Hopit Tunatya’at 2000:
The Hopi Strategic Land Use and Development Plan

Prepared for
The Hopi Tribal Council

by
The Office of Community Planning & Economic Development
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A VISION OF HOPI

Hopi should be a place where:

- Hopi culture and religion are strong;
- Sacred sites are protected;
- Culturally and environmentally sensitive development occurs;
- The land is looked after;
- There are jobs and businesses;
- Quality infrastructure serves everyone;
- Everyone has their own quality house;
- Public service facilities serve all needs.
EXECUTIVE SUMMARY

The Hopi Tribe and its people are a rapidly growing society located in a remote and striking land, a land that has been theirs for over a millennium. As a population, they have known decimation as well as growth, and survive both. The issues and challenges facing the tribe are many and diverse.

There is a well documented, real growth rate in tribal enrollment of 5.5% per annum. This represents the major source of increasing service demand on the tribal government and its resources and programs. The growth in reservation population is less clear, but based on projections from the uncorrected and corrected 1990 census counts, the reservation population will reach 10,000 people in 2000 and 17,000 by 2020. Census 2000 has apparently not substantiated these projections, but there is an alleged undercount.

Demographics surveys conducted by the Hopi Tribe reveal significant amounts of structural deficiency (38%) and overcrowding (27%) in the existing reservation housing stock. There is an immediate demand for 765 new houses to alleviate these conditions. With the projected growth of the population, there will be an additional demand for almost 90 new houses each year for the next twenty years.

The demographics surveys and other economic studies prepared for this plan, document Hopi Reservation un- and under employment rates as high as 50%, heavy reliance on the services sector in the local economy for incomes, the manufacturing sector for jobs, and the existence of a well developed, non monetary informal local economy. The total value of the annual local economy, formal and informal, is more than $48 million.

Research for the plan also revealed that one of the significant barriers to public investment and development on the Hopi Reservation lies in the complex land tenure system which is dominated by village and clan interests. Under these systems, land is held by the villages and clans for use by their own members, present and, importantly, future. There is tremendous reluctance to make land available, especially for large, long term projects, to non members or the tribe as a whole. Village and clan leaders see such gestures as one of little return for and a great loss to their members.
In a strategic analysis these issues would be seen as internal weaknesses. The internal strength of the Hopi Tribe lies first in the commitment of the Hopi people to the preservation of their culture, language and religion, and second their attained levels of and continuing commitment to education. Cultural tradition pervades life on the reservation and is strongly institutionalized in both tribal and village governance. The demographics survey documents a secondary school graduation rate of nearly 70% and combined post secondary school graduation rates of nearly 30%. In 2000 the tribe created an education scholarships endowment fund of $10 million.

In the American southwest, the age old economic growth triad of Land, Labor, and Capital is augmented by one other immensely important ingredient: WATER. The Hopi know and understand this more profoundly than any other group of people on earth. The use of ground water to slurry coal from the Black Mesa mines to the Mohave power generation plant near Laughlin, Nevada, which has been projected will lead to depletion of the Hopi’s water supply by mid century, is the single most life-threatening external issue that faces the tribe today.

While the Hopi Tribe faces many issues, there are also many opportunities. The Hopit Tunatya’at 2000: The Hopi Strategic Land Use and Development Plan is one such opportunity, an opportunity to adopt a strategy to grapple with the critical issues that face the tribe and its people. The Hopit Tunatya’at 2000: The Hopi Strategic Land Use and Development Plan is the opportunity to establish investment and policy choices that will guide the Hopi Tribe in making decisions or granting approvals for development projects on the reservation.

The Hopit Tunatya’at 2000: The Hopi Strategic Land Use and Development Plan calls for the creation of five Planned Community Development Districts located four on the main reservation and one in the Moenkopi District. These would be large tracts of land, several thousand acres, in which a Planned Community would be developed. The are all located on Hopi Partition Lands. The Planned Community would contain a mix of commercial, institutional, recreational and

Communities are born, expand, contract and grow again in a process dominated by the interaction of economic, social and political forces.

Successful communities grow dramatically when there is a confluence of strong national, regional and local economy, social and political stability, and a clear understanding by the community's leadership of their goals for the future.
medium and high density development. They would be limited in size to 4-500 acres. The communities would be fully serviced. Eventually, they would be able to undertake local governance.

The Planned Community Development Districts, with one exception, would be closed to home site development. These areas would be co-managed by the residents of Planned Community Development and the tribal government. The five areas are: Tawaovi, Moenkopi, Side Rock Well, Howell Mesa East, and Yu Weh Loo Pahki PCDD/PCD.

A sixth Planned Community Development is the Hopi Winslow Property; there would be no surround district associated with this light industrial and community development.

Two of the projects are tribal initiatives, two are village initiatives and two stem from a pre-existing concentrated settlement of people in an area.

Development of these communities would provide the opportunity to address the issues of replenishing and adding to the reservation housing stock without infringing on village and clan rights. The plan also calls for some development, particularly residential development, to take place in the vicinity of the existing villages consistent with and regulated by traditional land allocation practices.

The major infrastructure projects the Hopit Tunatya'at 2000: The Hopi Strategic Land Use and Development Plan calls for are continuing efforts to secure an allocation of Colorado River water at Lake Powell and construction of a pipeline to deliver the water to the Hopi communities. Three alternative corridors are described. Also called for in the plan is a continued effort to secure financing for construction and completion of the Turquoise Trail (BIA 4) as an all weather road from the present terminus north to US 160. Minor infrastructure development called for in the plan includes enhancing and extending the electrical supply, improving and increasing air transportation facilities, and expanding the telecommunications network to include satellite Internet links.
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INTRODUCTION

The Hopit Tunatya’at 2000 Plan Report

Intent of the Plan

The Hopit Tunatya’at 2000: The Hopi Strategic Land Use and Development Plan is the initiative of the Hopi Tribe (H-045-97) that was facilitated by the Office of Community Planning and Economic Development (CP&ED). The project was supported by a grant (90-NA-1904/01) made to the Hopi Tribe by the Administration for Native Americans, Department of Health and Human Services. The intent of the project was to update the Hopit Tunatya’at: The Hopi Comprehensive Development Plan of 1988 with a work plan for the Hopi Tribe and the CP&ED that would contain an explicit strategic actions focus. It is intended to be a focused medium range land use and development plan of the Hopi Tribe. It is a comprehensive plan that, unlike most comprehensive plans, specifies certain strategic actions that need to occur in order to implement the basic elements contained in the plan. Like most comprehensive plans, it will stand as the referent to evaluate tribal development projects and to guide capital facilities investment decisions.

The Hopi Tribal Council, in adopting this plan, continues strong traditions of looking to the future of tribal planning. The Hopit Tunatya’at 2000 is built on a community vision that was created in a tribal wide public participation process and documented in The Hopi Vision published in 1999. Several earlier plans which have been adopted by Tribal Council also contribute to the final Hopit Tunatya’at 2000. These include the Hopit Tunatya’at: The Hopi Comprehensive Development Plan of 1988 and The Hopi Pötskwaniat, The Consolidated Strategic Plan of 1995. The Hopit Tunatya’at 2000 is to be used in partnership with the recently adopted Hopit Tutskwamakiwa’ya/Hopi Land Stewardship: An Integrated Resources Management Plan for the Hopi Reservation.
The *Hopit Tunaty’at 2000* will assist the tribal government to direct, manage, and monitor development growth for the next twenty years, to 2020. The scope of the plan is limited to the Hopi tribal trust—reservation—lands. These include the main Hopi reservation, the trust land around the Moenkopi villages and the Hopi Winslow property.

The plan takes into account many changed circumstances that have arisen since preparation of the 1988 Hopi Comprehensive Development Plan. The most important of these changes is the increase of trust land now under Hopi tribal jurisdiction as a result of partitioning the Moenkopi District to the Hopi Tribe in 1992. This acquisition brought more than 60,000 additional acres into Hopi tribal trust status. This plan should be amended when any sizable tracts of new lands are brought into tribal trust status.

The *Hopit Tunaty’at 2000* aims to provide The Hopi Tribal Council with policy prescriptions and up-to-date technical and legal tools necessary to achieve the tribe’s two overarching strategic goals:

- **Tribal sovereignty and self determination.**
- **Management authority over all Hopi trust land.**

### Healthy Communities

The ability of any community to sustain itself or to grow is largely determined by its economic assets. Every community, large or small, must continually invest in itself—both in the private and public sectors—if it is to remain a good place to live and work. Investment at less than normal maintenance will eventually bring about physical and social decay; investment above the maintenance level can generate economic growth and produce a feeling of community well being.

The plan identifies certain social and economic issues that face Hopi people and presents a policy program and action framework of new community and public infrastructure development which will contribute positively to the welfare of Hopi people and to the future “health” of Hopi communities.

Other uses for the plan include:
Guidance for tribal staff who are responsible for land management programs.

Guidance on issues of tribal interest for Village administrations, the Bureau of Indian Affairs, Indian Health Service and other agencies.

Serve as a reference tool to evaluate tribal growth, changing needs and funding requirements.

Benefits of the Plan

The benefit of adopting the plan is that tribal and village leaders will have a clear presentation of the tribe’s strategic land use and development goals accompanied by the program designed to accomplish these ends. Most important, because creation of the plan was based on an extensive public participation process, tribal and village leaders now have a clear expression of how Hopi people see their future and that of their land.

Research Process

A strategic planning model was adopted for the Hopit Tunaty'a'at 2000 project to ensure that the final plan, while comprehensive in scope, would address development issues deemed vital in both the eyes of the Hopi public and in the eyes of the tribal leadership.

In order to identify the strategic issues to be addressed in the plan, a number of parallel research activities were employed. The planning team:

- Undertook a review of existing plans, background literature, and socioeconomic data.
- Conducted “key informant” interviews with tribal government leaders and staff, village Community Service Administrators (CSAs) and others perceived as having insight into tribal development issues.

Strategic Planning

Strategic planning deals with overall, long term guidelines that attempt to ensure the success of an individual or institution. Tactics (actions) are used to implement a strategy, and they relate to activities of shorter duration.
Conducted an intense and broad public participation program—The Alternative Futures Workshops.

Conducted an in-depth tribal demographic survey to portray and document social needs.

Developed a profile of the economic base of the reservation.

Compiled a physical assets inventory of the Hopi reservation using geographical information system technology.

Reviewed and revised tribal development control and land assignment policies.

Of all of the research strategies employed in this project, perhaps the most informative ones were the key informant interviews and the public participation workshops. It was from these activities that:

- Community issues and needs, as perceived and expressed by the community leaders and members themselves, were identified.
- Involvement of people in the important decisions made in the Hopi Tunatya’at 2000 project was accomplished.
- A vision statement for the Hopi Reservation came into existence.

Guide to the Plan Documents

Hopit Tunatya’at 2000: The Hopi Strategic Land Use and Development Plan Report document consists of four sections. The first section is the plan overview which provides an executive summary of the highlights of the plan. The next three sections constitute the main body of the report. The Introduction provides discussion of the intent and benefits of the plan. Hopi People & Hopi Land provides background information on the geography and sociocultural context of the reservation. The Vision of Reservation Development section reports the preferred vision of development for the reservation which was derived from a series of public design charrettes. The last section Strategic Actions Framework provides the schedule of the action steps necessary to
achieve the objectives of the vision described in the previous section. Appendices, maps and plan sheets support these four sections.

*The Hopi Vision*, the document that resulted from the public Alternative Futures Workshops is included for reference as an appendix to this plan report document (Appendix 1).

The *Tribal Planning Ordinance* is an integral part of and an important tool for implementing the Strategic Land Use and Development Plan. It was developed as part of the Strategic Land Use and Development Plan planning process and in conjunction with the Plan Report document.

**Hopi People & Hopi Land**

**Hopi in Historical Perspective**

An interesting tribe of Pueblo Indians of Shoshonean stock occupying seven communal pueblo towns situated upon a high mesa within a reservation in northeast Arizona. One of these pueblos, Hano, is occupied by immigrants from the Tewa tribe of New Mexico, speaking a distinct language. Like all Pueblos they are sedentary and agricultural in habit, and although the entire surrounding country is a desert of shifting sand, they carry on successful farming with the aid of water supplied by numerous small streams which issue from the base of the mesa. Besides their abundant crops of corn, beans, squashes, tobacco and peaches (the last an inheritance from the former missionaries), they manufacture a fine variety of pottery and basket-work, and excel in wood-carving and the weaving of native cotton. Many of them are also skillful metal-workers. Their houses are square-built and flat-roofed structures, of stone or adobe, sometimes several stories in height, with sufficient numbers of rooms to accommodate hundreds of persons, and with store-rooms filled with provisions sufficient to last for a year. For better protection from hostile attack, most of the outer walls are without
doors, entrance and egress being made through a hole in the roof by means of a ladder, other ladders being let down at the outside. In former times also the steep trails which constitute the only means of approach to the summit were effectively closed at night or when danger threatened, by removing the ladders which are necessary in the most difficult places.

. . . . They may have numbered at one time 6000 souls, but by wars and frequent epidemics are now reduced to about 2200, of whom one-half dwell in the Oraibi pueblo. (Mooney 1913)

Hodge (1907) reported a total Hopi population of 1,878 in 1904. This population was distributed over the three mesas: First Mesa - 504; Second Mesa - 595; and Third Mesa (Oraibi only) - 905. Swanton (1952) notes an estimate made by Mooney of the 1680 Hopi population at 2,800 and other estimates in the early part of the 20th century: 1910 - 2,009; 1922 - 2,336; 1930 - 2,752; and 1937 - 3,248. These latter figures would suggest there has been growth in the Hopi population since 1900.

**Hopi in the 21st Century**

Contemporary Hopi people, like their ancestors, live in what is now northeastern Arizona. While they retain many of their traditions, particularly their religious beliefs and ceremonies, their modern life has changed in many dramatic ways from the description of traditional Hopi life given above by Mooney almost one hundred years ago. Now, there are twelve villages that occupy a much reduced land base. Instead of living in highly compact, multistory pueblos, many Hopi families now live in single family detached houses laid out in *cul-de-sac* subdivisions. Many families, particularly those in the First Mesa area, have moved from the mesa tops onto the flood plains of the washes below. Many modern Hopi participate in the local and regional cash economy, as well as grow crops and herd livestock for their own consumption. A tribal constitution was adopted in 1936 and under its authority a tribal government was formed. Several villages have
adopted elected forms of government to replace their former religious oligarchies; most have not. Most Hopi people have come to enjoy and demand all the conveniences of the modern world: running water, indoor bathrooms, electricity, telephones, and automobiles. These are but a few of the changes that have occurred in the past hundred years, and they point in the direction change is likely to proceed as the Hopi move into their second millennium of residence in the high mesa country northeast of Nuvatugkya’ovi, the sacred San Francisco Peaks.

**Ancestral Land Base**

Historical and archaeological research suggests that the ancestral Hopi migrated and settled in a vast area of what is now the southwestern United States (Havens 1995). This traditional territory is called *tutsqua* in the Hopi language.

In prehistoric times *tutsqua* covered the entire southeastern portion of the Colorado Plateau and vast areas to the south. This area was bound by Mesa Verde in the north, the Rio Grande in the east, Cave Creek/Spur Cross Ranch in the south and the San Francisco Peaks and Grand Canyon in the west. It covered approximately 61,500 square miles. Throughout the area, one finds many occurrences of *tutuveni* rocks (petroglyphs) which document the migrations of Hopi clans throughout the region.

More limited areas have been described since the 1950’s as the Hopi *Tutsqua* (James 1974). One such description was submitted to the United States Indian Claims Commission as the aboriginal land claim of the Hopi Tribe (Docket 196). The land described in this claim, approximately 21,400 square miles, has never been returned to the Hopi, rather there was monetary compensation made to the tribe in 1976.
Modern Land Base

The modern Hopi tribal land base consists of a variety of property interests scattered throughout northeastern Arizona. The predominant land holding, 77.3%, is tribal trust—reservation—land. Five recently purchased ranches and associated United States Department of Agriculture (USDA), Forest Service grazing permits now comprise 21.9% of the tribal land base.

Hopi tribal trusts land can be subdivided into land that is wholly administered by the tribal government and lands that are administered jointly by the villages separately and the tribe. The first category includes the Hopi Partitioned Lands (HPL), the Moenkopi District and the Hopi Winslow property. The second category includes District Six and the Moenkopi Administrative Area (MAA). This division of jurisdiction adds to the complexity of reservation land use and development planning.

Further, the administrative boundaries of the villages are generally not established nor is there any system of public documentation of the “use rights” equivalent of corporate or individual land title. The Hopi Constitution (Office of Indian Affairs 1936) specifies only limited powers for the villages and clans to make administrative decisions about land within their community interest. According to the language of the constitution document, Article III, Section 2 states: “the following powers . . . are reserved to the individual villages: . . . (d) To assign farming land, subject to the provisions of Article VII.” Article VII, Section 1 goes on to state the villages and clans may make:

Assignments of use of farming land within the traditional clan holdings of the Villages of First Mesa, Mishongnovi, Sipaulavi, Shungopavi, and within the established village holdings of the Villages of Kyakotsmovi, Bakabi, Oraibi, Hotevilla, and Moenkopi, as in effect at the time of approval of this Constitution, .
Unoccupied land beyond the clan and village holdings mentioned shall be open to the use of any member of the tribe, under the supervision of the Tribal Council.

In reality, sixty years after the constitution was adopted, the villages have asserted almost complete discretion to decide all types of land use and make assignments for all land within their community. A variety of land uses characterize activities that take place on these holdings. They include village and community settlement, agriculture, traditional gathering, commercial and domestic livestock grazing, mining, and recreation.

**Existing Land Use**

Four major categories of land use can be identified on the Hopi reservation (EXISTING LAND USE). These are agricultural and range, recreational, industrial, and community mixed use which includes residential, institutional, and commercial uses all located in clustered configurations locally referred to as villages.

By far the most prevalent use of reservation trust land is agricultural and range land use, approximately 1,565,590 acres. The principal activity that occurs on this land is livestock grazing. In support of this use the Hopi tribal government, maintains a range management program which invests approximately a half million dollars annually in range improvements (e.g., stock tanks, drinkers, windmills, fences). Under ideal conditions, the range has a total potential carrying capacity of 24,500 animal units year long (AUYL), but there is variation in the potential carrying capacity of the land. Current stocking rates, because of drought conditions occurring in 1996 and again in 2000, are at about 50% of the potential carrying capacity under ideals range conditions. Other activities for agricultural and range land include corn agriculture, traditional gathering, very low density rural residential, and infrastructure rights-of-way.

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1 It is difficult to estimate densities for Hopi trust lands because community boundaries are ill defined and land assignment parcels within community areas are not contiguous. Dwelling unit (DU) density estimates range from 0.0002 DU/acre in the HPL (165/911,745) to 0.0028 DU/acre in District Six (1839/649,279). Only at Winslow will the residential density approach normal suburban values in the foreseeable future. At complete build out the density could reach 4 DU/acre.
In 1992, the Hopi Tribal Council designated The Blue Canyon Special Management Area, an area of approximately 36,860 acres located in the northwestern part of the reservation, dedicated to outdoor recreation and conservation purposes. The area has not been developed for outdoor recreation use to any significant extent. It is currently subject of a watershed rehabilitation project. This area is used by residents of the Third Mesa area for traditional gathering.

There are four areas of industrial land use located on tribal trust land. These are the Western Peabody Coal Mine lease located in the northeast part of the main reservation, the solid waste facility also on the main reservation, and the Hopi Winslow property. These three areas total approximately 6,290 acres. Another area of industrial use (not mapped) is the former BIA dump located in the Moenkopi District near the villages.

The community mixed use category, approximately 14,600 acres, consists of areas of residential, commercial and public facilities development. It is within these areas that the bulk of the resident Hopi population lives. Public service facilities, specifically the Tribal government offices, the Veterans Memorial Center, the Hopi Jr./Sr. High School, the new IHS ambulatory health care center are not well integrated into the community areas. They tend to be located on the community periphery and in several cases, they are totally isolated. Because of this development practice, most major public facilities do not become focal points of community social life, as they often do in off-reservation comminutes, and many of the socioeconomic benefits that usually result from such major public investment are lost to these communities. Among the hidden costs in such development practices are increases in the number and length of vehicle trips people are required to take in order to use these facilities and the hard dollar costs associated with extending supporting infrastructure to the facilities.

Geology

The geological deposits underlying most of the Hopi reservation are predominately Mesozoic era sandstones and shales that range in age from 65 to 230 million years (GEOLOGY). Typically
these are stratigraphic deposits that, as the result of recent uplift, dip at an angle of 3 to 5 degrees toward the north-northeast. This results in outcrops of older rock being exposed in the southwest part of the reservation and, as one travels to the northeast, say along BIA 2 from Leupp, the exposed rock formations become progressively younger.

Cenozoic era rock, 5 to 25 million years of age, is found in the southeast corner of the reservation. These deposits include the Bidahochi formation and intrusive igneous rock of volcanic origin. Unconsolidated recent deposits cross cut the Mesozoic sandstones and shales along the four of the five major streams that flow across the reservation from the northeast to the southwest.

There are six regional geologic formations that have economic value for the Hopi Tribe. Four of these formations are ground water aquifers. Three of these formations, the Wepo/Toreva, Dakota, and Navajo sandstones outcrop on the reservation. The fourth, the Coconino sandstones, is totally confined beneath the surface of the reservation. Of these four, the Navajo sandstones, the N-aquifer, is the most important proven source of domestic drinking water for the reservation. It is also, because of competing industrial use, the most threatened aquifer.

A high quality coal seam, which is commercially mined in the northeast part of the reservation, occurs between the Wepo and Toreva formations. The Bidahochi and associated igneous rocks located in the southeast corner of the reservation are a potentially important source of construction grade aggregate.

**Soils**

There are forty-one different soil types that have been inventoried and described for the main Hopi reservation (Natural Resources Conservation Service 1996). These can be grouped into eight general soils units (SOILS). The most prevalent soil type is loam. Loam soils, while mixed in with sand across most of Hopi, are predominant along the major washes. Sandy soil types prevail in the southern, southwestern and western parts of the reservation. The northern, higher elevations consist
primarily of a number of complex type soils, the Kydestea-Zyme-Tonalea complex being the most widespread.

**Precipitation**

There are three major precipitation zones across the reservation, which bisect it diagonally from northwest to southeast (PRECIPITATION). The lowest precipitation zone, which receives between six and eight inches annually, is found in the southwestern corner and western reaches of Moenkopi Wash on the main Reservation, and across most of the Moenkopi District. The most prevalent precipitation zone, which receives between eight and ten inches annually, extends in a northwest to southeast band across the middle of the main Reservation. Areas receiving between ten and twelve inches per year are found in areas of higher elevation on the reservation. Extremely limited areas receive between twelve and fourteen inches per annum, and are found in the northeast and extreme east of the HPL.

**Groundwater**

The confined limits of the four aquifers underlying the Hopi Reservation end sequentially in wide bands from northeast to southwest (GROUNDWATER AQUIFERS). The uppermost aquifer, found in the Toreva sandstone, underlies the northern reaches of District Six and most of the northeastern HPL. However, an area of unconfined T-Aquifer is found in the northern reaches of the HPL. The confined D-Aquifer, found in the Dakota sandstone, extends to about the midpoint of the reservation in a northwest-southeast direction. Two large tongues of the aquifer extend further south along Dinnebito and Oraibi Washes. The N-Aquifer, which underlies the D-Aquifer, closely follows the boundary of the confined D-Aquifer in a broad band. A small portion of the confined N-Aquifer is found in the eastern reaches of the Moenkopi District. The deepest aquifer, found in the Coconino sandstone, is the C-Aquifer. This underlies the entire Hopi Reservation, and is confined for the full extent of the reservation.
Community wells primarily tap the confined N-Aquifer, although they are frequently drilled through the southern reaches of the D-Aquifer to reach the N-Aquifer source. While most of these wells are suitable sources of drinking water, of the 24 wells serving villages, three are threatened and six are contaminated.

**Surface Water**

Most surface water drains into the five major washes on the Hopi Reservation: Moenkopi, Dinnebito, Oraibi, Polacca and Jeddito (HYDROLOGY). The surface water flow is generally southwest. Natural springs, which seep from exposed aquifers, are found all across the reservation. Springs tend to be located in stream channels where they create important riparian habitat. BIA stock wells and tribal stock ponds and tanks provide a dense network of watering locations for domestic and wild animals.

**Vegetation**

A comparison of the vegetation (BIOTIC COMMUNITIES) and precipitation (PRECIPITATION) maps highlights the association of vegetation with rainfall. In areas of low precipitation the primary vegetation is semidesert grassland. This community is found through most of the Moenkopi District, the western reaches of Moenkopi Wash on the HPL, and in the southwestern corner of the main Reservation. Mixed grassland, the largest expanse of vegetation, grows in a band extending from the northwestern to southeastern boundaries of the main Reservation, and in the eastern region of the Moenkopi District. Although sagebrush grassland grows primarily in the north, northeastern, and eastern parts of the reservation, patches are interspersed with mixed grassland. Mixed sagebrush grassland/pinyon-juniper woodlands are also found in the northeastern and eastern parts of the reservation, while pinyon-juniper woodlands are limited to a small area in the northeastern HPL.
Slope and Aspect

Almost 84% of the land within the reservation boundary is less than 5% slope (SLOPE). The most rugged areas are found in the northern one third of the reservation while the southern two thirds are dominated by areas with gentle slopes under 10% and most under 5%. The predominate slope direction (43%) is westerly (ASPECT).

Traditional Culture and Archaeology

The Hopi reservation is a place rich in traditional cultural activity and archaeological sites. There are numerous Hopi shrines, sacred springs, eagle and snake gathering areas not only on the Hopi Reservation, but throughout Hopit Tutsqua, thus on what is now the Navajo Reservation. Many of these places are still visited and used during the Hopi ceremonial cycle to fulfil traditional obligations. There are approximately 2,500 recorded archaeological sites on the reservation ranging from scatters of ceramics and lithic debris to prehistoric villages. Only about 10% of the reservation has been surveyed for cultural resources. Old Oriabi is reputed to be longest continually inhabited community in North America. Hopi people have lived in that village for well over a millennium.

Public Infrastructure

Reservation infrastructure development and infrastructure land uses, with the exception of roads and range improvements for livestock, tend to be located in association with community mixed use land uses. Most villages and community settlements have some public utilities - water, wastewater, electricity and telephone. Coal, wood, and propane are used for heating and cooking. Private utility companies provide electricity, propane, and telephone service. A number of homes use solar power. Water and wastewater systems were developed with federal assistance in cooperation with individual villages, and each village operates and maintains independent systems. Some villages are reluctant to accept federal financial aid and services. Lower Moenkopi, Old
Oraibi, and Walpi do not have water or wastewater systems and do not allow utilities within their boundaries.

This limited network of developed public service infrastructure, especially a reliable electrical supply, is perceived as severely constraining both to economic development and new housing on the reservation. The “Catch 22” of Hopi Reservation development is that in the HPL and in the peripheral areas of District Six, development is precluded by the lack of infrastructure, while constraints imposed by complex land tenure and assignment processes impede new houses or businesses in those areas where infrastructure does exist, the villages and other community mixed use areas.

The existing infrastructure systems are not without problems. Water and wastewater service within villages is not comprehensive, and most village systems are in dire need of upgrading. Many water systems cannot meet current village needs, and most village wastewater lagoons are poorly sited and severely overloaded. Septic systems are still a prevalent mode of wastewater treatment on the reservation, even in and around the village areas. Septic systems lead to increased land consumption, albeit the only use to which this land use could be put would be open space on the surface and leach field below grade.

**Electrical Supply**

Arizona Public Service (APS) is the main supplier of electricity on the Hopi reservation. APS serves the main reservation with one three-phase, 56 Kv transmission line that originates at the Cholla generation plant near Joseph City, Arizona. This line enters the reservation from the southeast and comes to a substation located a mile north east of the Hopi Jr./Sr. High School. At that point the line branches east and west with the eastern branch serving the Keams Canyon and the western branch paralleling SR 264 and terminating at Hotevilla on Third Mesa. APS also serves the MAA with a transmission line that comes from the southwest.
Navajo Tribal Utility Authority (NTUA) provides limited service to the Yu Weh Loo Pahki home sites. They may also develop services to the Navajo families that have signed Accommodation Agreement leases for home sites on the HPL.

**Water and Wastewater Systems**

All but the three villages, Lower Moenkopi, Old Oraibi and Walpi, are served by community water and wastewater systems. These systems typically have been engineered by and built with funding from the Indian Health Service. Many of these systems are old, undersized, inefficient, and in frequent need of repair. The Hopi Agency at Keams Canyon and the Hopi Jr./Sr./Courts/Police area also have community water and wastewater systems. The Yu Weh Loo Pahki community has a water system developed at the time of relocation. There is no wastewater system.

**Heating Energy**

Winter heating fuels include, propane, wood, and coal. Propane is delivered to individual unit tanks from a central distribution center by one of three suppliers operating on the reservation. Wood is gathered from woodland areas under tribal permit. Peabody Coal provides tribal members with free coal supplies as part of its mining lease. The coal is hauled from the mine to the solid waste site in RU 351 where it is stock piled and then distributed to individual members by the “pickup truck load.”

**Transportation and Roads**

The reservation transportation system includes highways, local roads, an airstrip, and two helicopter landing pads (TRANSPORTATION). The Hopi Tribe does not take direct responsibility for public transportation facilities, the Indian Reservation Roads (IRR) system, on the reservation. These roads are built and maintained primarily by the BIA, Branch of Roads. The Office of Range Management has developed and maintains a few “ranch roads” which are used by local cattlemen and farmers to access the hinterlands of the reservation. In addition there are
approximately 3,580 miles of unmaintained 4x4 trails and tracks mapped on the main reservation. The Arizona Department of Transportation (ADOT) maintains SR 264 and SR 87.

The IRR system consist of 405 miles of paved all weather roads, 560 miles of dirt grade and drain roads, and 70 miles of unimproved roads for a total of 1,035 miles of public roads. Approximately 8,600 acres of reservation land are dedicated to existing road and transportation development.

The one area that is poorly served by the IRR regional network is the northeastern portion of the reservation. BIA 4, the Turquoise Trail, is the road that is intended to serve this area. Its construction has not been completed. This has denied most Hopi people any employment opportunity at the Peabody Coal mine operations.

There is a VFR landing strip at Polacca as well as two helicopter landing pads, one at the BIA police/tribal courts area and one at the new Hopi Health Care facility. Another VFR landing strip at Kykotsmovi has been abandoned.

**Telecommunications**

The primary telecommunications service provider on the main reservation is CenturyTel of Southwest Inc. This is a subsidiary of a larger parent company CenturyTel Inc. with corporate headquarters in Monroe, Louisiana. They provide local land line residential and commercial telephone hookups and use microwave transmission technology from a main tower on Second Mesa to transmit signals to and from the reservation. Navajo Communications provides conventional telephone services in the Moenkopi/Tuba City area.

CellularONE of Showlow, Arizona is now beginning to provide wireless telephone service on the main reservation. They have been granted authority to construct a cell tower on Antelope Mesa
which should be completed by July, 2001. They plan to have a complete tower coverage network within a year following the initial tower installation.

Northern Arizona University (NAU) operates a satellite linked classroom facility and internet access at the Hopi Jr./Sr. High School.

An Economic Development Administration (EDA), U.S. Department of Commerce funded project, currently in progress, will provide an additional Internet access point for the reservation at First Mesa.

In late 2000, The Hopi Foundation opened the Hopi FM radio station, KUYI, for operation. The broadcast station is sited at the BIA Police/Hopi Courts complex and a 69,000 watt tower is sited on Antelope Mesa.

**Public Facilities & Services**

There are five public primary schools either operated directly by the BIA or contracted to the Hopi Board of Education. The BIA also operates a primary grades boarding school at Keams Canyon. There is one private Christian mission primary grade school located in Kykotsmovi. The BIA operates the Hopi Jr./Sr. High School at Polacca which serves the entire main reservation secondary school population. Northland Pioneer College and NAU offer community college and university courses. They both are located in Polacca.

The tribal government, Department of Education operates a small public library at the Second Mesa Day school.

The Indian Health Service (IHS) opened a new $30 million Hopi Ambulatory Health Care facility in 2000. Associated with this complex is an $8 million staff housing subdivision. These facilities are located between Polacca and Second Mesa on SR 264. The EMS ambulance facilities
are located in the health care complex. A second EMS and fire response facility has been approved for construction in Kykotsmovi and will be completed by September 2001.

The Hopi Tribe owns and operates the Hopi Veterans Memorial Center as a multipurpose recreational facility. It is located between Second and Third Mesa, isolated from any other community facilities. Other recreational facilities on the reservation are few and not staffed. They include an overnight camping area at the Hopi Cultural Center, several rest stops on SR 264 in the Third Mesa area, and picnic areas along the reservoirs in Keams Canyon.

The tribal government also owns and operates through an enterprise entity the Hopi Cultural Center. It is the only operating motel/restaurant complex on the reservation. It is thirty-three rooms and with generally high occupancy rates.

Police services are provided by the BIA in Polacca and the Hopi Tribe, the Rangers, in Kykotsmovi. The county sheriffs and Arizona Department of Public Services (DPS) frequently patrol the main reservation highways.

Fire response services are extremely limited. The BIA maintains some structural fire fighting equipment. Its primary purpose is to protect federal government facilities. The fire suppression water infrastructure in the villages would be inadequate in most structural fire emergency situations.

**Development Constraints**

Development constraints can be divided into three categories: cultural, environmental and natural. Culturally constrained areas are locations which contain known traditional cultural properties and archaeological sites. It should be emphasized that as development extends into previously unsurveyed areas of the reservation, it is likely that more sites will be discovered and included in this constraint category. Areas of environmental constraint are ecologically fragile and
are usually unable to recover from development disturbance. These areas include Coal Mine and Blue Canyons, and the five major washes. Naturally constrained areas are those areas that will not support construction loads. These areas include areas with steep slopes, earth quake zones, and unconsolidated soils.

Another kind of development constraint focuses on surrounding land uses. For example, it would be undesirable to build a residential dwelling unit adjacent to a wastewater lagoon. Odors and health risks from the lagoon would mitigate against such development.

**Village, Tribal & New Community Governments**

Contemporary Hopi society is unique in that three forms of local government exist side by side. There are the traditional religious society-based forms, the democratic forms created in the Hopi Constitution, and the most recent to develop, a corporation form that can be created under a tribal ordinance.

**Village Government**

Traditional Hopi government is based on the divine plan of life laid out by *Maasau*, the guardian of the fourth world of the Hopi. From a traditional viewpoint each village is a complete and independent government. The *kikmongwi* is the village leader, head of all religious and nonreligious authority, and controls village and clan lands. However, his power is limited because traditional Hopi decision making is based on community consensus rather than despotic individual authority. Clans also play an important role in traditional village government. Clan leaders interpret religious and cultural teachings that influence ceremonial events and the personal behavior of clan members. In the traditional villages with a *kikmongwi*, disputes, often regarding land, are handled through traditional channels. A dispute within a clan is taken to the clan leader. If more than one clan is involved, the clan leaders meet and negotiate an agreement and ultimately seek and gain approval of the *kikmongwi*. The villages at First Mesa: Walpi, Sichomovi and Hano;
Mishongnovi; Shipaulovi; Shungopavi; and Oraibi are patterned after the traditional form and have a kikmongwi as their leader.

The Upper and Lower Villages of Moenkopi, Kykotsmovi, Hotevilla, and Bacavi have embraced democratic forms of government as authorized under the U. S. Indian Reorganization Act of 1934 and have village governors and boards of directors. Upper Moenkopi is the only village with a written constitution, although Kykotsmovi does have guidelines that regulate its governing body. Bacavi does not have any formal document. In these villages, the governor often mediates disputes indirectly, encouraging the parties to resolve issues among themselves. When this fails, the board of directors may make a recommendation to the governor, who acts as the final judge.

Most of the villages have some kind of administrative office facility, a community hall, and sometimes special program spaces such as for elderly, and youth activities, or nutrition services.

**Tribal Government**

In 1936, the U.S. Secretary of the Interior approved a constitution for the Hopi Tribe prepared by the federal government under the U. S. Indian Reorganization Act of 1934. A Tribal Council was created to form closer ties among villages. This violated the long-standing principal of village autonomy and has led to significant levels of conflict in recent years. The constitution also introduced “majority rule,” which conflicts with the Hopi tradition of consensus decision making. Even so, most tribal members now recognize the Tribal Council as their representative legislative body.

The Hopi Tribal government is divided into three separate branches: legislative, executive and judicial. The legislative branch is the Tribal Council. It makes tribal law, ordinances and policy, and oversees the conduct of tribal business. The Council includes representatives from most of the villages. It is assisted by standing teams. The teams conduct research and advise the Council on
policy and procedural matters in their respective areas. Six major teams currently exist: land, energy, water rights, transportation, budget and lobbying.

The executive branch is responsible for implementing and administering the laws and policies adopted by Tribal Council. The executive branch is headed by the Chairman of the Hopi Tribe. It includes the programs and offices that are responsible for planning, economic development, health, education, administrative services, natural resources management, and financial administration.

Most of the legislative branch and executive branch facilities are located in Kykotsmovi. Behavioral health services are located in Toreva at Second Mesa. Most of these facilities are old and over crowded by tribal staff. They generally lack any of the specialized spaces frequently required by tribal programs. They cannot easily accommodate “high tech” telecommunication and computer networking connectivity.

The judicial branch, or court system, interprets and enforces the laws and ordinances enacted by the Tribal Council. The tribal court facilities are located adjacent to the BIA police facilities between Polacca and Keams Canyon.

New Community Government

A new process of community incorporation under tribal law has recently been set with the incorporation of the Yu Weh Loo Pahki community in 2000. This incorporation enables residents of an area to become self governing and receive and expend funds to develop their community. They are also empowered to undertake creation of their community plans and implement these through local regulation. They would participate with the tribal government in planning of the land surrounding the community area.
Land Jurisdiction and Tenure

In the traditional Hopi land tenure system, which affects most of the land where the majority of the Hopi people have settled and now live, namely around the villages, village held land was allocated to the clans when they arrived home from their migrations. The stipulation was that in return for the use the land by the clan and its members, the clan had to provide a service back to the village, and thus to the community as a whole. This “contract” was and still is renewed on an annual basis during the ceremonial cycle.

The tribal constitution, in the section previously cited in the section dealing with the modern land base, specifically provides the villages and clans with jurisdiction and control over land within their traditional boundaries at the time the constitution came into effect. This has come to mean the 650,000 acres of District Six land and the 1,050 acres of trust land surrounding the two Moenkopi villages. Exempted from the Moenkopi villages jurisdiction, however, are 200 acres which were allotted to individuals. The Hopi constitution recognizes village authority in specific areas, including the authority to assign village lands. Village leadership approves land assignments of village and clan held land to village members for their beneficial use as home or agricultural sites. They also make land assignments of District Six land and the MAA to outside utility companies, businesses and senior governments to allow infrastructure, commercial and government services facility development. However, the Tribal Council retains final approval of all leases of District Six and MAA land to non tribal interests. The tribal government also maintains considerable management responsibilities for land development in these districts and oversees all environmental and cultural protection measures thereon.

All the land outside of District Six and the MAA is under administrative jurisdiction and authority of the Tribal Council. Land use, development and management planning of this land is a tribal government function. At present, home sites and agricultural land assignments on the HPL and the Moenkopi District are governed by a procedure adopted by the Tribal Council in 1988. Any tribal member may select up to three acres for a home site and ten acres for agricultural use.
Tribal Enrollment

Enrollment in the Hopi Tribe at the end of December 2000, reached 10,870 persons. The average annual rate of growth in tribal enrollment is 14.61%. There are several anomalous years of extraordinary enrollment activity apparent in the table; a more realistic growth rate can be achieved by excluding these outliers. The recalculated average annual enrollment growth rate is 5.5%. If this rate were used to project tribal enrollment for the year 2020, it would almost reach 20,800 persons, or twice the tribal enrollment at the time this plan was prepared.

Enrollment figures do not provide a totally accurate estimate of reservation population, though, because not all eligible Hopi people choose to enroll and not all enrolled members reside on the reservation. Nevertheless all enrolled members of the tribe are eligible for services or benefits which are provided by the tribal government to its members and thus the enrollment figure represents a near total service demand on the tribe.

It is unlikely that all enrolled tribal members would obligate the tribe of their potential service demand. A substantial number of Hopi live off-reservation and might only take advantage of certain financial opportunities, like education scholarships. Some members do not wish to receive any assistance or services from the tribe. However, the lack service demand by some members is balanced with the need for the tribal government to provide some services to non-Hopi who live on the reservation.
These would potentially include non-Hopi spouses and the many imported professionals who work for the tribal or federal agencies on the reservation in the health care system, or in the school system.

**Population Estimates and Growth**


The official number of American Indian people (Hopi and non-Hopi) living on the Hopi Indian Reservation in 1990 (Bureau of the Census 1991, 1995) was reported as 7,061 while the total number of people (all races) was slightly higher at 7,360 people. The Bureau of the Census (1995) further reported there were 12,214 people nationwide who self-identified themselves as being Hopi in the 1990 census (compare this with a tribal enrollment in 1990 of 6,458).

The 1990 census data also show that there is a remarkably large youth component in the Hopi reservation population, 2,919 (41.3%) people under the age of twenty. A similar percentage, 41.2% (5,026 out of 12,214) is found in the entire United States population of self-identified Hopi and Arizona Tewa. Census data from 1970, 1980 and 1990 are consistent in this pattern of a
The Census Bureau, subsequent to initial publication of the 1990 Census, reported that there was an average under count of population on Indian reservations in the 1990 Census of 12.2% (Hogan 1993). Even before this analysis became available, tribal government officials shortly after figures were released questioned the Hopi counts as being too low. It would be reasonable for planning purposes then to adjust the 1990 Hopi reservation census figure of 7,360 upwards by at least 12.2% to 8,258, and use these estimates as base figures for computing future reservation population projections that would indicate the level of future on-reservation service need and demand.
The life-of-the-plan population projections indicate, under the most likely scenario (projected from the 1990 Census count corrected at a 12.2% increase) the reservation population will be approximately 10,000 people in 2000 and 17,000 people by the year 2020.

**Tribal Demographics**

Appendix 2 provides a full set of tribal demographic summary reports (Tribal Data Resources 2000), based on Tribal Data Resources (TDR) survey data that were available as of December 2000. Outstanding demographic characteristics of the resident reservation population which represented 5,003 persons of whom 4,572 are enrolled Hopi tribal members include:

- **Households**
  - a 63% female head of household rate
  - a 45% home owner occupancy rate while the non owner/renter occupancy rate is 50% indicating that many dwelling units are occupied by two or more households
  - an average rate of 2.05 persons per household
Housing

- A 38% report rate of houses with serious structural deficiencies or in a dilapidated condition
- A 27% reporting rate of overcrowded housing conditions

Employment and Incomes

- A full time employment rate of 36% with women comprising 59% of those employed full time
- An average annual income for participating households of $15,875
- A 61% rate of DHHS defined poverty level household incomes

Education

- A 68% high school graduation rate
- A 29% post secondary education graduation rate

Housing

The 1990 census reported that there were 2,480 dwelling units located on the reservation of which 1,866 (75%) were occupied. Occupancy was 3.93 persons per dwelling unit. The 2000 census collected data from 2,353 deemed occupied dwelling units, a 25% increase in occupied dwelling units over ten years.

Much of the housing found on the reservation is public housing financed under Housing and Urban Development (HUD) programs administered through the Hopi Tribal Housing Authority (HTHA). The HTHA currently has an inventory of 384 houses (ownership and rental) under management (Hopi Tribal Housing Authority 2000), mostly built from 1969 to 1984 and located in subdivisions in Polacca, Second Mesa, Kykotsmovi, Moenkopi and Winslow. The HTHA provides some of these homes to families as mutual help projects, in which the family contributes land and labor toward the cost of their home.
Private housing is also constructed on the reservation on land assignments made to individuals. Families often borrow or save money to purchase building materials, usually cinder blocks, and rely on friends and family for assistance with construction labor. A popular alternative to site built housing is moving manufactured housing onto a land assignment and hooking these into community water and wastewater systems. The HTHA also provides housing on these single land assignment sites.

There is an immediate housing demand of 315\(^2\) dwelling units needed to alleviate the perceived overcrowding conditions found in the TDR survey data and another estimated 447\(^3\) needed to replace the number of dwelling units likely beyond structural repair. The total immediate demand is thus approximately 765 dwelling units. To this demand must be added the demand of a growing reservation population. Based on the population projections previously portrayed for the next twenty years, there will be an increase of 7,000 people above the estimated 2000 population of 10,000 by the year 2020. This represents an average annual population increase of 350 people with, at 4 persons per dwelling unit, a housing demand of 88 new dwelling units per year for an additional 1,760 new dwelling units over the next 20 years.

The HTHA receives approximately $3.62 million annually in the Indian Housing Block Grant funds which, at a median allowable cost of $91,571 per dwelling unit, would allow them to build at most 40 dwelling units annually. To meet the current and projected twenty year reservation housing demand will require a significant infusion of financing, both private and public, beyond what the HTHA is able to provide.

Another resource that must be considered in meeting housing demand is land. There is a common perception held by most Hopi people that it is difficult to acquire land and home site land assignments in the vicinity of the Hopi villages on which housing can be built, particularly when

\(^2\) 2,353 deemed occupied houses * 16.5% (half the 27% over crowding rate) = 635 new houses required

\(^3\) 2,353 deemed occupied * 19% (half the 38% structural deficiency rate) = 447 new houses required
the development would be a residential subdivision or a planned community development, both of which development types require a sizable tract of land. This reluctance to allocate land for housing project development purposes considerably narrows the options available to the HTHA to provide public housing. Individual village and clan members can often obtain land assignments near their villages, but these are often at some distance from public utility services making development of these home sites expensive. The same problem exists with the current HPL land assignment policy which allows three acre land assignments for home sites almost anywhere in the HPL or Moenkopi District. Public utility services are almost nonexistent in the HPL. Development costs for the utility services for an isolated home site can range from $25,000 to $60,000.

**Reservation Economy**

The Hopi Reservation economy consists of a formal and an informal or traditional economy. The formal sector is defined as organized, businesslike activity meant to create jobs and personal income. The informal economy consists of goods and services produced for household consumption or for exchange in social and religious contexts. This latter economy provides a variety of economic alternatives for people who are under or unemployed in the formal economy.

The annual monetary value of the formal economy on the Hopi reservation is approximately $44.8 million (Center for Applied Research 1999). This economy produces 2,700 reservation jobs. In addition, the Black Mesa and Kayenta mines located adjacent to the Hopi reservation and operated by Peabody Western Coal Company provide another 24 Hopi people who live on the reservation with jobs. The dollar value of this “off-reservation” employment was not reported in the study.
An examination of the distribution of incomes and jobs across major economic activity sectors shows that there are imbalances in the formal reservation economy. In terms of incomes, well over 70% ($32.4 million) of the reservation economy is derived from the service sector and the closely related public administration sector. The main employers in these two sectors are, first, grant and Bureau of Indian Affairs primary and secondary schools followed by the Hopi tribal government.
and then by the Indian Health Service. The number of jobs represented in these sectors is 1,185. This yields an average value of $27,300 for each job in these sectors.

In contrast the largest single activity sector of reservation employment is manufacturing which contributes almost 40% or 1,075 jobs to the reservation economy. Most of these jobs focus on the production of traditional Hopi arts and crafts for retail sale. The value of these jobs is $5.7 million.
or $5,300 per job.

The informal reservation economy focuses on non-business related social, traditional and avocational activity and reflects the production of traditional goods required to reciprocate in clan and family social obligations. The Center for Applied Research study suggests the annual value of this economy on the Hopi Reservation is at least $4.2 million. Traditional arts and crafts valued at $3.6 million and given away in social and ceremonial contexts account for the bulk of this economic activity. The balance, $640,000, is accounted for by local cattle consumption and giveaways. The value of the annual corn harvest was not imputed in the analysis, thus the value of the informal economic sector is understated.

**Tribal Revenue**

Tribal government operations are funded by about $70 million in recurring annual revenue. About 95% of this revenue is derived from three sources:

- Contracts, grants, awards and indirect cost recovery from the federal government and State of Arizona;
- Coal royalties and water sales from the Peabody Coal; and
- Earnings from financial investments.

Other revenue sources include business leases and rents; fees, fines and forfeitures; and miscellaneous sources. Three utility rights-of-way: the Southern Cal Edison/APS 500Kv power transmission line, the Black Mesa coal slurry line, and the Questar natural gas pipeline would be included in the sources. The tribe also generates enterprise-type revenues from the Hopi Cultural Center, the tribally owned Three Canyons Ranch, and two shopping centers located in Flagstaff.
VISION OF RESERVATION DEVELOPMENT

Critical & Strategic Issues

In coming to a vision of the future Hopi Reservation, several areas of critical development issues were identified by the public participation, key informant interview and planning research processes as needing to be addressed by the Hopit Tunaty'a'at 2000. The most frequently identified issue was economic development. This was followed by five other major issue areas: governance, community and land planning, infrastructure, housing and water. Not all the issues that were raised in the planning process have been resolved in the final Hopit Tunaty'a'at 2000 plan; some are simply beyond the scope of strategic land use and development planning. Nevertheless, they are noted below in order to document the concern that was encountered.

Economic Development

The issues central to economic development included recognition that:

- The Hopi Tribe’s revenue base is too narrow.
- The reliance on federal and state money makes the tribe vulnerable to federal and state policy program shifts.
- There is no marketing expertise within the Tribal government and hence no promotion of Hopi as a viable location for business development.
- The private sector is relatively underdeveloped and undiversified.
- Land in trust status prevents access to traditional sources of development capital.
- Lack of services and small businesses result in a drain of money to surrounding communities.
- There is a lack of office and retail commercial spaces.
- The complex and largely rigid system of land tenure prevents land being utilized for development.
- The reservation is sparsely populated.
Infrastructure is underdeveloped.

No comprehensive, long range plans or policies exist to guide tribal or village economic development.

Lack of opportunity forces Hopi people to seek employment away from the reservation.

Residents of the reservation have virtually no opportunity to out-commute for employment because of the reservation’s distance from other places of work.

A large sector of the population is under- or unemployed.

The largest perceived share of jobs on the Hopi Reservation are with the Hopi Tribe.

The vacant manufacturing facility in Winslow costs the tribe $60,000 per annum to maintain.

Tourism, a special form of economic activity, was singled out for specific concern. Tourism opportunities are perceived as being lost to outlying communities because:

There are insufficient and inadequate facilities and infrastructure that serve tourists and visitors.

There are few public restrooms in the villages and what few there are are not marked.

There is only one operating motel accommodation complex on the reservation.

Alternative overnight accommodations, such as RV parks, are nonexistent and the few campsites that exist are in dire need of upgrading.

Over 95% of tourists drive to the Hopi Reservation, but there is no accommodation made for these visitors. The lack of paved roads in popular scenic areas and formal stopping areas along SR 264 creates erosion. The lack of roadside stopping areas encourages tourists to stop wherever they wish, most often along dangerous curves and hills.

Disrespectful behavior from tourists, a desire for privacy, and a desire not to commercialize and devalue their religion make many Hopi ambivalent toward tourism.
Due to the harsh winters in northern Arizona, tourism is mostly viable in only the summer months.

Community & Land

The several issues raised with respect to community and land were put in the form of questions:

- How will services to HPL communities be funded and provided?
- Will new communities receive recognition by Tribal Council?
- What jurisdiction will these communities claim?
- Are they included in the tribal disbursement of money to villages?
- Will Hopi people want to live in a community that is not linked with a “mother” village?

Other issues related to situations that constrain or prevent land from being developed for social or economic benefit. These include:

- Protecting the numerous cultural resources and fragile environmental areas is essential, but this eliminates acres from the developable land base.
- The complex system of land tenure and conflicts over land between clans and villages prevent development in District Six.
- Most of the HPL is located far from the existing utility network, villages and employment centers; people are therefore reluctant to reside there.
- Traditional villages are becoming linked through sprawl and are losing their separate identities.
- The current land assignment policy promotes scattered housing in the HPL; in the long run this is financially, environmentally and culturally expensive and inefficient.
- Scattered development physically and visually impacts primary travel routes, cultural resources and visitor perceptions.
Sprawl changes a dynamic of Hopi society in which the supervision of children is a cooperative village effort.

The current HPL land assignment system permits individuals to encroach onto land that is traditionally claimed by another village.

**Infrastructure**

While mentioned as an issue constraining economic development, a series of specific infrastructure issues were noted:

- All urban services (public utilities, particularly the electrical supply) on the reservation serve only villages and houses located along the SR 264 corridor.
- Water, wastewater and electricity lines were laid without established plans and the systems are haphazard, inefficient and costly. The lack of layout plans often results in repairs to one system damaging another.
- All of the villages are subjected to power surges and outages and the lost revenue to businesses and “downtime” for government organizations is significant. Many people desire a Hopi-owned and operated electricity company for two important reasons: the political climate makes granting rights-of-ways (ROW’s) to NTUA undesirable, and the landlocked nature of Hopi makes it difficult to obtain ROW’s from Navajo for external companies.
- Most Hopi people burn coal and wood through the winter to heat their homes. While coal is primarily used, enough wood is cut annually to eventually deplete the limited acreage of woodland on the reservation. Coal is obtained free from the Black Mesa Mines but the supply is unreliable, the quality of coal is questionable, and concerns have been raised over air pollution generated from coal burning.
- The local roads are a dirt, fair-weather network that is often impassable during rain or snow storms. As well as stranding the few individuals who live in the more remote areas of the reservation, this poses a serious problem during medical or fire
emergencies. Even under fair weather conditions the response time of emergency services is hampered due to both the dirt surfaces and the confusing network of roads.

- The lack of improved roads also limits efforts to develop some parts of the reservation.
- Many individuals create their own tracks wherever they see fit. These unnecessary roads take acreage away from grazing and generate erosion. The roads that cross several of the major washes generate erosion sufficient to compromise the wetland habitats and water quality.

**Governance**

Numerous unresolved issues exist among the various governmental entities that operate on the Hopi Reservation. They include:

- No clear delineation of the roles, responsibilities and authority of the tribal versus village governments.
- Conflict between traditional and modern forms of government on Hopi.
- Conflicts between the Hopi Tribe and Navajo Nation.
- Uncertain working relationship with federal, state, county and local governments.
- Lack of political clout with outside governments.
- Need for a strong government structure to support the role of planning and development.
- Lack of ability to enforce laws.

Two strategic issue areas emerged through other research conducted for the plan. These were the issues of housing and the long term reservation water supply. This latter issue is currently tied up in legal actions related to the Little Colorado River (LCR) water rights settlement. While resolution of this matter is likely many years off, there are still actions that the tribe can take now to set the stage for assertive actions related to a final settlement.

**Housing**
HTHA/HUD housing is built to last only 15 years.

The lack of rental housing on the reservation affects both Hopi and non-Hopi people alike. Hopi individuals wishing to return to the reservation who do not have a house are either forced to wait until they can secure a land assignment and build a house, or move in with family members. Non-Hopi people generally do not qualify for land assignments, and only limited employee housing is provided by the Hopi tribal government, BIA and IHS.

It is difficult to finance housing construction on trust land.

The Hopi are currently under-housed, and projected forty year housing need is greater than current building trends. The 2000 Hopi demographics database indicates that overcrowding is as high as 27%. While there is an existing need of approximately 765 houses, only 45 new houses were built on the reservation in 1998. Based on a population projection of 17,000 in 2020 it is estimated that over 1,760 new houses will be needed merely to accommodate the increase in population.

Much of the current housing stock is in dire need of repair. Over 38% of people surveyed during data collection for the Hopi demographics database indicated that their houses are dilapidated or in need of “major” repair.

Water

Tribal Hydrologist Ron Morgan (1993; interview 1998) details many of the issues related to the long term reservation water supply:

Current per capita water use is estimated to be 40 gallons per person per day, or a reservation demand of 400 acre-feet per year. It is expected that this demand will increase to between 160 and 200 gallons per day as running water, modern appliances and light industry become more widespread across the reservation. Current projections estimate that both the increase in total gallons used per person and the growing population will create an annual demand of 3,800 acre-feet by 2020. This demand, which includes both municipal and agricultural use, is an almost 10-fold increase in
Water consumption in 20 years. Existing water supplies available on the Hopi Reservation cannot meet this projected demand.

- Water quality varies with the type of rock in which it is stored and naturally occurring contaminants, such as fluoride, do occur. However, man-made threats to water quality are far more significant. The major causes of contamination include: septic systems, sewage disposal lagoons, mining, landfills, livestock, underground storage tanks and irrigation.

- Although data are limited, they do suggest that the major surface water problem is sediment generated from extensive soil erosion. Also, salinity and sulphate levels are fairly high and the water is extremely hard. These factors make surface water undesirable for municipal use and marginal for most irrigation, although it is suitable for livestock.

- The amount of water recharge to the N-Aquifer, the most important current source of reservation drinking water, is unknown, but the rate of groundwater movement is too slow for recharge to balance the current rate of withdrawal. Since water is being mined from the N-Aquifer at a rate of 3-4,000 acre-feet a year, it may no longer be a viable source of water supply.

- Water in the T-Aquifer is very hard and contains high total dissolved solid concentrations. The Hopi Tribe states that water from this aquifer is marginal to unsuitable for domestic use and is even of marginal value for livestock watering due to the high fluoride levels.

- Wells penetrating the D-Aquifer are fair to poor quality. With the depletion of the confined N-Aquifer, water from the D-Aquifer sandstone is predicted to leak down into the N-Aquifer, rendering wells in the D-Aquifer unusable.

- The C-Aquifer is the largest and most regionally extensive aquifer. It underlies most all Hopi lands. However, depth to the water under the Hopi Reservation is generally greater than 1,000 feet. Furthermore, the quality of water is generally poor and can be used only for stock watering and if treated, domestic use.
Very little research has been done in the area of water treatment on the reservation. Village water treatment is minimal (most villages add iodine or chlorine to their drinking water), although a reverse osmosis system was installed at the Hopi Jr./Sr. High School in 1998 to treat water contaminants and odor problems.

Wastewater treatment is primarily by means of evaporation from facultative sewage lagoons, septic tanks with leach lines, or none at all. Most sewage lagoons are in poor condition and several are overflowing or breached, allowing raw effluent to flow into and down the washes. Some sewage lagoons, for example the ones serving the tribal offices and the HTHA subdivision in Kykotsmovi, are located too close to other residential development and pose a health risk.

**Preferred Vision: A Strategy of Old & New**

Four alternative reservation development scenarios were identified and evaluated during the planning process for the *Hopit Tunatyà'at 2000*. The four scenarios were generalized from seventeen solutions of future reservation development that were created during the Alternative Futures Workshops held in late 1998 and early 1999 (Appendices 1 and 3). These alternative development scenarios attempted to resolve at least some of the issues identified during the planning research described above. The four scenarios were:

- A mix of new development occurs in existing villages in District Six and the MAA; and in planned community developments in the HPL and Moenkopi District.
- All new development takes place in District Six, in and around the existing villages only.
- All new development takes place in planned communities in the HPL and Moenkopi only.
- Development continues in the current incrementally fashion over the entire reservation.

Each of these development scenarios, except for the last, was based on a distinct perspective held by the planning team of how development should affect the existing character of the Hopi
Reservation. The first approach recognizes the need to support the existing villages with continued development, but wishes to protect them from excessive change by steering some development onto the HPL. The second scenario emphasizes traditional Hopi settlement locations and reinforces the existing villages with new development. The third scenario seeks to preserve the traditional character of villages by locating all future development into new locations on the HPL. The fourth approach is to continue the current means in which development is taking place across the reservation. Land assignments are granted from villages or the tribal government for almost any requested location, without regard to suitability of the parcel for development, lot configuration, infrastructure availability, integration with other adjacent projects, or implications for the character of and cultural values for the reservation.

Of the three land use and development scenarios developed in the Alternative Futures Workshops, encouraging development both on the HPL and near existing villages was the most common scenario solution for future development of the reservation. In this scenario most new development would be placed into a limited number of planned community developments located on the HPL, at some distance from the existing villages in District Six. Some development, however: residential, commercial and/or institutional, would take place near the villages that want to encourage their own growth. This scenario would likely use 1,575 acres and could provide a total of 3,200 new dwelling units over the next twenty years.

The central implementation concepts and policy impacts identified with this scenario include:

- The tribal land assignment system for the HPL would provide the opportunity to select housing assignments on lots in planned community developments.
- Village administrations would be responsible for providing main utility services (water, electricity, wastewater, etc.) to District Six new development. The tribal government would be responsible for providing these services to new planned communities in the HPL.
The cost of providing services to new development surrounding the villages would be moderate (until current utility capacities are met and exceeded) because services in these areas already exist and are close at hand. The initial cost of linking planned communities in the HPL to existing service networks would be high, but servicing any future additional development would be relatively low.

The planned communities would include the Tawaovi Community, Howell Mesa East, and a new development in the Moenkopi District. More growth would take place in Side Rock Well and Yu Weh Loo Pahki.

The planned communities would allow housing built at varying densities.

All the new communities would be planned to include commercial and community service development as well as residential. All of them should include some allocation of land for development of tribal government services to the local community. The Tawaovi Community would be the site of building new tribal government administration facilities and possibly a relocation site for the entire tribal government.

Acreage taken from grazing use would be limited to the planned community developments, their roads, and service rights-of-way, on average 400 to 500 acres each.

Planned community developments would be located away from cultural and environmentally sensitive areas.

Limited development in existing villages could affect their traditional character.

Limited development in existing villages could lead to encroachment on traditional agricultural land surrounding the villages.

STRATEGIC ACTIONS FRAMEWORK

One of the goals of Hopi Tribal Council in adopting the *Hopit Tunatya’at 2000* is to create a policy and action framework that will guide tribal, village, and the emerging new community
governments, along with the tribe’s development partners to work together to create a Hopi reservation reflecting the vision describe above (FUTURE LAND USE).

**Strategic Land Use**

The driving concept of tribal land use planning for the past fifteen or more years has been to settle the HPL. The strategy to accomplish this goal which has been in effect since at least 1986 is the Hopi Partition Lands Land Assignment Guidelines (H-93-86). The policy follows the traditional Hopi land allocation model of making 1) home site, 2) agricultural site, and 3) special use land assignments to individuals. Under this policy all individual tribal members are eligible to take out a home site of up to three acres and an agricultural site of up to 60 acres anywhere in the HPL other than where Tribal Council has set land aside for other use or protection. This strategy has not been effective and very few of the assigned home sites have actually been developed. Indeed, the policy runs counter to the traditional Hopi settlement pattern of community clustering in villages or even the more recent pattern of settling in detached single family housing on agricultural fields near traditional villages.

The *Hopit Tunatya’at* of 1988 and the unfinished Development District Plan which was conceived in the early 1990's, identified a dozen or more HPL locations that were suitable for community development. To attempt to develop all of these possible locations concurrently would surely stretch the financial and human resources of the Hopi tribal government beyond the snapping point and lead to poor implementation of any development program. A more successful strategy would focus on fewer locations for development in the near term, and thus for the present concentrate resources and reserve or land bank other areas for development in the future if they are needed.

The *Hopit Tunatya’at 2000* calls for development of six locations, five of these are located on main reservation and Moenkopi District land and the sixth is the entirety of the Winslow trust property. Two projects are tribal government initiatives (Tawaovi and Winslow), two are village
government initiatives (Howell Mesa East and Moenkopi) and two are new community “organic growth” developments (Yu Weh Loo Pahki and Side Rock Well). The overall development strategy for all these locations except Winslow is to create and build Planned Community Developments (PCDs) inside Planned Community Development Districts (PCDDs) (PLANNED COMMUNITY DEVELOPMENT DISTRICTS).

**Planned Community Developments and Planned Community Development Districts Concept**

The Planned Community Development/Planned Community Development District concept (PCDD/PCD CONCEPT) is a planning construct designed to allow and integrate new community development with the existing management practices for the HPL as implemented by various offices in the Department of Natural Resources (DNR). The PCDD will act as a buffer between DNR managed HPL range and agricultural land, areas that are now only sparsely settled, and the PCD which would be the new community area comprised of residential, commercial, and institutional land uses. Separate master plans should be created for each PCDD and its associated PCD. A PCDD master plan should focus on continuing land use and management practices that promote the rural character of the landscape, prohibit any further residential use or development, but would allow development within the district of infrastructure resources that would support the PCD. A co-management structure⁴ should be established to insure that all interests in the PCDD are represented at planning and decision making sessions. With one exception the proposed PCDDs are all in excess of 2,000 acres.

The PCD would be a smaller area, 400 to 500 acres, within the PCDD where community land uses, residential, institutional and commercial, would be clustered. The land uses would be supported with appropriate infrastructure development: roads, water, waster water, and electrical supply. Each PCD could eventually become an incorporated community under tribal law and

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⁴ A committee or team composed of at least the PCD leadership, the Directors of Hopi Lands and Range Management, and the Principal Planner should be created for each PCDD.
allowed to govern itself within any constraints imposed by the tribal constitution and the tribal
government. In addition this structure would allow each PCD to establish its own identity and
determine its own rules\(^5\) for development.

### Tawaovi PCDD/PCD

The Tawaovi PCDD is an area located in Range Unit 351, on BIA 4 about 17 miles north of
the Cultural Center. The Tawaovi PCDD is approximately 8,850 acres and the Tawaovi PCD is
approximately 500 acres. The Tawaovi PCDD includes the Solid Waste site as an industrial use.

A master plan for the Tawaovi PCDD/PCD (REA Associates et. al. 2000) was recently
completed and adopted by Tribal Council (H-044-2001). Because of the many social, economic
and institutional needs that this development can address even in the first phase of its development,
namely tribal member housing, tribal employee housing, construction of a Department of Natural
Resources facilities, and commercial and business opportunities, the master plan should be
implemented as rapidly as possible. The immediate development issues, as described in the master
plan, are supplying the site with electrical power and drilling a new domestic water supply that
conforms to the Hopi Water Code.

Prior to the Tawaovi master plan, a site/facility plan for a 45,000 square foot DNR facility
was developed by the Drachman Institute (1998). The cost of the preferred (Concept C) of three
design scenarios was estimated at $4.8 million.

The overall success of this project will be linked with finishing construction of the Turquoise
Trail as described in the Strategic Development section below. It is also potentially linked to one of
the Lake Powell Pipeline corridor alternatives (Corridor Alternative 2) described in the same
section below. Both these developments would increase the flows of people, goods and services

\(^{5}\) These rules could include such regulations as development densities, floor area ratios, height and size
restrictions, setbacks, and design aesthetics.
north-south in the northeastern part of the reservation, an area that is now remote and isolated, and in so doing these projects would likely enhance the economic viability of the community.

**Howell Mesa East PCDD/PCD**

The Howell Mesa East PCDD/PCD is a mixed residential and commercial subdivision development initiated by the Village of Hotevilla under a special land assignment made by the tribe in the early 1990's. The project area on Howell Mesa East is approximately five miles west of Hotevilla and on the north side of SR 264. The proposed PCDD area in Range Unit 256 is approximately 2,680 acres.

A PCD subdivision master plan for a fifty-six acre tract was created over five years ago, but no construction has taken place. A master plan for the PCDD has yet to be created. The tract is served by a well suitable for use as a source of domestic water. The site is not served by electricity at present. To serve the community, power lines would have to be pulled from the Hotevilla/Bacavi villages area to the site. This would cost approximately $150,000. There is a well on the site that is suitable for domestic water.

**Side Rock Well PCDD/PCD**

The Side Rock Well PCDD/PCD at present consists of a half dozen scatter home sites located in an area that was identified in the Comprehensive Development Plan of 1988 as a place suitable for residential and commercial development. The unique asset of the locality is that it fronts US 160 for a distance of almost a quarter mile. This frontage offers significant commercial development opportunities to the community.

The proposed Side Rock Well PCDD is located in Range Unit 251 and consists of approximately 1,000 acres. The PCD would be located in the northwestern portion of the PCDD with access from US 160.
At present no Side Rock Well PCDD/PCD master plans have been developed. Community members have expressed a desire to accomplish this in the near future because of the need to protect the prime commercial area from home site use and development. The PCD area is without utilities of any kind at present. The single road into the area that leads to the developed home sites is maintained by the community members.

**Yu Weh Loo Pahki (Spider Mound) PCDD/PCD**

The Yu Weh Loo Pahki PCDD/PCD is a second evolving community based on an existing scatter of home site development that was created under the HPL land assignment guidelines. The community is located in Range Units 565, 567, 568 and 570. It is composed of approximately twenty-four scattered home sites assigned to families who relocated to the HPL from the Jeddito area of the Navajo Reservation. The community was recently incorporated by the Tribal Council. The land set aside for the Yu Weh Loo Pahki PCDD is 6,278 ± acres.

The community has been developing a master plan for the PCDD with some attempts being made in the planning process at defining a PCD area within the PCDD. Because participation of tribal government staff in the plan-making process has been extremely limited, the master plan may undergo considerable revision before it can be presented to the Tribal Council.

The PCDD does have electrical service from NTUA and a community well. A second well is to be drilled in the near future. The main road through the PCDD, BIA 47, needs to be rebuilt.

**Moenkopi District PCDD/PCD**

In 1999, The Lower Village of Moenkopi initiated a PCDD/PCD development project with the assistance of Faculty of Environmental Design at Arizona State University. They are considering and researching three areas for siting a PCD within a 13,650 acre PCDD located in the Moenkopi District on the south side of the Moenkopi Wash.
At present there are no services in the PCDD. One of the design goals of the project is to use “Green Energy” and other sustainable design strategies to create a model community that balances the local natural ecology with development.

**Winslow PCD**

The Winslow property, a 200 acre parcel adjacent to the City of Winslow, was a gift made to the tribe in 1968 for the specific purpose of developing an industrial park that would offer employment opportunities for both Hopi and Navajo people. A manufacturing plant was built on a 15 acre subdivision of the original parcel in 1968 and operated for 10 years. The plant has been vacant since that time, except for one period of occupancy in the early 1990's.

Another 25 acre subdivision of the parcel was created in the 1980's for development of a HTHA low income rental project. There are thirty-three units constructed and now occupied. This development and another adjacent housing project constrains the industrial use that can now be added to the parcel.

An economic development plan (Drachman Institute 1999) proposed four alternative scenarios of development of this property. None of these have been implemented. The Winslow property is an undervalued and underdeveloped tribal asset which could generate, with the right kind of investment, considerable revenue for the tribe. Development of this property should be accorded high priority status by Tribal Council. An area structure and subdivision plan should be developed and implemented. This plan should include consideration of the continuing HTHA housing program, development of commercial and light industrial improvements to create jobs and tribal revenue, and the development of DNR and related tribal government facilities that would facilitate management of the ranch lands after they are taken into trust.
It will also be necessary for Tribal Council to delegate authority to a development team to search for, negotiate with, and close contracts with prospective business and industrial tenants for the property.

**Implementation and Effect of the PCDD/PCD Strategy**

Implementation of the PCDD/PCD strategy should be initiated through creating Special Land Use assignments under the HPL Land Use Assignment Guidelines for each PCDD described above. The effect of this action will be to remove these lands from home site and other kinds of incremental development. As the resident community of people for each PCDD/PCD emerges and becomes established over time, a community governance structure can be chartered under tribal law as has been done already for the Yu Weh Loo Pahki Community.

The policy effect of the PCDD/PCD strategy will be that the tribal government and its development partners will focus much of their future HPL infrastructure investment into these six new community areas. The justification for this choice is that large tracts of land will be subdivided for clustered medium and high density home site land assignments which will result in an optimization of the cost of infrastructure projects.

**Non PCDD Development in the Hopi Partition Lands**

The balance of the HPL Agricultural and Range Land can continue to be settled by Hopi families in scattered home sites under the existing Land Assignment Guidelines. However, the continued settlement should retain the rural landscape values that are a part of the HPL character. Settlement under these guidelines should be excluded from Environmental Reserve (Overlay) Land Use areas (Future Land Use) and located outside the PCDDs. Home site allocations should be made and controlled on the basis of land availability within Range Units. A net land availability

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6 Four or more home sites per acre.
estimate would be calculated for each Range Unit. The number of allowable home sites in each Range Unit would then be calculated at a very low rural density (one home site per every 640 acres, one square mile, of net available land). Availability of new home sites would be the total allowable home sites in each Range Unit less those that are already in effect including the Navajo Lease Agreement home sites. Ideally there should be a link made between awarding a home site assignment location and the applicant’s grazing permit Range Unit assignment.

The Office of Community Planning & Economic Development and The Office of Hopi Lands, upon adoption of the Hopit Tunatya’at 2000, will prepare the necessary calculations so that the home site application process can proceed. Home site applicants under this procedure will need to realize that public subsidy of bringing utility infrastructure to their scattered home site is unlikely; they will have to carry the entire expense from personal resources.

District Six and the Villages

There is an obvious need for the tribal and other senior governments to be able to and to actually build service delivery facilities in areas where the majority of the Hopi population resides and to integrate these facilities into community life. This area on the main reservation is the SR 264 corridor that stretches from Keams Canyon in the east to Hotevilla/Bacavi in the west and, farther west, the two Moenkopi villages. This corridor is now developing in an unplanned and incremental manner with projects sited in a seemingly random and scattered manner along the corridor. The explanation for this development/settlement pattern lies in the village and clan land tenure rights and the reluctance or willingness of village and clan leaders to dedicate large tracts of land to uses other than home site or farming use by their own members.

If this pattern of sprawl development along the SR 264 corridor is ever to be halted and for future public facilities to be sited in such locations that not all trips to and from a facility will necessarily be made by automobile, a committed effort to undertake creation of specific village

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7 Total Range Unit in acres - Total Constrained Land in acres = Net Available Land in acres.
land use and area structure plans will have to be made by the tribe and all the villages. It will be key that all village and clan leaders, particularly in the villages with traditional government systems, be engaged and participatory in these plan-making processes. It will be only through a process such as this that a balance in the allocation of development between and among the villages and the HPL will be achieved and the collective interests and vision of the Hopi people realized.

**Strategic Development**

**Turquoise Trail**

The Turquoise Trail (BIA 4) is a road that will, when completed, connect SR 264 at the Hopi Cultural Center to US 160 just north and west of the Peabody Coal mine lease (STRATEGIC DEVELOPMENT Turquoise Trail (BIA 4)). At present about one half the length of this roadway has been constructed. The segments that have been constructed were done so under special appropriations of the U.S. Congress and not as part of the annual IRR transportation improvement program. The primary justification for its construction has been and continues to be that it would allow Hopi people access to employment in the Peabody Coal mining operations. Other justifications include the dedication land for utility services corridors in the right-of-way, facilitation of north-south travel on the eastern side of the reservation, and overall enhancement of the regional travel network.

The remaining thirty-nine miles of construction would cost an estimated $50 million to complete the highway. Not all of this money necessarily would have to be provided by the federal government. With the new alignment approved in H-077-98, a substantial amount of the construction could be undertaken by Peabody Coal as part of their mineral lease surface reclamation.
Lake Powell Water Pipeline

Without doubt the single most pressing life support issue facing the Hopi people at the turn of the millennium is securing a long term domestic water supply. At present all of the Hopi communities on the main reservation, except Yu Weh Loo Pahki, are dependent on the N-Aquifer as their source of domestic water. Annual water consumption by Hopi communities in 2000 was projected to be in the order of 700 acre-feet/year (Morgan 1993). It is expected that water consumption by Hopi communities will increase in the future due to an increasing reservation residential population and higher per capita water use (Morgan 1993; Suderman and Lowma’omvaya 2001).

This aquifer is also the source of Peabody Coal’s water slurry that transports some of the coal mined at Black Mesa to the Mohave generating station in Nevada. It is well known and widely documented that use of N-aquifer water for the coal slurry is having a negative effect on the ability of the aquifer to sustain a balanced regime. Also, it is almost certain that the coal reserves in the Black Mesa Basin will remain a premium energy resource especially at a time when the United States, and particularly the western United States, is into what appears will be a long term episode of energy shortages and disruptions. With this probable continued high demand for Black Mesa coal, the need for the water to transport the coal is not likely to lessen, in fact it may increase which will cause further impairment of the N-aquifer. Current projections under existing conditions suggest the N-aquifer will become exhausted in the mid 21st century and will no longer be a reliable source of domestic water for Hopi and other residents of the region.

The water supplies for the Lower and Upper Villages of Moenkopi are also threatened. Their supplies are being contaminated from several sources and there is also the threat of depletion of the supply in the existing wells as early as 2011.

In the twenty-six years of mining at Black Mesa, approximately 2 billion tons of coal have been mined. This represents slightly less than 10% of the original estimated reserves of 21 billion tons (Fellows 2001).
The strategy that has been proposed to alleviate this looming crisis is for the tribe to obtain an allocation of Colorado River water from Lake Powell and to construct a water pipeline system to deliver the water to the reservation communities. This strategy should be pursued with vigor. A corollary action envisioned in this strategy is to remove Peabody Coal from its use of N-aquifer water and to sell them a portion of the allocation as a replacement water supply for the slurry.

There are three basic corridor design solutions to transporting water from Lake Powell and distributing it to the Hopi communities. The first and original pipeline corridor design (STRATEGIC DEVELOPMENT Lake Powell Pipeline Corridor Alternative 1) routes the pipeline alongside a portion of the Peabody Coal BM&LPRR rail line. This pipeline would start at an arm of Lake Powell near the Navajo Generating Plant and run south southeast along the rail line to US 160, then southwest along US 160 to its intersection with BIA N21/H7 where it branches. The main branch follows N21/H7 south southeast to SR 264 and then would run along SR 264 to the First Mesa area. The other branch would continue west along US 160 to Moenkopi. The estimated cost of this 158 mile project in the early 1990's was $400 million.9

The original design for this corridor routed the pipeline along BIA H7 through Talastima (Blue Canyon), an area designated in Hopit Tunatya'at 2000 and in the Roads of Blue Canyon (Office of Research & Planning 2000) study to become an environmental reserve. Even earlier than these studies, the tribe has moved to protect and manage the aesthetic and environmental values of the Blue Canyon area (Office of Research & Planning 1992). The Roads of Blue Canyon study revealed that the slopes into and out of Blue Canyon in the vicinity of BIA H7 are prone to severe erosion once they are disturbed by any kind of construction project or other use that disturbs the ground cover, thus it would be unacceptable to route the water pipeline through this area. The alternative within this corridor would be to move the routing several miles to the west and construct a suspended high level crossing of the Moenkopi Wash. BIA 7 could be rerouted at the same time.

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9 The unit cost of pipeline construction in 1990 dollars is thus $2.5 million/mile which figure is used throughout to provide comparative cost estimates.
which would benefit Blue Canyon considerably. A high level bridge could be built and the pipeline slung under the roadway.

To meet the corollary objective of removing Peabody Coal from using the N-aquifer water, a lateral pipeline about 20 miles in length would have to be constructed. This would cost an additional $50 to $55 million.

The second corridor alternative (STRATEGIC DEVELOPMENT Lake Powell Pipeline Corridor Alternative 2) would follow the same route as Alternative 1 from Lake Powell to US 160 where it would then branch into two lines. The main branch in this case would go northeast to the Peabody Coal mine lease and then run south along the proposed and existing BIA 4 right-of-way to Second Mesa where it would then branch east and west along SR 264. At US 160, the secondary main branch would run southwest to Moenkopi. The approximate distance for this routing is 200 miles and would cost $500 million. Because of the opportunities to benefit the Peabody Coal mine operation, to rehabilitate the N-aquifer by injecting water back into the aquifer through the existing wells, and to provide supplies of water through short laterals to other communities, including some Navajo chapters, that are being affected by the N-aquifer draw down, this alternative, upon further study, may prove to have the highest benefit-cost ratio of any of the three corridor alternatives discussed.

The third alternative (STRATEGIC DEVELOPMENT Lake Powell Pipeline Corridor Alternative 3) is a radical departure from the previous solutions. The pipeline would start at Lake Powell and go west to US 89. At US 89 it would turn south and follow US 89 to its junction with US 160 where it would then turn west and run to Moenkopi. From Moenkopi it would run east along SR 264 to the First Mesa area. This pipeline would be 158 miles long and like Alternative 1 it would cost approximately $400 million to build. To reach the mine area, another 60 miles of pipeline would have to be constructed at an additional cost of $150 million, making this alternative probably the most expensive.
This pipeline design is a variation on a design being studied by the Arizona Department of Water Resources (ADWR) (Morrison Institute 2001). Their design would include water delivery to some Navajo communities located near US 89 and does not include delivery to the Hopi Reservation communities or the Peabody Coal mines. The primary recipients of the water from the ADWR pipeline would be the growing urban areas of Flagstaff, Williams, and Tusayan.

The Office of Water Resources, DNR should be immediately mandated by Hopi Tribal Council to aggressively pursue the necessary policy, preliminary engineering, and fiscal feasibility studies leading to the identification and selection of the preferred corridor alternative. Once chosen, right-of-way options on the land should be secured in order to prevent other development on the preferred corridor from occurring.

**General Infrastructure Development**

The electrical supply to the reservation needs to be extended and made more reliable. Reliable and generally available power are essential to successful economic development projects as well as quality of life. The extensions of service required include 3-phase service to all the planned community development districts. The probable cost to reach the five districts would be $1.3 million (40 miles of line extension @ $32,000/mile). The service needs to be made more reliable also. At present on the main reservation, the line is a radial spoke originating at the Cholla Plant with no connection into a grid that would allow reverse flows in the event of failure before the power reaches the substation near the highschool.

Air transportation landing facilities need to be increased on the reservation. A helicopter pad should be developed at the new Wildlands Fire/EMS facility at Kykotsmovi and another should be included in the DNR facilities development at Tawaovi. A pad could be sited in Moenkopi. When the ranch properties are brought into trust status for the tribe, other pads could be located at the ranch headquarters locations. The tribe should investigate the feasibility of leasing helicopter equipment for use in emergency response, law enforcement, range land monitoring, and wildlife
Telecommunications infrastructure needs to continue to expand and become more widely available and affordable. Because of the technical complexity of the telecommunication industry, the variety of applications for telecommunications technology, and the diversity of markets, a comprehensive telecommunications plan for the tribe that considers all its different land interests needs to be developed. The development of tribal telecommunications systems in the near term may be the driver that will promote economic development, the creation of jobs and incomes, on the reservation and may ultimately provide the means to achieve The Hopi Vision of being able to live a quality life and to find meaningful work at home in Hopiland.
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LIST OF ABBREVIATIONS

ADOT - Arizona Department of Transport
ADWR - Arizona Department of Water Resources
APS - Arizona Public Service
BIA - Bureau of Indian Affairs
CP&ED - Office of Community Planning and Economic Development
CSA - Community Service Administrator
DNR - Department of Natural Resources
DPS - Department of Public Service
EDA - Economic Development Administration
EMS - Emergency Medical Services
HPL - Hopi Partition Lands
HTHA - Hopi Tribal Housing Authority
HUD - Housing and Urban Development
IHS - Indian Health Service
IRR - Indian Reservation Roads
MAA - Moenkopi Administrative Area
NAU - Northern Arizona University
NTUA - Navajo Tribal Utility Authority
PCD - Planned Unit Development
PCDD - Planned Community Development District
TDR - Tribal Data Resources
APPENDIX 1. THE HOPI VISION
The Hopi Vision

The Hopit Tunatya’at 2000
Strategic Land Use and Development Plan
The Hopi Vision

In July 1998 the Office of Research and Planning began developing a Strategic Land Use and Development Plan for the Hopi Reservation. The plan will discuss a number of key development issues and present strategies to address them.

The driving force behind any plan should be a dream of what the plan is proposed to achieve. Yet for the dream to be effective it needs to be verbally clarified as a vision statement. A vision statement gives one the ability to plan how to achieve the dream, and through this it becomes a mechanism for empowerment. It allows for pro-active decision making and provides a guide for evaluating possible alternatives.

To create a vision statement, an intense public scoping process was conducted over a period of six months. A series of public workshops were held with the Hopi general public, a Youth Visioning Session was organized at Hopi Jr./Sr. High School, previous plans and were referred to, and interviews were conducted with individuals identified as “key informants” - those with particular insight into development on the Reservation.

The Strategic Land Use and Development Plan - Hopit Tunatya’at 2000 - is for the benefit of Hopi people. If it is to be a successful plan it is crucial that the plan’s vision statement articulate our dreams for the future.

Through these processes it became evident that we as Hopi people have a distinct vision of our future and that of our land. While embracing development we express a desire to maintain cultural and environmental integrity.

Hopi should be a place where:

- Hopi culture and religion are strong;
- sacred sites are protected;
- culturally and environmentally sensitive development occurs;
- the land is looked after;
- there are jobs and businesses;
- quality infrastructure serves everyone;
- everyone has their own quality house;
- public service facilities serve all needs.
Our Alternatives for Future Development

The public scoping process from which the Hopi Vision was generated also gave people the opportunity to plan how to achieve this vision. As team members, participants in the public workshops and Youth Visioning Session were asked to draw on a map of the Hopi Reservation their ideal future land use concept.

Three distinct scenarios emerged, with the fourth alternative as maintaining the status-quo:
1. new development surrounds existing villages in District 6 and is in planned unit development districts in the HPL.
2. all new development takes place in District 6 around the existing villages.
3. all new development takes place in planned unit developments in the HPL.
4. development continues in the current haphazard fashion all over the Reservation.

Each of these development scenarios is based on a distinct perspective of how development should effect the existing character of the Hopi Reservation. The first approach recognizes the need to support existing villages with continued development, but wishes to protect them from excessive change by steering some development onto unused land in the HPL. The second scenario emphasizes traditional Hopi settlement locations and reinforces the existing villages with new development. The third land use plan seeks to preserve the traditional character of villages by locating all future development in new locations on the HPL. The fourth approach is the current means in which development takes place across the Reservation.

Land assignments are granted from villages and the Tribal government for any requested location, without regard to infrastructure availability or implications for the character of the Reservation.

Of the three land use plans developed by Hopi, encouraging development both in the HPL and around existing villages was the most common plan for future development. Restricting new development to the HPL was recommended by the fewest teams.
Although not a visioning session per se, interviews with key informants were a means of determining what Hopi people feel are important considerations for development. Those interviewed included Hopi Tribal Government Managers and Office Directors, village CSA’s and a number of others perceived as having insight into development issues on the Reservation. Effort was made not to influence people’s input: a set questionnaire (Appendix 1) was used to ensure consistency in the interviewing process and all questions were left open-ended to avoid limiting the focus of responses.

Thirty-three key informants were interviewed over the three month period. Although a level of structure was imposed by the set nature of the questions, each session was kept informal.

Answers to the question “What are the four most important development issues facing Hopi?” were also used as a foundation for a presentation and a workbook distributed in the Alternative Futures Workshops. All responses to this question were grouped into common areas. The four of the five areas discussed most were researched further to provide demographic, social and economic data from which workshop participants could make informed planning decisions. The five areas included economic development, the changing needs of families, land, infrastructure, and the need for planning. These areas are presented below and appear in order of importance.

1. Economic Development

Of the 33 individuals who were interviewed, 22 of them identified economic development as an important development concern. The most significant issue arising from this response was people’s desire to see sustainable, environmentally sensitive development that is also compatible with Hopi culture. The most common suggestion was that Hopi explore commercial agriculture and ranching operations. Others favored development options were tourism and recreation. Many individuals expressed a concern for diversifying the Hopi Tribe’s income base. However, it was emphasized that while economic development should focus on creating revenue sources for the Tribe, it should also promote Hopi entrepreneurship to stop Hopi workers and dollars leaving the Reservation.

2. Changing Needs of Families

The most significant social concern of those interviewed was for Hopi youth. Many individuals felt that the reservation education system should be improved, and more effort should go into providing local education at the
college level. A number of respondents were concerned that youth are not made aware of the full range of available career opportunities. Other issues were that Hopi youth should be more involved in planning for the future and should have better recreation facilities provided for them.

A concern was also raised about the elderly, especially regarding the lack of facilities such as elderly care centers and specialized health services. Other health concerns included the lack of a dialysis center, limited EMS coverage, and the need for a full-fledge hospital.

Another social issue identified was the need to continually develop skills and abilities of Hopi Tribal Government staff. A number of people expressed concern that there is too much reliance on consultants and non-Hopi professionals, and that Hopi professionals are under-valued.

3. Planning

Respondents felt that there is an expressed need for land use planning and planned development across the Reservation. Of the 18 individuals who found planning to be an important issue, 13 of them felt that new land use plans should be created, and nucleated, mixed-use communities should be identified. The remaining five people questioned why existing land use plans, which do identify development districts, are not being used. Other planning related observations included recommendations for a needs assessment/asset evaluation and that the Tribe should make more effort to garner support from the Hopi general public when initiating development.

4. Infrastructure

Many interviewees stated that the lack of infrastructure (specifically water, electricity and paved roads) severely constrains development on the Reservation. They felt that the existing infrastructure in villages is limited and in need of upgrading; the shortage of housing is directly attributable to this. Furthermore, it was noted that because there are no layout plans for infrastructure, the existing systems are haphazard, inefficient and costly. Many of the respondents pointed out that the lack of infrastructure in the HPL, especially electricity, prevents this land from being developed. Many respondents expressed the desire for a Hopi electricity company for two reasons: the political climate makes granting rights-of-way (ROW) to the Navajo Tribe Utility Authority undesirable, and the landlocked nature of Hopi makes it difficult to obtain ROW's from the Navajo Nation.

5. Land

A number of people stated that they view the lack of land base as a significant development problem. However,
further interviews clarified this to mean a lack of developable land rather than too few acres. There are a significant number of development constraints such as archaeological sites, gathering sites, shrines, etc. Together with conflicts over land jurisdiction between villages, clans and the Tribal government, development in District 6 is seen as severely inhibited. Although many people recommended that the Tribe focus on developing the HPL, others noted that this is difficult because of the lack of infrastructure. Yet there was strong support for developing new communities in the HPL for a number of reasons. In the wake of the Navajo-Hopi Accommodation Agreement many feel that it is crucial to secure Hopi ownership of the HPL: physical development is the best means of doing this. New communities would also alleviate the dire need for housing in a manner more efficient than the current system of scattered land assignments.

Additional issues identified as important include housing, a long term water supply, diminishing funds, political conflicts between the Tribe and villages, and protection of cultural and natural resources.

**Alternative Futures Workshops**

**November 1998 to January 1999**

A series of public meetings, called Alternative Futures Workshops, took place at the following locations: Phoenix, Flagstaff, Moenkopi and the Hopi Veteran’s Memorial Center. The purpose of the workshops was to explore alternative planning concepts for the Hopi Reservation.

The workshops were divided into three phases. The first familiarized participants with planning and development issues specific to Hopi. A presentation was made relating the four areas of concern identified in the key informant interviews: the changing needs of families, economic development, using the land, and infrastructure. Topics included the changes in Hopi demographics, social issues, and the economy. The need for planning was then explained using this data for illustration. For example, it was estimated that 1200 new houses will need to built to accommodate the projected increase in on-Reservation population in the next 20 years. Attendees were asked to think about where these houses should go, and how their location would effect the landscape.

In the second phase individuals established planning objectives by answering a series of thought provoking questions from a workbook (Appendix 2). They included identifying what people feel are important development issues, what they feel should not change, what is changing,
and their top goals for the future of the Reservation. The answers to these questions were used to establish a vision statement for the Plan. The final phase of the workshop consisted of teams designing a desirable land use plan on a base map of the Reservation.

It must be emphasized that in the summaries of each team's results presented in the following pages, all answers to the four questions listed under "Planning Objectives", as well as the features of their "Alternative Futures", are direct quotes. The narrative of each team's planning concepts was derived from their land use map, which, in most cases, is included as a small graphic.

Phoenix
18 November, 1998

Over 30 Hopi attended the workshop in Phoenix and worked as members of three planning teams. Economic development was one of the recurring themes. Also, maintaining Hopi values and sacred places was a high priority. They discussed a concern for providing more housing and services for seniors.

Their solutions suggested three ways the plan could accommodate future needs of the community. Team 1 felt that all new development should be steered away from the traditional villages and focused in planned communities. Team 2 identified seven locations for new housing, also away from the villages. They recommended commercial development be located along Highway 87. Team 3 wanted to integrate new housing and commercial centers into the traditional villages along Highway 264.
**Team 1**

**Planning Objectives:**

1. What are the four most important planning issues?
   - Economic Development
   - Location of Development
   - Splitting up of Clan Land
   - Housing

2. What four traditional activities and places should not change?
   - Traditional Hopi Values:
     - Ceremonies
     - Farming
     - Mesa Villages
     - Cultural Customs

3. What four traditional activities or places are changing?
   - Lifestyle
   - Living Conditions
   - Demand for Housing
   - Need for Family Housing

4. What are your top four goals for the future of Hopi lands?
   - Economic Development

**Planning Concepts:**

- Health Services
- Development with Sound Planning
- Utilities and Infrastructure
- More Family Housing

Guide Development Impacts Away from Traditional Mesa Villages.

This team recommended that future development take place within the HPL, Moenkopi and newly acquired ranch property near Springerville. They planned a new community north of Third Mesa for housing and associated commercial services such as a grocery store. Along Highway 2 they proposed an Art Market, and at the intersection of Highways 264 and 160 in Tuba City they wished to see a hotel. An industrial park would be developed in Winslow. The Springerville property would include a resort development.

**Team 1’s Alternative Future Featured:**

- Development on Newly Acquired Lands
- No New Development in District 6
- Urban Community - Contemporary Lifestyle
- Tourist Village
Team 2

Planning Objectives:

1. What are the four most important planning issues?
   • Quiet
   • Water in the Future
   • Money - - After Peabody
   • Better Education and Senior Facilities

2. What four traditional activities and places should not change?
   • Dances
   • Eagle Gathering
   • Areas
   • Lifestyle and Religion

3. What four traditional activities or places are changing?
   • Traditional Village Leadership
   • Dances
   • Family Lifestyle
   • Lack of Parent Discipline
   • Language

4. What are your top four goals for the future of Hopi lands?
   • Economic Development
   • Quiet
   • Where Development should be
   • Open Decision Regarding New Lands to all
   • Water
   • Better Senior Health Care

Planning Concepts:

New Housing Settlements and Highway 87 as a Commercial Artery.
The team created seven modest size housing settlements away from existing villages. Land south of the mesas and within five miles of the villages would be used for agriculture, while land beyond that would remain grazing. Highway 87 was viewed as a good location for auto-oriented commercial development.

They identified two commercial sites along this highway - - one south of Highway 267 and one north.

Team 2’s Alternative Future Featured:

• All New Development is Away from Existing Villages
• Adopt and Use this Plan - - Use the Dollars Available
• Stop Arguing over Land Jurisdiction to Develop Things
• No Politics - - All Work towards a Common Goal
Team 3

**Planning Objectives:**

1. What are the four most important planning issues?
   - Tribal Income
   - Educate Hopi People
   - Housing
   - Land Assignments for Housing
   - Economic Development
   - Super Market
   - Health

2. What four traditional activities and places should not change?
   - Kivas
   - No Change within One Mile of Plazas
   - Sacred Sites
   - Traditional Activities

3. What four traditional activities or places are changing?
   - Language not Passed on
   - Extended Family Morals, Ethics, Values
   - Cultural Values/Traditional Values
   - Increased Need for Employment
   - Tribal and Village Government
   - Loss of Discipline
   - Health

4. What are your top four goals for the future of Hopi lands?
   - Basic Infrastructure
   - Better Housing
   - Residential Planning
   - Environmental Protection

**Planning Concepts:**

Reinforce the Pattern of Existing Villages.

Team 3’s concept focused new development near the existing villages. They identified four new locations for housing and six for new commercial services. The mesa villages were bracketed by agricultural uses and with grazing beyond. A new housing and commercial development site was identified in Moenkopi, with agricultural and grazing to the south.

Team 3’s Alternative Future Featured:

- Housing and Employment
- Land Assignments - - Home, Agriculture, Grazing
- Commercial Development
- Infrastructure Development
Flagstaff
19 November, 1998 and 13 January, 1999

Two meetings were held in Flagstaff. At the initial meeting five Hopi were available to discuss potential futures for Hopi land. Their main focus was the availability and use of land, and the need to protect Hopi values and traditional culture.

Planning Objectives:

1. What are the four most important planning issues?
   - Water and Natural Resources
   - Available Real Estate
   - Range Preservation

2. What four traditional activities and places should not change?
   - Traditional Clan Land Holdings
   - Sacred Sites
   - Infrastructure Planning

3. What four traditional activities or places are changing?
   - Lifestyle
   - Less Participation in Traditional Dances
   - Population
   - Tourism
   - Electrical Lines
   - Coal Mine
   - Livestock

4. What are your top four goals for the future of Hopi lands?
   - Multiple Use of Newly Acquired Land - - Not just for Ranching (Use for Economic Development)
   - Manage Land so Older and Younger Hopi Feel Comfortable
   - Housing Construction Outside Villages (but Need Infrastructure)
   - Long Term Sustainable Solutions

At the second meeting over 20 people attended the workshop and worked as members of three planning teams. As with those who attended the first meeting, maintaining the Hopi religion and philosophy was considered important. Economic development was also a high priority.

Their solutions suggested three diverse methods of planning future development. Team 1 felt that all new development should be steered away from the traditional villages and focused in planned communities. Team 2 reinforced the pattern of existing villages by integrating new housing and commercial centers into the villages along Highway 264. Team 3 wanted to maximize use of all Hopi land and chose to scatter commercial development and housing throughout District 6 and the HPL.
Team 1

Planning Objectives:

1. What are the four most important planning issues?
   • Developing the Community
   • Hire Knowledgeable Planning Person (Hopi preferred)
   • Council’s Responsiveness to Tribal Members’ Input
   • Education
   • Economic Development

2. What four traditional activities and places should not change?
   • Plazas/Villages
   • Agricultural Pursuits
   • Maintain Religious Cycles
   • Maintain Religious Ceremonies

3. What four traditional activities or places are changing?
   • Ranching/Livestock
   • Scattered Housing
   • Religious Preparation (before, during, after)
   • Traditional Meals
   • Springs

4. What are your top four goals for the future of Hopi lands?
   • Maintain Traditional Villages
   • Build Much Better Homes
   • Respectful Use of Land for Community Use
   • Better, Improved Funding
   • Economic Development

Planning Concepts:

Guide Development Impacts Away from Traditional Mesa Villages.
Team 1 recommended that development take place within the HPL and Moenkopi District. They planned a new community along each paved road on the Reservation, expanded Turquoise Community to both sides of BIA 4, and located a new housing community at Howell Mesa East. This group designated the entire reservation as open for commercial development. However, they specifically eliminated the Peabody Coal Lease Area, stating that it should not take Hopi water. They were highly specific in locating areas for cultivation: an area in the far northwest portion of the HPL, a buffer along Moenkopi Wash in
the Moenkopi District, a small tract at the junction of Highway 264 and Dinnebito Wash, and the Oraibi Wash delta. All areas not designated for agriculture or housing were left as grazing land.

Team 1’s Alternative Future Featured:
• Maintaining the Existing Character of the Reservation
• No New Development in District 6
• Establishing a Number of New Communities in the HPL
• Eliminating Peabody Coal

Team 2

Planning Objectives:

1. What are the four most important planning issues?
   • Economic Development
   • Considered Growth
   • Better Leadership

2. What four traditional activities and places should not change?
   • Hopi Religion and Philosophy

3. What four traditional activities or places are changing?
   • Hopi Religion and Ceremony
   • Outside Influences are Making a Negative Impact
   • Too Much Development (Housing)
   • Hopi Values by Youth as well as Parents

4. What are your top four goals for the future of Hopi lands?
   • More Economic Development
   • Everyone Should have Land to Build
   • More Tribal Infrastructure Stability
Planning Concepts:

Reinforce the Pattern of Existing Villages. This team identified six new areas for housing, all of which were located close to existing villages. They felt that commercial development should be focused along Highway 264 between First Mesa and Hotevilla/Bacavi, although the entire Reservation could be considered. They left agricultural and grazing areas as they are at present.

Team 2’s Alternative Future Featured:
- Economic Development
- New Housing in or Near Existing Villages
- Maintaining the HPL as it is at Present
- Everyone Should Have Land to Build

Team 3

Planning Objectives:
1. What are the four most important planning issues?
   - More and Better Homes
   - Better Medical Services
   - Infrastructure: Water and Sewer
   - Land Issues need Clarifying
   - Economic Development
   - Renovate/Remodel Traditional Homes
   - Water Supply

2. What four traditional activities and places should not change?
   - Traditional Farming
   - Restore and Keep Ceremonial and Traditional Leadership
   - Sacred Sites
   - Plazas and Kivas
   - Shrines/Clan Migration Shrines
   - Initiation Ceremonies

3. What four traditional activities or places are changing?
   - Language
   - First Mesa
• Wetlands are Overgrazed and Overgrown with Tamarisk
• Commercial - Stores
• Clan Lands
• Men's Wuchim Society
• Culture

4. What are your top four goals for the future of Hopi lands?
• Land Use with Cultural Input
• Economic Development - Jobs
• More Agricultural Land
• More Access/Closer to Businesses
• Better Homes and Roads
• Restoration of Biodiversity to Hopi Wetlands

Planning Concepts:

Scattered Development Across District 6 and the HPL. The team wished to use all Hopi land and chose not to cluster any development. They located housing along four washes: Jeddito, Dinnebito, Oraibi and Polacca Washes. Three larger groups of housing were located in the HPL and one in the Navajo area surrounding Hard Rocks Chapter. Stores were scattered throughout the Reservation for easy access from all housing. The team located a quarry between Oraibi and Bacavi, a dialysis center at the junction of Highways 264 and 87, and a motel/restaurant west of Polacca. Agricultural areas in District 6 were designated as pockets along Highway 264 and the remaining land was left as range land.

Team 3's Alternative Future Featured:
• All of the Reservation Should be Open to Development
• Development Should not be Clustered
• Agriculture and Farming Should be Non-commercial
• Water Problems Involve the Supply, not Infrastructure
Moenkopi
7 December, 1998

About 11 Hopi attended this Alternative Futures workshop and were divided into two planning teams. They were particularly concerned with the need for housing and maintaining Hopi culture and spiritual values. The use and availability of land was also a reoccurring theme.

Their solutions suggested two ways the plan could accommodate future needs of the community. Team 1 addressed the Moenkopi District in detail, specifically identifying areas for commercial, housing, a new community and agriculture. They designated Howell Mesa East as suitable for a new village and located housing in and around Blue Canyon. The balance of the Reservation was left for grazing. Team 2 identified fourteen (14) locations for new communities on the HPL. They recommended a number of areas for commercial development, all of which were along road frontage of Highways 160, 264 and 87.

Team #1

Planning Objectives:

1. What are the four most important planning issues?
   - Housing
   - Jobs
   - Land Use
   - Village Leadership/Kikmongwi

2. What four traditional activities and places should not change?
   - Hopi Dances (Kachina and Social Dances)
   - Plaza Area
   - Planting

3. What four traditional activities or places are changing?
   - Lower Moenkopi Getting Own Administration and Office
   - Cultural Center is Falling Down
   - Highways 264 and 160
   - Roads
   - Children Watching too Much TV

4. What are your top four goals for the future of Hopi lands?
   - Housing
   - Jobs/Businesses
   - Better Irrigation
• Water and Sewer
• Village Layout like Chaco Canyon (Traditional Pueblo)

Planning Concepts:

Guide Development Impacts Away from Traditional Mesa Villages.
The team targeted areas within the HPL and Moenkopi District for future development. They planned a new village at Howell Mesa East, in four locations in the Moenkopi District, and around Blue Canyon. They placed commercial development in two of the housing sites in the Moenkopi District, both of which front Highway 264.

Team 1’s Alternative Future Featured:
• No New Development in District 6
• Use of the Moenkopi District
• Growth being Absorbed by New Communities Rather than Scattered Housing

Team 2

Planning Objectives:

1. What are the four most important planning issues?
   • Housing
   • Availability of Land
   • Gathering Information to Plan

2. What four traditional activities and places should not change?
   • Cultural Lifestyle
   • Language
   • Spiritual Life

3. What four traditional activities or places are changing?
   • Education
   • Population Growth
   • Hopi Politics
   • Spiritual Life

4. What are your top four goals for the future of Hopi lands?
   • Keeping Traditions
   • Housing
   • Using New Lands
   • Land Availability/Jurisdiction
Planning Concepts:

New Housing Settlements and Highway 87 as a Commercial Artery.
Team 2’s overall concept created fourteen housing settlements away from existing villages. District 6 and the northern HPL were for agricultural and grazing use. The part of Highway 87 in District 6 was viewed as a good location for commercial development. Three other commercial sites were located in the HPL and two in the Moenkopi District.

Team 2’s Alternative Future Featured:
• All New Development is Away from Existing Villages
• Road Frontage Should be Reserved for Commercial Use
• Using and Developing the HPL and Moenkopi District

Hopi Veteran’s Memorial Center
28 January, 1999

About 20 Hopi participated in the workshop and worked as members of three planning teams. Land use and availability was a reoccurring theme. They were concerned with preserving traditional values and culture. Also, they felt that more housing is needed.

Two of the teams had similar ideas for planning future development. Team 1 and 2 felt that new housing communities and commercial development should be focused on the HPL, along the paved entrances to the Reservation. They felt that the villages should be responsible for developing community centers and commercial ventures. Team 3 wanted to integrate new housing and commercial centers into the mesa villages along Highway 264.
Team 1

Planning Objectives:

1. What are the four most important planning issues?
   - One Common Vision
   - Nursing Home
   - Fire Station
   - Water/Good Land for Farming
   - Water
   - Housing Development

2. What four traditional activities and places should not change?
   - Ceremonies - Major/Minor
   - Hopi Language
   - Working as Hopi People (Suminangwa/Naminaqua)

3. What four traditional activities or places are changing?
   - Disturbing/Destroying Shrines
   - Ceremonies
   - Sinom (Population)
   - Concept of Development
   - People of Villages

4. What are your top four goals for the future of Hopi lands?
   - Improved Housing
   - Economic Development
   - Fire Station
   - Access to Use of Land

Planning Concepts:

New Housing Settlements Served with Commercial and Community Centers at Paved Entrances to the Reservation. The team proposed that traditional villages be responsible for the development of community centers and commercial development in District 6 along Highway 264. A new housing area was placed in the north west corner of the HPL. They recommended commercial farming be developed along most of the washes, but that this be restricted to the HPL. This team proposed that the woodland/canyon region in the north east HPL be off-limits to livestock to encourage the return of wildlife. However, the rest of the HPL was left for grazing use.

Team 1's Alternative Future Featured:

- Economic Development
- Public Service Facilities
- Housing Development
- Consolidated Education Facilities
Team 2

Planning Objectives:

1. What are the four most important planning issues?
   • Land Designation
   • Land Use
   • Water Issue
   • Housing and Infrastructure
   • Resources and Land Availability

2. What four traditional activities and places should not change?
   • Villages - Setting
   • Traditional Values
   • Ceremonies
   • Religious Cycle
   • Language

3. What four traditional activities or places are changing?
   • Traditional Farming
   • Village - Traditional Structure/Modulars
   • Land Use around Villages
   • Language

4. What are your top four goals for the future of Hopi lands?
   • Effective Land Use Planning
   • Economic Development
   • Grazing
   • Village Zoning
   • Resources

Planning Concepts:

New Housing Settlements in the HPL Along the Main Paved Roads.

This team focused on the HPL for two reasons: to avoid clan/village land jurisdiction problems in District 6, and maintain the traditional nature of mesa villages. The team felt that mesa villages should remain community centers and emphasized maintaining the traditional appearance of plazas. Similar to Team 1, the group placed new community centers and commercial development in District 6 along Highway 264. They bracketed the existing villages with agricultural use and left the rest of the HPL open for grazing. They also recommended a strong management plan for grazing and agriculture.
Team 2’s Alternative Future Featured:

- Development be Away from Main Villages where Traditional/Religious Practices continue.
- Strategic Placement of New Development.
- Any Development Plans First be Presented to Villages. Villages Have Ultimate Approval/Concurrence for Any/All Development.
- Financial and Other Resources Must also be Appropriated in Order for Plans to be Developed.

Team 3

Planning Objectives:

1. What are the four most important planning issues?
   - Roads
   - Housing
   - Economic Development
   - Rules and Regulations

2. What four traditional activities and places should not change?
   - Kivas
   - Sacred Areas
   - Wetlands
   - Village Structure

3. What four traditional activities or places are changing?
   - Villages
   - Village Governance
   - Ceremonies
   - Hopi Weddings
   - Mainstream Areas
   - Housing Development

4. What are your top four goals for the future of Hopi lands?
   - Water and Sewer
Reinforce the Pattern of Existing Villages.

Team 3’s concept focused new development near existing villages, but also established three new communities in the HPL. These three new communities were all supported with community centers and commercial development. The team emphasized developing Spider Mound into a new community supported by commercial activities. They identified seven new locations for housing in District 6, and six for new commercial services. In the Moenkopi District they established a new housing development but mostly reinforced the existing pattern. Agricultural development was placed in a number of areas: surrounding Moenkopi, bracketing Howell Mesa East and Spider Mound Communities, and lining a stretch of Highway 264 and Oraibi Wash. The Moenkopi District and land surrounding Spider Mound was designated as grazing. They suggested that the northern part of the Reservation be protected from development to preserve woodland areas.

Team 3’s Alternative Future Featured:
• Economic Development (Business and Land Use)
• Community Development (Housing, Business and Infrastructure)
Hopi Youth Workshop
November 20, 1998

Over 40 teens from Hopi Jr./Sr. High School and Tuba City High School participated in this six hour alternative futures workshop. The purpose of the workshop was to encourage youth to articulate their perspective of how the reservation should look and serve them in the future. The workshop was organized into two sections. The first section was to identify issues and goals for future Reservation development. The means for doing this asked students to write down in workbooks their favorite places, discuss issues that youth face, and determine rules for the future. In the second section they established alternative futures for the Hopi and their reservation.

Participants at the Youth Visioning Workshop used a variant of the workbook used in the Alternative Futures Workshops to specify issues that are particular to young people. They listed their favorite places, identified the opportunities and challenges that they face, and established “should” and “should not” rules for future development. As with the Alternative Futures Workshops, these questions were designed to lead participants to the final exercise of mapping desirable land use plans.

Exercise 1: Your Favorite Places
Each student drew a picture of their community. They showed where they lived and where they went during the day. Their drawings included important places that have meaning for the Hopi, such as village plazas and kivas. And, they discussed how their lives are different from previous generations because they spent more time in places outside their immediate village.
Exercise 2: Issues of Youth
The students worked as teams to identify opportunities, challenges and what they wanted for young Hopi in the future. Each team reported back their top issues. Quotes of all the teams’ issues are presented below.

Top Opportunities for Hopi Youth:
• Education
• Sports
• Technology/Internet
• Transportation

Top Challenges:
• Peer Pressure
• Drugs
• Dropping Out of School

Wants for Future Youth:
• Jobs
• Youth Activities and Recreation
• Education

The students were asked what percentage of young people would still be on the reservation in year 2017. Answers included estimates between 40 and 70 percent. The lower estimates reflected a concern that there would not be sufficient opportunities on the reservation to keep young people there. At the upper estimates students felt that more young people would want to “stay home” because of their commitment to assume adult roles in ceremonies and leadership, and have jobs.

Exercise 3: Rules for the Future
In exercise three, students thought about how new development should respect the land. They discussed what develop should, and should not do. They felt strongly that development should be controlled, and hence their answers to both questions were “nots.”

New development should:
• Not be located on sacred land
• Not give away land
• Not pollute

New development should not:
• Destroy sacred sites
• Pollute or trash the land
• Use more resources than necessary (no wasting land, water, landscape, etc.)
**Exercise 4: Alternative Futures**

The students worked as members of six planning teams to discuss and draw plans for the future of Hopi. The teams proposed solutions for new housing, commercial and community services, and identified places for young people. Each of the six teams each provided a distinctly different solution for the future. Some teams reinforced the existing mesa/village structures, while others proposed development away from the villages to protect them from encroachment of new buildings.

All of the youth teams’ planning rules are directly quoted from their workbooks and presentations. As with the summaries of the Alternative Futures Workshops, the narrative regarding each team’s land use plan was derived from their map, which is presented as a graphic.

---

**Team 1: New Mesa Village Neighborhoods**

Team 1 proposed developing a new generation of residential neighborhoods in each mesa area and in Moenkopi. They proposed community commercial and public facilities along Highway 264 between villages. Each mesa would develop senior facilities, emergency/EMS stations, and other amenities to support the existing villages and complement new village neighborhoods.

Team 1’s planning rules include:

**Housing:**
- Leave Enough Land for Farming
- Stay away from Burial Sites, Shrines and Springs
- But New Housing Near Mesa Villages
- New Houses should have a View

**Commercial and Public Activities:**
- Place New Commercial Services Between Villages
- Provide Recreation and Senior Facilities for each Mesa
- Develop a New High School
- Add Three New Fire/Emergency Centers along Highway 264
Places for Young People:
• Shopping, Community and Recreational Centers for each Mesa

Team 2: Build Traditional Communities

Team 2 wanted to locate new homes in clusters of 200-250 units along Highway 264 near the mesa villages and in Moenkopi. They wanted the houses to be designed in a traditional way that preserved the culture and identity of the Hopi people. They felt it was important to use existing roads where possible to connect new development together and locate services near to housing so people could walk. As part of the new development they included activities that would be fun for youth.

Team 2’s planning rules include:

Housing:
• Bring People back Together
• Safety and Welfare
  More Sustainable for People
• Recreational Areas will
  Lower the Number of Young People Getting in Trouble

Commercial and Public Activities:
• Convenient to Residents
  within Walking Distance
• Access to Highways
Places for Young People:
- Parks
- Recreational Areas
- Mall Shopping Center
- Bowling Area
- Dance Hall

Team 3: Housing Clusters

Team 3 proposed developing new housing in clusters near the villages. They identified four locations with between 200 and 300 houses on each mesa, and a 200 home cluster in Moenkopi. As part of the housing clusters, they proposed parks, community centers, day care, stores, and health care facilities. They included new places for young people as part of every housing cluster.

Team 3’s planning rules include:

Housing:
- Closer to Health Services, Education, Recreation

Commercial and Public Activities:
- Recreational Opportunities
- Social Interactions
- Educational Accessibility

Places for Young People:
- Community Buildings
- Public Libraries
- Public Parks/Senior Recreation
- Shopping Centers
- Public Schools
Team 4: Housing and Services for Mesa Villages

Team 4’s recommendations included providing housing with additional commercial and public services near the existing villages. They wanted to provide amenities for youth near the housing. A new grocery store would be located on Third Mesa. They wanted a gas station located half way down BIA 2 for emergencies on the long drive to Flagstaff.

Their list of planning rules include:

Housing:
- Closer to Schools
- Closer to Hospital
- Open Spaces and Close to Fields

Commercial and Public Activities:
- Laundromat
- Gas Station for Emergency Stops
- Super Market for Third Mesa Residents

Places for Young People:
- Closer to Apartments for Children to have something to do
- Recreation Center for Third Mesa Residents

Team 5: Expanding Mesa Villages

Team 5 proposed new housing, together with commercial and public facilities that expand the role and capacity of traditional villages. They prepared a detailed development program that wove new development along Highway 264. Their plan envisioned full service communities with shopping, entertainment, community facilities, and a new Hopi university. These communities would be located within District 6 and the Moenkopi District.

Team 5’s planning rules include:

Housing:
- Far enough apart for Privacy
- Close enough for Social Interaction
- Bigger Houses for Bigger Families and Vise-versa
- Provide Senior Housing

Commercial and Public Activities:
- Motel for Tourists/Mesas and Moenkopi
- Laundromat
- Rebuild Grocery Store
- Moenkopi Grocery Store
Team 6: New Subdivisions Outside District 6

Team 6’s plan provides four locations for housing subdivisions outside District 6. They were concerned that new development would not respect the sacred lands found around the existing villages. Each new subdivision would have 250 family units and 50 senior units of housing. A subdivision would be located next to each of the three mesas with a forth in Moenkopi. They also felt that the Peabody mining operation was taking away precious water resources needed by Hopi people in the future. This team was the first to address the Peabody Coal Lease Area, which they crossed out on their map to emphasize that it should be eliminated.
Team 6’s planning rules include:

Housing:
- Respect District 6
- Make Use of New Lands
- Keep Seniors Close to Families and Medical Needs

Commercial and Public Activities:
- Stores - Groceries, Fast Food, Laundry Mats
- Playgrounds and Parks
- Tourist Attractions - Museums, Galleries, Motels

Places for Young People:
- Recreation Center
- Library
- Theaters
- Ball Courts
- Swimming Pools

**Observations on the Hopi Youth “Visions of Tomorrow” Workshop**

By Bruce Race, RACESTUDIO

Workshop Facilitator

By the end of the day-long workshop, as a planner that facilitates many workshops, I was left with three overall impressions about how Hopi young people view their future.

Their challenges are similar to young people everywhere. There is peer pressure, interest in sports and the desire to be mobile - to visit and travel.

They are optimistic and have a sense of their future. They feel that they will leave the reservation for education or employment opportunities, or remain to fulfill their generation's role as leaders of the Hopi people.

Hopi youth are spiritual with a MTV “hipness.” The Hopi youth are very concerned about their culture and protection of sacred places. They are also stylish and urbane.

As urban planners, the Hopi youth that participated in the workshop wrestled with issues similar to Hopi adults. They strived to find solutions that were sustainable and compatible with traditional and sacred Hopi places. At the same time they explored planning futures that provided
convenience, services and jobs for the Hopi. Their solutions ranged from expanding traditional villages to creating new communities to protect the setting of the ceremonial places. The youth added more parks and play areas, schools and health care facilities than the adults. It was this focus on amenities and services for the Hopi that was most striking to me. They wanted more places for young people and families.

Many of the young people that participated in the workshop said that they wanted to continue participating in the planning process. They wanted to help do a web site and most felt the workshop should become an annual event where young people can express their ideas for a youth-friendly plan.

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**Vision Statements from Previous Plans**

The Hopi Comprehensive Development Plan, Parts I & II, of 1988, called the Hopit Tunatya’at, was developed to formally establish goals and policies for the development and protection of Hopi land, resources and facilities. In 1990 the Tribal Council approved an amendment to the Hopit Tunatya’at by adopting Part III of the plan. This third section incorporated standards of land use planning and development, and established a formal review and decision making process.

In 1991 the Tribal Administration initiated a series of strategic planning sessions to update the Hopi Comprehensive Development Plan and to develop new plans in areas not previously addressed. The result was the Hopi Comprehensive Strategic Plan of 1991, also referred to as the Ten Year Practical Vision.

In 1994 another attempt was made to develop a comprehensive plan. The result was the Hopi Tribal Strategic Plan of 1994. This document reaffirmed most of the goals previously established by the 1991 Strategic Plan but added one new major area.

This document was placed on hold in response to the CSAs call for a village summit. The CSAs wanted the Tribe to
include the Hopi general public in discussions regarding concerns, ideas on issues affecting their lives, and to affirm a common vision of the future for the people. A Summary Report of the 1994 Hopi Village Summit, “Sinot Tunaty’a’at,” was published.

In the latter part of 1994, CSAs and their Boards organized and conducted a Village Governance Work Session as a follow up to the Village Summit.

In 1995 it was determined that there was a need to consolidate the four major planning documents developed by the Tribe in the past seven years. This plan would provide for a universal view and better understanding of the comprehensive and complex strategic issues that need to be addressed by the Tribe. A single comprehensive document would also ensure that the major critical issues identified through previous planning would be carefully evaluated and updated. In a work session participants reviewed, discussed and revised the plan documents. The final publication was the Hopit Pötskwaniat, or Hopi Tribal Consolidated Strategic Plan of 1995.

In 1996 village assessments were conducted with eight of the twelve Hopi villages. Villagers were asked to identify critical issues and needs, and also clarify their visions. The final product was a document which synthesized the individual village assessments, called The Hopi Tribe Pathways to Village Governance.

The Hopit Tunya’at 1999 is an independent planning document and does not seek to revise these previous plans. However, it is essential that prior planning efforts are taken into account when developing the Hopit Tunya’at 1999. It is especially important to include previously established vision statements and articulations of a desirable future for the Hopi reservation. Since not all of the above-mentioned plans contain vision statements, visions from four previous plans are presented below: the 1988 Hopit Tunaty’a’at, 1991 Comprehensive Strategic Plan, 1995 Hopit Pötskwaniat, and 1996 Pathways to Village Governance synthesis of village assessments.
Hopit Tunaty’a’at
Hopi Comprehensive Development Plan - March 1988

No vision was specified but the plan is based on the goals of the Tribal Council. They are as follows:

- Improve health care for the Hopi people.
- Increase and improve the economic conditions on the Hopi Reservation.
- Improve housing conditions on the Hopi Reservation.
- Establish a strong, effective, and efficient Tribal government.
- Preserve the Hopi way of life.
- Improve training and employment opportunities for Hopi people.
- Establish a strong and effective judicial system.
- Strengthen the social, economic and governing capabilities of the villages.
- Provide quality education for the Hopi people.
- Obtain and secure an undisputed land base for the Hopi people.
- Ensure the availability of water for Hopi lands.

A Ten Year Practical Vision - August 1991

In transitioning towards a sustainable society, three (3) major visions were identified:

- Towards the effective use of land and resources.
- Towards self governance.
- Towards quality human services.

The Hopit Potskwaniat
Hopi Tribal Consolidated Strategic Plan - 1995

During the course of the strategic planning work sessions, a considerable amount of time was spent discussing the vision statement. Although the participants were not able to come to a consensus on a single vision statement for the Hopi Tribe, they have produced a number of key ingredients that they felt needed to be somehow included in the statement. These ideas are as follows:

- Nami’nangwa/Sumi’nangwa.
- Taking the best of both cultures to build a bridge.
- Crossing the best alternatives of both cultures.
- Creating a strong sustainable Hopi lifestyle that is accepted by the people.
- Strengthen village governments.
- New villages out in the HPL.
- Focus on the young and the elders.
• Need to support and enforce Hopi language as the official language of the Tribe.
• Village governments operating with more independence and authority to determine own futures. Central government as a coalition of governments to deal with common concerns, act as a clearing house and support vehicle, etc.
• Keep Hopi aesthetics - development without harming the environment.
• Villages developing farms and ranches.
• Need for expanded and adequate land base.

Pathways to Village Governance
Synthesis of Village Assessments - 1996

Top ten recurring visions and value statements:

• Community playground with mini-park, picnic tables, trees, basketball courts, and community building with meeting room for activities.
• Harmony, respect, trust and cooperation among all village members.
• Comprehensive land use plan, no more fighting over land use.
• People occupied with traditional activities and doings.
• A lot of water available, fountains, canals, and existing wells cleaned out.
• New roads, paved from top to bottom, and present roads improved and maintained.

• New houses in good shape, clean, with water and electricity, built using a building code that reflects Hopi.
• Retail businesses such as a theater, co-op store, convenience store, fast food, shopping center, motel, post office, and selling of arts and crafts.
• Balance between traditional values and “progress” to improve quality of life and self sufficiency.
• More traditional farming and utilization of the land.
# Appendix

List of Participants in the Alternative Futures Workshops

## Hopi High School
- Valencia Antone
- Ruby Beatty
- Pamela Coochise
- Al Dewakuku
- Tianna Elmer
- Blayne Honanie
- Ted Honyumptewa
- Evan Horace
- Clarissa Kagenveama
- Ralston Lamson
- Joseph Leslie
- Wendi Lewis
- Brianna Lucero
- Karen Mansfield
- Francisco Mata
- Eleanor Miller
- Debra Namoki
- Felecia Nevayaktewa
- Vindell Phillips

## Flagstaff Meeting 1
- Danielle Polacca
- Josefa Poleviamoma
- Jeremy Pooyouma
- Lyle Pooyouma
- Kathryn Qumyintewa
- Vanessa Rubio
- Michael Shupla
- Sonyah Shupla
- Winona Shupla
- Randy Suninga
- Alane Susunkewa
- Janese Talayumptewa
- Nora Throssell
- Pearlyn Tomosie
- Sonja Velasco
- Loren Washington
- Neal Zeena

## Flagstaff Meeting 2
- Robert Lomadafkie
- Delbridge Honanie
- Lorraine Honanie
- Vera Poseyesva
- Paul Coochyamptewa
- Elouise Coochyamptewa
- Gary LaRance
- Bennett Seutopka
- Eunice Nicks
- Winona Shupla
- Randy Suninga
- Alane Susunkewa
- Janese Talayumptewa
- Nora Throssell
- Pearlyn Tomosie
- Sonja Velasco
- Loren Washington
- Neal Zeena

## Phoenix
- Clifford Lomahaftewa
- Allison Lewis
- Bonnie Talakte
- Wilmer Joshevama
- Bob Numkena
- Andrew Nutima, Jr.
- Anna Fieldcamp
- Andrew Nutima
- Debra Namoki
- Lorena Washington
- Neal Zeena

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- Lorraine Honanie
- Vera Poseyesva
- Paul Coochyamptewa
- Elouise Coochyamptewa
- Gary LaRance
- Bennett Seutopka
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- Bonnie Talakte
- Wilmer Joshevama
- Bob Numkena
- Andrew Nutima, Jr.
- Anna Fieldcamp
- Andrew Nutima
- Debra Namoki
- Lorena Washington
- Neal Zeena
Moenkopi
Elliott Selestewa, Sr.  Winifred Phillips
Elva Honahni       Harris Polelonma
Vinton Lomahoptewa  Elliott Selestewa, Jr.
Gloria Gaseoma      Jeannette Honanie
Alberta Mariano    Travis Honanie
Wilfred Moore      Loren Phillips
Sylvia Moore       Marion Tewawina
Conrad Tewa

Hopi Veteran's Memorial Center
Wilbert Honahni, Sr. Lee Lomayestewa
Wiliam Charley      LLoyd Talawyma
Hubert Lewis        Mary Tenakhongoa
Stephanie Harvey    Bernie Navakuku
Joseph Laban        Sharon Talayumptewa
Brian Laban         Russell Mockta
Herman Honanie      Dalton James
Larry Siow          Barbara Namoki
Martha Mase         Rayma Honyaoma
Amos Poocha
APPENDIX 2. TRIBAL DATA RESOURCES
DEMOGRAPHICS SURVEY REPORT,
DECEMBER 2000
DEMOGRAPHICS SUMMARY

The following information was established in the "TDR - Demographic Survey" conducted by the Hopi as of 12-31-2000.

Total households surveyed - 2442 (Representing 4572 Tribal Members, a total of 5003 persons and averaging 2.05 per household)

OCCUPANCY

- Owner occupied - 1092 (44.7% of 2442 households responding)
  - Under 62 years of age - 697
  - Over 62 years of age - 395
  - Home buyers paying more than 30% of their income for mortgage payments - 23 (2.1% of all owner occupied units)
  - Owner occupants with no mortgage payment - 386 (35.3% of all owner occupied units)
- Renter occupied - 133 (5.4% of 2442 households responding)
  - Renters paying more than 25% of their income - 2 (1.5% of renters responding)
- Non-Owner/Renter Tribal Households - 1217 (49.8% of 2442 households responding)
  - Living with extended family - 912 (74.9% of responding Non-Owner/Renter households)
  - Living in available shelter - 307 (25.2% of responding Non-Owner/Renter households)

Non-Owner/Renter status due to:

- Full-Time student - 77
- Employed and unable to afford independent shelter - 107
- Unemployed and unable to afford independent shelter - 657
- Other - 376

©1996, 1997 TRIBAL DATA RESOURCES
Redding, CA 96002
Phone (530) 222-2964
FAX (530) 222-8413
INCOME

- Average Annual Income of Participating Households for TRIBAL LANDBASE COMMUNITIES - $15,875
- Above: (HUD income standards - above 120% of median) - 266 (10.9% of responding households)
- Moderate: (HUD income standards - between 80% and 120% of median) - 143 (5.9% of responding households)
- Low: (HUD income standards - between 50% and 80% of median) - 284 (11.6% of responding households)
  - Households with all family members below 62 years of age - 222 (9.1% of responding households)
  - Households with family members 62 years and older - 62 (2.5% of responding households)
- HUD Poverty: (HUD income standards - less than 50% of median minus HHS ‘Poverty’ Level households) - 265 (10.9% of responding households)
  - Households with all family members below 62 years of age - 168 (6.9% of responding households)
  - Households with family members 62 years and older - 97 (4.0% of responding households)
- HHS Poverty: (Households whose income is below US Health and Human Services ‘Poverty’ Level) - 1484 (60.8% of responding households)
  - Households with family members below 62 years of age - 1239 (50.7% of responding households)
  - Households with family members 62 years and older - 245 (10.0% of responding households)
  - Households reporting no income source at the time of the survey - 478 (19.6% of responding households)

ELDERLY / HANDICAPPED

NOTE: The term "Disabled," for the purposes of this survey, will refer to a physical or mental condition which restricts an individual to the point where he / she is recognized by State /Federal agencies as unable to perform in a traditional, occupational capacity and is thereafter receiving an income subsidy (i.e. - SSI, Disability, insurance, etc.)

NOTE: The term "Handicapped," for the purposes of this survey, will refer to a physical condition which restricts an individual to a point of immobility or limited mobility by means of aids (i.e. - wheelchair, safety bars, etc.), blindness or deafness.

- Households occupied by one or more persons over the age of 62 - 465
  - Households with one or more person who is over 62 but under 75 years of age - 288
  - Households with one or more persons who is over 75 years of age - 201
- Households occupied by one or more persons disabled or handicapped - 176
  - Disabled heads and spouses - 150
    - Disabled heads and spouses below age 62 - 62
    - Disabled heads and spouses above age 62 - 88
  - Handicapped heads and spouses - 20
    - Handicapped heads and spouses below age 62 - 10
    - Handicapped heads and spouses above age 62 - 10
STRUCTURAL DEFICIENCIES

- Standard Units - 424 (34.6% of the 1225 dwellings surveyed) (352 Owner, 72 Renter)
- Minor Units - 329 (26.9% of the 1225 dwellings surveyed) (298 Owner, 31 Renter)
  - Elder Households (62+) - 128 (127 Owner, 1 Renter)
  - Low / Very Low Income - 237 (218 Owner, 19 Renter)
  - Overcrowded - 60 (51 Owner, 9 Renter)
  - Overcrowded - Low / Very Low Income - 50 (42 Owner, 8 Renter)
- Serious Units - 436 (35.6% of the 1225 dwellings surveyed) (410 Owner, 26 Renter)
  - Elder Households (62+) - 157 (155 Owner, 2 Renter)
  - Low / Very Low Income - 357 (336 Owner, 21 Renter)
  - Overcrowded - 108 (103 Owner, 5 Renter)
  - Overcrowded - Low / Very Low Income - 90 (85 Owner, 5 Renter)
- Dilapidated units - 26 (2.1% of the 1225 dwellings surveyed) (25 Owner, 1 Renter)
  - Elder Households (62+) - 6 (6 Owner, 0 Renter)
  - Low / Very Low Income - 19 (18 Owner, 1 Renter)
  - Overcrowded - 10 (10 Owner, 0 Renter)
  - Overcrowded - Low / Very Low Income - 7 (7 Owner, 0 Renter)
- Unknown structural conditions - 10 (0.8% of the 1225 dwellings surveyed) (7 Owner, 3 Renter)
  - Elder Households (62+) - 3 (3 Owner, 0 Renter)
  - Low / Very Low Income - 10 (7 Owner, 3 Renter)
  - Overcrowded - 0 (0 Owner, 0 Renter)
  - Overcrowded - Low / Very Low Income - 0 (0 Owner, 0 Renter)

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<th>Condition</th>
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<td>27%</td>
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<td>Unknown</td>
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<td>1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td>100%</td>
</tr>
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</table>
ADDITIONAL STATISTICS

- Female head of household - 1560 (63.9% of the 2442 households responding)
  - Female head of household below 62 years of age - 1236
  - Female head of household above 62 years of age - 324

- Overcrowding - 675 (483 HHS, 60 very low, 74 low, 27 moderate, 31 above) - (27.6% of the 2442 households responding)

- Overpayment - 25 (9 HHS, 5 very low, 5 low, 1 moderate, 5 above) - (1.0% of the 2442 households responding)

- Dilapidated structures - Households living in units with severe structural deficiencies (1 are low-income renters, 18 are low-income owners)

- HHS, Low and Very low-income renter occupied households (below 80% of median) - 71 (53.4% of the 133 renter occupied households responding)
  - HHS, Low and Very low-income renter occupied households currently paying more than 25% of their income on rent - 2 (1.5% of the 133 renter occupied households responding)

- HHS, Low and Very low-income renter occupied units currently experiencing structural deficiencies - 40 (5.2% of all deficient units surveyed)
  - HHS, Low and Very low-income renter occupied units currently experiencing moderate structural deficiencies (Minor) - 19 (5.8% of all Minor units responding)
  - HHS, Low and Very low-income renter occupied units currently experiencing serious structural deficiencies (Serious) - 21 (4.8% of all Serious units responding)

- HHS, Low and Very low-income owner occupied households (below 80% of median) - 813 (74.5% of the owner-occupied households responding)

- HHS, Low and Very low-income owner occupied units currently paying more than 25% of their income for housing - 17 (2.1% of the 813 HHS, Low and Very low-income owner occupied households contacted)

- HHS, Low and Very low-income owner occupied units currently experiencing serious structural deficiencies (Serious) - 336 (77.1% of all Serious units responding)
EDUCATION SUMMARY

Hopi
TRIBAL LANDBASE COMMUNITIES

The following information was established in the "TDR - Demographic Survey" conducted by the Hopi as of 12-31-2000.

Total households surveyed - 2442 (Representing 4572 Tribal Members, a total of 5003 persons and averaging 2.05 per household)

EDUCATIONAL MILESTONES:
Total adult members (over 18 years of age) who have achieved the following educational milestones:

1. HIGH SCHOOL AND ELEMENTARY STATISTICS

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<td>High School Grad:</td>
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<td>68.0%</td>
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<td>12th Grade Non-Grad:</td>
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<td>2.8%</td>
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<td>11th Grade Non-Grad:</td>
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<td>10th Grade Non-Grad:</td>
<td>184</td>
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<td>8th Grade Non-Grad:</td>
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<td>Less Than 8th Grade:</td>
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</tbody>
</table>

- High School Graduate: 2064 (68.0% of Adult Tribal Members Surveyed)
  - 937 (71.9% of Adult Male Tribal Members Surveyed)
  - 1127 (69.2% of Adult Female Tribal Members Surveyed)

- Completed 12th Grade (Non-Graduate and GED): 85 (2.8% of Adult Tribal Members Surveyed)
  - 27 (2.1% of Adult Male Tribal Members Surveyed)
  - 32 (2.0% of Adult Female Tribal Members Surveyed)

- Completed 11th Grade (Non-Graduate and GED): 226 (7.4% of Adult Tribal Members Surveyed)
  - 81 (6.2% of Adult Male Tribal Members Surveyed)
  - 121 (7.4% of Adult Female Tribal Members Surveyed)

- Completed 10th Grade (Non-Graduate and GED): 184 (6.1% of Adult Tribal Members Surveyed)
  - 72 (5.5% of Adult Male Tribal Members Surveyed)
  - 98 (6.0% of Adult Female Tribal Members Surveyed)

- Completed 9th Grade (Non-Graduate and GED): 105 (3.5% of Adult Tribal Members Surveyed)
  - 45 (3.5% of Adult Male Tribal Members Surveyed)
  - 54 (3.3% of Adult Female Tribal Members Surveyed)

- Completed 8th Grade (Non-Graduate and GED): 107 (3.5% of Adult Tribal Members Surveyed)
  - 41 (3.1% of Adult Male Tribal Members Surveyed)
  - 62 (3.8% of Adult Female Tribal Members Surveyed)

- Less than 8th Grade Education (and GED): 266 (8.8% of Adult Tribal Members Surveyed)
  - 113 (8.7% of Adult Male Tribal Members Surveyed)
  - 124 (7.6% of Adult Female Tribal Members Surveyed)
2. COLLEGE / UNIVERSITY STATISTICS

- Adult Tribal Members who have attended a College / University: 843 (27.8%)
  - 304 (23.3% of Adult Male Tribal Members Surveyed)
  - 539 (33.1% of Adult Female Tribal Members Surveyed)
- Adult Tribal Members who have Graduated from a College / University: 565 (18.6%)
  - 205 (15.7% of Adult Male Tribal Members Surveyed)
  - 360 (22.1% of Adult Female Tribal Members Surveyed)
- Adult Tribal Members who have received College / University BIA Funding assistance: 141 (4.6%)
  - 44 (3.4% of Adult Male Tribal Members Surveyed)
  - 97 (6.0% of Adult Female Tribal Members Surveyed)
- Adult Tribal Members who have received College / University Tribal Funding assistance: 194 (6.4%)
  - 60 (4.6% of Adult Male Tribal Members Surveyed)
  - 134 (8.2% of Adult Female Tribal Members Surveyed)

3. BUSINESS SCHOOL / TRAINING PROGRAM STATISTICS

- Adult Tribal Members who have attended a Business School: 62 (2.0%)
  - 9 (0.7% of Adult Male Tribal Members Surveyed)
  - 53 (3.3% of Adult Female Tribal Members Surveyed)
- Adult Tribal Members who have Graduated from a Business School: 45 (1.5%)
  - 5 (0.4% of Adult Male Tribal Members Surveyed)
  - 40 (2.5% of Adult Female Tribal Members Surveyed)
- Adult Tribal Members who have received Business School BIA Funding assistance: 12 (0.4%)
  - 1 (0.1% of Adult Male Tribal Members Surveyed)
  - 11 (0.7% of Adult Female Tribal Members Surveyed)
- Adult Tribal Members who have received Business School Tribal Funding assistance: 20 (0.7%)
  - 4 (0.3% of Adult Male Tribal Members Surveyed)
  - 16 (1.0% of Adult Female Tribal Members Surveyed)

4. VOCATIONAL SCHOOL / TRAINING PROGRAM STATISTICS

- Adult Tribal Members who have attended a Vocational School: 384 (12.6%)
  - 195 (15.0% of Adult Male Tribal Members Surveyed)
  - 189 (11.6% of Adult Female Tribal Members Surveyed)
- Adult Tribal Members who have Graduated from a Vocational School: 279 (9.2%)
  - 142 (10.9% of Adult Male Tribal Members Surveyed)
  - 137 (8.4% of Adult Female Tribal Members Surveyed)
- Adult Tribal Members who have received Vocational School BIA Funding assistance: 71 (2.3%)
  - 38 (2.9% of Adult Male Tribal Members Surveyed)
  - 33 (2.0% of Adult Female Tribal Members Surveyed)
- Adult Tribal Members who have received Vocational School Tribal Funding assistance: 114 (3.8%)
  - 54 (4.1% of Adult Male Tribal Members Surveyed)
  - 60 (3.7% of Adult Female Tribal Members Surveyed)
EMPLOYMENT SUMMARY

The following information was established in the "TDR - Demographic Survey" conducted by the Hopi as of 12-31-2000.

Total households surveyed - 2442 (Representing 4572 Tribal Members, a total of 5003 persons and averaging 2.05 per household)

EMPLOYMENT SUMMARY:

Employment Status of Adult Tribal Members in Survey Households:

- Employed Full-Time: 907 (35.7% of Tribal Members) - (374 Male / 533 Female)
- Employed Part-Time: 116 (4.6% of Tribal Members) - (55 Male / 61 Female)
- Employed Seasonal: 52 (2.0% of Tribal Members) - (23 Male / 29 Female)
- Self-Employed: 440 (17.3% of Tribal Members) - (266 Male / 174 Female)
- Retired: 323 (12.7% of Tribal Members) - (152 Male / 171 Female)
- Unemployed: 705 (27.7% of Tribal Members) - (236 Male / 469 Female)

Gender

<table>
<thead>
<tr>
<th>Age</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 - 24</td>
<td>45</td>
</tr>
<tr>
<td>25 - 35</td>
<td>186</td>
</tr>
<tr>
<td>36 - 44</td>
<td>184</td>
</tr>
<tr>
<td>45 - 64</td>
<td>267</td>
</tr>
<tr>
<td>65 and over</td>
<td>36</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 - 24</td>
<td>49</td>
</tr>
<tr>
<td>25 - 35</td>
<td>187</td>
</tr>
<tr>
<td>36 - 44</td>
<td>224</td>
</tr>
<tr>
<td>45 - 64</td>
<td>305</td>
</tr>
<tr>
<td>65 and over</td>
<td>32</td>
</tr>
</tbody>
</table>
EMPLOYMENT SUMMARY: TRIBAL LANDBASE COMMUNITIES (cont’d.)

Unemployed Adult Tribal Members Surveyed:

<table>
<thead>
<tr>
<th>Reason for Unemployment</th>
<th>Totals</th>
<th>Percentage of Unemployed</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seasonal Lay-Off (Temp.)</td>
<td>12</td>
<td>(1.7% of Unemployed)</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Disability or Handicap</td>
<td>78</td>
<td>(11.1% of Unemployed)</td>
<td>28</td>
<td>50</td>
</tr>
<tr>
<td>Dependent Family Members</td>
<td>82</td>
<td>(11.6% of Unemployed)</td>
<td>7</td>
<td>75</td>
</tr>
<tr>
<td>No Reliable Transportation</td>
<td>15</td>
<td>(2.1% of Unemployed)</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>No Work Available in Area</td>
<td>125</td>
<td>(17.7% of Unemployed)</td>
<td>52</td>
<td>73</td>
</tr>
<tr>
<td>No Desire At This Time</td>
<td>107</td>
<td>(15.2% of Unemployed)</td>
<td>49</td>
<td>58</td>
</tr>
<tr>
<td>Other Reasons for Unemployment</td>
<td>346</td>
<td>(49.1% of Unemployed)</td>
<td>109</td>
<td>237</td>
</tr>
</tbody>
</table>

NOTE: A percentage of the Households having "Unemployed" Adult Tribal Members did not identify a specific reason for their employment status at the time of survey. Also a percentage of Households having "Unemployed" Adult Tribal Members identified more than one specific reason for their employment status at the time of survey.

4. Non-Employment Income Statistics:

<table>
<thead>
<tr>
<th>Non-Employment Income Source</th>
<th>Total</th>
<th>Percentage of Total Households Surveyed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment Insurance</td>
<td>17</td>
<td>(0.7% of Households surveyed)</td>
</tr>
<tr>
<td>Welfare / AFDC / TANF</td>
<td>22</td>
<td>(0.9% of Households surveyed)</td>
</tr>
<tr>
<td>Welfare / General Assistance</td>
<td>2</td>
<td>(0.1% of Households surveyed)</td>
</tr>
<tr>
<td>Welfare / Unspecified</td>
<td>53</td>
<td>(2.2% of Households surveyed)</td>
</tr>
<tr>
<td>Social Security</td>
<td>245</td>
<td>(10.0% of Households surveyed)</td>
</tr>
<tr>
<td>S.S.I. (Supplemental)</td>
<td>123</td>
<td>(5.0% of Households surveyed)</td>
</tr>
<tr>
<td>Disability Insurance</td>
<td>6</td>
<td>(0.2% of Households surveyed)</td>
</tr>
<tr>
<td>Occupational Retirement</td>
<td>155</td>
<td>(6.3% of Households surveyed)</td>
</tr>
<tr>
<td>Veterans / Other Government</td>
<td>43</td>
<td>(1.8% of Households surveyed)</td>
</tr>
<tr>
<td>Per-Capita Payments</td>
<td>3</td>
<td>(0.1% of Households surveyed)</td>
</tr>
<tr>
<td>Land Lease Income</td>
<td>0</td>
<td>(0.0% of Households surveyed)</td>
</tr>
<tr>
<td>Foster Care Fund</td>
<td>2</td>
<td>(0.1% of Households surveyed)</td>
</tr>
<tr>
<td>Other</td>
<td>458</td>
<td>(18.8% of Households surveyed)</td>
</tr>
<tr>
<td>No Income Source</td>
<td>478</td>
<td>(19.6% of Households surveyed)</td>
</tr>
</tbody>
</table>
APPENDIX 3. AN ANALYSIS OF FOUR ALTERNATIVE FUTURES SCENARIOS

Four Visions of Land Use and Development for the Hopi Reservation

Four alternative reservation development scenarios were identified and evaluated during the planning process. The four scenarios are generalized from seventeen solutions for future reservation development that were created during the Alternative Futures workshops held in late 1998 and early 1999. These scenarios attempted to resolve at least some of the key issues facing the tribe. The four scenarios are:

- A mix of new development surrounds existing villages in District Six and occurs in planned community development districts in the HPL.
- All new development takes place in District Six, around the existing villages only.
- All new development takes place in planned community development districts in the HPL only.
- Development continues in the current incrementally planned fashion over the entire reservation.

Each of these development scenarios is based on a distinct perspective of how development should affect the existing character of the Hopi Reservation. The first approach recognizes the need to support existing villages with continued development, but wishes to protect them from excessive change by steering some development onto the HPL. The second scenario emphasizes traditional Hopi settlement locations and reinforces the existing villages with new development. The third land use strategy seeks to preserve the traditional character of villages by locating all future development in new locations on the HPL. The fourth approach is the current means by which development takes place across the reservation. Land assignments are granted from villages, clans, and the tribal government for almost any requested location, without regard to infrastructure availability or implications for the character of the reservation. This was not one generated in the workshops, but was included by the planning team staff for comparison.

Of the three land use plans developed in the workshops, encouraging development both in the HPL and around existing villages was the most common strategy for future development. Restricting new development completely to the HPL was recommended by the fewest planning teams.

**Scenario 1**

New development is grouped into planned community districts in the HPL, and surrounds existing villages in District Six. This scenario uses 1,575 acres. In this scenario:
The tribal land assignment system for the HPL would also provide the opportunity to select housing assignments on lots in planned community districts.

Village administrations would be responsible for providing main utility services (water, electricity, wastewater, etc.) to new development in District Six. The tribal government would be responsible for providing these services to planned community districts in the HPL.

The cost of providing services to new development surrounding the villages would be moderate (until current utility capacities are met and exceeded) because services in these areas already exist. The initial cost of linking planned community districts in the HPL to existing service networks would be high, but servicing additional and incremental development in these districts would be relatively low.

The planned community districts would include the Tawaovi (Turquoise) Community, Howell Mesa East, and a new development in the Moenkopi District. More growth would take place in Side Rock Well and Spider Mound.

The planned community districts would contain housing that is built very close together, more spread out, and far apart. These districts, Side Rock Well and Spider Mound would have a mixture of housing and commercial. The Turquoise Community would also contain tribal government administration space.
Acreage taken from grazing use would be limited to the planned community districts, their roads, and service rights-of-way.

Planned community districts would be located away from cultural and environmentally sensitive areas.

Limited development in existing villages could affect their traditional character.

Limited development in existing villages could lead to encroachment on traditional agricultural land surrounding the villages.

Scenario 2
New development surrounds existing villages in District Six. This scenario uses 1,365 acres, the least amount of land for development. In this scenario:

<table>
<thead>
<tr>
<th>Scenario 2</th>
<th>High Density</th>
<th>Medium Density</th>
<th>Low Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent houses</td>
<td>80%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Total houses</td>
<td>3,360</td>
<td>420</td>
<td>420</td>
</tr>
<tr>
<td>Total acres</td>
<td>420</td>
<td>105</td>
<td>840</td>
</tr>
<tr>
<td>District Six</td>
<td>420 acres, 3,360 houses</td>
<td>79 acres, 316 houses</td>
<td>766 acres, 383 houses</td>
</tr>
<tr>
<td>HPL Howell Mesa East</td>
<td>26 acres, 104 houses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Side Rock Well</td>
<td>24 acres, 12 houses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spider Mound</td>
<td>50 acres, 25 houses</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No more tribal land assignments would be issued for houses in the HPL.

Land assignments would continue to be allocated by each village or clan in the traditional manner.

Village administrations would be responsible for providing main utility services (water, electricity, wastewater, etc.) to new development in District Six.

The cost of providing services to new development surrounding the villages would be moderate (until current utility capacities are met and exceeded) because services in these areas already exist.

No acreage would be taken from grazing use.

This alternative has the potential to impact cultural resources near villages.
Unlimited development in existing villages would affect their traditional character.

Unlimited development in existing villages would lead to encroachment on traditional agricultural land surrounding the villages.

**Scenario 3**

New development is grouped into planned community districts in the HPL. This scenario uses 2,415 acres. In this scenario:

<table>
<thead>
<tr>
<th>Scenario 3</th>
<th>High Density</th>
<th>Medium Density</th>
<th>Low Density</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 houses per acre</td>
<td>4 houses per acre</td>
<td>0.5 house per acre</td>
</tr>
<tr>
<td>Percent houses</td>
<td>20%</td>
<td>60%</td>
<td>20%</td>
</tr>
<tr>
<td>Total houses</td>
<td>840</td>
<td>2,520</td>
<td>840</td>
</tr>
<tr>
<td>Total acres</td>
<td>105</td>
<td>630</td>
<td>1,680</td>
</tr>
<tr>
<td>HPL Moenkopi</td>
<td>10 acres, 80 houses</td>
<td>100 acres, 400 houses</td>
<td>200 acres, 100 houses</td>
</tr>
<tr>
<td>HPL Turquoise</td>
<td>95 acres, 760 houses</td>
<td>505 acres, 2,020 houses</td>
<td>1,250 acres, 625 houses</td>
</tr>
<tr>
<td>HPL Howell Mesa East</td>
<td>25 acres, 100 houses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPL Side Rock Well</td>
<td></td>
<td>30 acres, 15 houses</td>
<td></td>
</tr>
<tr>
<td>HPL Spider Mound</td>
<td></td>
<td>200 acres, 100 houses</td>
<td></td>
</tr>
</tbody>
</table>

All new development would be focused in the HPL to preserve the traditional character of existing villages.

The tribal land assignment system for the HPL would also provide the opportunity to select housing assignments on lots in planned community districts.

The tribal government would be responsible for providing main utility services (water, electricity, wastewater, etc.) to planned community districts in the HPL.

The initial cost of linking planned community districts in the HPL to existing service networks would be high, but servicing additional and incremental development in these districts would be relatively low.

The planned community districts would include the Tawaovi (Turquoise) Community, Howell Mesa East, and a new development in the Moenkopi District. More growth would take place in Side Rock Well and Spider Mound.
The planned community districts would contain housing that is built very close together, more spread out, and far apart. These districts, Side Rock Well and Spider Mound would have a mixture of housing and commercial. The Tawaovi (Turquoise) Community would also contain tribal government administration space.

Acreage taken from grazing use would be limited to the planned community districts, their roads, and service rights-of-way.

Planned community districts would be located away from cultural and environmentally sensitive areas.

The traditional character of existing villages would be preserved.

There would be no encroachment on traditional agricultural land surrounding the existing villages.

**Scenario 4**

Maintain the current pattern where new development is haphazard and takes place anywhere on the reservation. This scenario uses 5,460 acres. In this scenario:

<table>
<thead>
<tr>
<th>Scenario 4</th>
<th>High Density</th>
<th>Medium Density</th>
<th>Low Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent houses</td>
<td>0%</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>Total houses</td>
<td>1,680</td>
<td>2,520</td>
<td></td>
</tr>
<tr>
<td>Total acres</td>
<td>420</td>
<td>5,040</td>
<td></td>
</tr>
<tr>
<td>District Six</td>
<td>1,680 houses, 420 acres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPL</td>
<td>2,520 houses, 5,040</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No planned community districts develop in the HPL, and growth would continue around the villages.

There would be no change in the current tribal land assignment policy for the HPL.

Village administrations would be responsible for providing main utility services (water, electricity, wastewater, etc.) to new development in District Six.

The cost of providing services to new development surrounding the villages would be moderate (until current utility capacities are met and exceeded) because services in these areas already exist.

New services would not be provided to houses in the HPL because of the great expense.
Acreage taken from grazing use would be unlimited; it is estimated that one 3 acre home site with a corresponding 10 acre agricultural site takes up to 80 acres out of productive grazing use.

This alternative has the highest potential to impact cultural and environmentally sensitive areas.

Unlimited development in existing villages would affect their traditional character.

Unlimited development in existing villages would lead to encroachment on traditional agricultural land surrounding the villages.

Scenario Evaluations

As discussed previously, four goals and their related strategies are associated with each planning issue. These were identified in the public participation process. An assessment of these goals and strategies highlighted particular themes associated with each of the four strategic planning issues. They are as follows:

- Community and Land Planning - Conserve and preserve traditional Hopi places and customs.
- Infrastructure - Invest in quality of life enhancements.
- Governance - Enhance external and internal relationships/partnerships.

These themes were used as evaluation criteria for the four planning scenarios. In the chart, the suitability of each planning scenario for addressing the strategic issues is evaluated using circles as a ranking measure. A full circle indicates that the scenario achieves this goal, a half
circle indicates that the scenario addresses the goal in a limited manner, and an empty circle indicates that the scenario does not fulfill the goal.

**Explanation of the Evaluation Designations**

**Economic Development**

*Scenario 1:* Village and clan jurisdiction conflicts are avoided by making land available in planned community districts on the HPL. Also, by anticipating the movement of people to the HPL, the location of future markets is accommodated. This scenario also recognizes the need to target the current market in existing villages.

*Scenario 2:* While business development within villages is encouraged to target existing markets, economic development opportunities are limited by the conflicts between villages and clans over land jurisdiction.

*Scenario 3:* Conflicts between villages and clans over land jurisdiction are avoided by making land available in planned community districts in the HPL. However, the current market is located in existing population centers and the creation of businesses to supply this market would be difficult.

*Scenario 4:* Sprawled development is inefficient and changes the nature of the Hopi landscape, which is a prime tourist attraction. No critical mass of supply or market would be created.

**Land**

*Scenario 1:* Growth in District Six reinforces traditional settlement patterns, while growth in the HPL utilizes land not subject to jurisdictional conflicts. Clustering development into planned community districts minimizes its impact on the landscape. However, growth around the villages has the potential to encroach on traditional agricultural land.

*Scenario 2:* Growth in District Six is stifled by conflicts over land jurisdiction. There is a significant impact on the villages and potential for encroachment onto traditional agricultural land.

*Scenario 3:* The clustering of development into planned community districts minimizes encroachment on grazing land. Traditional use areas are shielded from development.

*Scenario 4:* The inefficient use of land results in unlimited sprawl and impact on the landscape.

**Infrastructure**

*Scenario 1:* The cost burden of providing infrastructure to new development is shared between the tribe and villages. Extending utilities to development within villages is
relatively inexpensive, although encouraging growth away from the villages alleviates additional stress upon their overburdened utility networks.

Scenario 2: The cost burden is placed solely on the villages. While it is cost effective to expand from existing systems, many are already over capacity. Most of the villages do not have as-builts for their water and wastewater layouts and risk damaging their pipes during new excavations.

Scenario 3: The cost burden is placed solely on the tribe. Although initially expensive to establish new utility services, they can be laid according to an organized plan and alleviate the burden on village systems.

Scenario 4: The cost burden is on the individual. Since linking remote development to existing utilities is cost prohibitive, no infrastructure will be provided.

Governance
Scenario 1: The revised HPL land assignment process is articulated and documented thereby circumventing disputes. Currently there is no written process for village land assignments making them vulnerable to dispute.

Scenario 2: The lack of codified rules for the village land assignment processes makes it vulnerable to dispute.

Scenario 3: The tribe’s revised HPL land assignments are based on a well articulated and written regulatory process which was adopted by Tribal Council.

Scenario 4: Written documentation does exist for the HPL land assignment process, but it is not well coordinated. Although it is a legal process, it does not pro actively allocate land based on sound planning principles. Continued use of this system will lead to undesirable sprawl.

Although both scenarios 1 and 3 scored equally during the evaluation process, key to the overall selection of a scenario is balancing growth between District Six and the HPL. By virtue of their autonomy villages cannot be prevented from development opportunities; they will not, and should not, give up their development rights. Correspondingly, the tribe has land assets to manage which enables it to absorb the excess demand for land within villages and provide business creation opportunities. Developing in both District Six and the HPL is a reasonable balance between building around traditional places of habitation and taking pressure from these areas onto vacant land. This is of specific concern with regard to housing which is a highly intensive land use.

This evaluation process also emphasizes that continued growth in the current manner is unsuitable, expensive, and squanders a major Hopi asset - the land.
MAPS & PLAN DRAWINGS

List of Maps & Plan Drawings

EXISTING LAND USE
GEOLOGY
SOILS
PRECIPITATION
GROUNDWATER AQUIFERS
HYDROLOGY
BIOTIC COMMUNITIES
SLOPE
ASPECT
TRANSPORTATION
FUTURE LAND USE
PLANNED COMMUNITY DEVELOPMENT DISTRICTS
PCDD/PCD CONCEPT
STRATEGIC DEVELOPMENT Turquoise Trial (BIA 4)
STRATEGIC DEVELOPMENT Lake Powell Pipeline Corridor Alternative 1
STRATEGIC DEVELOPMENT Lake Powell Pipeline Corridor Alternative 2
STRATEGIC DEVELOPMENT Lake Powell Pipeline Corridor Alternative 3
EXISTING LAND USE

Hopit Tunatya’at 2000:
The Hopi Strategic Land Use and Development Plan
Prepared by The Office of Community Planning & Economic Development
April 2001
Geologic Units by Period
1. Quaternary (Cenozoic) <1.6 Million Years
2. Tertiary (Cenozoic) 5 to 24 Million Years
3. Cretaceous (Mesozoic) 138 to 205 Million Years
4. Jurassic (Mesozoic) 205 to 220 Million Years
5. Jurassic/Triassic (Mesozoic) 220 to 240 Million Years
6. Triassic (Mesozoic) 240 to 280 Million Years

GEOLOGY

Hopit Tunatya'at 2000:
The Hopi Strategic Land Use and Development Plan
Prepared by The Office of Community Planning & Economic Development
April 2001
General Soils

Hopit Tunatya'at 2000:
The Hopi Strategic Land Use and Development Plan
Prepared by The Office of Community Planning & Economic Development
April 2001
Precipitation Ranges
in Inches

1. 14 - 12
2. 12 - 10
3. 10 - 8
4. 8 - 6

Hopit Tunatya'at 2000:
The Hopi Strategic Land Use and Development Plan
Prepared by The Office of Community Planning & Economic Development
April 2001
GROUNDWATER AQUIFERS

D Aquifer
Dakota Sandstones

T Aquifer
Toreva Formation

N Aquifer
Navajo Sandstones

C Aquifer
Coconino Sanstones

Hopit Tunatya’at 2000:
The Hopi Strategic Land Use and Development Plan
Prepared by The Office of Community Planning & Economic Development
April 2001
HYDROLOGY

Hopit Tunaty'a'at 2000:
The Hopi Strategic Land Use and Development Plan
Prepared by The Office of Community Planning & Economic Development
April 2001
BIOTIC COMMUNITIES

Hopit Tunatya'at 2000:
The Hopi Strategic Land Use and Development Plan
Prepared by The Office of Community Planning & Economic Development
April 2001
SLOPE

Hopit Tunatya'at 2000:
The Hopi Strategic Land Use and Development Plan
Prepared by The Office of Community Planning & Economic Development
April 2001
ASPECT (SLOPE DIRECTION)

Hopit Tunatya'at 2000:
The Hopi Strategic Land Use and Development Plan
Prepared by The Office of Community Planning & Economic Development
April 2001
FUTURE LAND USE

Hopit Tunatya'at 2000:
The Hopi Strategic Land Use and Development Plan
Prepared by The Office of Community Planning & Economic Development
April 2001
PLANNED COMMUNITY DEVELOPMENT DISTRICTS

Hopit Tunatya'at 2000:
The Hopi Strategic Land Use and Development Plan
Prepared by The Office of Community Planning & Economic Development
April 2001
PCDD/PCD CONCEPT

PCDD - Planned Community Development District

PCD - Planned Community Development
STRATEGIC DEVELOPMENT
Lake Powell Pipeline Corridor Alternative 1

Hopit Tunatya’at 2000:
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April 2001
STRATEGIC DEVELOPMENT
Lake Powell Pipeline Corridor Alternative 2

Hopit Tunatya'at 2000:
The Hopi Strategic Land Use and Development Plan
Prepared by The Office of Community Planning & Economic Development
April 2001
DEVELOPMENT STRATEGY
Lake Powell Pipeline Corridor Alternative 3

Hopit Tunatya'at 2000: The Hopi Strategic Land Use and Development Plan
Prepared by The Office of Community Planning & Economic Development
April 2001