Sipaulovi Village, Hopi Nation SDAT

Sipaulovi Village, AZ

May 2012

AIA Communities by Design

ENVISION. CREATE. SUSTAIN.

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AIA Communities by Design

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INTRODUCTION

In December of 2011, Sipaulovi Village submitted a proposal to the American Institute of Architects (AIA) for a Sustainable Design Assessment Team (SDAT) to assist the community and its citizens in addressing key issues facing the community. The AIA accepted the proposal and, after a preliminary visit by a small group in January 2012, recruited a multi-disciplinary team of volunteers to serve on the SDAT Team. In May 2012, the SDAT Team members worked closely with local officials, community leaders, and citizens to study the community and its concerns. The team used its expertise to frame a wide range of recommendations, which were presented to the community in a public meeting. This report represents a summary of the findings and recommendations that were presented to the community.

The Sustainable Design Assessment Team (SDAT) Program

The Sustainable Design Assessment Team (SDAT) program focuses on the importance of developing sustainable communities through design. The mission of the SDAT program is to provide technical assistance and process expertise to help communities develop a vision and framework for a sustainable future. The SDAT program brings together multidisciplinary teams of professionals to work with community stakeholders and decision-makers in an intensive planning process. Teams are composed of volunteer professionals representing a range of disciplines, including architects, urban design professionals, economic development experts, land use attorneys, and others. Today, communities face a host of challenges to long-term planning for sustainability, including limited resources and technical capacity, ineffective public processes and poor participation. The SDAT approach is designed to address many of the common challenges communities face by producing long-term sustainability plans that are realistic and reflect each community's unique context. Key features of the SDAT approach include the following:

- **Customized Design Assistance.** The SDAT is designed as a customized approach to community assistance which incorporates local realities and the unique challenges and assets of each community.
- **A Systems Approach to Sustainability.** The SDAT applies a systems-based approach to community sustainability, examining cross-cutting issues and relationships between issues. The SDAT forms multi- disciplinary teams that combine a range of disciplines and professions in an integrated assessment and design process.
- **Inclusive and Participatory Processes.** Public participation is the foundation of good community design. The SDAT involves a wide range of stakeholders and utilizes short feedback loops, resulting in sustainable decision-making that has broad public support and ownership.

- **Objective Technical Expertise.** The SDAT Team is assembled to include a range of technical experts from across the country. Team Members do not accept payment for services in an SDAT. They serve in a volunteer capacity on behalf of the AIA and the partner community. As a result, the SDAT Team has enhanced credibility with local stakeholders and can provide unencumbered technical advice.
- **Cost Effectiveness.** By employing the SDAT approach, communities are able to take advantage of leveraged resources for their planning efforts. The AIA contributes up to $15,000 in financial assistance for each project. The SDAT team members volunteer their labor and expertise, allowing communities to gain immediate access to the combined technical knowledge of top- notch professionals from varied fields.

The SDAT program is modeled on the Regional and Urban Design Assistance Team (R/UDAT) program, one of AIA's longest-running success stories. While the R/UDAT program was developed to provide communities with specific design solutions, the SDAT program provides broad assessments to help frame future policies or design solutions in the context of sustainability and help communities plan the first steps of implementation. Through the Design Assistance Team (DAT) program, over 500 professionals from 30 disciplines have provided millions of dollars in professional pro bono services to more than 200 communities across the country. The SDAT program leverages the pivotal role of the architectural community in the creation and support of sustainable livable communities.

The following report includes a narrative account of the Sipaulovi Village SDAT project recommendations, with summary information concerning several principle areas of investigation. The recommendations are made within the broad framework of sustainability, and are designed to form an integrated approach to future sustainability efforts in the community.

Executive Summary

OVERVIEW

The Hopi people have developed a rich cultural life, living sustainably in harmony with their environment for over a millennium. The Hopi nation covers 1.5 million acres, with most of the population in 12 semi-autonomous villages on and adjacent to three mesas. Sipaulovi Village is one of these 12 villages, located in the middle of three villages on Second Mesa and close to the geographic center of the Hopi reservation.

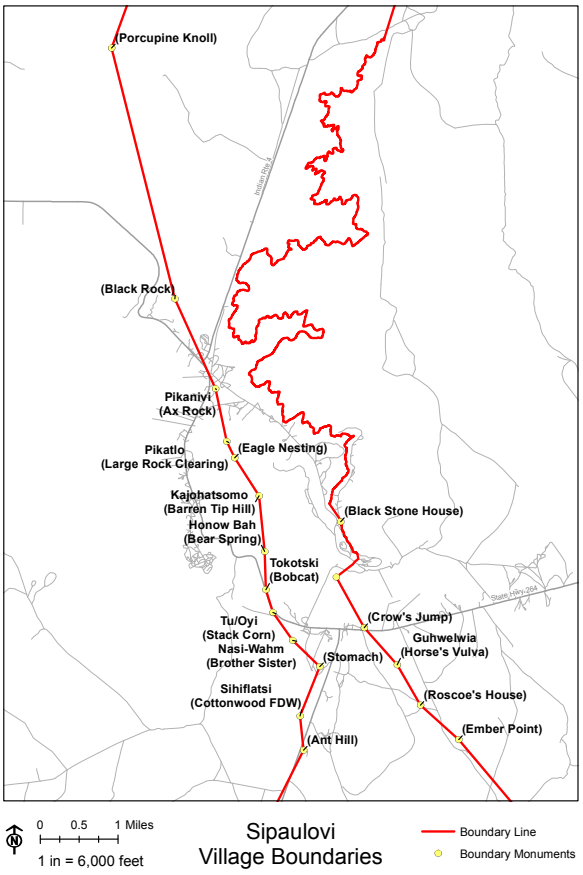
In the Hopi context, sustainability has included maintaining Hopi culture while simultaneously adapting to the challenges and opportunities of the larger world. Adapting to the challenges and opportunities includes reaching out to learn from experiences and approaches used elsewhere.

"We will take the best things from others to add to our knowledge....The path of life for Hopi has already been laid for us. If you follow the path you get through the hard times in life."
--Leonard Talaswaima, Vice President, Sipaulovi Village Board of Directors

In December 2011, Sipaulovi Village and Sipaulovi Development Corporation applied to the AIA for a Sustainable Design Assessment Team project. Sipaulovi requested help in developing its first Master Land Use Plan for the entire village, with an emphasis on the lower village. AIA was pleased for the opportunity to assist. The Sipaulovi Village AIA SDAT report begins five steps necessary for Sipaulovi Village to create a Land Use Plan. More work is necessary for each step, as outlined in the full report.

Sipaulovi Village boundary mapping

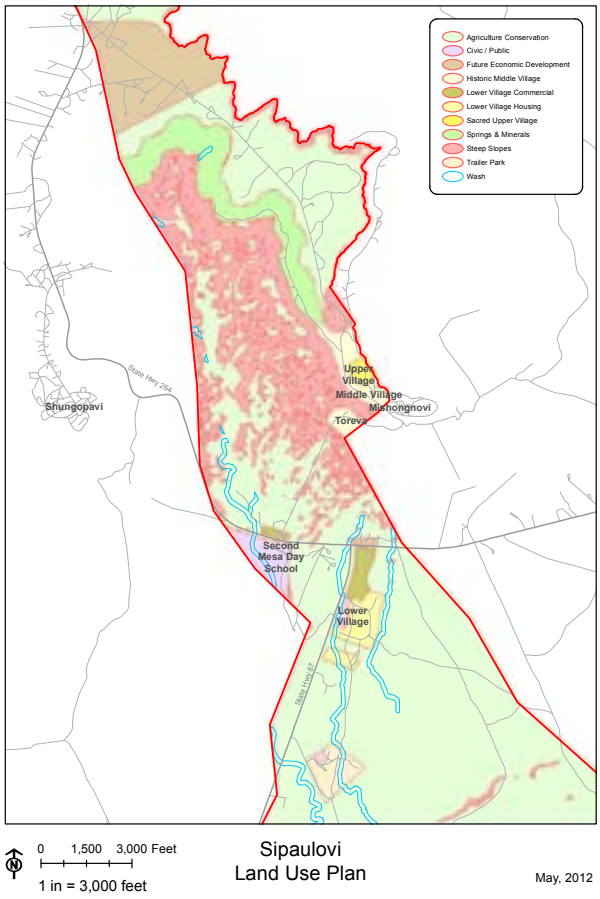
Through Hopi oral tradition, male village elders know the corners and boundaries Sipaulovi Village. There has never been a formalized mapping of village boundaries, however, other than those boundaries that have been adjudicated by the Hopi tribal courts. This makes planning difficult and can lead to disagreements with other villages. This report starts that mapping process.



Sipaulovi Village Land Use Plan

When development was focused on upper and middle Sipaulovi Village, with other lands limited to farming, mineral extraction, use of springs, and cultural and religious activities, no land use plan was necessary. As land uses have become more decentralized throughout the village, the need to build a consensus land use plan becomes critical:

1. Preserve all farmland, land with springs and cultural and religious icons, and sensitive ecological resources.
2. Maintain Upper and Middle Villages and Toreva with activity, taking advantage of opportunities as they arise for new housing and other development.
3. Focus most new housing and economic development in a small footprint Lower Village where most internal trips can be done on foot.
4. Preserve land for future economic development for future generations.



Upper and Middle Village and Toreva

Keeping these villages strong entails:

1. Work with the Hopi tribe to allow redevelopment of Toreva as the tribe gives up their rights.
2. Encourage clan redevelopment of underutilized buildings and sites.
3. Implement University of Arizona recommendations for the restoration of the upper village.

Lower Village

The plan recommends focusing most new development in Lower Village, but in a small footprint in order to preserve farmland and ensure that most people would choose to walk, instead of drive, for any trip within the Lower Village

Land Use Management

Simply having a land use plan is only a first step. Implementing it requires:

1. Incentives to encourage clan controlled land to be used consistent with the plan.
2. Zoning, building, and energy codes to regulate the use of land.
3. Public infrastructure and other incentives to fulfill the vision.

Action Steps

Any planning process should be visionary and build community consensus, but if the plan is going to actually make a difference, it needs to be action oriented and identify the next steps. The plan identifies opportunities for short and medium term steps that can give Sipaulovi Village a jump start.

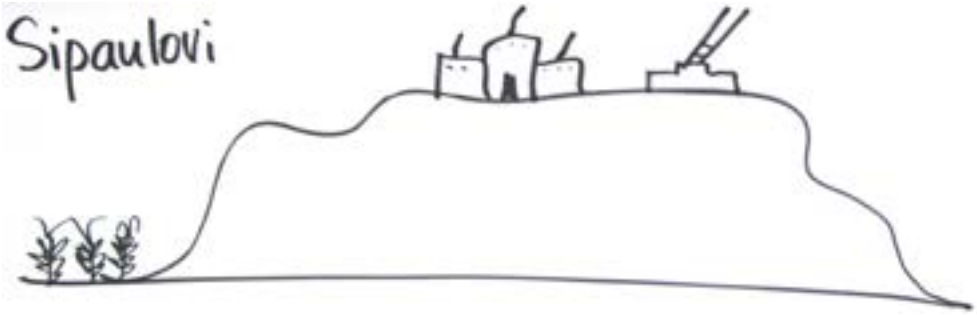
Introduction

SIPAULOVI VILLAGE AND THE HOPI NATION

For well over a millennium, the Hopi people have lived a sustainable lifestyle in Hopituskwa, the Hopi lands. Currently, the Hopi reservation covers 1.5 million acres, with most of the population in 12 semi-autonomous villages on and adjacent to three mesas.

Sipaulovi Village, on Second Mesa, was settled over three centuries ago. It is the last of the 12 Hopi villages to be settled in the traditional manner. Sipaulovi is the middle of three villages on Second Mesa and is close to the geographic center of the Hopi reservation.

Second Mesa itself is the geographic icon of Sipaulovi Village. Life revolves around it both for those who live and work on it in the



Upper and Middle Villages and those who live and work below it in the Lower Village or nearby areas.

The Hopi Nation has an extremely strong culture and identity. The culture is centered on Hopi religion, songs, ceremonies, dance, kachina, Hopi language, Hopi arts, and a clan-focused matrilineal society. Although no longer the self-sufficient farming society it once was, the culture and religion includes a strong focus on farming and water, the lifeblood of existence in a desert. Even the large Hopi diaspora retains extremely strong ties to the Hopi Nation, with many of the Hopi diaspora visiting regularly and often returning to retire after entire careers spent off-reservation.

The Hopi are historically a pueblo tribe, with the population centered in core villages and many clans living side by side on top of the three mesas. Although much of the more recent settlement patterns within the Hopi Nation and within Sipaulovi Village have become decentralized and have moved off the mesas, cultural activities and sense of identity remain connected to the pueblos. Pueblos, kivas, springs, all located up on the mesas, and agricultural fields and washes, below the mesa, are all key elements in the Hopi physical identify.

Although the Hopi Nation is a small tribe, it has a sense of belonging and identity for both Hopi and Anglos that is out of proportion to its size. According to the SDAT application, there are 12,376 enrolled Hopi tribal members, 7,282 of whom live within the Hopi Nation. Sipaulovi Village has approximately 1,200 enrolled members, approximately 700 of whom reside full time.

Sipaulovi Village Vision Statement (October 21, 2011): "We, the Sipaulovi Sinom, envision a life of harmony and good life for our people, and that we live in respect for each other. We embrace our Aya'wa, Navoti, and Tunatya. We strive to achieve self-governance and to maintain out autonomy. Our village will prosper and we will realize our goals and dreams."

"Itam Sipaulov Sinom lolmat katsit wuwan tota sinmuy amungem. Itam naa kyavtsit yeh siw ni. Itam itaa timuy paas tsame wis nee. Tsangawpi itam Sipaulovi Sinom soosok hiita nukwat tokoyungwa, pew tukai yungwa, pu pew navoti yungwa. Itam itaa ayawainit, itaa novotit, puh pew itaa tunatyai ow paas tunat yal totini. Itaa tunayaai awk itaa kitsoki hongvit wunuvtuni. Itam it soosok aw tunatyaltotikw, soongqa itam hiita ow yozikyani."

Sipaulovi Village Mission Statement (October 21, 2011): "In the spirit of Suminangwa and Naminangwa, our mission is to preserve our Hopi way of life to address the challenges of today for a better tomorrow. We must work cooperatively toward our vision through collaboration and partnerships. We, Sipaulovi Sinom, will dedicate our resources to develop and support the improvement of our lifeways."

"Itam soosoyom Suminangwat nit puh pew Naminangwat owk itaa sinmuy amugym kyatsiyamuy tuykawiwisni. Itam nanami unangtaviwisni, naavaangwisni. Itam itaa natwani ow unangtavyani nok itaa katsimkiwa lolmanini."

Sipaulovi Village shares Second Mesa with two other villages, Shungopavi to the southwest and Mishongnovi to the east. Even with strong inter-village family and clan ties, a shared Hopi cultural identity, a unified public school and medical system, and economic interconnectivity, Sipaulovi Village and all the villages within the Hopi nation are semi-autonomous and self-governing.

The Hopi have a strong oral tradition and most Hopi can give the detailed story of the tribe and their own village. Sipaulovi Village was the most recently established village within the Hopi nation, but its history still dates to the seventeenth century and most residents can trace the Hopi history and the history of the clans that moved to Sipaulovi Village to well before the founding of the village.

There are four critical governance structures that govern aspects of Sipaulovi Village. Each is independent, but with overlapping missions, and in some cases overlapping board members.

1. The Hopi Tribal Council, governing the entire Hopi Nation.
2. The Sipaulovi Village semi-autonomous government, led by the Sipaulovi Village Board of Directors (SVBOD).
3. The Sipaulovi Development Corporation (SDC), governed by a Board of Directors and chartered by Sipaulovi Village.
4. The Sipaulovi Water Association (SWA), with its elected board.

Although Hopi culture is amazingly strong, there are some areas of significant stress:

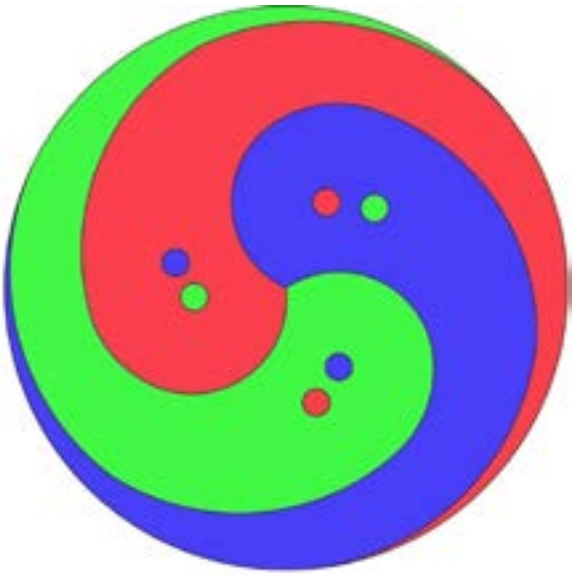
1. There are deep structural unemployment challenges.
2. Much of the Hopi economic activity is in the government and government-supported sectors, and there are only very limited non-governmental economic activities.
3. Economic and social pressures have forced many Hopi to leave the reservation for higher education and careers, with many but certainly not all remaining connected to reservation and to the Hopi language and culture.
4. There is a historical legacy of unsustainable natural resources extraction in the Hopi nation, although not especially on Second Mesa, including coal mining and its related diversion of Hopi water.
5. For years, ending only a couple of decades ago, there was no high school on the reservation and children were sent away to boarding school, resulting in a weakening in their fluency with the Hopi language and Hopi culture.
6. Climate change and the expected decrease in precipitation will create significant stress on Hopi agriculture. Traditional Hopi agriculture does not use irrigation and relies on very hardy products (both crops and grazing) that are drought resistant (in Sipaulovi Village, only the community gardens are irrigated.)

Sustainability

The Hopi have been living a sustainable life style for a millennium, so the concept is not new. The AIA SDAT is built on the principle that sustainability should be a lens through which we view every human settlement challenge. The most commonly used definition of sustainability "meets the needs of the present without compromising the ability of future generations to meet their own needs" (Bruntland Commission).

Sustainability as the overlap of focus on Environment, Equity, & Economy,

Sustainability involves balancing and combining three equally important goals (the three Es): Environment; Equity (social equity, community, public health, and education); and Economy. Leave out any of these three goals, and it is not sustainability. Preserving our environment is critical, but preserving our environment without providing jobs and addressing poverty and addressing environmental justice is not sustainable. Economic development is critical, but economic activity that consumes our environment and the very things we all embrace is not sustainable. Social equity is critical, but meeting social needs without creating more wealth to build a healthy society is not sustainable.



Sustainability as the balance and synergy of the Environment, Equity and Economy.

Resiliency is related to sustainability. Resilient communities are communities that can survive in the long term. For Sipaulovi Village, in addition to the standard focus on environment, equity, and economy, sustainability and resiliency must include:

- Addressing pressures from within and outside the Hopi nation
- Providing opportunity for Hopi to thrive socially and economically
- Being prepared for climate change and increased periods of drought
- Encouraging walking over driving
- Using more sustainable and renewable forms of energy

Sipaulovi Village SDAT

Sipaulovi Village applied for an AIA SDAT to help them strengthen the village, think strategically, and advance their plans to develop a lower village. The village has already adopted a strategic plan to identify their approach for future development. A major goal of Sipaulovi Village is the development of a lower village. Sipaulovi Village has already completed an Environmental Assessment (EA) for the project under the National Environmental Policy Act (NEPA) process. A Finding of No Significant Impact (FONSI) has been issued for the project.

At the SDAT preliminary visit, there was a consensus that the team should recommend a strategic land use plan to help the village meet their needs. The land use plan should include:

1. Existing conditions;
2. Overall future conditions;
3. A special focus on the lower village.

Because of the oral tradition, most written documents are newer and were often developed by outsiders. A University of Arizona team has previously mapped conditions in the uppermost section of the village, the sacred upper village. A University of Arizona team is currently working on mapping the exact location of springs and orally known cultural resources. Many other plans and documentations exist, but there are some significant gaps, most notably there is no detailed mapping of existing clan assignments of land.

Background: Property is held in trust for the entire tribe. Land is assigned to individual clans for their exclusive use. Once assigned the land remains with those clans from generation to generation, but because the land is not owned it cannot be mortgaged to outsiders.

There are three distinct geographic areas within Sipaulovi Village. Central to this project all subsequent and ongoing work will be the need to think about improving connections and creating "one overall village."

Upper Village (on top of Second Mesa)

1. The uppermost portion of the mesa is the sacred center of the village, with continuously occupied buildings for each clan, a central square used for dancing, several kivas, and a strong sense of identity. University of Arizona is exploring ways to help preserve and strengthen these building. Water service is from outdoor spigots with the area on solid ledge limiting infrastructure development. Homes are often used only during ceremonies.
2. The lower portion of the mesa is the primary inhabited village. The village cultural center/offices and historic homes are here and there is a very strong sense of identity. Water service exists to most homes with spigots to those without water service.
3. The remainder of Sipaulovi Village's portion of the mesa includes scattered homes, sacred springs, and historic mineral use (coal and building materials) which were shared with the two abutting villages.

Connection from Sipaulovi Village to Lower Village

1. There is both a road connection and trail connection to the Lower Village. The trail was historically the connection for villages going to farm, although it is used less frequently as people now drive.
2. Midway down the mesa is a collection of buildings used for social services and sewage treatment lagoons.

Lower Village (the lower desert)

1. The intersection of the east-west Highway 264 and the north-south Highway 87 is the epicenter of the Lower Village. The Secakuku family has a commercial building on the southeast corner of the intersection with nearby housing.
2. South of the Secakuku parcel is the 15 acre site that has been the focal point for Sipaulovi Village planning to create a lower village.
3. South of the 15 acre site is a small housing development and then scattered housing, without strong connections. This and other scattered areas are often seen as subdivisions. BIA and HUD built housing predominate.
4. The Second Mesa Day School, serving the entire reservation, is just west of the village on Highway 264. The Hopi Health Care Center, run by the Indian Health Services and serving the entire reservation, is just east of the village on Highway 264. Polacca Airport, a very small general aviation airport, is also just east of the village on Highway 264.
5. The remainder of the area below the mesa is comprised of scattered fields (wherever soils and geography allow), grazing areas, and occasional homes.

Mapping & Boundaries

SIPAULOVI VILLAGE MAPPING & BOUNDARIES

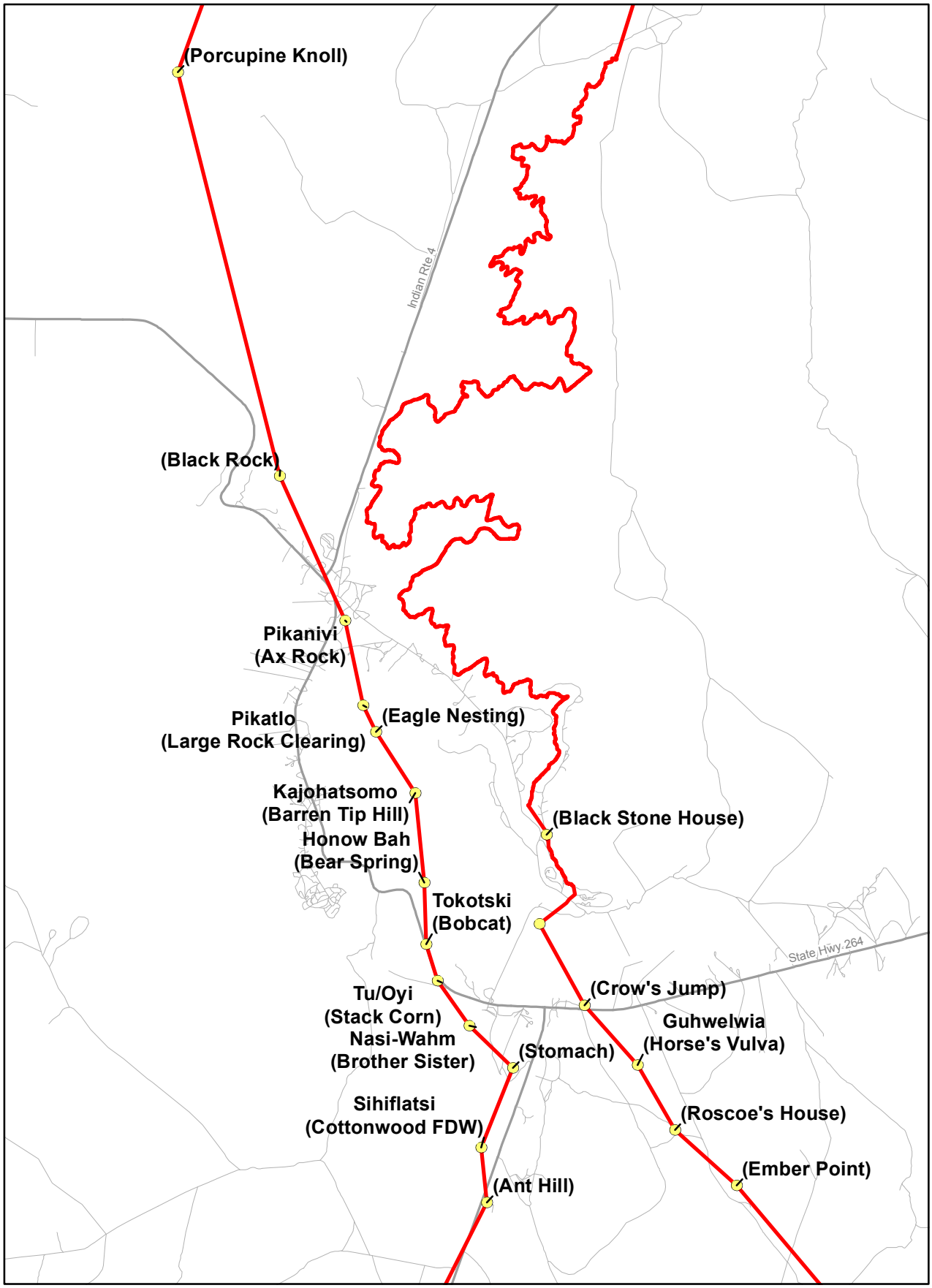
Because the Hopi have an oral tradition, there has never been a formalized mapping of Sipaulovi Village boundaries other than those boundaries that have been challenged and ultimately adjudicated in disputes heard before the Hopi tribal court system. Consistent with the Hopi oral tradition, however, a few individuals, primarily male village elders, have a phenomenal knowledge of boundaries. As part of this project, and working with these knowledgeable tribal members, we mapped those boundaries to the greatest extent possible.

Cedric Kuwanunvaya, Alph Secakuku, and Leonard Talaswaima mapping village boundaries. Oral tradition and mapping together.

The resulting map is very accurate on and below Second Mesa. Far south of the Lower Village and far north of Second Mesa, the actual boundaries of the village have been cut off by land now accepted by the United States legal system as Navajo nation lands.

There are four critical next steps to move the mapping and boundary identification process forward:

1. The mapping work conducted under this project should be completed, with the final boundary corners mapped.
2. The mapping should be revised to show Sipaulovi Village cut off at the northern and southern edges of the Hopi Reservation, with dashed lines to show the historical village boundaries on what is now Navajo Reservation.
3. Sipaulovi Village should work with its neighboring villages, Shungopavi to the southwest and Mishongnovi to the east to reach a final agreement on boundaries and document any agreement with a final written map to the extent possible.
4. Sipaulovi Village should consider requesting the Hopi Tribal Council to formally adopt and accept the village boundaries. Even with strong inter-village family and clan ties, a shared Hopi cultural identity, and a unified public school and medical system, disputes will inevitably arise. Having an agreed upon village boundary will ease those disputes in the future.



Boundary Mapping of Sipaulovi Village. See Exhibit A for mapping details.

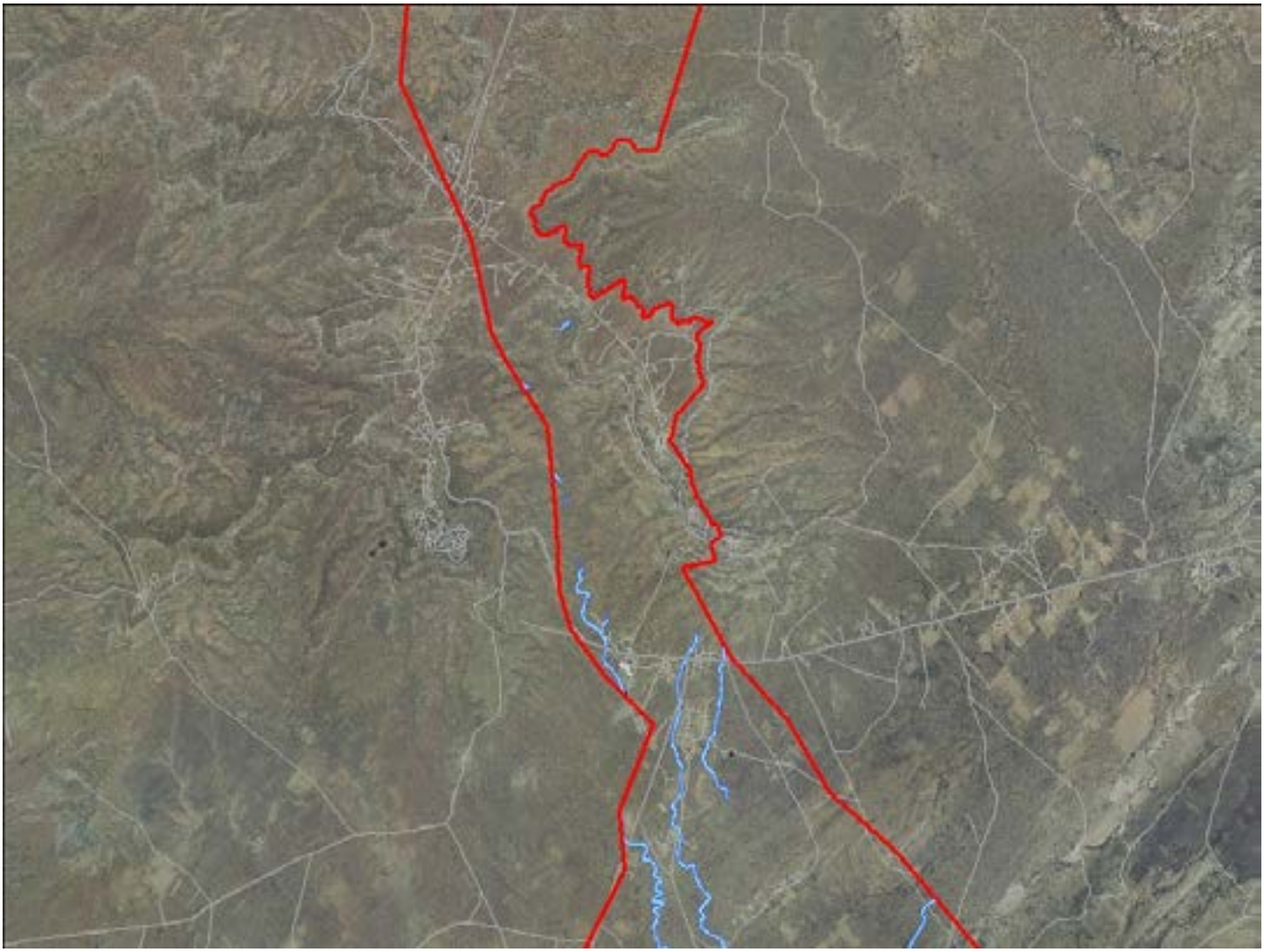
Sipaulovi Village Land Use Plan

SIPAULOVI VILLAGE LAND USE PLAN

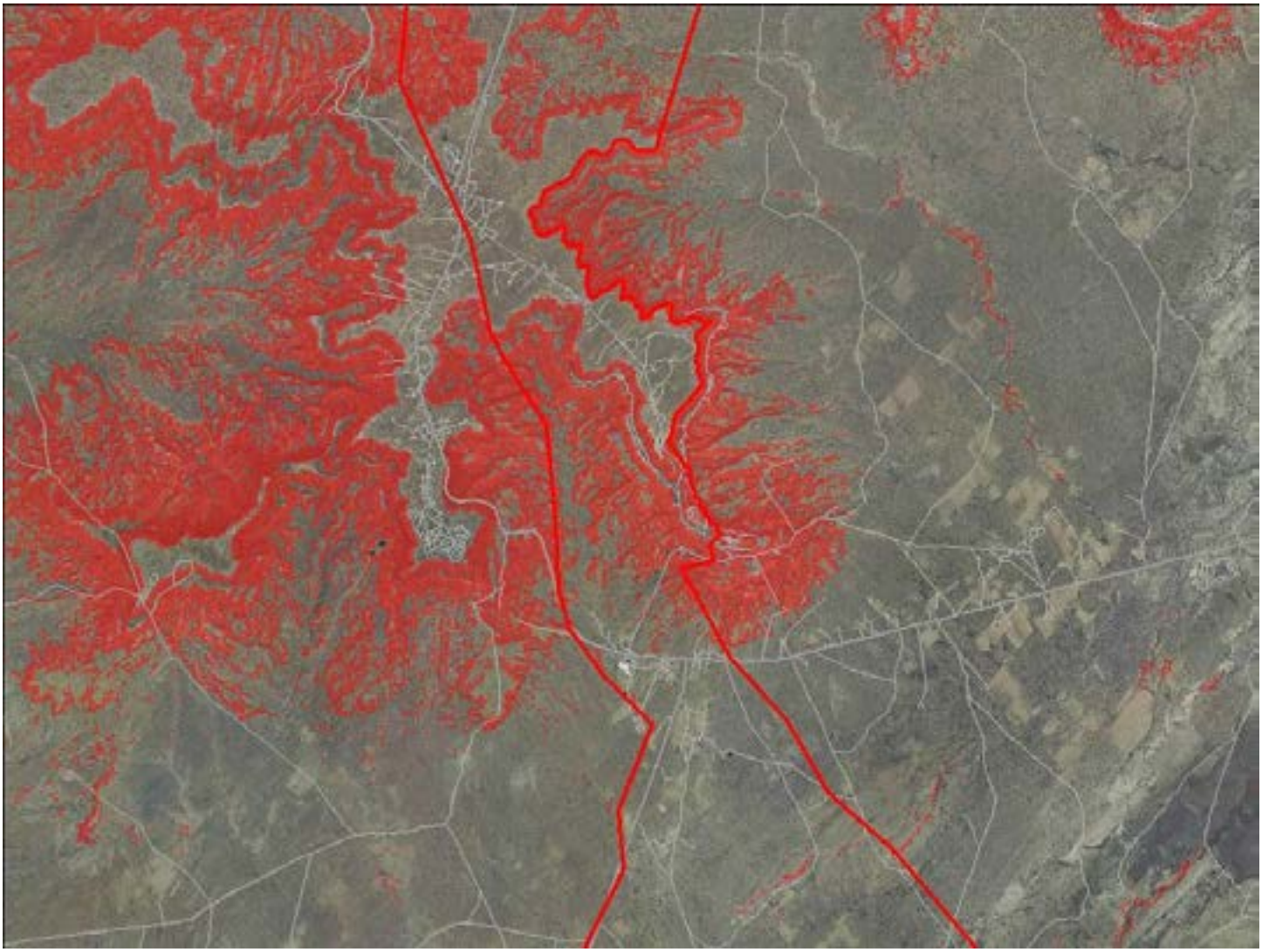
When development was focused on upper and middle Sipaulovi Village, with other lands limited to farming, mineral extraction, use of springs, and cultural and religious activities, no land use plan was necessary. As land uses have become more decentralized throughout the village, the need to build a consensus land use plan becomes critical. The draft land use plan suggests:

1. Preventing development in environmentally sensitive areas (steep slopes, arroyos, etc)
2. Preventing development in culturally critical areas (springs and cultural and religious icons)
3. Preventing development on farmland and most range land.
4. Maintaining the Upper and Middle Villages and Toreva with activity, taking advantage of opportunities as they arise for new housing and other development.
5. Focusing most new development on a small footprint Lower Village where most internal trips can be done on foot.
6. Preserve land for future economic development for future generations.

Prevent Development on Environmentally Sensitive Areas



Development of any kind should stay away from arroyos/washes. These are, however, perfectly appropriate for agricultural uses.

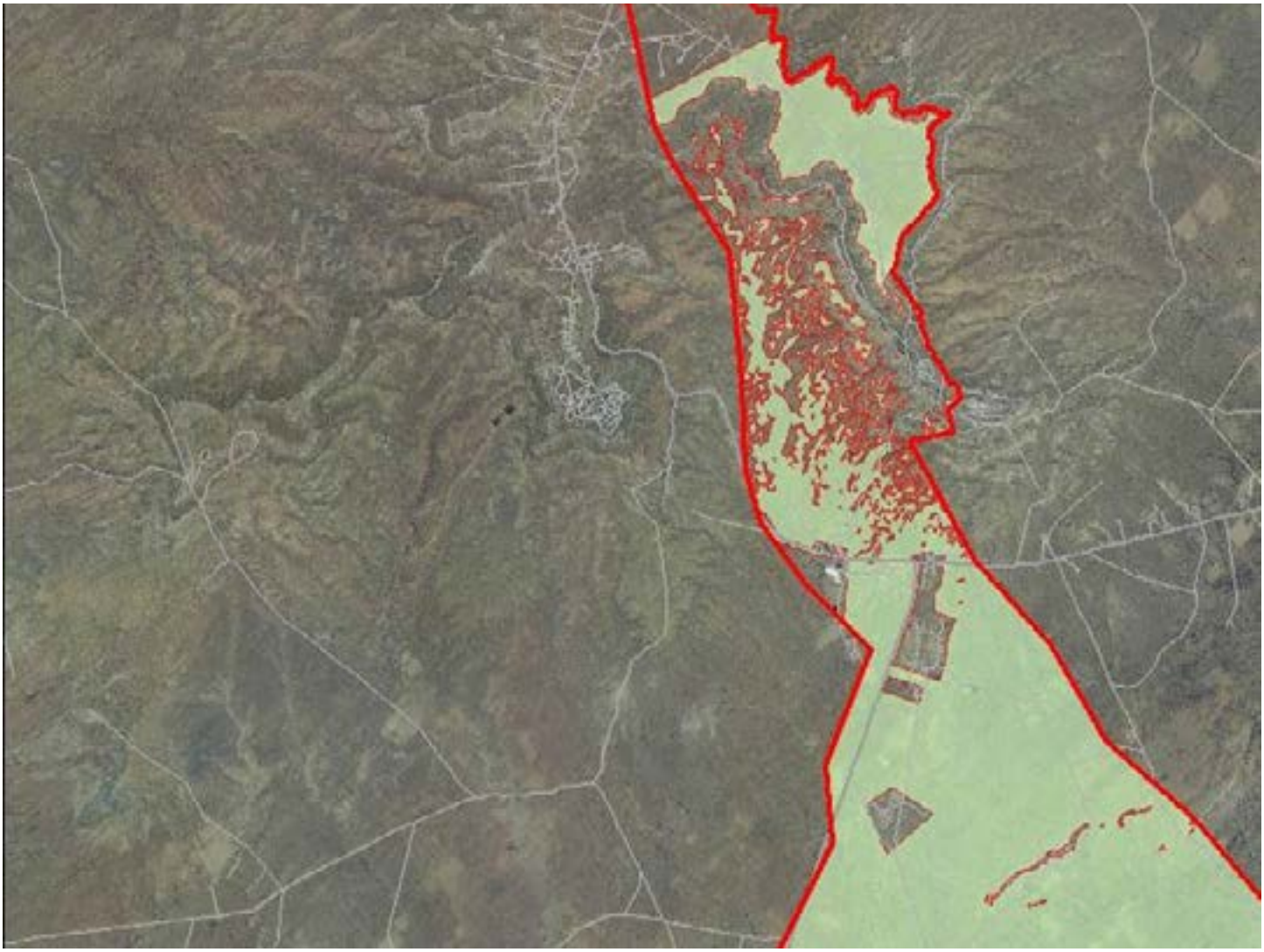


Development of any kind should stay away from steep slopes. For this analysis, we used 15% slopes as the target to avoid. More sophisticated analysis could be performed considering the stability of soils and landforms, but given the dry conditions and the likely effect of climate change (less precipitation but possibly more intense storms), 15% seems like a reasonable objective.

Prevent Development on Culturally Important Areas

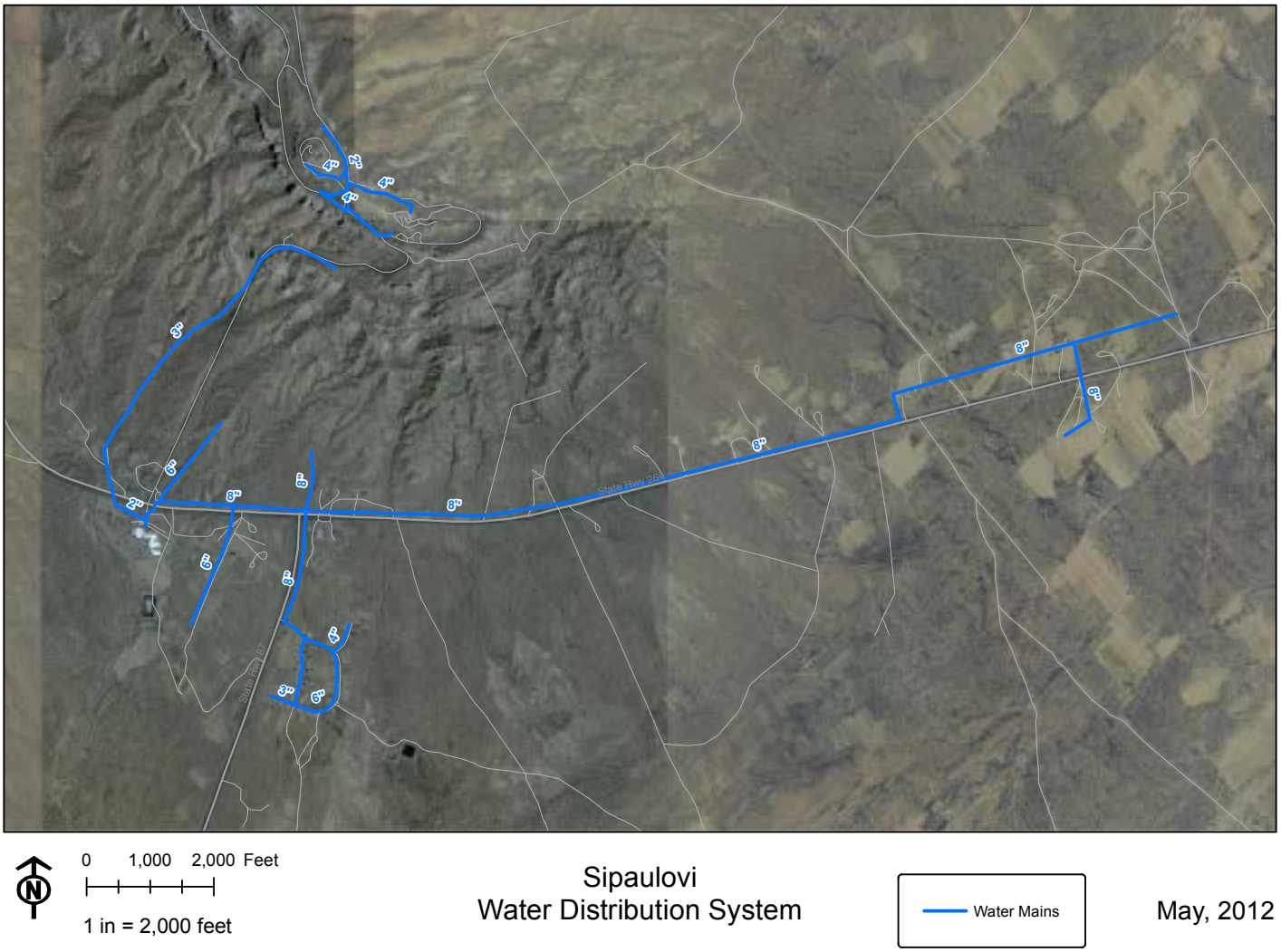
Natural and developed springs are critically important both as a water source as well as for cultural reasons. Likewise, area of historical mineral extraction for building materials and coal are important for cultural reasons and possibly as future resources. This cultural sensitive area should not have any development except for traditionally appropriate mineral extraction and spring development. This area, along with adjacent steep slopes and washes, could potentially be a village park and conservation area.

Prevent Development on Farmland and Most Potential Pasture



Farmland is important for food production and for cultural reasons, and there currently is enough land available for development that there is no reason to develop on any farmland. Likewise, while range land is not as critical and some should be developed as part of the Lower Village, most range land should be conserved for domestic animals and for wildlife habitat. The draft plan shows farmland, range land, and conservation land that should be preserved against all development. Appropriate uses to the range land portion of this land, besides farmland and range land uses, are sewage outfall artificial wetlands that recharge groundwater and add to habitat values, and trails and recreation.

Conserve Sacred Upper Village, Historic Middle Village and Toreva, and the Lower Village



0 1,000 2,000 Feet

1 in = 2,000 feet

Sipaulovi
Water Distribution System

Water Mains

May, 2012

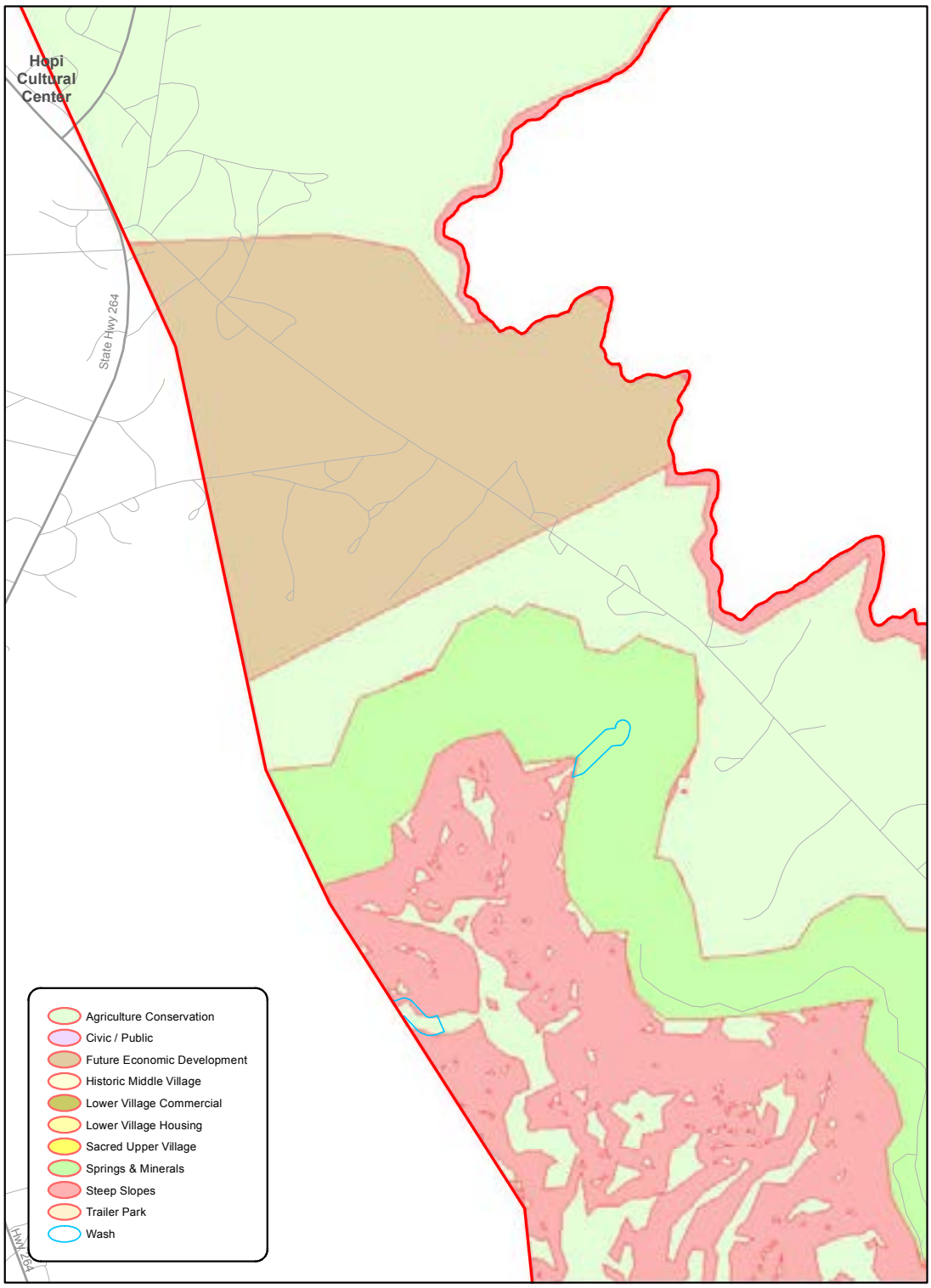
These are the areas with water and road infrastructure, existing development patterns, and the ability to accommodate new growth in a walkable pedestrian core village. Development should be focused in these areas for the foreseeable future. They are discussed in more detail on the following pages.

Civic and Public Space

These are the areas of village, tribal, and federal facilities.

Future Economic Development

Toreva and especially the Lower Village can provide economic development opportunities for a generation and all efforts should be focused in those areas. It is important, however, to take a long view and put aside land for future economic development needs decades in the future instead of giving up opportunities that the village might want in the future.



Two areas are suggested to "land bank," or simply set aside with no use beyond agriculture at the present time, to save for future economic development:

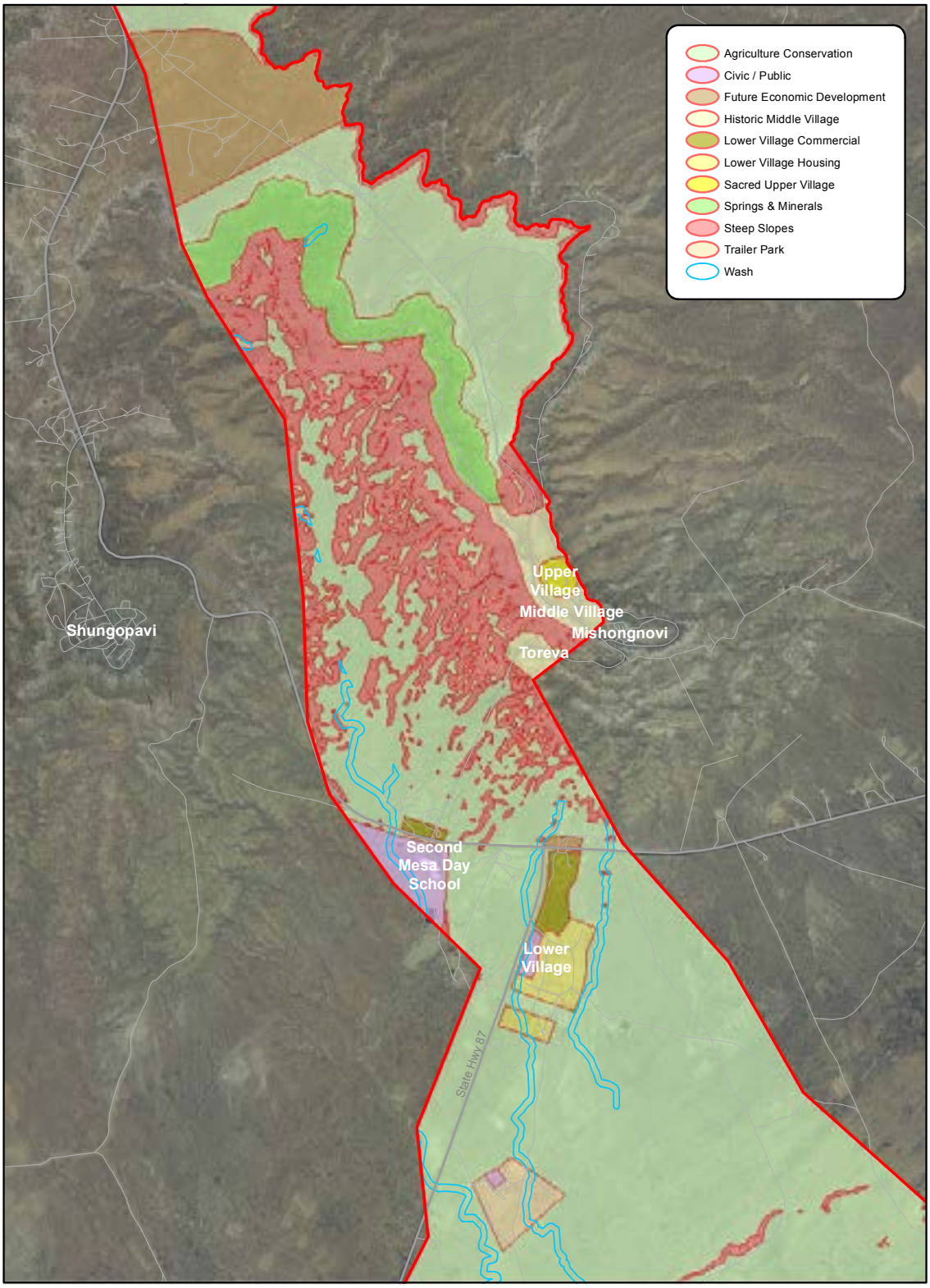
The area on the northeast side of the intersection of Highways 264 and 87. This area is not needed now and developing it could actually harm the village by diluting the quality of the lower village. The area could provide wonderful additional opportunities in the future and should be saved for this use.

The area on the northwesterly side of Sipaulovi Village just east of the Hopi Cultural Center. This area should not be developed now or in the near future, to avoid diluting the village, and should never be developed in isolation without working with Shungopavi Village. One could imagine a joint project, sometime in the distant future, of Sipaulovi and Shungopavi, perhaps with the Hopi Tribal Council, in this area or, if ever needed, a new school in this area. In any case, the area should be land banked to keep future options open.

LAND USE PLAN NEXT STEPS

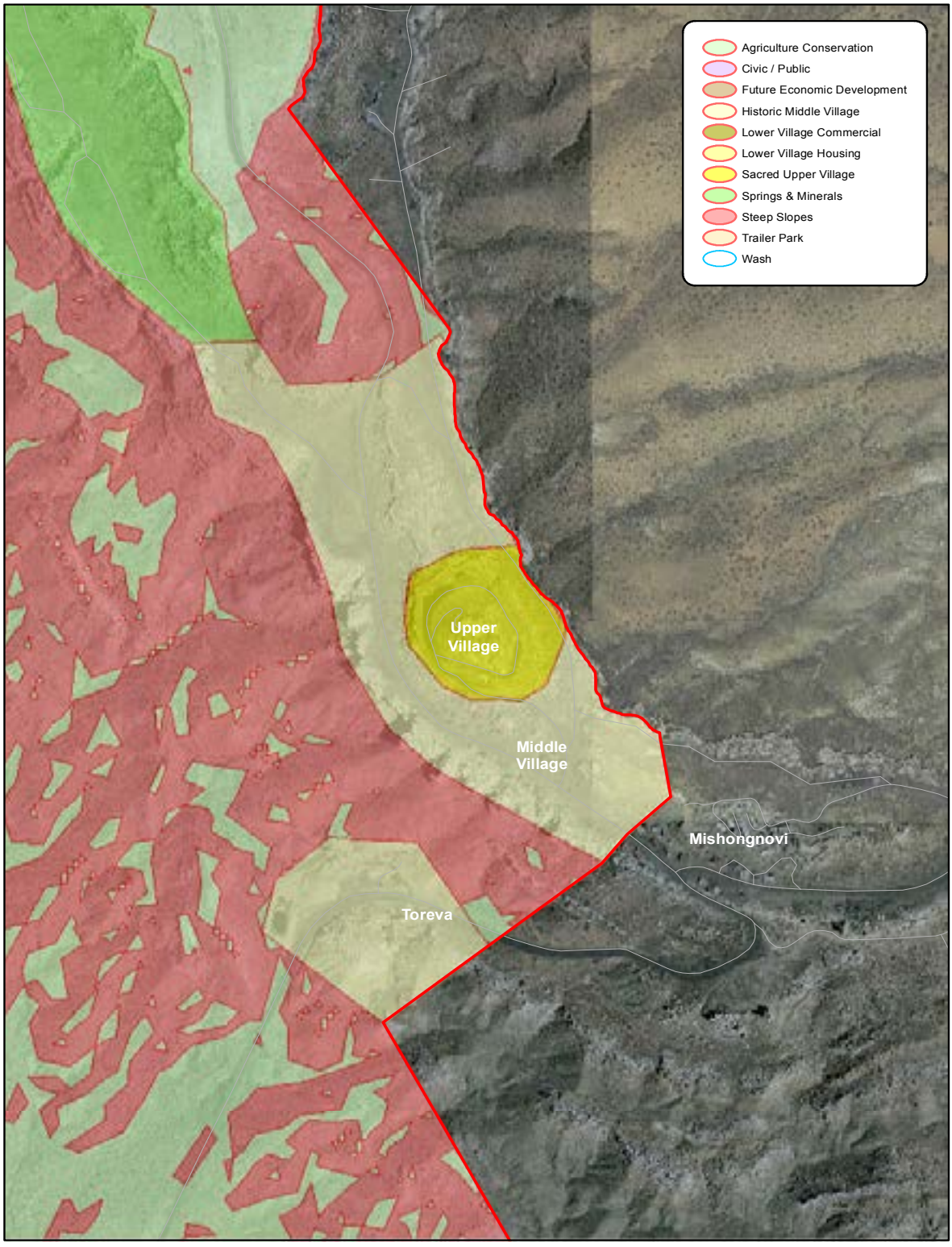
The next steps to adopt a land use plan are for Sipaulovi Village to:

1. Review the operating principles for each land use and modify as necessary to reach community consensus.
2. Adjust final boundaries based on local knowledge of the land and community consensus.
3. Finalize the land use map.



Upper & Middle Villages

UPPER AND MIDDLE VILLAGES



The Hopi people practice preservation and sustainability through the way they live. Preservation is about respect - respect for culture and heritage –and Sipaulovi Village strategic plans have consistently included goals of preserving and protecting historic assets and establishment of a village restoration program. Sustainability is about responsibility – responsibility for environment,

economy, resources and society – and The Hopi people value and care for their environment. Of course, buildings that already exist are the most sustainable structures of all.

Although much of the village's focus for new development is on the 15 acre development parcel in the lower Village, the Upper and Middle Villages and Toreva are more important culturally to the people of Sipaulovi. They are also critical economically to draw tourists. Restoration and reuse of the buildings in the Upper and Middle Villages and Toreva, coupled with development of programs and touring in these areas, will have a positive impact on the economic development of Sipaulovi, and supports a sustainable future.

Upper Village

The Upper Village is the sacred heart of Sipaulovi. Preserving and restoring the Upper Village is critical to Sipaulovi Village's and the Hopi Nation's sense of identity and culture.

Key to this area's restoration is implementing the University of Arizona Drachman Institute recommendations for restoration, creating a shared bathing facility for homes that do not have running water, removing overhead powerlines, and ensuring that roof tops can carry the weight of people watching dances and cultural events.

Middle Village

Middle village is young compared to the Upper Village. However, being over 100 years old, it is considered historic by any definition. Preservation is about looking for opportunities to use historic buildings and places, and to enhance and complement their character defining features. In other words, to identify the elements which make those structures and spaces special to the inhabitants and visitors, and to let the structures adapt to new uses while being sensitive to their heritage and culture.

The visitor center in Middle Village has opportunities for short term improvements such as acoustic treatment in the large meeting room and improvements to the bathrooms and showers, or even an addition of a bathhouse for those villagers that don't have access to running water.

There are three Piki Houses – small outdoor cooking structures used for making a Hopi tradition called Piki bread - which need restoring. They are privately owned, but may be eligible for grants because of their unique heritage. The village store is also privately owned and currently empty, but has a multitude of potential uses such as a store, internet café, or even housing. The structure's roof is in bad shape and should be repaired immediately to stop further deterioration of the building. In general, a robust village restoration initiative would benefit the inhabitants and strengthen the tourist draw.

TOREVA

Toreva is between the Middle Village and the Lower Village halfway down the mesa. There are numerous stone structures - one of which was used for the village school – which are in fair to good shape, and a Spring which is sacred to the Sipaulovi people and is surrounded by a beautiful stone structure. Some of the buildings are being used currently as tribal office buildings and some are empty. Recurring themes in Sipaulovi's strategic plans include learning programs to promote and preserve Hopi culture, combined youth and elder programs, computer classes and artisan workshops. There are two groupings of buildings: one adjacent to the sacred spring and the other across the road. The structures by the spring could be used for programs which focus on the Sipaulovi and Hopi people – such as cultural education - as this is a sensitive area that may suffer from too many outside visitors. The

structures on the other side of the road – being a short distance from the Upper and Middle Villages - could be used as a bed and breakfast, an adult day care and assisted living facility, and more general education classes.

Toreva is connected to Middle Village by a trail that has served the village for much of its history. Maintaining this trail and ensuring a strong trail connection to the Lower Village can help strengthen the Hopi way of life and encourage healthy lifestyles.

0 75 150 Feet

1 in = 150 feet

Trail from Toreva to Middle Village

Mapped via GPS, April 30, 2012

Lower Village

LOWER VILLAGE

Designing the Visitor Experience

Among the principal goals of the proposed 15-acre development project is the promotion of economic development by creating a place that welcomes tourists, provides fuel, shelter and sustenance, orients them to the village and Hopi culture, and creates an opportunity for village artists to display their creations. It can be assumed that people that make the effort to drive to the village are looking for authentic Hopi arts and crafts; they are surely also looking for an authentic experience, one that provides an introduction both to the people of the village as well as to the landscape that has sustained them for centuries.

The masterplan illustrates one way to accommodate the different uses desired by the village while also preserving important connections to the landscape. The masterplan is based on the program (the list of desired uses and functions) and basic diagrammatic layout prepared through earlier work, but organizes the program a bit differently on the site. In particular, the proposed plan pulls the buildings closer together, allowing for elements of the existing landscape within and surrounding the site to be preserved and integrated into the design of the village.

This has two important benefits, both for tourism and the quality of life of village residents. First, a somewhat more compact village will be easier to get around on foot, but just as importantly will feel more comfortable for visitors. It is unlikely, for example, that there will be large crowds of people in the village on a regular basis. Most of the time there will be a small (but hopefully steady) stream of visitors doing different things. If the gathering spaces are too large, the typical visitor is going to feel like the village is empty and too quiet. By bringing activities together and carefully designing the scale and proportions of each space, the village will always feel like a place with some life in it. By linking together a series of spaces along a central pedestrian spine, there will also be room for the occasional large crowds arriving for special events.

The second benefit of a more compact masterplan is the ability for both residents and visitors to interact with the surrounding landscape. With careful planning, most of the existing arroyos and agricultural fields can be preserved. Arroyos within the village can gather stormwater runoff, and can be planted with peach orchards. They provide shade adjacent to the main pedestrian paths, as well as an opportunity for visitors to learn about traditional Hopi fruit raising techniques. Maintaining the fields adjacent to the village will likewise provide an important opportunity for education and cultural interpretation. As a practical matter, this will also preserve views from homes, offices and public spaces within the village out across the beautiful landscape to the east and south.

The value of this approach can be tested by thinking about the design of the village not just as a collection of roads, buildings and parking lots, but in terms of the visitor experience.

Arrival and Orientation

After travelling through the desert, the visitor is looking for clues as to where to go, and will gravitate toward buildings that are designed for visibility and laid out to feel welcoming to the public. This can be supported by signs, but will ideally not be dependent on them. It should just seem logical. To the greatest extent possible, parking lots should be to the side or rear of buildings so that the view from the road is uncluttered, enhancing the sense of arrival. As the visitor drives into the village, the gas station and community store will be immediately on the right, and straight ahead is the visitor center. A drop off area provides access both to the entrance to the visitor center and to the north end of the main pedestrian way through the center of the village. Thus by the time the visitor pulls past the visitor center and parks behind it, he or she is oriented to the village, knows about the key visitor services available, and has identified some landmarks.

Visitor Center

The orientation process continues in the visitor center. Museum displays and interpretive materials provide an introduction to the village and Hopi culture. There is information about tours, an introduction to the shops and studios that can be visited, and descriptions of special events. Maps and models provide a physical description of the layout of the village and its relationship to the surrounding landscape. There is an introduction to Hopi agriculture and land use traditions.

Armed with this information, the visitor can climb to a rooftop viewing platform and get a first-hand look at Sipaulovi. To the south is the new commercial village, with a series of comfortable pedestrian spaces lined with buildings. In the distance is the peach orchard, which marks the boundary between the public tourist areas and the more private residential village beyond. Turning to the east, the visitor can look across the agricultural fields at the edge of the village and far across the desert to the distant hills. Finally, to the north is the view of the historic center of Sipaulovi up on the mesa.

Seeing the Real Landscape

Returning indoors, the visitor will have another chance to look through the interpretive displays and can be invited to experience firsthand the places and landscapes he or she has read about and seen from a distance. This could include a self-guided tour of the shops, studios and orchards within the village. An interpretive trail could lead through the agricultural fields and some distance beyond to a viewing spot where a visitor could look out over the desert or turn around to see a panorama of the mesa. Areas with ovens and fire pits could be set aside for demonstrations of traditional Hopi food preparation techniques. Finally, guided tours are

available, which could include a van trip to the top of the mesa, as well as a hiking tour that would allow the visitor to walk the ancient trails from the desert to up the mesa to the historic core of Sipaulovi.

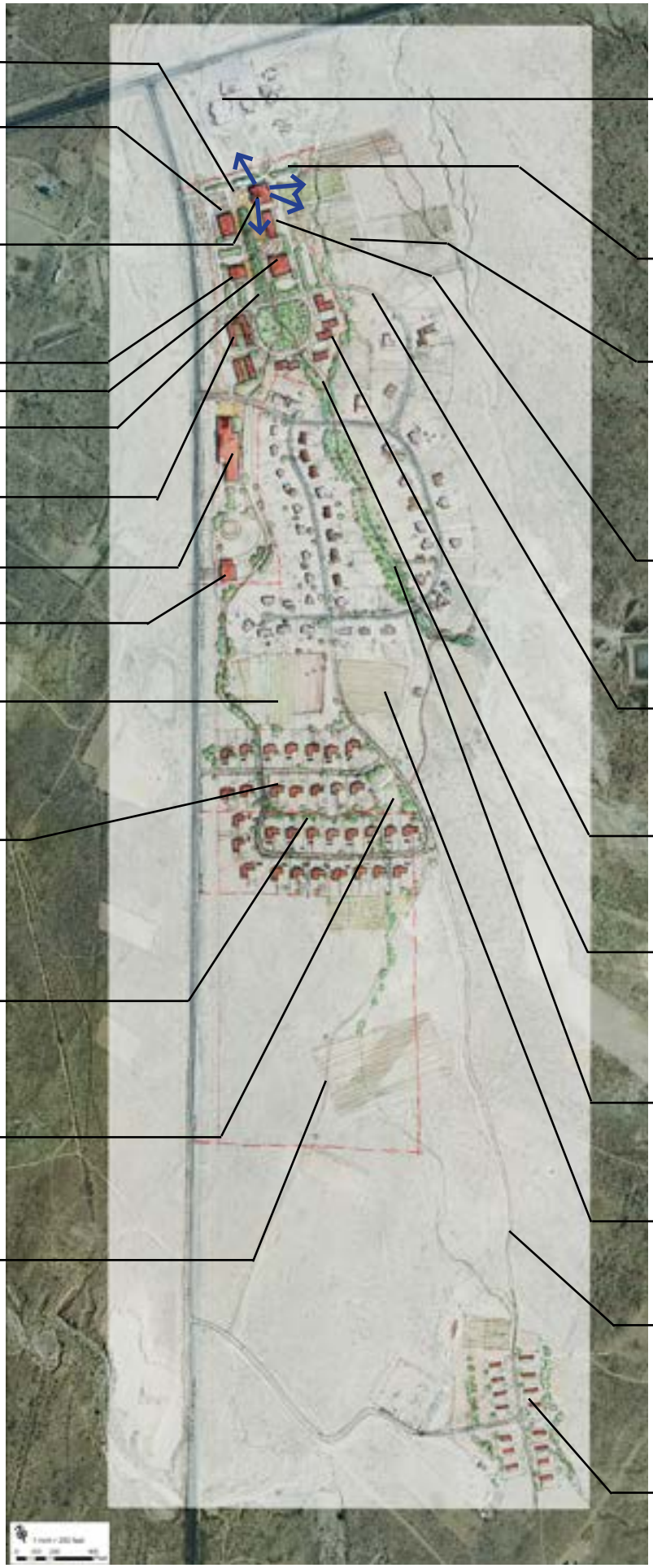
What all of this creates is a visitor experience that will be unique among the Hopi villages. Visitors will see more than the typical tourist shops and gas stations. Instead they will experience the real landscape of Sipaulovi as Hopi have seen it for hundreds of years. They will see firsthand the delicate balance of nature and culture that has allowed the Hopi to thrive in the desert, and perhaps will begin to understand something of the rich spiritual life that lies at the core of Hopi culture.

Housing and Village Layout

Focusing most new development in Lower Village, but in a small footprint, would ensure that most people would choose to walk, instead of drive, for any trip within the Lower Village. This preserves the Hopi tradition of movement within the village being on foot, with the increased face-to-face contact that provides. A true village life-style requires smaller lots than a more suburban development pattern, but the benefit is a much stronger sense of community, closer adherence to Hopi tradition, a healthier increased reliance on walking, and less money needed to support automobiles.

Laying out the village in a way to avoid the loss of any farmland preserves farmland and a Hopi cultural tradition, creates a focal point of development, divides the lower village into small neighborhoods that are more human-scale, and creates wonderful vistas from the rest of village. This vision is consistent with the comments from Sipaulovi Village members during the SDAT. An alternative option would be to expand housing onto the farmland immediately south of existing homes. This would allow for any easy expansion to the existing development pattern, provides more land for development, potentially shortens the distance from new homes to the village center, potentially lowers infrastructure costs, and either creates a more compact residential neighborhood or allow for larger lot size.

Proposed Village Master Plan



Main visitor entrance, with drop off at plaza in front of visitor center.

Gas Pumps and Community Store

The visitor center serves as a landmark at the entrance to the village. A rooftop platform offers views across farmland and desert, down the central pedestrian area, and north to the historic village on the mesa.

Restaurant

Offices

Use the central corridor to connect a series of gathering spaces.

Hotel overlooking the community orchard.

A new community center helps to separate the public tourist village from private residential areas.

Fire Station

Existing fields are preserved, helping to separate the existing homes from a new residential area to the south.

32 half acre lots provide for new single family homes. East-west orientation of roads allow for ideal solar exposure.

Drainage through the residential area is provided by redirecting the existing arroyo to flow behind homes. A path follows the drainage course connecting each home to the surrounding trail network.

A small park and playground provides a gathering place for the residents of the neighborhood.

The thirty-acre site once proposed for development can be preserved for open space or future village expansion.

Existing commercial and residential uses can eventually be integrated into the new commercial center with interior road way connections. New buildings and site treatment should follow a similar design approach to create a unified look and feel.

Keep parking areas to the side and rear of buildings to reduce visual impact and separate cars from pedestrian areas.

Keep agricultural fields close to the center of the village, preserving a direct visual & physical connection between the village and the surrounding landscape. Preserve the existing arroyo as a logical boundary for village development.

Artists workshops and galleries with outdoor area for seasonal market stalls. An adjacent amphitheater provides for performances or educational events.

Loop existing dead-end road designated for self-built housing back into the center of the village. Provide new house lots with views of fields & the landscape beyond.

18 attached homes provide apartment or townhouse units for single people or small households.

Pedestrian trails branch off from the central orchard, leading to the community center and through residential areas to link each part of the village.

Orchard plantings follow the arroyo and connect the village center to south fields.

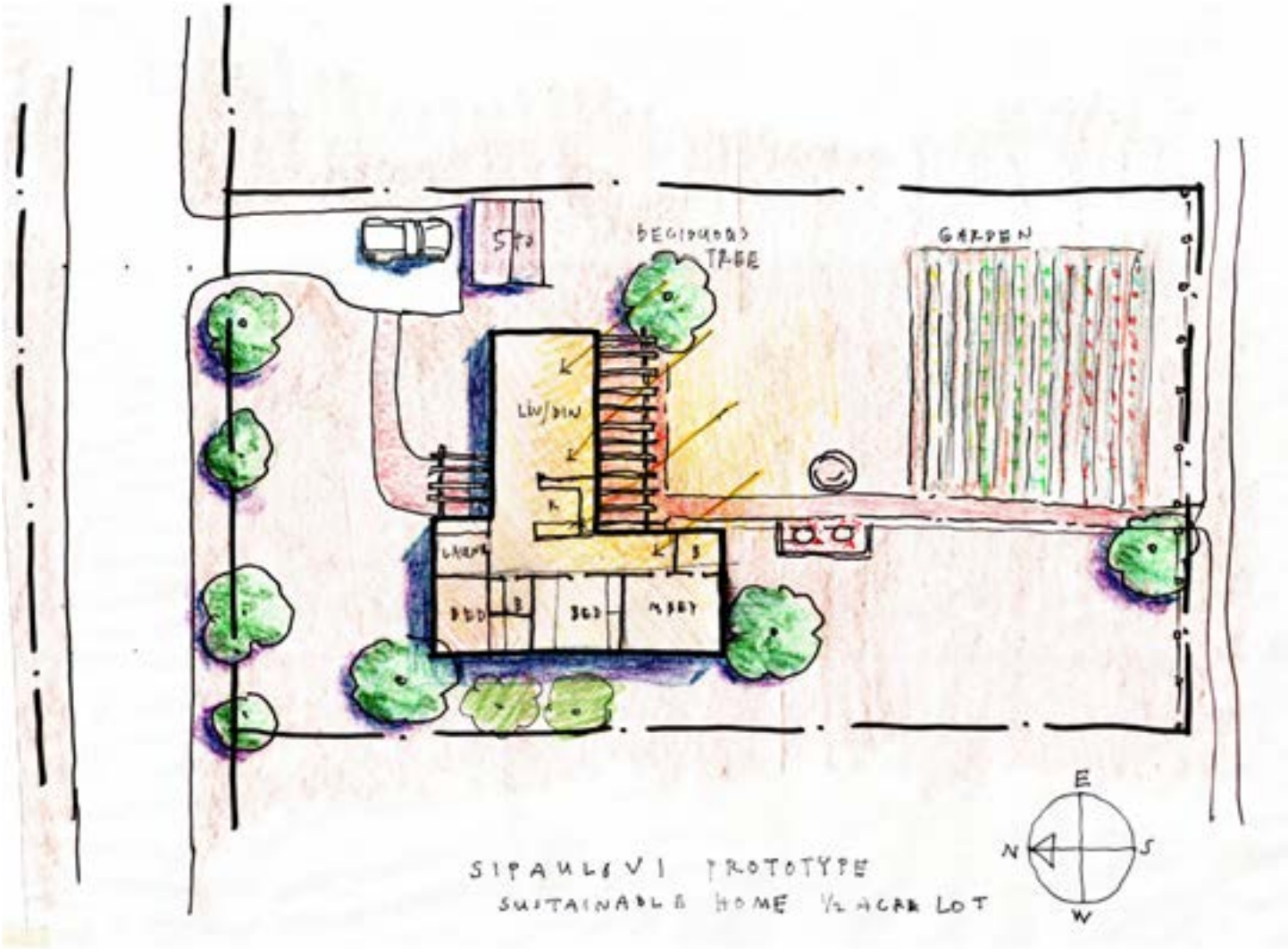
Preserved fields provide convenient access for part-time farmers.

Maintain existing dirt roads for emergency access and pedestrian connection to village center.

Trailer court with 16 quarter-acre home sites. Drainage areas planted with trees provide some shelter from sun and wind, and help screen the neighborhood from public views. A small park or playground provides a gathering area.

Options for fields south of existing Lower Village housing:

1. ***Preserve as fields.*** This meets two community objectives. First, it preserving farmland. Second, it provides an attractive edge to the new and existing lower village housing that preserves vistas and improves the quality of life.
2. ***Convert the fields to community gardens.*** This would preserve farmland and views while providing opportunities for community building and potentially more intensive productive use of farmland. In the past, the village has chosen not to irrigate farmland to preserve traditional Hopi dry farming but has done some rain gardening for community gardens. There is an opportunity for such treatment here (including capturing roof runoff from new buildings).
3. ***Convert the fields to larger lots for lower village housing.*** This would provide larger lots that some villagers think are critical.



Sustainable Home Prototype.

Land Use Management

In collaboration with Sipaulovi Village Elders, Sipaulovi Village Board of Directors and Sipaulovi Development Corporation Board of Directors, Sipaulovi staff and other community members, the SDAT Team, after reviewing existing plans and proposals describing possible village community development, produced a draft Sipaulovi Land Use Plan. This plan or a variation thereof, when adopted, offers Village officials the opportunity to guide the residential and commercial expansion of the community to meet their stated goals and vision.

The adoption of a land use plan facilitates and guides the implementation of development opportunities and also gives rise to certain management obligations that are generally addressed by codes and ordinances. The enactment of ordinances and their codification (e.g. zoning codes and building codes), their implementation, and their enforcement are discussed in the following sections.

Land Use Codes and Ordinances

The Sipaulovi Village as an autonomous political entity within the Hopi Tribe has can enact ordinances and establish codes. Once the Sipaulovi Village adopts the proposed or a revised land use plan indicating where growth and development are intended, where less intensive or special areas for spiritual or cultural uses are desired and how land is allocated, it should be followed by a village zoning code.

The Zoning Code prescribes the types of land use allowed in designated areas and is used to guide and direct the development of property to prevent environmentally harmful uses, and preserve the community's cultural identity. Types of zones called out in the code generally include residential, commercial, civic/public, mobile home, agricultural, mining, opens space, and traditional and sacred uses. Within each zone, the zoning ordinance/code identifies the uses and structures permitted in that zone. Uses and structures allowed with a conditional use permit typically authorize uses that are considered compatible with permitted uses. Conditional use permitting allows a measure of flexibility in the zoning process.

Building Codes are a compilation of ordinances setting minimum safety standards and are intended to protect the health and safety of users of facilities. Building Codes may cover every aspect of the design, construction and renovation of structures from specifying culturally appropriate architecture to regulating private sewage disposal. Often, certain aspects of design and construction are dealt with through specific ordinances such as a plumbing code, an electrical code, an energy code etc. In recent years, sustainable building codes have become favored as a means to encourage construction of efficient and healthy buildings by reducing its overall resource consumption, eliminating or reducing use of toxic materials, and significantly reducing the operating costs of buildings.

The adoption of the 2009 (now 2012) International Energy Conservation Code (IECC) was recommended by a previous consultant to Sipaulovi Village and could be incorporated in a future building code adoption.

Code/Ordinance Development & Implementation

Once a Village Land Use Plan is adopted by the Sipaulovi Village Board, the next logical step is the development of a Zoning Code/ Ordinance reflecting the land use designations in the Plan and describing how the ordinance will be administered including development regulations, permitting, development standards, variances and appeal processes. While much can be learned from studying the zoning ordinances of comparable governments, zoning ordinances by definition are place specific and need to reflect community values and the governance preferences of the Village.

The Creation of a Building Code should be the next order of business in code development to provide safety standards and reduce risk to an acceptable level. The building code can incorporate plumbing, electrical, mechanical and energy provisions in the code or adopt separate ordinances covering those specialties. Sipaulovi Village has the option of either writing a local building code or adopting a uniform building code such as the Uniform Building Code or International Building Code. The advantage of adopting a uniform code is that contractors and suppliers know its provisions and how to work with it and it has likely survived legal challenges. The disadvantages are that it might be expensive to administer and it doesn't always address community values and priorities. However, it's important to note that codes can be amended and provisions for exemptions can be included. For Sipaulovi Village, an effective course of action might be to adopt a uniform building code with appropriate specialty codes including an energy code such as the 2012 International Energy Conservation Code (IECC) that is applicable to commercial and residential developments while exempting individual residential construction or exempting structures utilizing historic designs and materials. A building code can be developed incrementally as opportunities and situations require.

Regardless of subject matter, effective code implementation requires a community information effort to make a best effort to insure that the community is informed about the purpose and provisions of the code. Also, staff responsible for administering the code should be provided adequate training and, finally, the implementation effort needs to be assessed for effectiveness.

Code Enforcement

All codes set standards of conduct and, in many cases, have permit provisions that require some level of enforcement to encourage compliance. Code enforcement is typically administered by a planning department or village committee, but in egregious situations enforcement may require the services of the Tribal Police or Tribal Court. The Sipaulovi Village should make sure that the appropriate

intergovernmental agreements are in place so that the necessary level of enforcement is available when called for. Also, the Sipaulovi Village should be certain that due process is available to all citizens subject to the codes and that the code provisions are not administered arbitrarily. Failure to do so could result in a violation of the Indian Civil Rights Act.

Action Steps

ACTION STEPS

Focus Area	Action	How
Village mapping and boundaries	Complete mapping	Start with GPS to map remaining boundary points. Eventually, seek grants to formally survey lines.
	Boundary agreement on Second Mesa	Share mapping with Shungopavi and Mishongnovi villages with goal of reaching consensus.
	Boundary agreement with Hopi tribe	Use mapping documentation to request that Hopi Tribal Council formally agree to boundaries.
Land Use Plan	Refine plan	Work with Sipaulovi Village to refine plan and more exactly map internal districts.
	Adopt plan	Adopt plan by Sipaulovi Village Board of Directors.
	Distribute plan	Use plan for policy for three boards (Village, economic development, and water), and for grants.
Upper Village	Restore Village	Work to fulfill the University of Arizona recommendation for the restoration of the upper village.
	Bathing facilities	Develop improved shared bathing facilities to serve upper village and middle village homes without running water, to make the upper village more attractive, either in the upper village or the middle village.
Middle Village	Redevelop	Work with clans to encourage redevelopment of underutilized buildings and sites in the middle village.
Toreva	Redevelop	Work with the Hopi tribe to allow redevelopment of Toreva as the tribe gives up their rights.
	Restore	Focus on restoring and stabilizing building envelopes, especially roofs, and restoring Piki houses.
	Develop	Do not only focus on the lower village. This area could accommodate offices and possibly job generating activities in a land use pattern that supports the traditional Hopi settlement pattern.
Lower Village	Develop	Focusing most new development on a small footprint Lower Village, but in a small footprint to preserve farmland and ensure that most people would choose to walk, instead of drive, for any trip within the Lower Village
	Redevelop	Work with clans to encourage strengthening of investment in additional lower village commercial areas north of Highway 264
	Invest	Consider tax credit housing or other programs to develop the housing shown on the lower village plan
	Preserve	Think about vistas and farm fields that should never be developed and should be preserved to add value to Hopi culture and the rest of the lower village.
	Programmatic	Develop new village facilities in area shown on plan. Work with BIA to allow the high school to be used for community activities in the evening.

Focus Area	Action	How
Land Use Management	Zoning	Adopt zoning to implement the plan, with zoning districts (areas of uniform regulations) that match the districts in the land use plan
	Building and Energy Code	Adopt a code to ensure new buildings are extremely energy efficient and durable. Encourage local building materials

SDAT Roster & Acknowledgements

WAYNE FEIDEN, FAICP, HON. WMAIA- TEAM LEADER AND OVERALL LAND USE PLAN

Wayne has 30 years planning experience in land use, downtown and community revitalization, sustainable transportation, environmental justice, open space, and the environment. He is the Director of Planning and Development for Northampton, Massachusetts. There he helped lead Northampton to earn the highest score in Massachusetts scoring of municipal sustainability efforts, an APA Great Streets award, and a League of American Bicyclists designation as a Bicycle Friendly Community.

Wayne also has a small consulting practice, and serves as an adjunct faculty at the University of Massachusetts and Westfield State University. Wayne's publications include three APA PAS Reports, most recently Assessing Local Government Sustainability. Wayne has participated on or led 14 AIA design assessment teams. He has fellowship experience on sustainability projects in Hungary (Eisenhower), South Africa (Fulbright) and New Zealand (Fulbright).

Wayne has a Master's in City and Regional Planning from the University of North Carolina and a B.S. in Natural Resources from the University of Michigan. He has earned the American Trails' Trails Advocacy Award, Honorary Western Mass AIA, and APA-Massachusetts Chapter Distinguished Planner and Advocacy Planning Awards.

TONY ATKIN, FAIA- DESIGNING THE LOWER VILLAGE

Tony is the founding principal of Atkin Olshin Schade Architects, with offices in Philadelphia and Santa Fe. He is closely involved in the conceptual design phase of the firm's work and in incorporating the client's goals and expectations into the project design. Many of these projects have been published and received design awards, including Santa Fe and New Mexico AIA Design Awards, Pennsylvania Society of Architects Silver Medal for Design Excellence, Philadelphia Chapter AIA Honor Award, and Progressive Architecture Magazine Design Citation Award.

People who experience his work describe a spirit of place with a human scale and buildings where art engages intellect. His work ranges geographically from an eco-hotel in China, to academic buildings in New England, to pueblos in the Southwest. Recent work in the Southwest includes the I-Sah'-Din'-Dii Housing Development for the Mescalero Apache Reservation, the Kewa Pueblo Safety Complex, the Laguna Pueblo Early Learning Center, and multiple projects at Okhay Owingeh (formerly San Juan Pueblo) and Southern Methodist University in Taos. Other notable projects include the Anne d'Harnoncourt Sculpture Garden and Parking Facility at the Philadelphia Museum of Art, the Mainwaring Wing of the University of Pennsylvania Museum of Anthropology and Archaeology, the Daphne Farago Wing of the RISD Museum of Art, the Penn Alexander School, and the LEED Gold Certified Fahey and McLane Residence Halls at Dartmouth College.

Tony is also Adjunct Assistant Professor in Architecture at the University of Pennsylvania, Visiting Professor at the University of New Mexico School of Architecture and Planning, and has been a visiting critic and lecturer at architecture schools around the country. Tony has a B.A. in Anthropology from the University of Utah and holds a M. Arch from the University of Pennsylvania.

TAMARA E. L. BURNS, AIA, LEED AP- MIDDLE AND UPPER VILLAGES

Tamara is cofounder and principal of HopkinsBurns Design Studio which specializes in the preservation, restoration and adaptive reuse of existing buildings and in the design of new places in downtown neighborhoods that are context sensitive and respectful of heritage. Tamara has over 25 years of leadership and management experience providing design services for a variety of new, existing and historic structures and projects, including mixed use, commercial, residential, retail, laboratory renovations, world headquarters facilities and community master planning. As Principal, she ensures the delivery of innovative, sensitive and timely design solutions and that new places are sensitively woven into the context of communities.

Tamara has been active in the profession through the American Institute of Architects, serving as president of the Huron Valley Chapter, and currently vice president/president elect for AIA Michigan. She was Huron Valley's champion for the Blueprint for America initiative celebrating the 150th anniversary of the AIA, leading her chapter in a series of seminars to increase knowledge and awareness of the impact great design can make in a community and which demonstrates how powerful advocacy and knowledge are when paired together. She served on the national AIA Component Partnerships Committee from 2004-2006 which authored the Member Covenant on how to strengthen relationships and deliver value to all AIA members.

Tamara chairs Ann Arbor's Design Review Board which reviews large development projects in Ann Arbor's downtown, providing an opportunity for early dialog with the developers on the values of the Ann Arbor community. She has a Master's in Architecture from the University of California at Berkeley and a B.S. in Architecture from the University of Michigan.

PETER FLINKER, ASLA, AICP- LOWER VILLAGE SITE PLANNING AND CONNECTIVITY

Peter Flinker is a registered Landscape Architect and member of the American Institute of Certified Planners. In 2011 he was among the first in the nation to become an AICP Certified Environmental Planner. A partner with Dodson & Flinker, he maintains an active portfolio of projects with public and private clients, including historic preservation, downtown revitalization, watershed protection, greenway planning and sustainable design for schools and mixed-use communities. A common element of the firm's work is a focus on bridging the gap between site design and planning on the town, watershed and regional scale. Peter joined Dodson

Associates in 1987 after receiving his Masters in Landscape Architecture from the University of Massachusetts. He became a partner in the firm in 2000.

Peter has been a leader in developing approaches to local and regional open space planning that give cultural, historic and recreational resources equal weight with natural resources in setting priorities for greenway planning and open space preservation. Exemplified by the Rhode Island Greenspace program, winner of a 2006 honor award from the Boston Society of Landscape Architects, this approach builds on extensive public participation on the local level to establish priorities for greenways and greenspaces that are then merged into regional plans at a watershed scale. Dodson & Flinker has applied this approach in more than fifty communities. In each of these projects, an understanding of natural, cultural and recreational systems is the foundation for conservation and development plans that allow communities to grow and thrive while preserving both ecological health and historic character.

CHARLES P. O'HARA, M.P.A. - VILLAGE REGULATORY SCHEMES AND CULTURAL IDENTITY

Charles O'Hara has more than 30 years of experience in environmental, health, and community development planning positions with Indian tribes in both the Southwest and Northwest. Since 1999, he has been the Director of Planning and Community Development with the Swinomish Indian Tribal Community in La Conner, Washington. His duties include planning, permitting and management responsibilities for environmental and development programs of the Tribe. Prior to that, he was the Planning Director for the Pascua Yaqui Tribe in Tucson and the White Mountain Apache Tribe in Whiteriver, Arizona, with similar duties in both.

Charles environmental and natural resource management experience includes planning and administrative responsibilities for a variety of program areas, including environmental policy, environmental management, water and air quality, forestry, land use and permitting. He also serves as co-coordinator of the Coast Salish Gathering, an aboriginal environmental advocacy group for the Salish Sea, and has extensive training in negotiations and dispute management.

He has a B.A. from Boston College and an M.P.A. from the Kennedy School of Government, Harvard University.

MIKE OLKIN, CERTIFIED GIS PROFESSIONAL - GEOGRAPHIC INFORMATION SYSTEM AND SPATIAL DOCUMENTATION OF ORAL TRADITION

Mike has more than 15 years of experience in the field of Geographic Information Systems, specializing in local and regional government GIS implementation, database integration and spatial application development. Mike is the GIS Administrator for the Town of Amherst, Massachusetts and has experience as an ESRI-Authorized ArcGIS Instructor.

Mike has held numerous other GIS positions, including Senior Project Manager for Applied Geographics, Inc., Manchester, Connecticut, GIS Manager, Town of West Springfield, Massachusetts, and GIS Coordinator, Central Massachusetts Regional Planning Commission, Worcester, Massachusetts.

Mike has a Masters in Geography and Bachelors in Geography and Economics from the University of Connecticut. He is currently President of the New England Chapter of the Urban & Regional Information Systems Association (NEURISA).

JOEL MILLS- DIRECTOR, AIA CENTER FOR COMMUNITIES BY DESIGN

Joel Mills is Director of the American Institute for Architects' Center for Communities by Design. The Center is a leading provider of pro bono technical assistance and participatory planning for community sustainability. Through its design assistance programs, the Center has worked in over 200 communities across 47 states. Its processes have been modeled successfully in the United States and across Europe. In 2010, the Center was named Organization of the Year by the International Association for Public Participation (IAP2) for its impact on communities and contributions to the field.

Joel's 18-year career has been focused on strengthening civic capacity and civic institutions around the world. This work has helped millions of people participate in democratic processes, visioning efforts, and community planning initiatives. In the United States, Joel has worked with dozens of communities in over 25 states, leading participatory initiatives and collaborative processes that have facilitated public-private partnerships and led to hundreds of millions of dollars in new investment. His work has been featured on ABC World News Tonight, Nightline, CNN, The Next American City, Smart City Radio, The National Civic Review, Ecostructure Magazine,The Washington Post, and dozens of other media sources.

In December 2010, he was elected to the Board of Directors for the IAP2-USA. He is also a member of the International Association of Facilitators (IAF), the American Planning Association, the National Coalition for Dialogue and Deliberation (NCDD), and the Mid-Atlantic Facilitators Network.

ERIN SIMMONS- DIRECTOR, AIA DESIGN ASSISTANCE

Erin Simmons is the Director of Design Assistance at the Center for Communities by Design at the American Institute of Architects in Washington, DC. Her primary role at the AIA is to provide process expertise, facilitation and support for the Center's Sustainable Design Assistance Team (SDAT) and Regional and Urban Design Assistance Team (R/UDAT) programs. In this capacity, she works with AIA components, members, partner organizations and community members to provide technical design assistance to communities across the country. Through its design assistance programs, the AIA has worked in 200 communities across 47 states. In 2010,

the Center was named Organization of the Year by the International Association for Public Participation (IAP2) for its impact on communities and contributions to the field.

Erin is a leading practitioner of the design assistance process. Her portfolio includes work in over 45 communities across the United States. A frequent lecturer on the subject of creating livable communities and sustainability, Erin contributed to the recent publication "Assessing Sustainability: A guide for Local Governments". Prior to joining the AIA, Erin worked as historic preservationist and architectural historian for an environmental and engineering firm in Georgia, where she practiced preservation planning, created historic district design guidelines and zoning ordinances, conducted historic resource surveys, and wrote property nominations for the National Register of Historic Places. She holds a Bachelor of Arts degree in History from Florida State University and a Master's degree in Historic Preservation from the University of Georgia.

WITH SPECIAL THANKS TO:

Robert Raymond- Bachelors in Regional Planning candidate, Westfield State University (SDAT role: base mapping prior to SDAT)

Sean Shelander- Masters in Urban and Regional Planning candidate, U. of Massachusetts (SDAT role: base mapping prior to SDAT)

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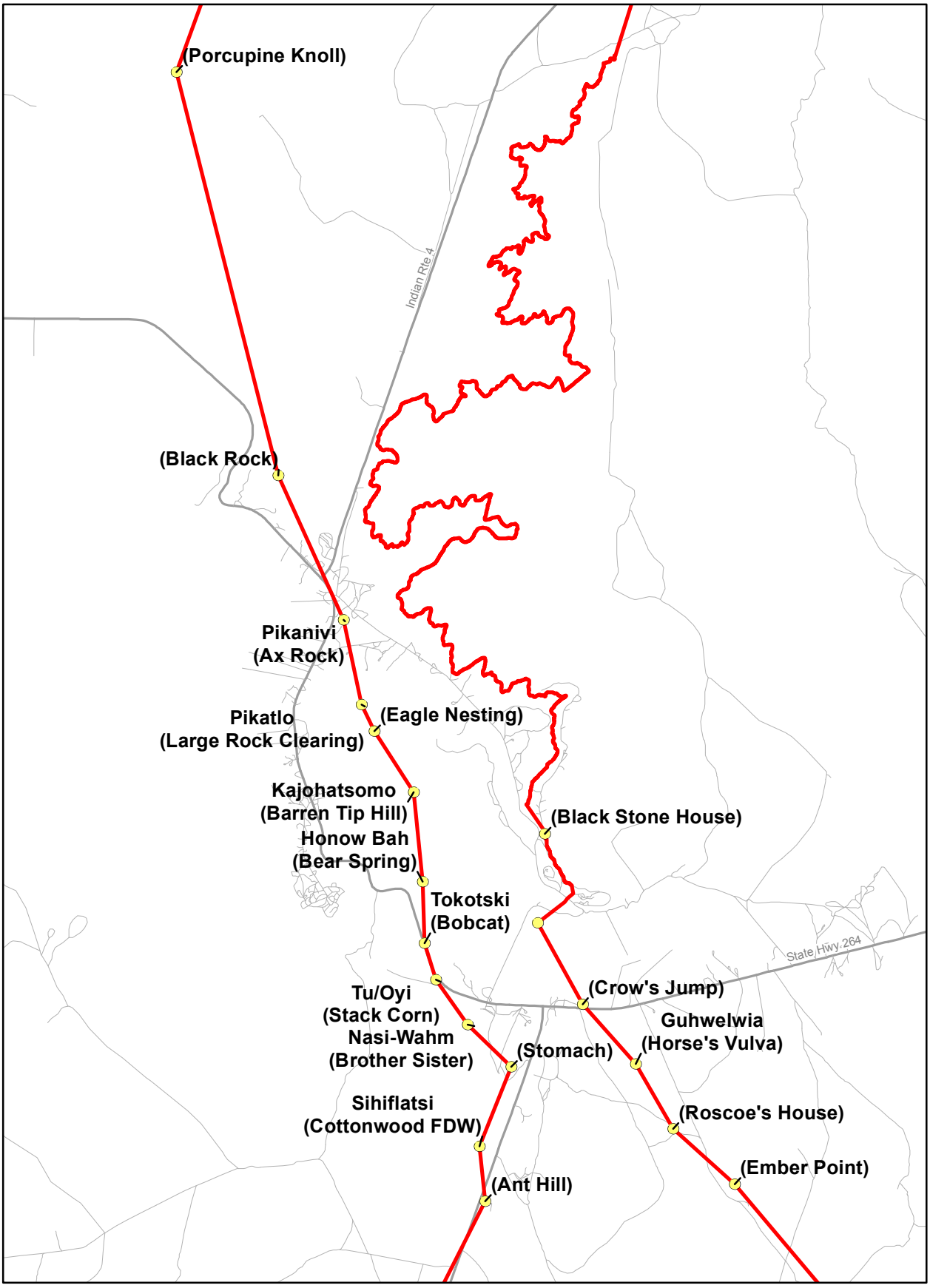
- Sipaulovi Village and its Board of Directors and General Manager
- Sipaulovi Development Corporation and its Board of Directors and General Manager
- Sipaulovi Water Board and its Board of Directors
- The American Institute of Architects
- University of Massachusetts (for supplying an intern)
- Westfield State University (for supplying an intern)
- The team members, interns, and volunteers who helped make the process happen

Exhibit A: Village Boundary Details



0 0.5 1 Miles

1 in = 6,000 feet

Sipaulovi Village Boundaries

Boundary Line

Boundary Monuments

0 250 500 Feet

1 in = 500 feet

(Crow's Jump)
-110.49155, 35.793053

Mapped via Sketch
Confidence Level: Medium

0 250 500 Feet

1 in = 500 feet

(Roscoe's House)
-110.47876, 35.778526

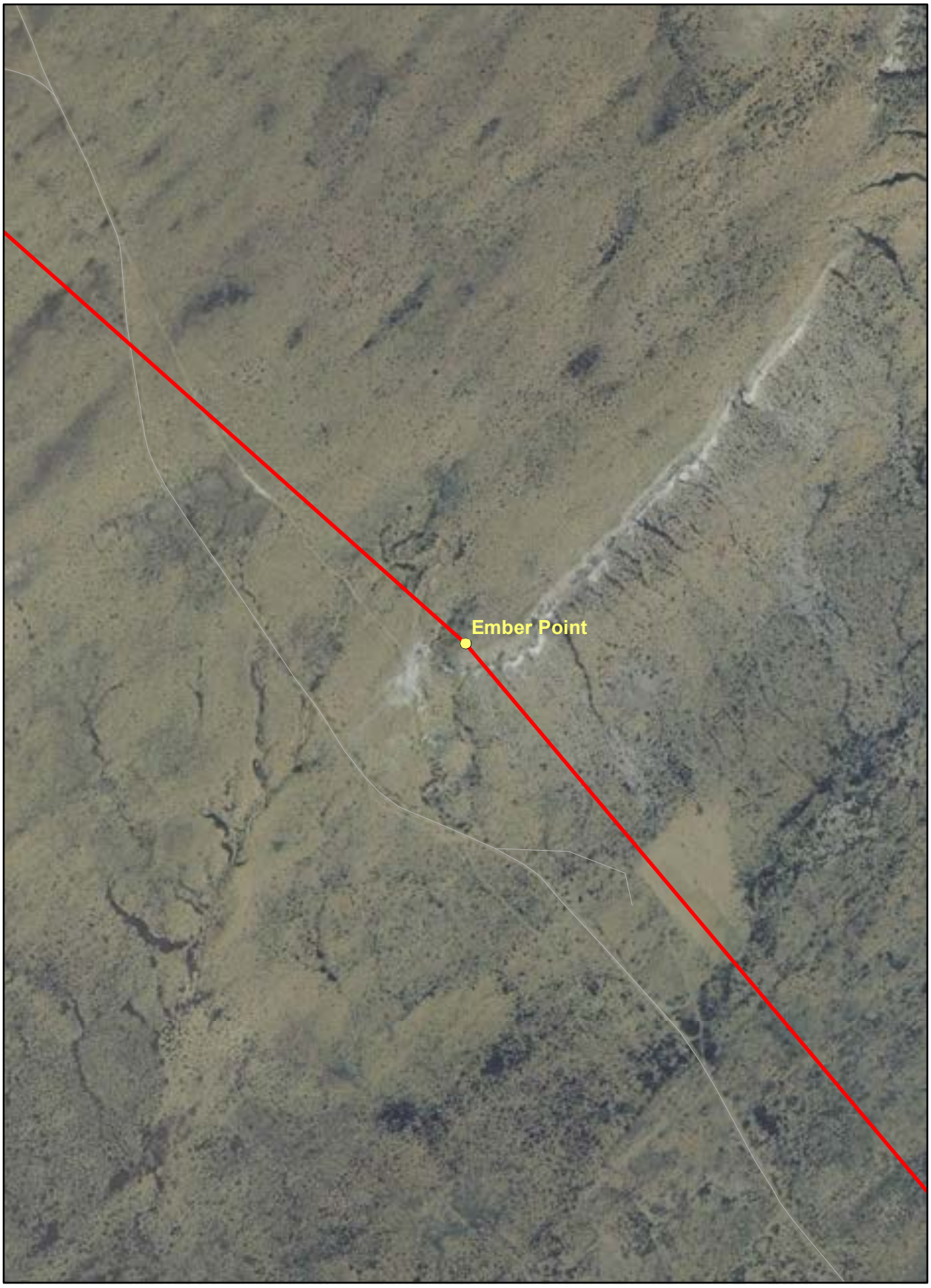
Mapped via GPS
Confidence Level: High

0 250 500 Feet

1 in = 500 feet

Guhwelwia (Horse's Vulva)
-110.48405, 35.786121

Mapped via Sketch
Confidence Level: Medium



0 250 500 Feet

1 in = 500 feet

(Ember Point)
-110.47002, 35.772099

Mapped via GPS
Confidence Level: High

0 250 500 Feet

1 in = 500 feet

(Black Stone House)
-110.49679, 35.812881

Mapped via Sketch
Confidence Level: Medium

0 250 500 Feet

1 in = 500 feet

Honow Bah (Bear Spring)
-110.51425, 35.807362

Mapped via Field Estimate
Confidence Level: Medium

0 250 500 Feet

1 in = 500 feet

Kajohatsomo (Barren Tip Hill)
-110.51547, 35.817764

Mapped via Field Estimate
Confidence Level: Medium

0 250 500 Feet

1 in = 500 feet

(Eagle Nesting)
-110.521, 35.824879

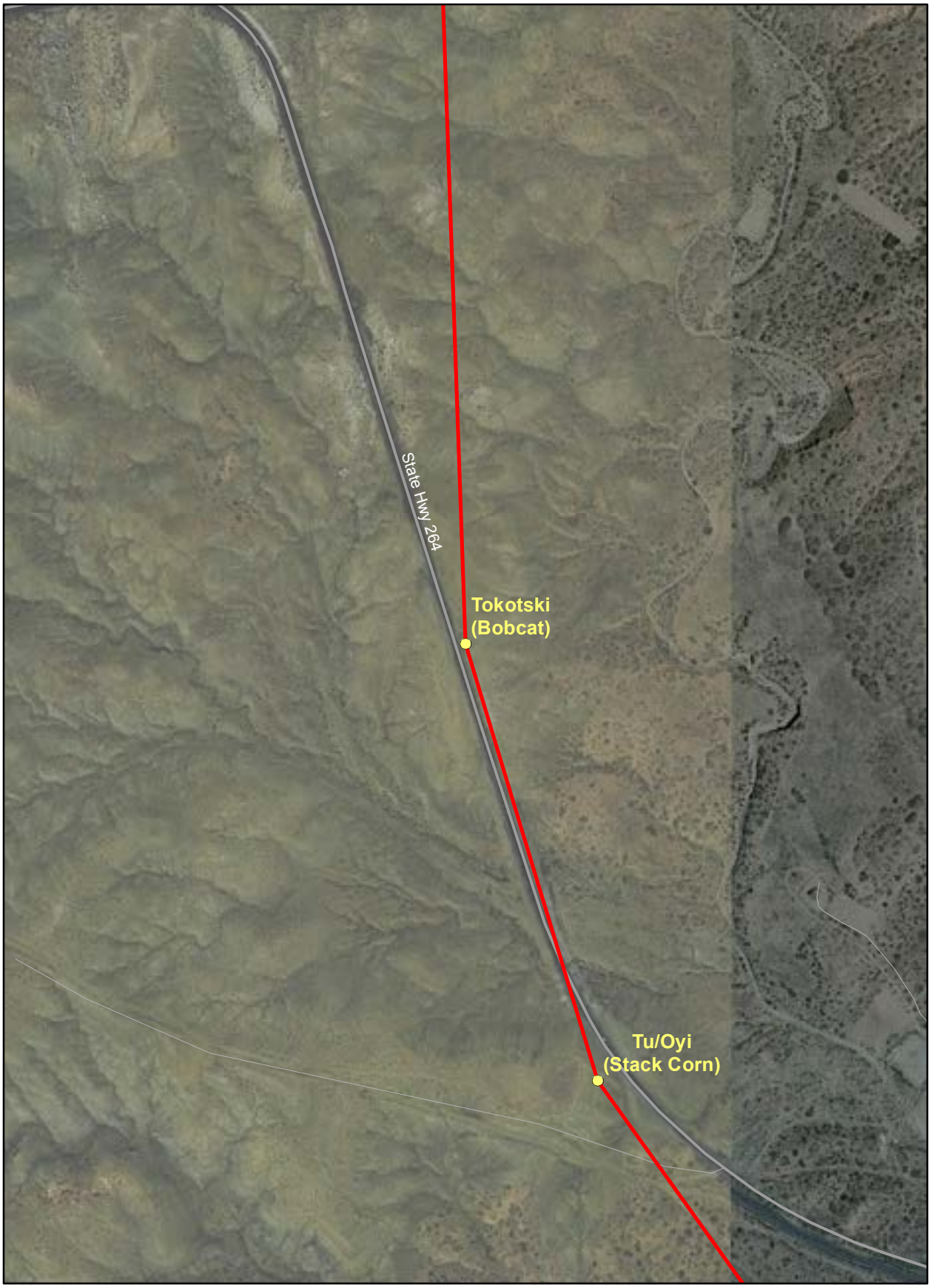
Mapped via Field Estimate
Confidence Level: Medium

0 250 500 Feet

1 in = 500 feet

Pikanivi (Ax Rock)
-110.52532, 35.837845

Mapped via Field Estimate
Confidence Level: Medium



0 250 500 Feet

1 in = 500 feet

Tokotski (Bobcat)
-110.51398, 35.800224

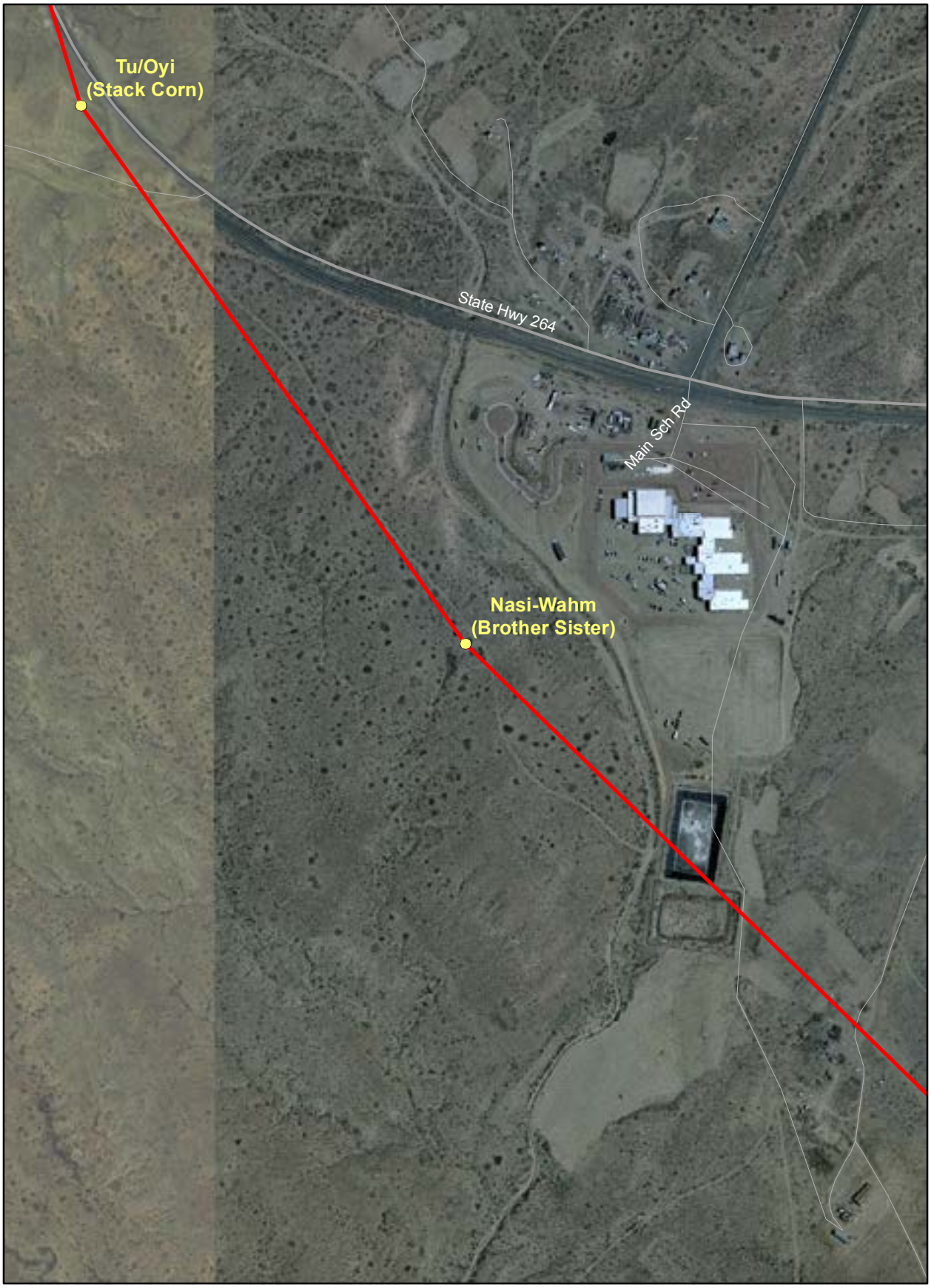
Mapped via GPS
Confidence Level: High

0 250 500 Feet

1 in = 500 feet

Tu/Oyi (Stack Corn)
-110.51244, 35.795994

Mapped via GPS
Confidence Level: High



0 250 500 Feet

1 in = 500 feet

Nasi-Wahm (Brother Sister)
-110.50791, 35.790771

Mapped via Sketch
Confidence Level: Medium

0 250 500 Feet

1 in = 500 feet

Sihiflatsi (Cottonwood FDW)
-110.50632, 35.776615

Mapped via Sketch
Confidence Level: Medium

0 250 500 Feet

1 in = 500 feet

(Ant Hill)
-110.50557, 35.770267

Mapped via Sketch
Confidence Level: Medium

0 250 500 Feet

1 in = 500 feet

Pikatlo (Large Rock Clearing)
-110.5228, 35.82798

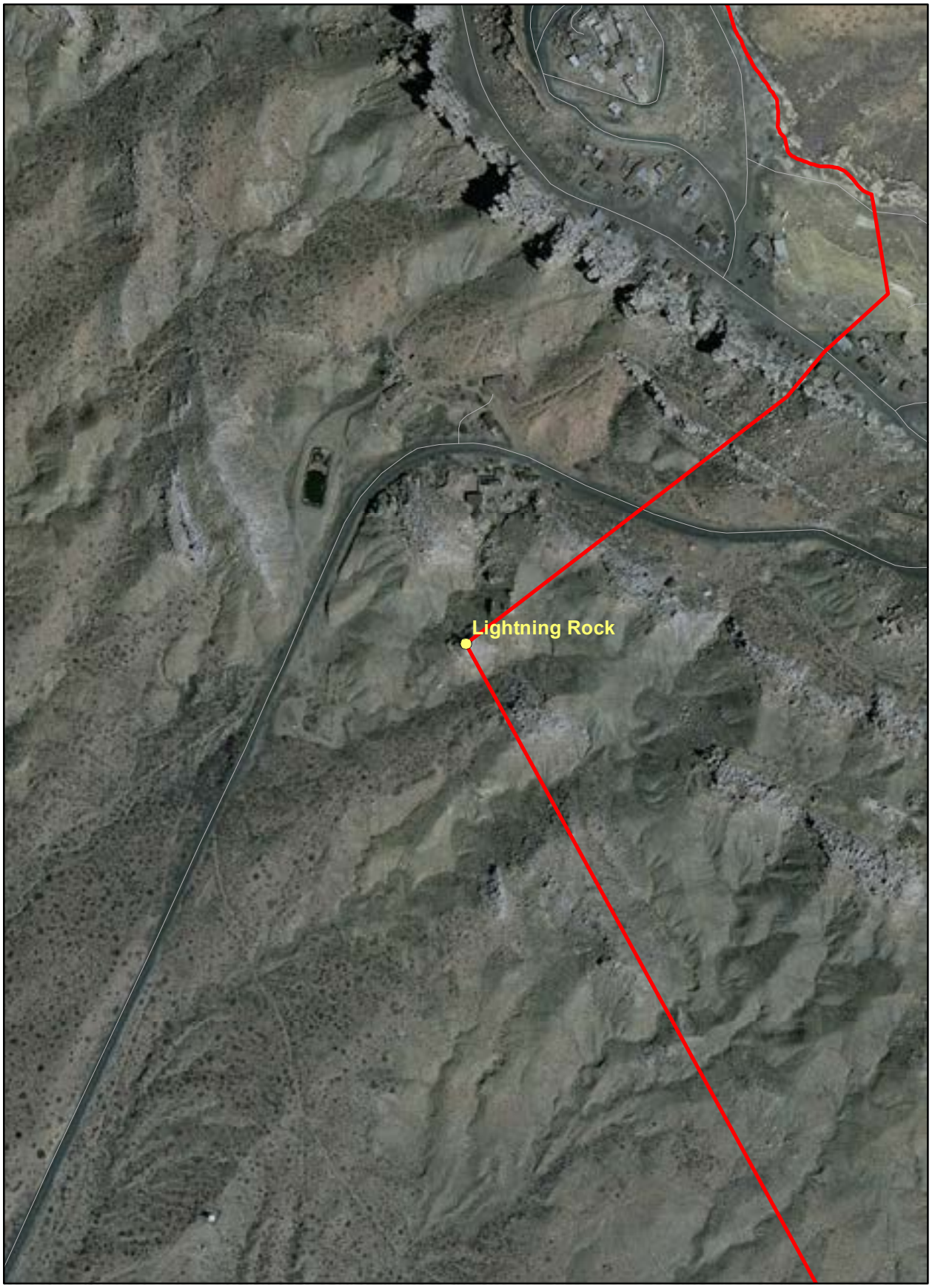
Mapped via GPS
Confidence Level: High

0 250 500 Feet

1 in = 500 feet

(Stomach)
-110.50175, 35.785824

Mapped via GPS
Confidence Level: High



0 250 500 Feet

1 in = 500 feet

(Lightning Rock)
-110.49786, 35.802551

Mapped via Field Estimate
Confidence Level: Medium

0 250 500 Feet

1 in = 500 feet

(Black Rock)
-110.53456, 35.854607

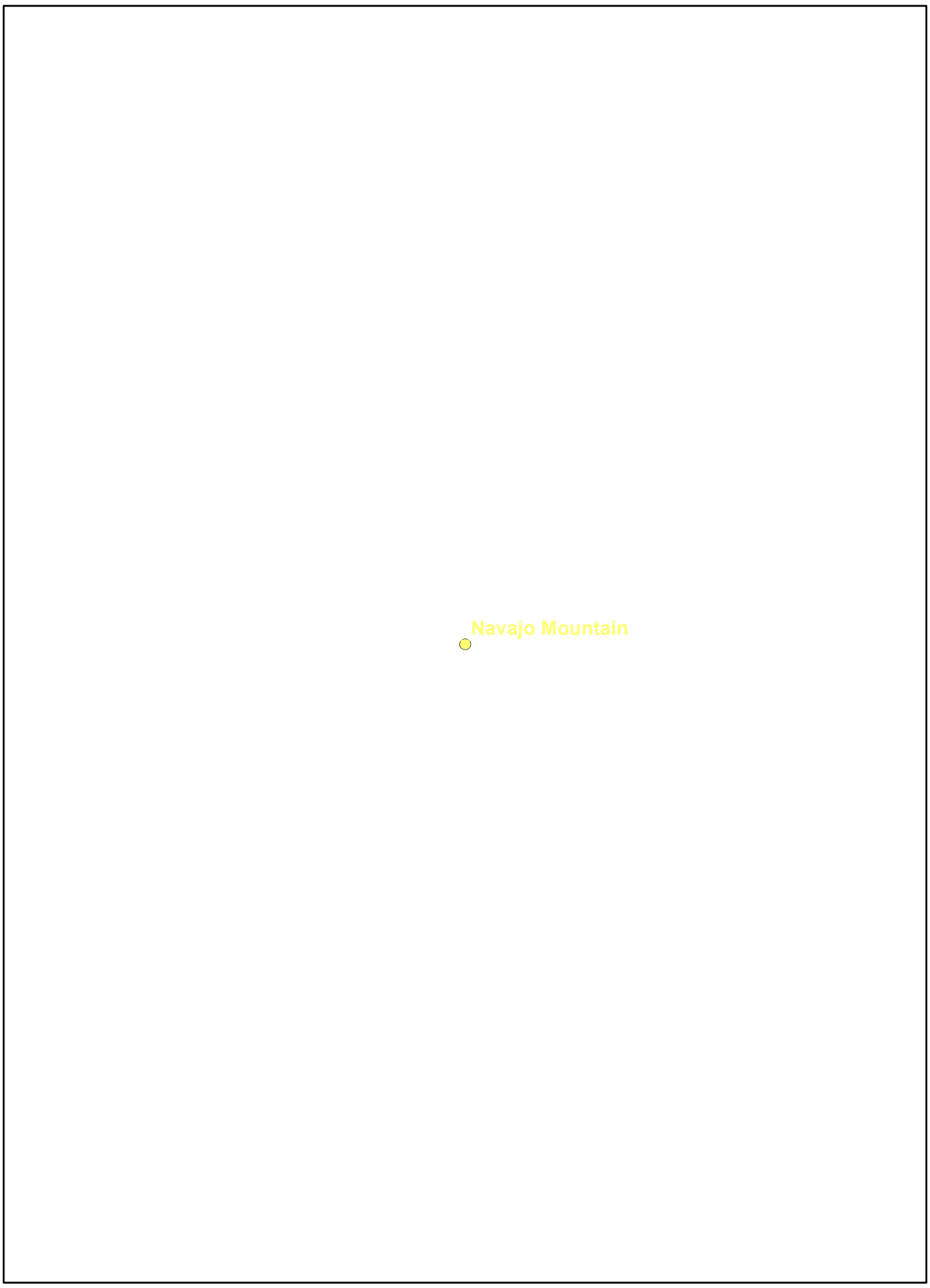
Mapped via GPS
Confidence Level: High

0 250 500 Feet

1 in = 500 feet

(Giant's Chair)
-110.53347, 35.724728

Mapped via Sketch
Confidence Level: High

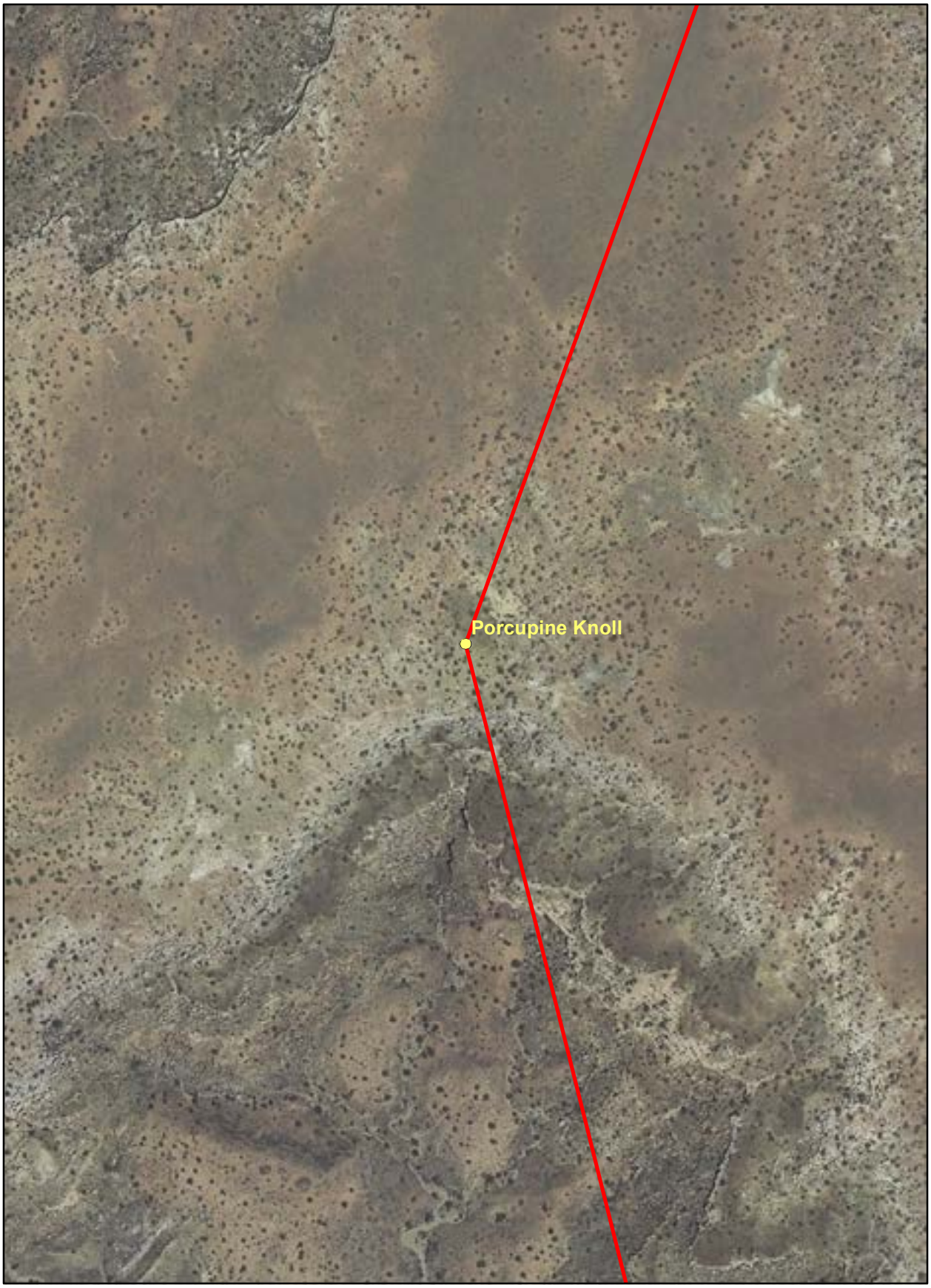


0 250 500 Feet

1 in = 500 feet

(Navajo Mountain)
-110.86958, 37.034161

Mapped via Sketch
Confidence Level: Medium



0 250 500 Feet

1 in = 500 feet

(Porcupine Knoll)
-110.54877, 35.901527

Mapped via Sketch
Confidence Level: Low