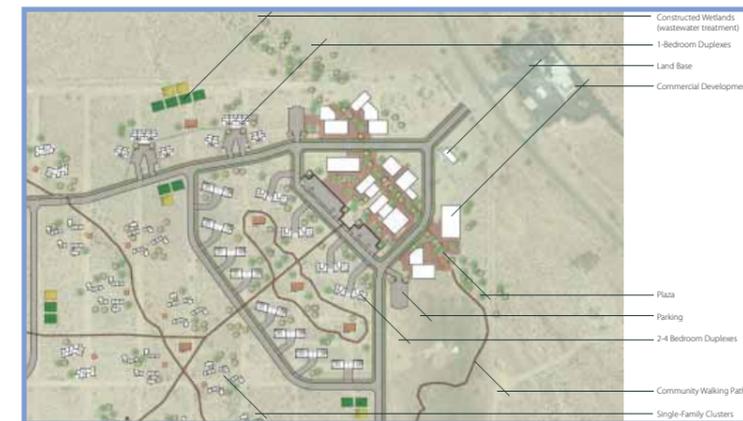
A large outdoor space adjacent to the main living space is central to the design of these homes.

DUPLEX

The duplexes are designed to offer privacy and distinctive living space with the space-saving and energy-efficiency benefits of sharing a wall.



Naturally lit living room, adobe home in Montecito, Will Bruder. Source: http://www.aznativeproperties.com/RooPho_new/Fatured_Listings/10620_W_Montecito/10620_W_Montecito.htm 29 Jan, 2010.



Preserve and Enhance the Site's Natural Features- particularly as they relate to washes and view sheds so that the natural character of the site can be enjoyed for generations to come.

Rehabilitate Scarred Land in areas disturbed by previous development.

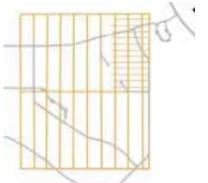
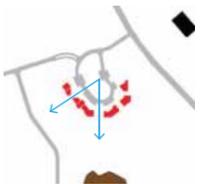
Manage Water Responsibly - by minimizing the amount of water drawn from the aquifer through responsible water management practices.

Emphasize Walkability and Connectivity - by creating a community that encourages pedestrian activity through a network of trails and paths.

Create a Hierarchy of Public and Private Spaces - so that both visitors and residents can easily and intuitively orient themselves.

Provide Community Amenities that meet the basic needs of residents, draw visitors to the site, and provide jobs for local residents.

Incorporate Flexibility in Phasing and Development so that the community can smoothly transition as it grows and develops.



SITE DEVELOPMENT PHASING

It is likely that the Hia-Ced O'odham community, with 200+ homes, a community center, and commercial development, will not be built in a single phase, but will be built over a period of time as needs and funding allow. The design needs to allow for flexibility in phasing to ensure that the community can be a success with 20 homes or 200 homes.

PHASE 1



PHASE 2



PHASE 3

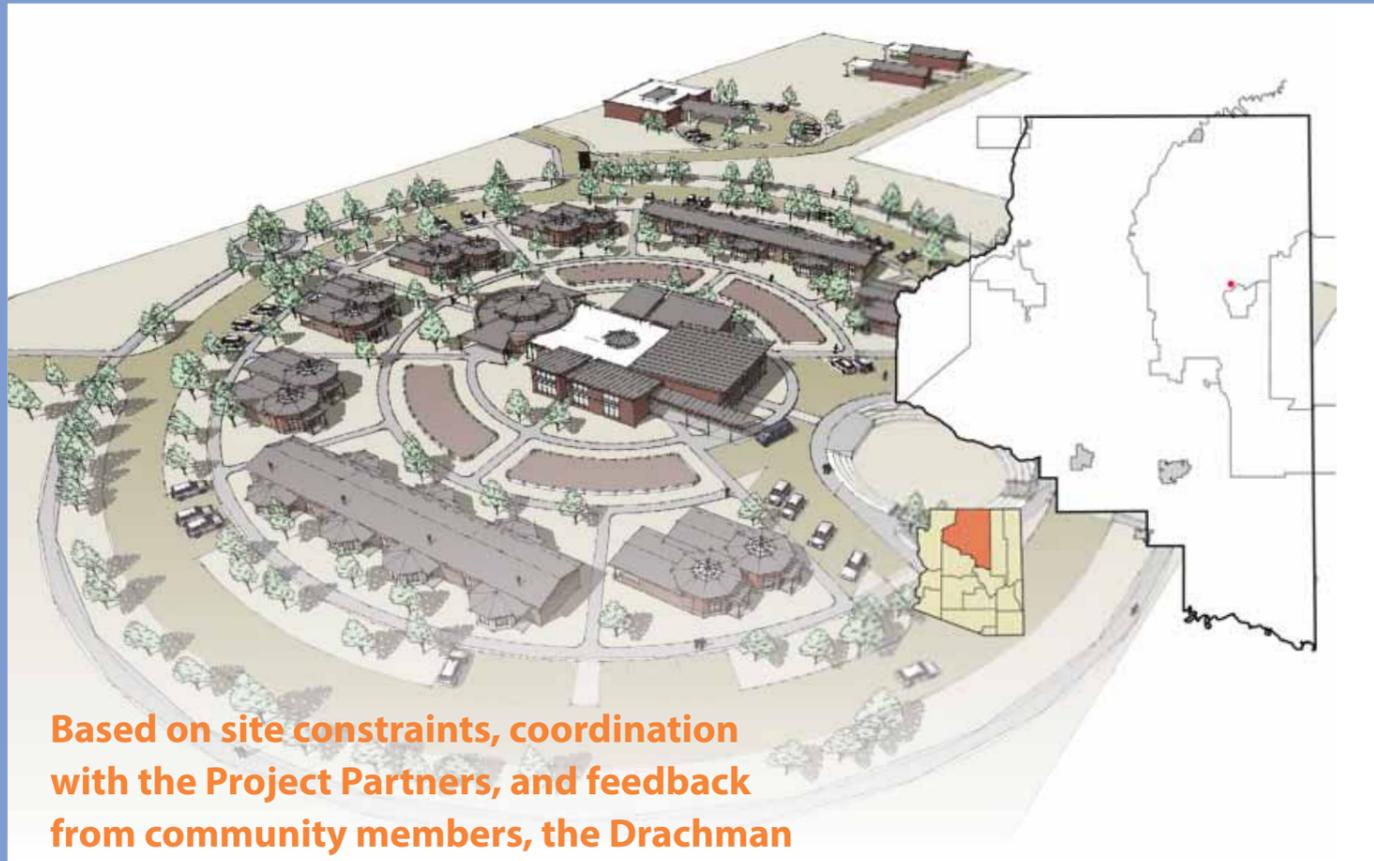


PHASE 4



PHASE 5





Based on site constraints, coordination with the Project Partners, and feedback from community members, the Drachman

Institute developed a series of alternate

site plans that included residences, a community senior center, a health center, on-site staff housing, outdoor ceremonial space, outdoor recreational space, parking, and loading space. Additionally, the Drachman Institute developed alternate architectural designs for the independent senior living residences and community senior center.

The site plans and architectural designs and principles were presented to the Project Partners and other community members through a series of public community meetings and charrettes. Their feedback resulted in a final recommended master site plan and architectural designs. The primary focus of the plan was to develop a prototype community that exemplifies the best of sustainability, culture, and community connectivity for the "Elderlies" in the Kaibeto region.

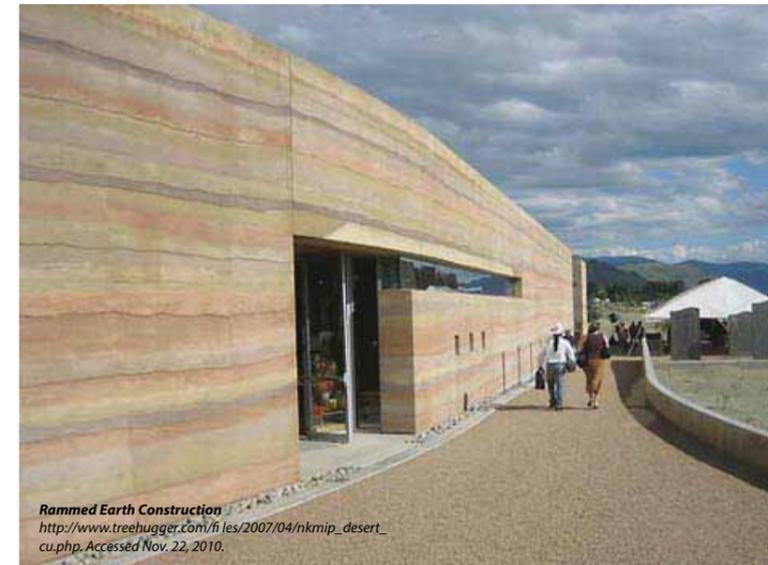
PROJECT INFORMATION

After years of discussion and ideas, the Kaibeto Chapter of the Navajo Nation, the Tuba City Regional Health Care Corporation, and the Foundation for Senior Living (Project Partners) established the Kaibeto Creek Community, LLC in the summer of 2009 as a partnership to engage in the planning and establishment of an independent senior living community. The concept for the community included independent senior residences, a common house, and a health clinic. In September 2009, the Arizona Department of Housing accepted an application from the Project Partners for a technical assistance grant to work with the Drachman Institute to develop a schematic master plan as well as architectural schematic design for the senior residences. In November 2009, the Drachman Institute developed a Scope of Work which established the design collaboration with the Project Partners on this project.



PROJECT GOALS

- Create a comfortable and accessible home for seniors.
- Create a culturally responsive design that both reflects and respects the traditions and way of life of future residents.
- Use materials and forms that are environmentally responsive during and after construction.
- Provide physical and mental health care to the senior community.
- Provide opportunities for community gathering and socialization within the senior community.



Rammed Earth Construction
http://www.treehugger.com/files/2007/04/nkmp_desert_cu.php. Accessed Nov. 22, 2010.

PROJECT DETAILS

In coordination with the Kaibeto Chapter Senior Center annual Thanksgiving event on November 23, 2010 at the Kaibeto Chapter House, Drachman Institute staff made a final presentation to Chapter leaders, Tuba City Regional Health Care Corporation staff, Foundation for Senior Living representatives, and members of the Kaibeto community. Information regarding the site that was selected by the Project Partners, a cultural study and review, examples and case studies of similar projects, and initial design concepts were briefly reviewed, as were survey results, design charrette results, and the design program and goals. Based on the feedback received by community members at previous presentations, through the surveys, and feedback from the Project Partners throughout the process, Drachman Institute staff presented final schematic designs for the overall site, the senior center and common house, and the individual residential units. More than 70 people were in attendance. Comments from community members during the presentation indicated their support in moving the project forward.



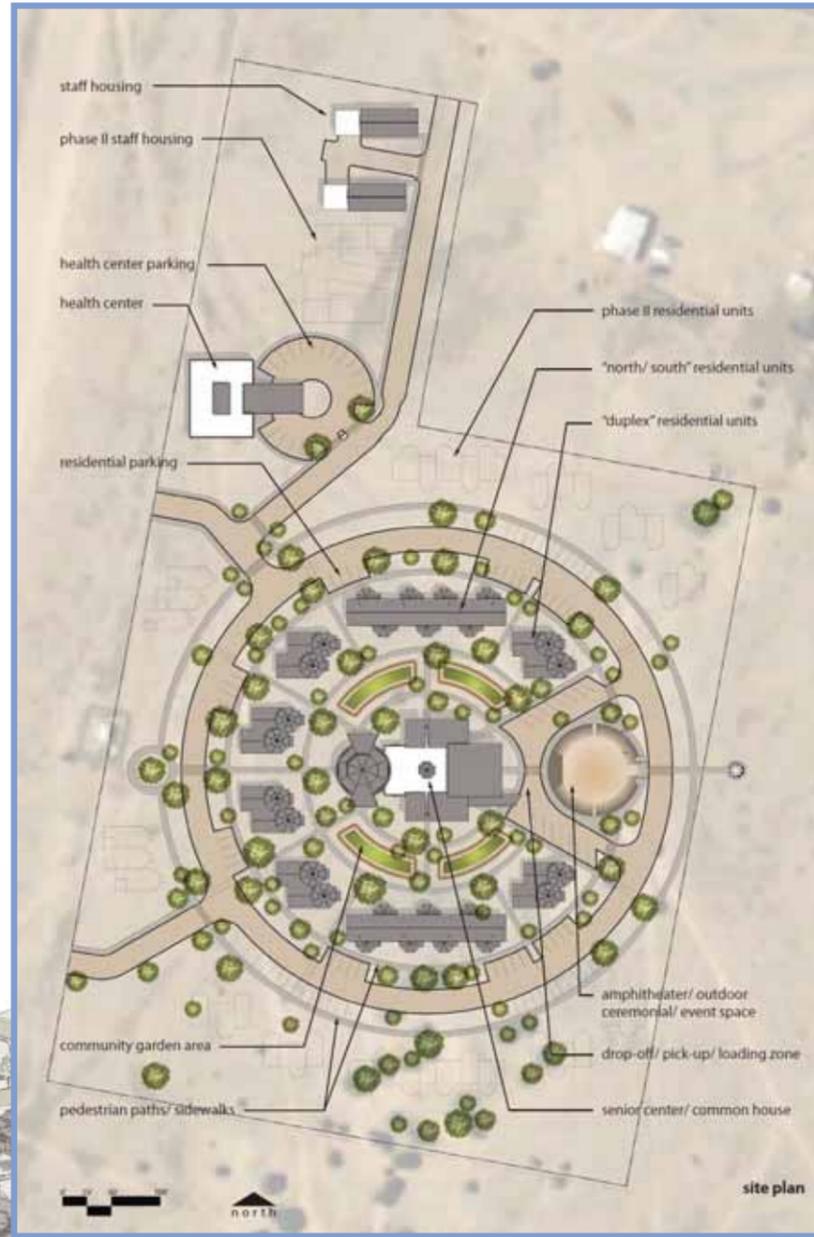
Community Housing Activities - Brainstorming sessions with local members of the Navajo nation lead to intuitive design ideas that can be changed quickly to acknowledge existing needs and integrate solutions for neighborhood development.

Kaibeto Creek Community Senior Housing + Master Site Plan

NAVAJO NATION | NOVEMBER 2010

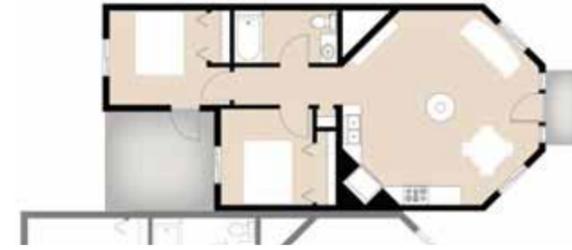
MASTER PLAN

- Organized around a central "hogan" (senior center) in a radial pattern
- Two connected vehicle entrances/ exits
- Pedestrian connection along cardinal directions leading to central "hogan" (senior center)
- Continuous loop drive around the perimeter with drop-off / pick-up/ loading zones at east entrance area
- Separate health center
- Parking near each unit and near senior center and health center
- Staff housing on site at north end
- Outdoor amphitheater/ ceremonial space at east end with seating, flag poles, and east-facing stage
- Community garden areas north and south of senior center
- 26 residential units: (6) 1-bedroom units & (20) 2-bedroom units



SENIOR CENTER/ COMMON HOUSE FEATURES:

- **Reception area:** includes reception workspace, seating, tables, etc.
- **Director's office:** includes workstation/ desk and table with seating for private meetings with clients, etc.
- **Staff offices:** includes workstation/ desk for three staff and a lockable storage room
- **Art studio and gallery:** includes workspace/ table and chairs, cabinets/ shelving for storage, display space, and a gift shop
- **"Hogan" lounge:** includes 'hearth' or fireplace, chairs, couches, etc.
- **Patio:** includes space and furniture for outdoor eating and lounging
- **Dining/ multi-purpose room:** includes space for classes, games, dancing, dining, and other events; includes storage rooms
- **Kitchen:** includes commercial cooking equipment, refrigerator and freezer, pantry/ food storage, and meal preparation space/ tables
- **Chapel:** multi-denominational worship or contemplation space
- **Media room:** includes TV, computers, couches, and library
- **Exercise room:** includes spa, sauna, and exercise equipment
- **Restrooms:** includes restroom facilities plus showers and changing areas
- **Laundry:** includes laundry equipment for all residents, sink, and counter/ table for folding



DUPLIX UNIT FEATURES:

- All units have individual hogan-style front room
- All individual entrances face east
- Covered front entrances
- Private back porch area
- Accessible design
- Full-size kitchen
- Suspended fireplace in center of hogan-style front room
- 2-bedroom, 1-bath: 840 square feet



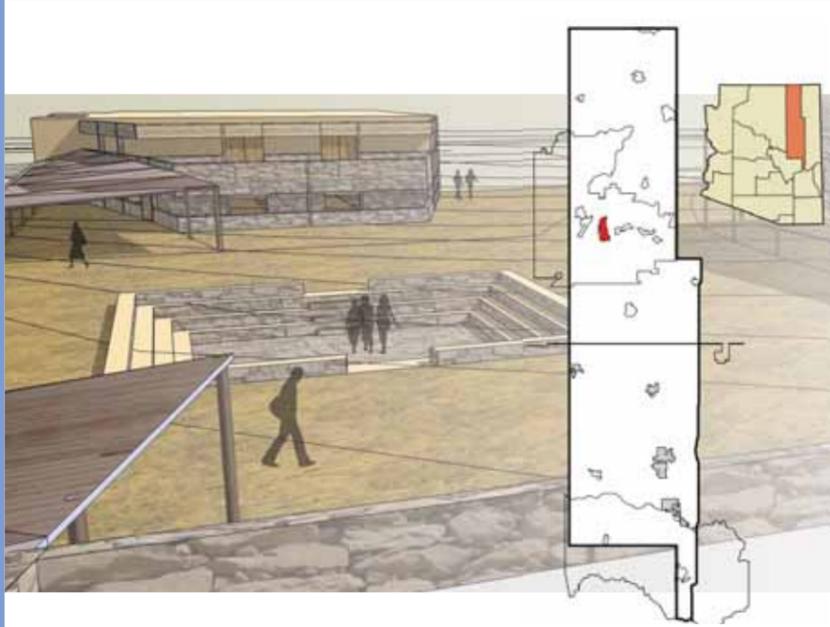
NORTH/SOUTH UNIT FEATURES:

- All units have individual hogan-style front room
- All individual entrances face east
- Covered front entrances
- Accessible design
- Suspended fireplace in center of hogan-style front room (1-bedroom units); corner fireplace in 2-bedroom units
- Full-size kitchen in 2-bedroom units; kitchenette in 1-bedroom units
- North & south solar exposure with clerestory natural light in each unit
- 2-bedroom, 1-bath: 830 square feet; 1-bedroom, 1-bath: 590 square feet



Sipaulovi Village - Lower Village Community Plan

HOPI NATION | SPRING 2007



In an effort to plan for the future, a master plan for a 15-acre commercial site as well as ideas concerning a master plan for Sipaulovi Village was requested of the Drachman Institute by Leonard

Talaszaima, President of Sipaulovi Board of Directors in August, 2006. Drachman staff guided a fifth year architecture student in developing the designs.

Site visits were made by Drachman staff and students in August and September, and discussions with a village grant writer, led to community multipurpose facilities for an adjacent site to be included in the program. The Sipaulovi Development Corporation held a community meeting in January 2007 for the Drachman Institute to present their draft of the master plan for the 15-acre site, and comments made by community members were incorporated into the final design. Ideas were developed for the village plan with an emphasis on new development that addressed the need for housing and facilities to support activity in the Upper Village. This final product serves as a guide for Sipaulovi to make these ideas a reality.

PROJECT INFORMATION

The project is developed around the request of the Village of Sipaulovi for a visionary master plan for their village. Sipaulovi is aspiring to aid and develop their village in such a way that promotes with community values as well as brings new assets to the population. As Sipaulovi needs additional homes for 180 people over the next ten years, a dwelling prototype will be developed to accommodate housing at all levels, corresponding to the site and social conditions of each. Most of the houses will be located at the base of the mesa, as space is limited on the top levels due to sacred sites and clan ownership. However, there are several specific possibilities for new housing on the middle level as well as intermittent dwelling units just below upper mesa to accommodate Hopi who live off the reservation, but wish to stay for short periods of time during ceremonies and community events. These dwellings can also serve the current residents of the area who might need temporary accommodation while older structures are rehabilitated. A bath house, to serve residents as well as visitors, is a necessary addition to maintain life and activity at the upper mesa level. These design components will be used as a guideline to facilitate the sustainability of Sipaulovi.

CONCEPTUAL DIAGRAM

The program is divided into three categories: commercial, community, and residential. These elements are organized on the site according to conditions such as location of the highway and existing structures, topography, drainage, view, privacy, and daylight. This results in three “veins” that stretch down the slope along highway 87. The veins move and curve with the land, forming paths and connections between the programmatic elements.

PROJECT GOALS

- Create new development that responds to cultural, environmental, and economic conditions.
- Incorporate spatial notions of plazas and social interaction, a sense of memory of traditions and local materials.
- Draw relationship between development and views + natural features of the site.
- Incorporate environmental responses such as use of passive strategies for thermal comfort.
- Use green building guidelines that reduce water and energy use and facilitate a sustainable relationship with the environment.
- Program 15-acre site to be an economic generator as well as an attraction for tourists, serving as a gateway and learning center before visiting mesa villages.

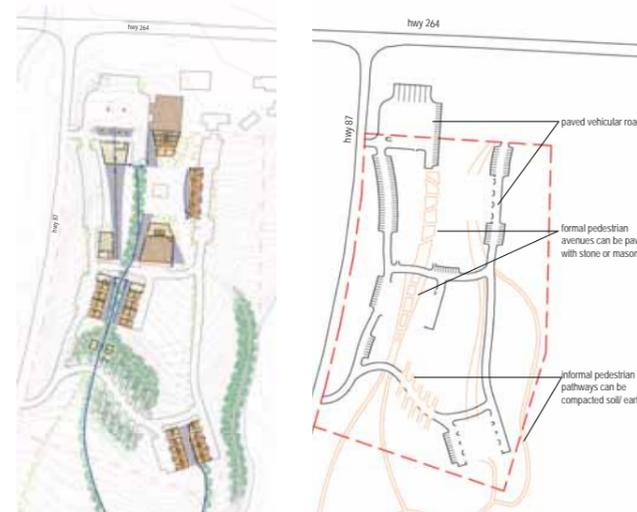


PROJECT DETAILS

The program is divided into three categories: commercial, community, and residential. These elements are organized on the site according to conditions such as location of the highway and existing structures, topography, drainage, view, privacy, and daylight. This results in three “veins” that stretch down the slope along highway 87. The veins move and curve with the land, forming paths and connections between the programmatic elements.

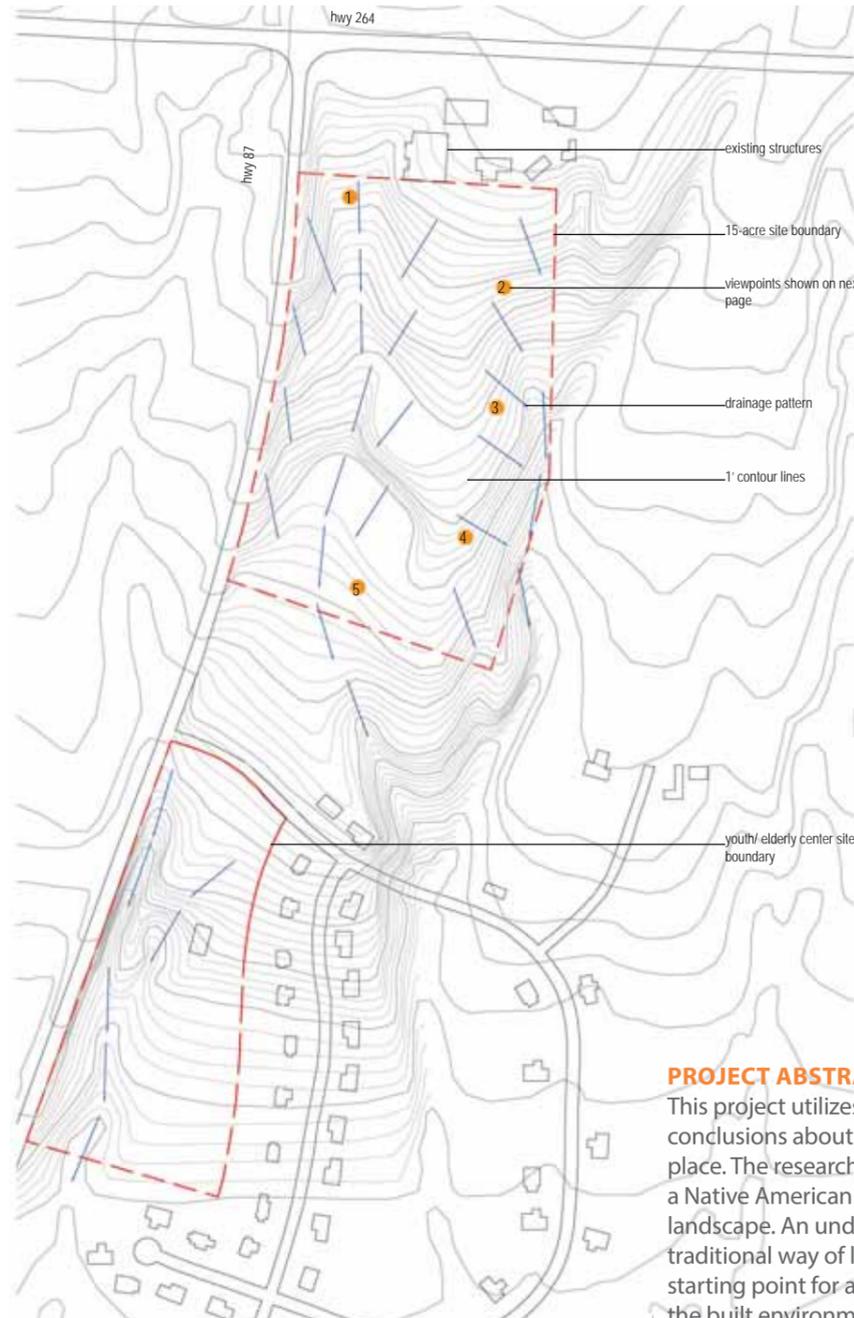
The commercial vein is closest to the highway, making the gas station, convenience store, artist marketplace, hotel, and restaurant visible to vehicular traffic. The middle vein includes offices and stores for the community as well as tourists, a visitor center, and an indoor multi-purpose building.

The vein farthest from the highway is the residential one. It includes artist studios where village members can both live and work, and apartments. The three veins intersect at an outdoor amphitheater, representing the meeting point for visitors and the community. This point can serve as a center for exchange of culture and ideas.

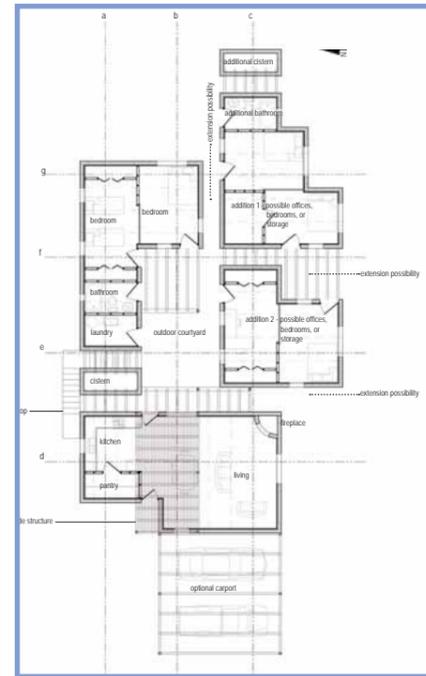


Sipaulovi Village - Lower Village Community Plan

HOPi NATION | SPRING 2007



PROTOTYPE FAMILY DWELLING



PROJECT ABSTRACT

This project utilizes both research and design to draw conclusions about the relationship between dwelling and place. The research component will offer critical insight into a Native American culture, the Hopi, as well as perceptions of landscape. An understanding of the culture, especially their traditional way of life within their homeland, will provide a starting point for applying this knowledge in the design of the built environment. This built environment is one that, in the case of the Hopi, has been evolving for hundreds of years, and is now at a point where re-evaluation of influential forces is a necessary consideration when attempting to maintain traditional values within the community.



DWELLING UNITS



Soaring shade structures not only gather rainwater and attention from the highway, but link the components of the site allowing for flexible space that can be used to exhibit goods, cook and sell food, to relax, dine, and more.



The amphitheater steps down into the ground to mark a node for both formal and informal meetings and events, serving artists, the community, office employees, farmers, and even visitors.

PROPOSED DEVELOPMENT



PROJECT DETAILS

Primary development standards identified by Sipaulovi Village members include concern for cultural, environmental, and economic conditions. Therefore, new development should be an appropriate response to these conditions, and design should not only respond but contribute in a positive manner. Cultural considerations for this project included the incorporation of spatial notions of plazas and social interaction, a sense of memory of traditions, local elements such as sandstone, and relationship with the landscape in terms of views and engagement with the natural features of the site. Environmental responses, such as the use of passive strategies for thermal comfort and green building guidelines that reduce water and energy use facilitate a sustainable relationship with the environment. The 15-acre site was programmed and designed to be an economic generator as well as an attraction for tourists, serving as a gateway and learning center before they go on to visit the mesa villages. Concern for the expense of new development was also considered, keeping structures modest. Thoughtfulness in terms of incorporating all these ideas was important because Sipaulovi Village can serve as a good example of the potential of the built environment in this landscape.

