KAYENTA

TOWNSHIP

EST. 1986

20.

Comprehensive Plan

KTCA-14-12

KTCA-14-12

RESOLUTION OF THE KAYENTA TOWNSHIP COMMISSION

Adopting the Kayenta Comprehensive plan

WHEREAS:

1. The Kayenta Township Commission ("KTC") has the general authority and responsibility to govern for the welfare of the Kayenta Township ("Township") and its residents, including the enactment of such ordinances, rules and regulations as it deems in the best interest of the Township; and
2. Township Commission of Kayenta Township over an 11 month period beginning in January of 2011, held public meetings including: **a one (1) week-long design charrette; four (4) community conversations; and a one (1) day youth design charrette** where in depth deliberations and formulation of concepts and a draft Comprehensive Plan was conducted; and
3. Comments and participation were sought from the public and interested and affected Navajo departments, and Navajo and non-Navajo agencies; and
4. The Comprehensive Plan update includes these interrelated documents: The Kayenta Township Comprehensive Plan Background and Current Conditions volume, containing all pertinent data and analysis and serving as the foundation to the Comprehensive Plan; and the Kayenta Township Comprehensive Plan Policy volume, containing the vision, elements, goals, design concepts, and policy framework directing development within Kayenta Township; and
5. The Comprehensive Plan includes a Vision Statement which provides a sense of purpose and mission for the Comprehensive Plan and sets the foundation for the guiding principles, goals, policies and actions in the Plan; and
6. The Comprehensive Plan has been developed to be comprehensive, internally consistent, long term and to address all pertinent Navajo Nation laws; and
7. The Kayenta Township Commission conducted a public hearing on the Comprehensive Plan on December 15, 2011 regarding adoption of the Comprehensive Plan.

NOW, THEREFORE BE IT RESOLVED THAT:

1. **Findings**

   The Township Commission makes the following findings:

   a. The Comprehensive Plan constitutes a comprehensive, long-term document capable of guiding the future development of Kayenta Township.
   b. The Comprehensive Plan meets all the requirements for such plans as provided in Navajo laws.
   d. The Comprehensive Plan has been prepared and adopted in accordance with the requirements of Kayenta Township and the Navajo Nation.

e. The Comprehensive Plan includes goals, policies and actions related to smart growth, multi-modal transportation and access to all mobility needs, land use, urban design, natural resources protection and conservation, preservation of Navajo culture and ways, economic development, heritage and eco-tourism, reduction of greenhouse emissions and sustainable best practices.

f. The Comprehensive Plan provided is consistent with the direction of Kayenta Township Green Code.

h. The Goals, Policies, Actions and other relevant content contained in the Comprehensive Plan, are consistent with and does not conflict with applicable airport/land use compatibility policies and criteria contained in the Kayenta Airport Master Plan as amended for the environs of Kayenta Airport.

2. Adoption

a. The Kayenta Township Commission adopts the Comprehensive Plan as set forth in Exhibit "A".

CERTIFICATION

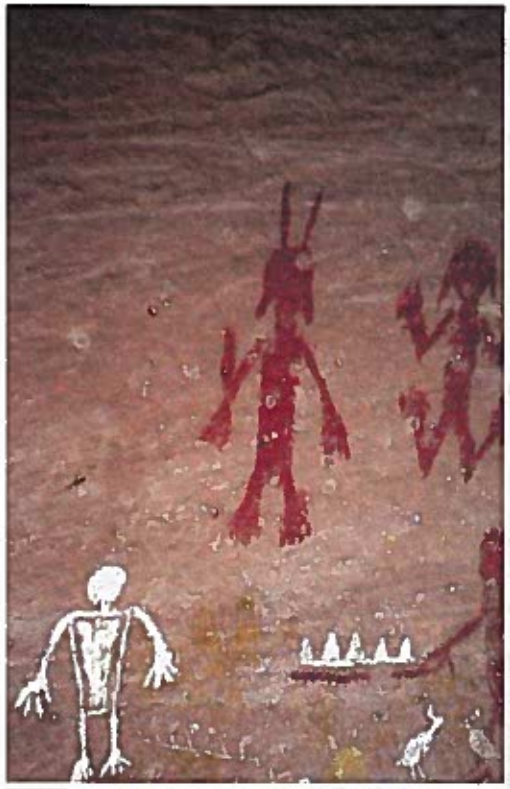
I hereby certify that the foregoing resolution was duly considered by the Kayenta Township Commission at a duly called special meeting at Kayenta, Navajo Nation (Arizona), at which a quorum was present and that same was passed by a vote of 3 in favor, 0 opposed, and 0 abstained, this 17th day of April 2012.

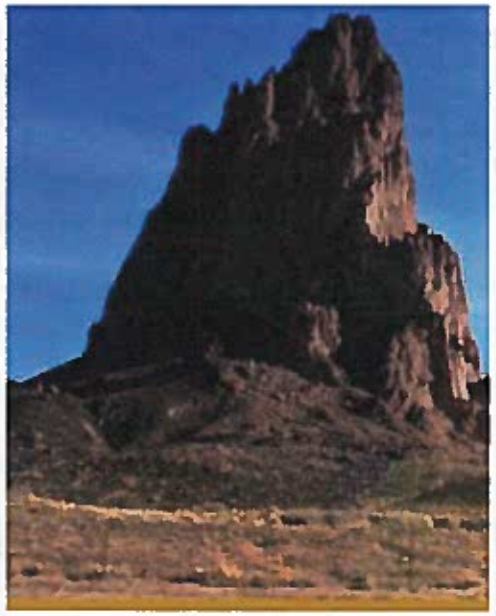
Motion: Bonnaha

Second: Grey

Chairperson, Carol Todecheene

Kayenta Township Comprehensive Plan





THE PLANNING CENTER
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ARROWHEAD
ENGINEERING, INC.

Policy Plan Volume

Kayenta Township, Navajo Nation, Arizona

Kayenta Township Comprehensive Plan

Prepared for

Kayenta Township
P.O. Box 1490
Kayenta, AZ 86033

Prepared by

The Planning Center
110 South Church Avenue, Suite 6320
Tucson, Arizona

With Assistance from

Arrowhead Engineering
100% Diné Owned and Operated
1685 S. San Todaro Place
Tucson, AZ 85713

November 30 2011

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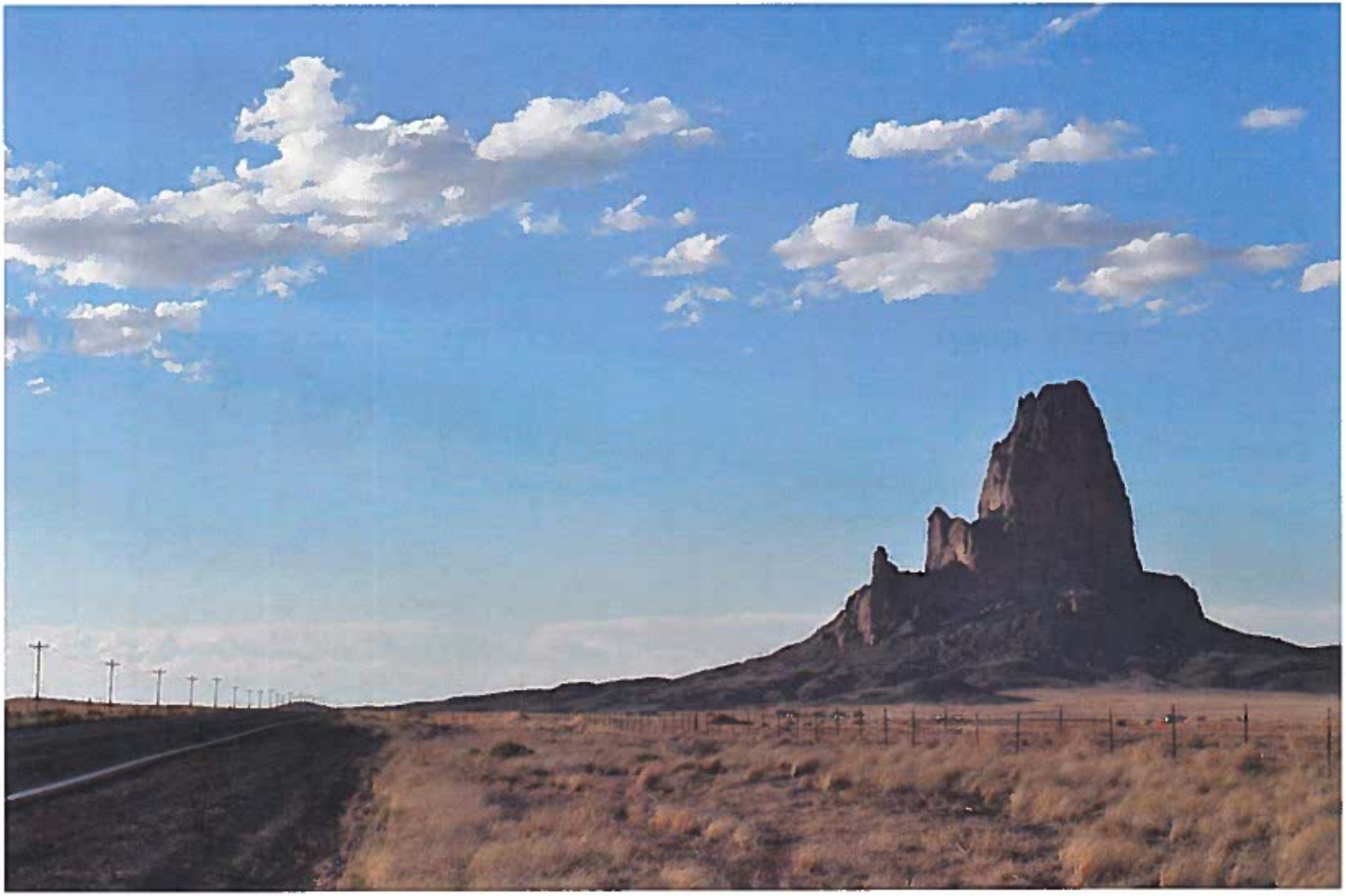
Policy Plan Volume



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Policy Plan Volume

Kayenta Township Comprehensive Plan

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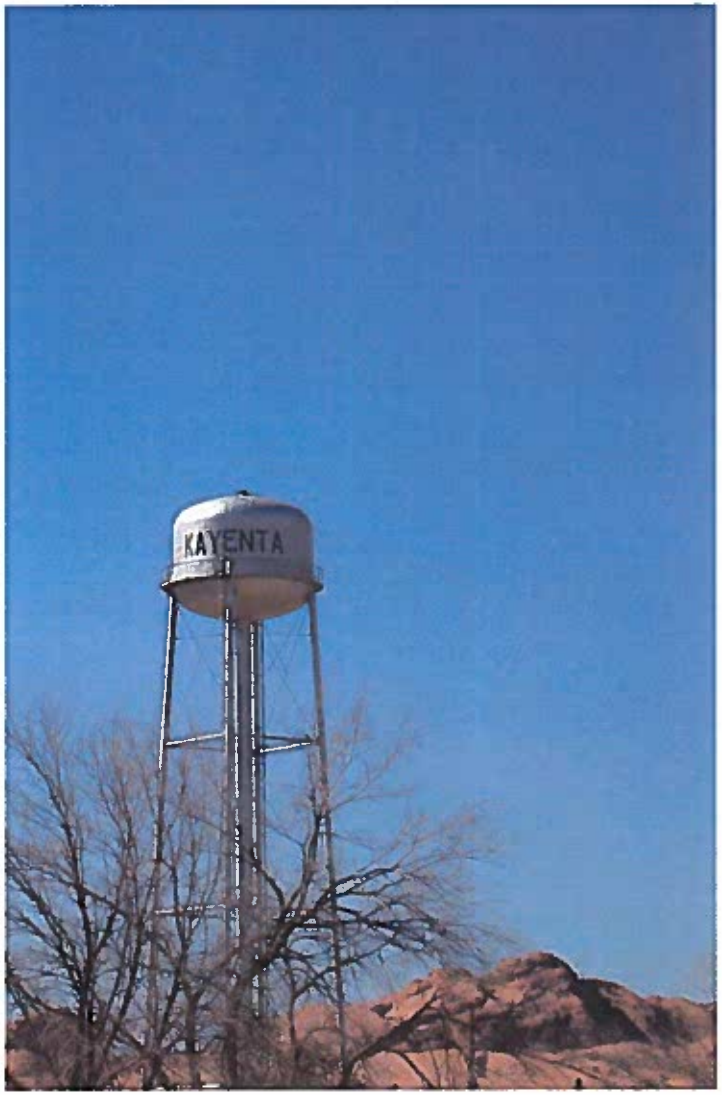

Tables

Kayenta Township Commission

Helen Bonnaha, Commissioner
Carol Todecheene, Commissioner
Dolores Greyeyes, Commissioner
Jodonna Hall-Ward, Commissioner
Rodger Grey, Commissioner
Andre Cordero, Commissioner

Kayenta Chapter Administration

Stanley Clitso, President
Ruth Gilmore, Vice President
Nora Fatt, Secretary
Revaline Tate, Chapter Coordinator

Town Manager Office

Andre Cordero, Town Manager

Township Department Heads

Bradley Blair, Construction Supervisor
Chris Claw, Kayenta Volunteer Fire Department, Fire Chief
Don Jackson, Town Engineer
Ed Whitewater, Director, Economic Development Department
Gabriel Yazzie, Director, Community Development Department
Joann Begay, Parks and Recreation Department
Kee Thinn, Kayenta Police Department
Malcolm Benally, Coordinator CIO, Community Involvement Department
Philbert Tso, Building Official
Selena Begay, Finance Manager
Shonie De La Rosa, IT Administrator, Information Technology
Scott Benson, Public Work Supervisor

Comprehensive Plan Stakeholders

Navajo Nation Representatives

Katherine Benally, Navajo Nation Council Delegate
Marjorie Clauschee, Navajo Nation Department of Social Services, PSW
Charylene Jones, Navajo Nation Department of Social Services, Case Mgmt. Spec
Grace Kaye, Navajo Nation Housing Authority, Housing Director
Etta Smallcanyon, Navajo Head Start, Coordinator
Lavonne Yazzie, KY District Court, KY Court Administrator
Chester Stanle, KY Peacemaking Court, Peacemaker
Adelle King, Navajo WIC, Program Supervisor
Frank Donald, Jr., NN Workforce Development, Employment Officer
Dorothea Denetsosie, NN Child Support Enforcement, Enforcement Officer

Navajo Tribal Utility Authority

Patricia Watchman, District Manager
Harve Holiday, Customer Service

Navajo Tribal Utility Authority – Fort Defiance

Vircynthia Charley, District Manager
Loretta Todecheene, Customer Service
Jason Tannie, Eng. Tech - Gas
Denny Hardy, Electrical Engineer
Rex Kontz, Deputy General Manager
Gary Yellowhair, Civil Engineer
Wally Chief, Deputy Manager -Technical Services
Caroline Tom, ROW Agent

Navajo County

Jonathan Nez, County District Supervisor
Susie Nelson, Justice of the Peace

Navajo Department of Transportation

Paulson Chaco, NDOT - Window Rock, Director

Arizona Department of Transportation

Robin Nelson, ADOT Kayenta Yard, Manager
Don Sneed, ADOT, Multimodal Planning Division

Kayenta Education

Harry Martin, Kayenta Unified School District, Superintendent
Julius Young II, Kayenta Unified School District, Operations Director
Carol Todecheene, Kayenta Unified School District, Transportation Dir.
Gillian Vormittagg, Kayenta Unified School District, HS Principal
Marti Gilmore, Kayenta Unified School District, KMS Principal
David Hawley, Kayenta Unified School District, KIS Principal
Stenson Wauneka, Kayenta Community School, Facilities Manager
Velma Eisenberger, Kayenta Community School, Principal
Karen Lesher, Native, Superintendent
Phyllis Begay, Dine College, Center Supervisor
Marie Etsitty, Dine College, Interim President
Lorraine Benally, Northland Pioneer College, Center Supervisor
Jeanne Swarthout, Northland Pioneer College, President
Mark Vest, Northland Pioneer College, Vice President
Frankie Gilmore, Native, CTE Coordinator

Kayenta Community Services and Programs

Geraldine Laughter, Women's Shelter, Shelter Director
Linda White, KY - I.H.S., CEO
Harry Sombrero, KY Criminal Investigation, Supervisor
James Ashike, KY Behavioral Health Services, Program Supervisor
Gary Holiday, KY Behavioral Health Services, Family Therapist
Pearlina Chiquito, KY Senior Center, Program Supervisor
Bessie Mitchell, Kayenta WIC, Clinic Supervisor
Dr. Charletta Begay, Kayenta Animal Control,

Dine Bii Association

Edith Widefoot, Assistant Executive Director
Katherine Nez, Program Coordinator
Cheryl Yazzie, Program Coordinator

Sandstone Housing

Victoria Yazzie-Ramsey, Manager
Dana Denny, Director

Business Owners and Residents

Kevin McAuliffe, Kayenta Mobile Home Park, Owner
Travis Honanie, Frontier Communications, Network Engineer
Julene Price, Amigo Café, Owner
Genevieve Crawley, Golden Sands Café, Co-Owner
Richard Mike and Nina Heflin, Burger King, Owners
Richard Mike and Nina Heflin, Hampton Inn of Kayenta, Owners
Eva Workman, Eagle Air Med, Outreach Specialist
Abe Martinez, McDonald's of Kayenta, Owner
Bonnie Frazier, 7-2-11 Food Store,
Kim Forsyth, Conoco Giant Industries
Mark Nicholson, Speedy's, Owner
Gary Curtis, Chevron - NN Oil & Gas, Regional Marketing
Nathaniel Begay, Navajo Nation Shopping Center, CEO
Juanita Yazzie, Navajo Nation Shopping Center, Leasing Specialist
Daniel Fuller, Kayenta Post Office, Post Master
Mike G. Paulowsky, Sonic's Drive In
B&B Consultants Inc.
Tanner Jeffs, Rising Sun Materials, Supervisor
Royal Churchhill, Chief Propane, Owner
Michael W. Eggleston, Ferrell Gas,
Randal Brouchard, Kayenta Chiropractor, Owner - Co
Cheryl Harvey, Kayenta Dialysis,
Ms. Lavina Smith, Kayenta Monument Valley Inn, General Manager
Desiree LaFont Wetherill Inn Best Western, Manager
Wayland LaFont, NAPA Auto Parts, Owner

Fenessa Dayish, Navajo Arts & Crafts Enterprise, General Manager
Gregory and Myra Draper, Draper's Glass, Owners
Paul Frye, Frye Law Firm, P.C.

Community Churches

Daniel Taggart, Kayenta Bible Church, General Director
John Austin, Church of Christ, Preacher
Rev. Norma McCabe, Presbyterian Church, Pastor
Father Jerome Heriff, Our Lady Guadaloupe, Father
LDS Church, President

Consultant Team

ARROWHEAD
ENGINEERING, INC.

Merwin T. Yellowhair, P.E., CFM, Principal Engineer, Project Manager
Dennis E. Roberts, E.I.T, CFM, Civil Designer

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Maria Masque, Principal/Urban Designer/Lead Planner/Project Analyst
Tim Johnson, Landscape Architect/LEED & Water Harvesting Specialist
Daniel Bradshaw, Urban Designer/Trail System Specialist
Pedro Gastelum, Graphic Technologies/Photo Simulations Specialist

Kayenta Township Comprehensive Plan

Kayenta Township, Navajo Nation, Arizona

Kayenta, Navajo: **Tó Dinéeshzhee** is located in northeastern Navajo County, Arizona, about 20 miles south of the Utah border on U.S. 163, 148 miles north-northeast of Flagstaff, and 99 miles west of Shiprock, New Mexico. Because of its remoteness, in the early days the Kayenta region was seldom visited by non-Indians.

Kayenta Township is the only municipal-style government within the Navajo Nation. It is regarded as a political sub-division of the Navajo Nation. The Township is managed by a five-member elected town board, which hires the township manager.

Kayenta is the name for the Chapter, as well as the township. Kayenta Chapter (a political division within the Navajo Nation that is analogous to a county within a state) encompasses land in both Utah and Arizona. As a result, the Navajo Nation's census figures for Kayenta Chapter are significantly different from those of Kayenta Township.

Kayenta is a Census Designated Place (CDP) with a 2000 census population of 4,922. According to the United States Bureau of the Census, the CDP has a total area of 13.2 square miles (34.3 km²). Kayenta is located at an elevation of 5,640 feet (1,719 m).

Major Scenic Attractions

Twenty-seven miles north of Kayenta is the Navajo Nation's most famous attraction, Monument Valley Tribal Park. Betatakin, Navajo for "houses in rock shelves," and Keet Seel Ruins are about 20 miles away. The Four Corners area, a junction of Arizona, Utah, Colorado and New Mexico, the only spot in the United States where four states meet, is less than 80 miles away.

Within a 150- mile radius are a variety of parks and recreational facilities including: Grand Canyon National Park, Glen Canyon National Recreation Area, Lake Powell and Glen Canyon Dam on the Colorado River. The prehistoric Indian dwellings of Canyon de Chelly National Monument and the monoliths and arches of Monument Valley, Rainbow Bridge National Monument and the Navajo Scenic Area are nearby.

Main Gateway to Monument Valley

Located immediately south of Monument Valley, the Township serves as its main gateway, providing a variety of hotels and motels and guided tour services to visitors attracted to the area. The area offers spectacular views of geological formations that have been amply recorded in film, photography and art.

The Comprehensive Plan

The Kayenta Township Comprehensive Plan is a long-range policy document designed to improve the quality of life of the Township. The Comprehensive Plan:

- Includes direction for development, redevelopment, infill development based on the principles of sustainability and smart growth
- Serves as a guide or road map for decision making
- Includes strategies for redevelopment of blighted areas
- Responds to the legal state mandate for all Arizona jurisdictions outside of the Navajo Nation.
- Guides the development standards and design guidelines provided in the Zoning Ordinance
- Includes the implementation measures necessary to make Kayenta a self-sufficient, economically resilient, and vibrant sustainable community
- Establishes the development parameters necessary to make Kayenta the Gateway to Monument Valley and a major destination within the Navajo Nation

As the roadmap guiding development, infill development and redevelopment within the Township, this planning tool includes the vision of the community, a thorough analysis of opportunities and challenges, the policy framework guiding development and the implementation strategies necessary to implement the plan.

The Comprehensive Plan serves as a smart growth guide for Township officials during the:

- Evaluation of proposals for development and redevelopment
- Management of orderly growth
- Prioritization of community needs
- Identification of partnerships
- Evaluation of capital improvements projects
- Development of more specific studies needed to appropriately manage growth
- Coordination with other agencies regarding infrastructure improvements
- Implementation of economic development strategies
- Preparation of grants and funding applications

It includes background data and current conditions and provides a policy framework for the refinement of implementation tools such as the zoning ordinance. It also defines all the administrative and monitoring mechanisms necessary to administer and manage the Comprehensive Plan.

The Comprehensive Plan Volumes

The Kayenta Township Comprehensive Plan consists of two volumes. This *Policy Plan* volume serves as the regulatory document guiding development and redevelopment. This volume includes the community vision, guiding principles, goals, policies and implementation measures.

The *Background and Current Conditions* volume includes an analysis of opportunities and constraints, serves as the backbone of the *Policy Plan* and provides a comprehensive look of the physical, regulatory, demographic, socioeconomic and fiscal conditions impacting development within the Township.

The Comprehensive Plan Purpose

The purpose of this Comprehensive Plan is to ensure that future growth proceeds in a manner consistent with the vision of Kayenta Township. The guiding principles, goals, policies and implementation strategies provided in this Policy Plan and the map series and analysis included in the *Background and Current Conditions* volume are intended to provide guidance in the evaluation of future decisions related to land use, urban design, economic development, community facilities, transportation and circulation, utilities and infrastructure improvements.

The Comprehensive Plan serves as a guide for appointed and elected officials in the evaluation of proposals for development, in the scheduling of community improvements and capital improvements programming, and in the development of more specific studies. It includes supporting background and current conditions and provides a policy framework for the refinement of existing implementation tools such as the zoning ordinance. The Comprehensive Plan serves as the road map for the development of Kayenta Township, the Main Gateway to Monument Valley, Arizona.

The Kayenta Zoning Ordinance

The Kayenta Zoning Ordinance provides includes development precepts, standards, and design guidelines for all the zoning districts within the Township. It also includes the Development Review Process for development within the Township and establishes a Design Review Committee. The Zoning Ordinance serves as the implementation tool of the Kayenta Comprehensive Plan.

Previous Land Planning Efforts in Kayenta

The form and character of Kayenta Township has been molded by the collaborative efforts of a variety of individuals, a multiplicity of Navajo Nation departments, and a wide diversity of public agencies under the leadership of the Navajo Nation's decision makers. Each planning process undertaken in the past has influenced the character of the community and its sense of place. In addition, such processes have assisted Kayenta in its transition from a rural to a more urban setting. Two major previous planning efforts include the Kayenta Chapter Comprehensive Land Use Plan and the Kayenta Airport Master Plan.

Kayenta Chapter Comprehensive Land Use Plan

A Kayenta Chapter Comprehensive Land Use Plan was adopted by Resolution of the Navajo Tribal Council CN-86-85 in November of 1985. The Comprehensive Plan approved the overall concept of the Land Use Planning Authority and extended local governing capacity to the community of Kayenta, officially designating the planning area as the "Kayenta Township Pilot Project". This planning process is further described in the *Background and Current Conditions* volume.

Kayenta Airport Master Plan

Completed in 2005, the Kayenta Airport Master Plan was financed, in part, by the Airport Improvement Program financial assistance from the Federal Aviation Administration (FAA) as provided under Title 49, United States Code, and Section 47104. This master plan describes the overall long-range development concept for the Kayenta Airport and is further described in the *Background and Current Conditions* volume.

Why is Planning Necessary?

Planning, like life, is a dynamic process. Environmental conditions, market forces and individual needs and preferences change over time. As Kayenta continues to change from a rural to a more urban community, it benefits from ongoing planning efforts that acknowledge previous planning processes and addresses changes and trends not foreseen in previous exercises. Such foresight provides the continuity needed to ensure the long-term viability and sustainability of the community. Without a continuous planning process, the future character and sense of place of the community would be determined by a series of unrelated decisions leading to unintended and often undesirable results.

The planning process is a holistic process. It provides a framework by which decisions and actions can be coordinated with other community plans and development proposals. This insures that the end result will be of benefit to the whole community.

Comprehensive Plan Intent

This Comprehensive Plan seeks to support the community's vision in a manner that ensures the livability, viability, sustainability and fiscal solvency of the community for generations to come.

This Comprehensive Plan is created to provide specific guidance for Kayenta Township to support its community and to further the rich culture, tradition, identity and economic base of Kayenta as a unique place to live, work, learn, visit and play.

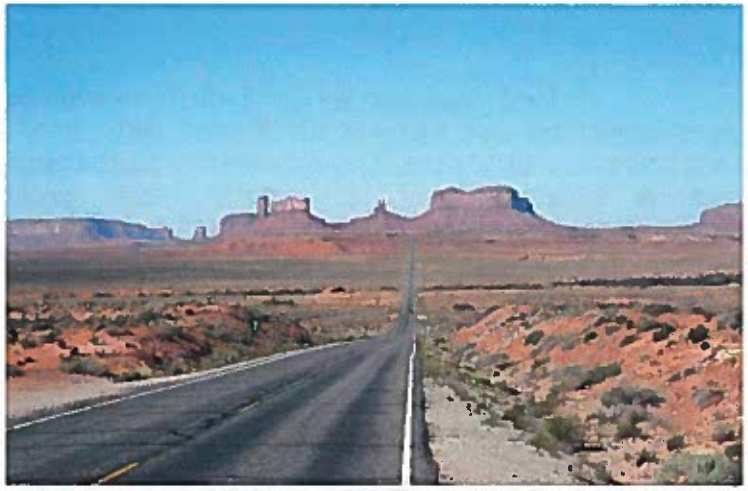
Comprehensive Plan Legislative Framework

All jurisdictions in the State of Arizona are required by the Arizona Revised Statutes (ARS) 9-461.05 to adopt a general or comprehensive plan to guide future development. The elements included in such plan are determined by the size of the jurisdiction's population.

Sustainable Planning and Design

This Comprehensive Plan incorporates the latest sustainable design principles to help Kayenta Township become a sustainable destination where community members can live, work, learn and play. Such balanced approach ensures that its environment, economy, society, culture, heritage and technology are preserved and enhanced for future generations. This *Policy Plan* volume incorporates these sustainable principles in its policy framework. These principles are further defined in the *Background and Current Conditions* volume of this Comprehensive Plan and include:

- Environmental Infrastructure
- Economic Base
- Culture and Heritage
- Social Services
- Technology and Innovation



Sustainability as an Economic Development Tool

Kayenta Township was the fourth community in the country to adopt the *International Green Construction Code*. As a result, the community has been asked to join a work group being facilitated by the International Code Council (ICC) to assist other communities in the nation in the adoption and enforcement of this code.

Sustainable development aims at balancing community needs with environmental infrastructure and ecosystem needs. It focuses on community needs while prioritizing the environment that sustains such community without destroying the ecological systems that sustain it.

The focus of this approach is to meet the needs of current and future generations in three categories of needs: environmental, social, and economic. Its approach examines the systems required by a project and proactively applies sustainable design principles that incorporate U.S. Green Building Council strategies as well as a LEED (Leadership in Energy and Environmental Design) approach.

By doing so, the community creates an environment that can also serve as an economic development tool, increasing the livability and fiscal viability of the community and ensuring the quality of life desired by community members.

Arizona Smart Growth Scorecard

The Arizona Smart Growth Scorecard is a voluntary, self-assessment tool that local jurisdictions can use to evaluate the effectiveness of their planning and development efforts. Planning and zoning decisions have considerable influence on the quality of life of current and future generations. How land use decisions are implemented impacts every resident of every community - from travel to work and school, to which parks have picnic areas and pools, to the safety of neighborhoods.

The Smart Growth Scorecard assists local officials to plan for growth and development. The Scorecard is based on the *Principles of Smart Growth.*

Growth is smart when it gives us great communities; with more choices and personal freedom, good return on investment, greater opportunity across the community, a thriving natural environment, and a legacy we can be proud to leave our children and grandchildren. (Source: Smart Growth Network, "This is Smart Growth")

All different sized communities, counties, and Tribal governments, can complete a Scorecard. An array of questions relating to environmental benefits, infrastructure efficiency, mobility choices, economic development, social equity, and healthy community concepts are intertwined throughout. Individual questions correspond to the population size of the jurisdiction to acknowledge the variety of local characters and values in a state as diverse as Arizona.

Over 80 communities and counties have completed a Scorecard. Some are using it to reframe development policies to create new choices and opportunities to advance economic sustainability. Some have tied it to performance measurements in their general and comprehensive plans. Its overall objective is to be an available resource to improve capacity for better planning resulting in positive environmental, social, and economic benefits for communities and regions throughout Arizona.

Some state discretionary programs have used the Scorecard in their grant and loan applications to encourage utilization of the tool. For example, a completed Scorecard has been required in a number of programs' funding applications just to be part of an administratively complete grant submittal.

Other state funding programs have awarded additional incentives to communities with advanced scores or offered technical assistance to those needing support. Individual state granting agencies publish notice of applicable criteria, and will include consideration of the Smart Growth Scorecard if it is to be an included factor in the respective program.

The *Arizona Smart Growth Scorecard* is a valuable tool for community self-assessment developed by a working group of the Growth Cabinet with input from public and private stakeholders. It is designed to strengthen the ability of Township officials to plan for future growth and development and to adopt comprehensive strategies that address growth related pressures. As Arizona continues to attract unprecedented population growth, all levels of government must play a role in wisely planning and managing both the challenges and opportunities that new growth and development present.

What is Smart Growth?

Growth itself is neither positive nor negative, but the cumulative effects of population growth, its patterns and form have long-term social, environmental, and economic consequences. Smart growth is guiding growth in ways that result in vibrant communities, strong economies, and a healthy environment. Smart growth means adding new homes, schools, businesses, jobs and infrastructure to Arizona in a way that makes sense and promotes balance.

Smart growth enhances the communities where we live, but does not over-burden our transportation and infrastructure systems, pollute our air and waters, or deplete our open spaces and magnificent natural landscapes. Smart growth embodies qualities that make communities great places to live and gives them a sense of place – recreational amenities, historic spaces, vibrant downtowns, choices in transportation and housing, prudent investments in capital facilities and infrastructure, and opportunities for diversity and citizen involvement.

Characteristics of Smart Growth

The Smart Growth Network states that "the features that distinguish smart growth in a community vary from place to place. In general, smart growth invests time, attention, and resources in restoring community vitality to center cities and older suburbs. New smart growth:

- Is Town-centered;
- It is affordable;
- Is transit and pedestrian oriented;
- Has a greater mix of housing, commercial and retail uses;
- It incorporates access to different mobility needs;
- Includes compact development; and
- Preserves open space and environmental amenities.

The American Planning Association (APA) defines smart growth as using comprehensive planning to guide, design, develop, revitalize and build communities that:

- Have a unique identity, character, sense of community and sense of place;
- Preserve and enhance valuable natural and cultural resources;
- Equitably distribute the costs and benefits of development;
- Expand the range of transportation, employment and housing choices in a fiscally responsible manner;
- Value long-range, regional considerations of sustainability over short term incremental geographically isolated actions; and
- Promotes public health and healthy communities.

The Urban Land Institute characterizes smart growth as development that is environmentally sensitive, economically viable, community-oriented, and sustainable.

The National Homebuilders Association is in agreement, stating that smart growth will help meet the demands of the ever increasing population and a prosperous economy while also building a political consensus to:

- Support comprehensive local plans employing market-sensitive and innovative land-use planning concepts to achieve a wide range of housing choices for all Americans;
- Fairly and fully finance infrastructure to support necessary new residential, commercial, and industrial growth and
- Preserve meaningful open space and protect the environment.

How Does the Scorecard Work?

The Scorecard is an incentive-based tool to help cities, towns, counties and Tribal governments evaluate their growth planning efforts. All entities applying for grants and loans from state discretionary funding must reference a Scorecard. This approach encourages citizens, non-profit organizations, and other entities to talk with their community leaders, make sure a Scorecard is filled out, and ultimately encourage them to implement smart growth practices.

Existing agency grant program guidelines and standards remain the same; however, the score determines whether financial incentives or technical assistance will be provided by the granting program. The Scorecard is designed to provide incentive-based advantages to communities engaged in smart growth planning and implementation and help build the capacity of those communities that need assistance.

Tribal Governments and Tribal political subdivisions

Tribes and Tribal subdivisions must complete and submit their own Scorecard, use a scorecard of the county they are located within, or use a nearby community's scorecard.

Financial Incentives

For smart growth communities (i.e. a community that has a high score), a variety of incentives will be available depending on the individual funding agency and program. Some examples include additional funding, basis points off loans and lower interest rates.

Technical and Financial Assistance

For communities that are transitioning toward smarter growth and development (i.e. a community that has a score that could use improvement), the agency will offer technical and/or financial assistance. Note that a low score may also give an entity priority for certain grants, such as technical assistance grants.

How Are the Scores Determined?

The Scorecard is comprised of the *Growing Smarter Guiding Principles* criteria along with a list of associated smart growth and planning indicators.

The overall calculation of these criteria and indicators is used to obtain a "score" for your community. Smart growth criteria and indicators are applied differently to each of the three size categories of community and county populations as mandated in the Growing Smarter statutes (A.R.S. §9-461.05 and §11-821).

The larger the jurisdiction, the more criteria will apply. This separate application of criteria acknowledges that planning techniques and funding to support smart growth may differ by the growth pressures facing your community and that the level of technical and financial resources available to small, mid-size or large towns, cities, counties, and Tribal governments may be significantly different in a state as diverse as Arizona. The Scorecard will indicate where each criterion applies to different sized communities.

The separate criteria and indicators were developed for different sized communities, counties and Tribal governments within the population thresholds of the Growing Smarter statutes using current state population estimates. Tribal governments (and Tribal political subdivisions) fit within the small category.

Small and medium communities are encouraged but not required to complete the entire Scorecard to assess their strengths and challenges for managing future growth. State discretionary loan and grant process will only consider scores appropriate to community size in determining incentives and assistance.

Principles of Smart Growth

The Smart Growth Network developed a set of ten principles that reflect the new ways that many communities are positively affecting land use and development:

- Mixed use development;
- Take advantage of compact building design;
- Create a range of housing opportunities and choices;
- Create walkable neighborhoods;
- Foster distinctive, attractive communities with a strong sense of place;

- Preserve open space, farmland, natural beauty and critical environmental areas;
- Strengthen and direct development towards existing communities;
- Provide a variety of transportation choices;
- Make development decisions predictable, fair and cost effective; and
- Encourage community and stakeholder collaboration in development decisions.

Community Involvement Program

The Kayenta Comprehensive Plan is the product of an extensive outreach effort that involved residents, business owners, other major stakeholders, elected and appointed officials, adjacent jurisdictions, Navajo Nation representatives, regional agencies, investors, spiritual leaders, developers and other interested parties. The community involvement process included a total of three Community Conversations at major milestones of the project, a week-long design Charrette, a one day student leaders design Charrette, and an ongoing partnership with the Arizona Department of Transportation (ADOT) and the Planning Assistance for Rural Areas (PARA) Multimodal Transportation Program running concurrently with this Comprehensive Plan, including consultant team participation in the PARA Technical Advisory Committee.

Kayenta Township Community Conversations

The Kayenta Comprehensive Plan included three focused community conversations with three different stakeholders groups. These groups included representatives from: the Navajo Nation, Navajo Agencies, Navajo judicial system and law enforcement, Kayenta Chapter, state and national agencies, Bureau of Indian Affairs, Kayenta department heads, school districts, community facilities, social institutions, cultural groups, social programs, local businesses, spiritual community, and area residents.

Community Conversation 1

During the first conversation, a visioning process aiming at identifying major community needs was conducted. The input provided during this community conversation is summarized in the Meeting Minutes Report included in Appendix A: Kayenta Comprehensive Plan Public Input Results.

Community Conversation 2

During the second conversation, the results from the week-long design Charrette and the Kayenta Comprehensive Plan draft were shared with the stakeholder groups. Additional input was provided during this conversation and incorporated in the Comprehensive Plan. The input provided during this community conversation is summarized in the Meeting Minutes Report.

Kayenta Comprehensive Plan Youth Design Charrette
Monument Valley High School Honor Society Students

Community Conversation 3

During the third conversation, the Draft of the Kayenta Zoning Ordinance draft were shared with the stakeholder groups. Additional input was provided during this conversation and incorporated in the Zoning Ordinance. The input provided during this community conversation is summarized in the Meeting Minutes Report.

Kayenta Township Youth Design Charrette

The Kayenta Comprehensive Plan Youth Design Charrette included thirty honor students who participated in an imagine session. During these sessions, participants were asked to map their community desires. The results of these sessions are summarized in the Meeting Minutes Report.

Kayenta Township Design Charrette

As defined by the *National Charrette Institute*, the French word, **"charrette"** means **"cart"** and is often used to describe the final, intense work effort expended by art and architecture students to meet a project deadline.

Kayenta Comprehensive Plan Youth Design Charrette
Monument Valley High School Honor Society Students

This term originated in the *École des Beaux Arts* in Paris during the 19th century, where proctors circulated a cart, or "charrette", to collect final drawings while students frantically put finishing touches on their work. This intense process allows the fast transfer of public ideas into graphics, illustrations, guiding principles, and major goals illustrating the community vision.

Consultant Team Design/Work Sessions

A Design Charrette is a three-phase holistic, collaborative planning process during which a multiple-day charrette is held as the central transformative event. The process commences with the Charrette Preparation Phase, followed by the Charrette acting as a fulcrum at the middle phase, and closes with the Plan Implementation Phase.

The charrette is the catalytic event of the dynamic planning process. It is a collaborative event that lasts four to seven days. The goal of the charrette is to produce a feasible plan that benefits from the support of all stakeholders through its implementation. A multidisciplinary charrette team, consisting of stakeholders, community, support staff and consultants, produces this plan.

During the charrette, the consultant team solicits the values, vision, and needs of the stakeholders. The team then breaks off to create alternative plans, testing and refining them with the goal of producing a preferred plan.

The charrette is organized as a series of feedback loops through which different stakeholder groups and community members are engaged at critical decision-making points. These decision-making points occur during stakeholder meetings, community visioning and imagine sessions, and open houses throughout the course of the charrette. The Design Charrette final products are incorporated in the Comprehensive Plan and in the Zoning Ordinance.

Kayenta Township Design Charrette Walkabout

During the first day of the Design Charrette, the Design Charrette team, accompanied by the designated ADOT representative of the PARA Multimodal Transportation Program, conducted a walkabout within specific areas of Kayenta and drove all areas of the Township. The purpose of this site visit was to identify:

- Growth, redevelopment/revitalization and infill planning areas
- Character areas
- Major Infrastructure barriers
- Circulation/Transportation barriers
- Land use compatibility
- Sustainable design toolbox

Black Mesa, Kayenta, Arizona

Regional Context

Kayenta is located in northeastern Navajo County, Arizona, about 20 miles south of the Utah border on U.S. 163, 148 miles north-northeast of Flagstaff, and 99 miles west of Shiprock, New Mexico.

With an elevation of 5,660 feet, Kayenta's most prominent land feature and reference point is Black Mesa. Black Mesa is located to the immediate southwest of Kayenta and towers above the townsite at an elevation of 8,000 feet at its highest point. In addition to its spectacular scenic beauty and religious significance, Black Mesa contains within its womb an abundance of coal, sizable as a portion of the nation's coal reserve, and rich as valuable resource for the Navajo people.

Kayenta is encircled by a varied and remarkable set of land features: the red faced canyon walls of Skeleton Mesa to the west; the "Five Toes" sandstone hills of the Kayenta Formation to the North; and the solemn volcanic Church Rock and El Capitan rising to the east and northeast. Exhibit 1 shows Kayenta's regional context.

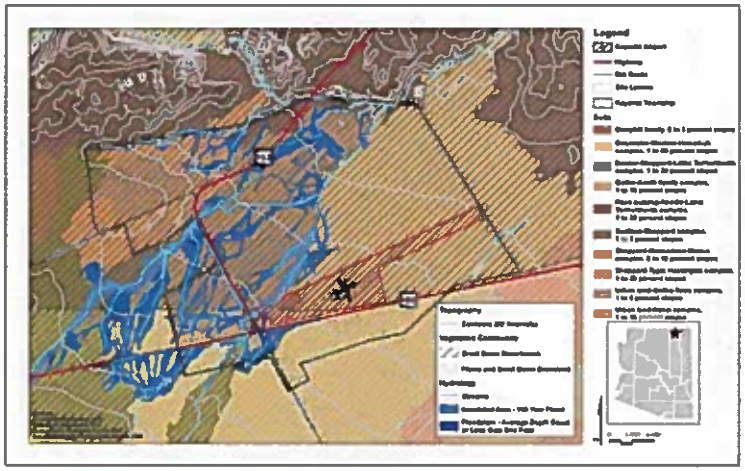
Local Context

Located at the intersection of Highways 160 and 163, Kayenta stands as one of the most remotes communities in Arizona. The nearest off-reservation towns of any significance are at distances of 90 and 130 miles away. Politically, Kayenta lies within District 8 of the Navajo Nation and within the Navajo County of the State of Arizona. Exhibit 2 shows Kayenta's local context.

Physical Environment

A community's infrastructure provides water supply, waste disposal, and pollution control services. It includes extensive networks of aqueducts, reservoirs, water distribution pipes, sewer pipes, and pumping stations. It also includes treatment systems such as sedimentation tanks and aeration tanks, filters, and septic tanks, desalination plants, incinerators and waste disposal facilities such as sanitary land fields and secured hazardous-waste storage impoundments. Such infrastructure serves two important purposes: it protects human health, and it safeguards environmental quality.

On the other end, the physical environment provides a setting, comprises the ecological system, and serves as the environmental infrastructure of a locale or region. It determines the type of development that is most suitable for its characteristics, including climate, landforms, hydrology and drainage, vegetation, view sheds, and wildlife. While the community's infrastructure protects human health and safeguard environmental quality, a balanced environmental infrastructure is vital for the community's long range sustainability and success. The following sections describe Kayenta's environmental infrastructure or physical environment.



Kayenta Township Opportunities and Constraints, Background and Current Conditions Volume, The Planning Center, 2011

Opportunities and Constraints Analysis

The *Kayenta Comprehensive Plan Background and Current Conditions* volume of the Comprehensive Plan, provided under separate cover, includes the opportunities and constraints analysis, the community profile, the socio-economic and demographic analysis, the economic framework and the opportunities and constraints map series. The *Background and Current Conditions* volume is as ancillary document of this Comprehensive Plan. It also serves as the backbone of the Comprehensive Plan.

EXHIBIT 1: Regional Context

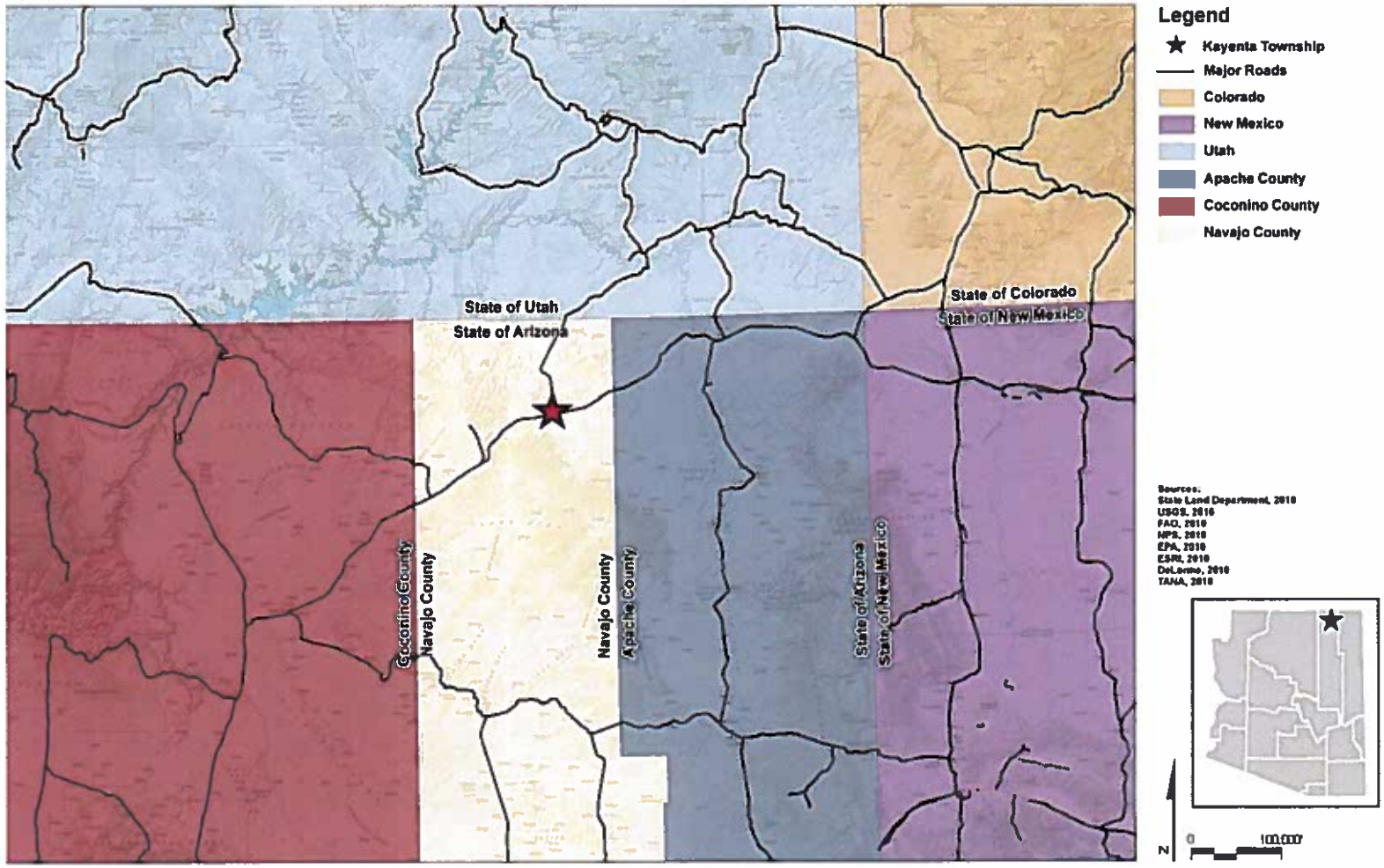
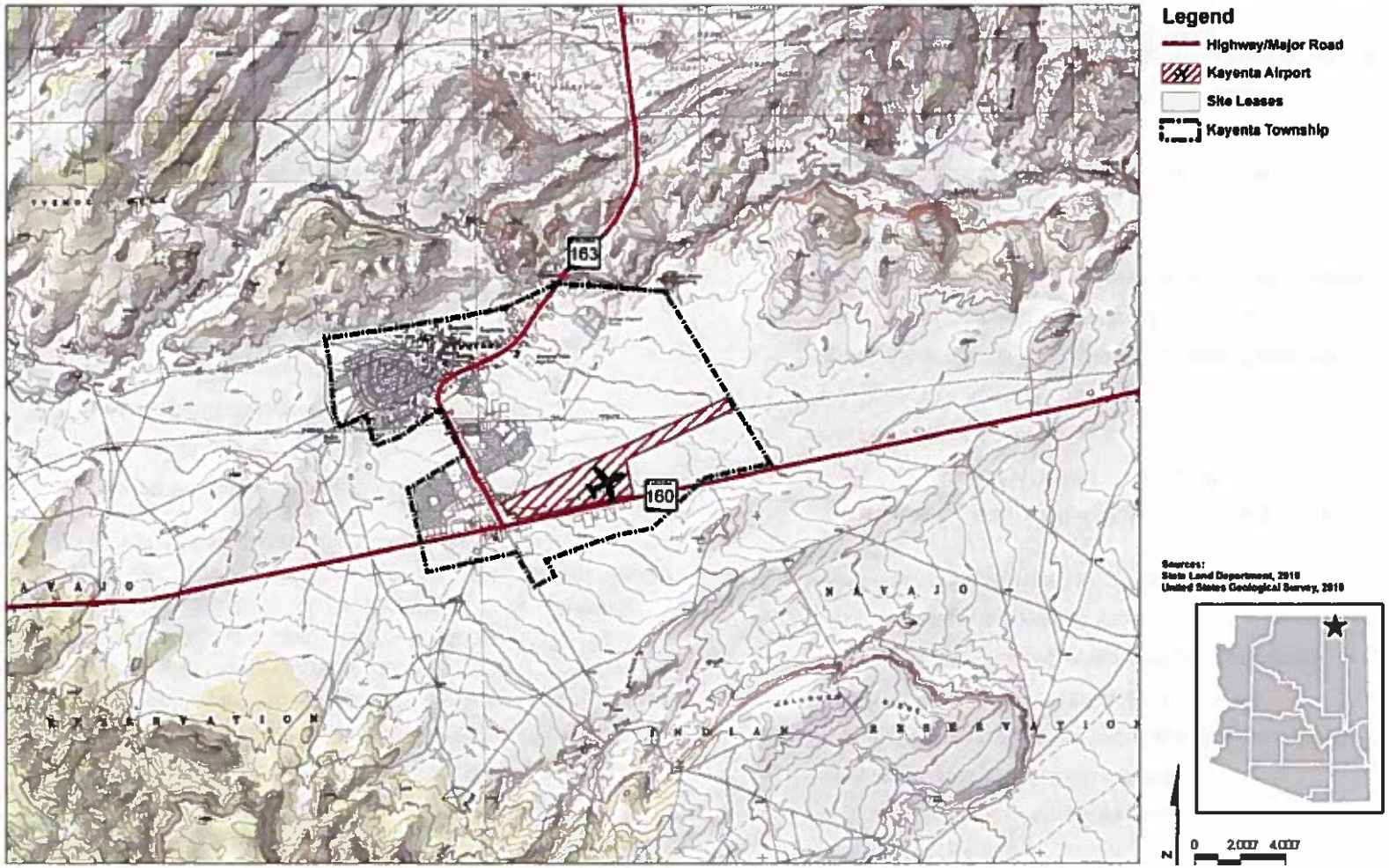


EXHIBIT 2: Local Context



Community Values

The statements provided during the community involvement program are summarized in this section. These statements reflect the community values. Together with the analysis of opportunities and constraints provided in the Background and Current Conditions volume, such statements constitute the basis for the preparation of the Community Vision, the Major Guiding Principles and the goals, policies and implementation strategies included in this Comprehensive Plan.

- Incorporate solar energy in new development
- Increase community safety
- Provide the infrastructure necessary to attract businesses
- Proactively attract new revenue generating businesses
- Explore possibility of having 99-year leases
- Diversify the economic base
- Take competitive advantage of heritage tourism (Navajo arts and culture) eco-tourism (scenic environment)
- Address wildcat dumping and create programs for trash collection, solid waste collection and recycling
- Provide opportunities for animal sanctuary and animal show facility
- Expand rodeo grounds to create support uses
- Improve sidewalks and provide community linkages for pedestrians and bicycle users
- Provide opportunities for mixed-use development
- Develop apartments and multifamily residential
- Provide needed services and retail in Township
- Establish 3-tier property tax zones (residential, commercial, hospitality)
- Establish liquor license for hotels to increase tax revenues
- Include a hierarchy of roads with development appropriate access
- Provide opportunities for transit (bus routes)
- Include opportunities for resort and golf course development in the Township
- Develop a veterans center, a visitors center and a convention center
- Develop a user-friendly development review process
- Adopt regulations for livestock
- Keep horses off the highway
- Provide health support services in proximity to the new health center
- Improve the overall circulation and access of the Township
- Create housing opportunities for new health center and judicial complex employees
- Upgrade the exiting housing inventory
- Provide opportunities for Navajo agency location within the Township
- Expand the tourist service sector
- Improve police, fire and emergency services response time
- Work with the Kayenta Business Association in the establishment of a Chamber of Commerce or a Development Authority
- Soften the appearance of the new Judicial center by incorporating elements of landscape architecture

Community Vision

Comments provided by community members during the different stages of the community involvement process were weaved with the Township Mission statement to create the Community Vision that will guide the development of land. The community vision was presented to participants during the week-long design Charrette. The goals, policies and implementation strategies of this plan support this vision. It states:

Kayenta Township is a model self-sustaining community with the autonomy needed for its citizens to bring Health, Wellness and Harmony to the community in our traditional Sihasin (Hope). As the major destination in the Navajo Nation, Kayenta serves as the gateway to Monument Valley, offers a variety of affordable housing types, includes all the amenities, parks, recreation, trails and open space, schools, community services and programs, and the infrastructure necessary to create a thriving and diversified economic base that takes competitive advantage of our environment, arts, culture, heritage and visitors in a sustainable manner.

Comprehensive Plan Major Guiding Principles

Comments provided by community members during the different stages of the community involvement process were weaved to create the Comprehensive Plan Major Guiding Principles. These will guide the development of land. The community vision was presented to participants during the week-long design Charrette. The goals, policies and implementation strategies of this plan support these principles.

Land Use

Create a land use approach that balances the built and natural environment in consistency with Navajo tradition. Such balance promotes the synergies, partnerships and strategies necessary to attract: high-wage employment; revenue generating retail and service industry in an appropriate scale to each planning area, including: Navajo arts, performing arts and healing traditions public education and higher education; comprehensive medical services; hotel, resort and hospitality services; compact mixed-use development and affordable quality housing in a setting that offers the amenities needed to attain long-range livability and sustainability.

Housing

Derive the housing policy of Kayenta from a concrete assessment of the existing housing types, characteristics and condition. Housing policy should recognize the fact that good housing is the building block of excellent neighborhoods and that those excellent neighborhoods are the building blocks of great communities. Designate a redevelopment area that includes all the neighborhoods in need of rehabilitation and pursue grant funds for the preparation of the Kayenta Township Core Redevelopment and Rehabilitation Plan. Include strategies for housing improvement within this plan.

Cultural Heritage

Kayenta Township has a unique and extensive patrimony of historic and arts resources that contributes to a strong "sense of place" and is a fundamental and irreplaceable asset from which our community can built its future. The two largest Navajo rugs in the world are part of this patrimony. Protection, preservation, and celebration of our Navajo heritage, arts, culture, and patrimony is essential to the prosperity and welfare of our community.

Community Services, Infrastructure, Utilities, and Communication

Kayenta Townships provides all the community services, infrastructure, utilities, and state-of-the-arts communication technologies needed to serve our current and future populations.

Environmental Sustainability

Kayenta Township reduces its carbon footprint by promoting energy efficiency as well as resource conservation, enforcing its "Green Code," adopting smart growth best practices, supporting the existing environmental infrastructure of the region and preserving valuable resources such as wildlife corridors, habitats, washes, groundwater, open space and mountain views.

Community Character, Identity and Sense of Place

New development in Kayenta includes design features that further the vision of our community and reflect our Navajo heritage and traditions. These features include: well-designed gateways at major entrances of the Township; compact and compatible land uses; landscape amenities; inviting, safe, efficient and pedestrian-scaled streetscapes, overall beautification; and a trail system that incorporates linear parks providing multi-use path connectivity to all planning areas and functioning as recreational amenities that enliven our community identity and sense of place.

Transportation and Circulation

A safe, efficient, convenient, multimodal transportation network including transit, shuttle, street car, vehicular, pedestrian, bicycle and equestrian modes and 911 street addresses serves the specific access, way-finding and mobility needs of each planning area, provides access to people with different access and mobility needs and serves as the unifying element providing connectivity to the urban fabric throughout the Township.

Parks, Recreation, Trails and Open Space

Develop an integrated system of parks, recreation, trails and open space that provides intuitive and seamless connectivity to the Mustang Trail, the multi-use path along Kayenta Main Street, the residential areas, the equestrian center, the Old Town Center, the resort area, the entertainment and artisans centers and throughout the Township.

Growth Areas Element

The Growth Areas Element is based on the principle that not all undesirable conditions can be addressed by a blanket approach, nor can all opportunities be addressed with a single policy. This element identifies those areas of Kayenta Township that are particularly suitable for planned multimodal transportation and infrastructure expansion and improvements, which are designed to support a concentration of urban densities, including mixed-use, residential, office, commercial, tourism and industry. This Growth Areas Element includes overarching policies and implementation strategies to:

1. Support smart growth, compact development as well as needed redevelopment and rehabilitation efforts.
2. Provide the diversified economic and employment base needed to secure the long-term fiscal viability of the Township.
3. Provide a safe, convenient, accessible and efficient multimodal transportation system that includes fully integrated vehicular, transit, pedestrian, equestrian and bicycle modes.
4. Support the phased infrastructure expansion required to sustain both the anticipated and fiscally desired growth.
5. Develop sustainable mixed-use corridors along Highway 160 and Highway 163 that take full economic advantage of these major highways traversing the Township by establishing compatible urban densities and intensities based on sustainable principles, integrating natural resources, open spaces and regional recreational amenities.
6. Prioritize infrastructure needs necessary to support smart growth and mixed-use, compact development.
7. Support the public and private construction of timely and financially sound infrastructure expansion through the use of infrastructure funding and financial planning that is coordinated with development activity.

Recognizing the need for both a broad policy framework that directs overall Township growth and a specific one that addresses the particular needs of each growth, infill and redevelopment area, this Growth Areas Element includes the general policy direction for all development. The specific policy direction and development intent for each identified growth, infill and redevelopment area is provided in the land use element.

Although the Navajo Nation is not required to adhere to State of Arizona Growing Smart mandates, this Growth Areas Element responds to such legislative mandates by creating a broader policy framework which more fully recognizes the complexities impacting Kayenta Township. Within this framework, investment decisions regarding infrastructure and other capital improvements, redevelopment, or revitalization can be phased and pursued in a Township wide context. This effort allows for greater recognition and understanding of the implications of such decisions. This element is premised on the existing and projected population growth of the Township. It recognizes the potential of Kayenta becoming the Navajo Nation largest growth center, and it prioritizes the need to attract new growth to insure the Township's long-range fiscal viability.

This Growth Area Element balances the needs, desires, and decisions of the residents, businesses, major stakeholders, organizations, and decision-makers that comprise the community and serves as the foundation guiding the preparation of all other Comprehensive Plan Elements.

Conformance with the Comprehensive Plan

Within the context of this Comprehensive Plan, the term "development" is used in the broadest sense to include new construction as well as redevelopment and rehabilitation efforts and expansion of existing development. All new development, redevelopment and/or expansion of existing development as well as all Township or developer initiated development plans, specific plans, planned area developments and master plans must further the policy direction provided in the all the elements of this Comprehensive Plan.

For the purpose of this Comprehensive Plan, the term "developer" is defined as the entity intending to develop land and includes both public and private entities. On those instances when the Township initiates the development, the Township is the developer. In those instances where the Navajo Nation initiates the development the Nation is the developer. In those instances where the Chapter initiates the development, the Chapter is the developer.

Growth Element Goals

The following goals serve as the foundation for all other elements of the Comprehensive Plan:

GOAL 1: ALIGN PLANNING AREA, CHARACTER AREA AND LAND USE DESIGNATIONS WITH ECONOMIC DEVELOPMENT PRIORITIES

Rationale: A primary goal of Kayenta is to create a healthy balance between jobs and households throughout the Township. Kayenta facilitates balanced growth by achieving and maintaining a sustainable tax base. Policy direction for achieving the desired economic development goals provided throughout this Comprehensive Plan.

Policy 1: Establish and define major growth, redevelopment and infill planning areas.

Policy 2: Establish and define major character areas based on economic development potential identified in the Kayenta Market Study.

Policy 3: Identify in the Urban Design Element the Sustainable Design Toolbox necessary to guide development within character areas to achieve fiscal viability.

Policy 3: Based on the Market Study Conducted for the Township, identify in the Land Use Element the appropriate land use mix within each character area to achieve community cohesion, fiscal viability and long-range sustainability.

IMPLEMENTATION MEASURES

a. Determine and delineate the Kayenta Township Designated Growth Area to include:

   (1) Areas of Kayenta Township within the existing Township boundary; and

   (2) Areas currently in Kayenta Chapter that will benefit from annexation into Kayenta Township.

   (3) Work closely with the Nation and the Chapter to ensure that major growth is directed to the Kayenta Township Designated Growth Area in conformance to best smart growth practices.

b. Identify and delineate the following planning areas within the Designated Growth Area to guide development efforts within the Township:

   (1) Growth Area

   (2) Redevelopment/Rehabilitation

   (3) Infill

   (4) Kayenta Airport

c. Utilize the most appropriate implementation tools (Area Plan, Master Plan, Planned Area Development, Development Plan as defined in the Kayenta Zoning Ordinance) for each established planning area as follows, unless otherwise indicated in the corresponding Zoning District in the Kayenta Zoning Ordinance:

Kayenta Township Planning Area	Type of Use	Proposed Acreage	Required Implementation Tool/Responsible Entity
Growth Area	Single Use	Less that 40	Development Plan/Developer
		40 acres or More	Master Plan/Developer
	Multiple Uses	Less than 40 acres	Planned Area Development/ Developer
		40 Acres or more	Master Plan/Developer
Redevelopment Area	Entire Area	Entire Area	Redevelopment Plan or Area Plan/Township
Infill	Project Basis	Project Basis	Development Plan/Developer
Airport	Project Basis	Project Basis	Development Plan/Developer

d. Establish performance-based standards for infrastructure and utility expansion that include the infrastructure phasing required to achieve a healthy balance of commerce, employment, and housing within the community.

e. Establish a Development Monitoring System to monitor development within each planning area and anticipate changes in infrastructure phasing according to changes in development patterns.

f. Apply for Economic Development Agency grants for the infrastructure improvements needed to have shovel-ready sites.

g. Promote consistency across all plans.

GOAL 2: PROVIDE GROWTH MANAGEMENT GUIDANCE FOR ALL MAJOR PLANNING AREAS INSIDE THE KAYENTA DESIGNATED GROWTH AREA

Rationale: This section provides the broad growth management policy framework needed to guide development within in conformance with smart growth best practices. The Land Use Element provides specific land use policy guidance for each character area. The *Background and Current Conditions* volume includes land coverage and amount of vacant or developable land and an analysis of opportunities and constraints.

Policy 1: All new development within the Kayenta Designated Growth Area furthers the policy direction of this Policy Plan.

IMPLEMENTATION MEASURES

a. Establish a user-friendly step-by-step Development Review Process as part of the Zoning Ordinance that provides consistent guidance to applicants, Kayenta Township officials and Kayenta Staff in charge of reviewing development applications.

b. Require that all development proposals comply with the policy direction and with all applicable requirements provided in all the elements of this Policy Plan.

c. Ensure that all developer or Township initiated implementation tools such as Area Plans, Master Plans, or Planned Area Development:

(1) Further the Development intent of the character area;

(2) Comply with the policy direction included in all applicable elements of this Policy Plan; and

(3) Meet all applicable requirements provided in the Kayenta Zoning Ordinance.

GOAL 3: IMPLEMENT A DEVELOPMENT MONITORING SYSTEM TO MANAGE GROWTH

Rationale: The Kayenta Development Monitoring System (KDMS) monitors development within the major planning areas identified in this Policy Plan. This monitoring system provides an early warning system if goals and policies are not being met. It is a great smart growth managing, evaluating and monitoring tool. The KDMS is the primary evaluation tool for plan implementation.

Policy 1: Monitor key benchmarks based on target growth for each planning area.

IMPLEMENTATION MEASURES

a. Periodically measure the success of the Policy Plan by tracking changes in land use, jobs, housing and levels of investment for each major planning area as part of the KDMS.

b. Anticipates how much additional growth can be accommodated in accordance to infrastructure phases provided.

c. Monitor building permit activity and infrastructure improvements as part of the KDMS.

d. Use the KDMS to trigger services and infrastructure needed to accommodate targeted growth.

e. Monitor variances and development applications to identify Comprehensive Plan, Area Plans, and Zoning Ordinance Code amendments needed to achieve Kayenta's Vision.

GOAL 4: INCORPARATE SUSTAINABILITY IN ALL ASPECTS OF GROWTH MANAGEMENT

Rationale: Achieving self-sufficiency is a long-range goal of Kayenta Township. Therefore, sustainability in the Township is generative and integrated in all aspects and practices of the Township. It generates a vibrant, safe, and compact community with a strong identity and a placemaking sense of place where its members live, learn, work, shop and play and visitors return. It contributes to the fiscal and economic vitality of the Township and the Navajo Nation. It secures the future for next generations. And it balances the built and natural environment to protect the environmental infrastructure of the Township.

Policy 1: Incorporate generative sustainable practices in all elements of the Comprehensive Plan.

IMPLEMENTATION MEASURES

a. Work with other agencies and the nonprofit sector to develop a Sustainability Rating System for monitoring quality of life based on the development of measurable sustainable benchmarks for:

(1) Home ownership;

(2) Affordable housing for all income levels;

(3) High-wage employment;

(4) Workforce training;

(5) Re-use and recycling;

(6) Reduction of commuting travel trips;

(7) Walkability and multimodal access;

(8) Connectivity;

(9) Reduction of Township carbon footprint;

(10) Decrease dependence on fossil fuels;

(11) Water harvesting;

(12) Reduction of "heat island effect";

(13) Solar and wind energy generation;

(14) Protection of natural and cultural resources;

(15) Contained farming and roof gardens;

(16) Air and water quality.

b. Identify funds, prepare, and adopt a Climate Change action strategy to assist Kayenta in achieving its long-range sustainability and economic development goals.

Passive Water Harvesting

Belowground Water Cisterns

Active Water Harvesting

Contained Farming

Solar Shingles

Solar Energy Generation

Kayenta Major Planning Areas

The identification of major planning areas provides the framework necessary to formulate the area-specific plans and the economic development strategies that will support Kayenta's community vision and assist in the implementation of this Comprehensive Plan. Each of these areas presents a set of unique characteristics, opportunities and challenges. Based on the analysis of opportunities and constraints and on the analysis of vacant or developable land provided in the *Background and Current Conditions* volume, this Growth Area Element identifies four major planning areas in Kayenta. Based on such analysis, each of these areas presents unique opportunities for development, redevelopment and infill. See Exhibit 3: Major Planning Areas.

The major planning areas within the Township conform to the following criteria:

1. Growth Areas: Areas with large amount of vacant or developable land located primarily east of Highway 163, south of Highway 160 and along the proposed alternate truck route. These areas are designated growth areas due to their growth potential and economic development value.

2. Redevelopment Area: The area of the built environment encompassing most of Kayenta Township today, which is in need of revitalization, rehabilitation, urban renewal or redevelopment, is designated a redevelopment area. This area includes most of the existing residential uses within the city. Most of the housing stock within this area is substandard. The roads are unpaved dirt roads. There is a lack of circulation and intuitive connectivity is entirely missing. In addition, there are no 911 addresses within this area, making it extremely difficult for emergency vehicles to provide emergency services. This area also includes the historic Township center, which is currently deteriorated and in need of redevelopment. Highway 163 divides this area into east and west and connects the area to Highway 160. Visitors in their way to Monument Valley travel along Highway 163 without noticing Kayenta, taking their business somewhere else. This redevelopment area can be redevelop to position Kayenta as a destination by:

   a. Defining the historic Kayenta Town Center

   b. Defining Highway 163 as Kayenta Main Street

   c. Providing Connectivity to Highway 160 Corridor

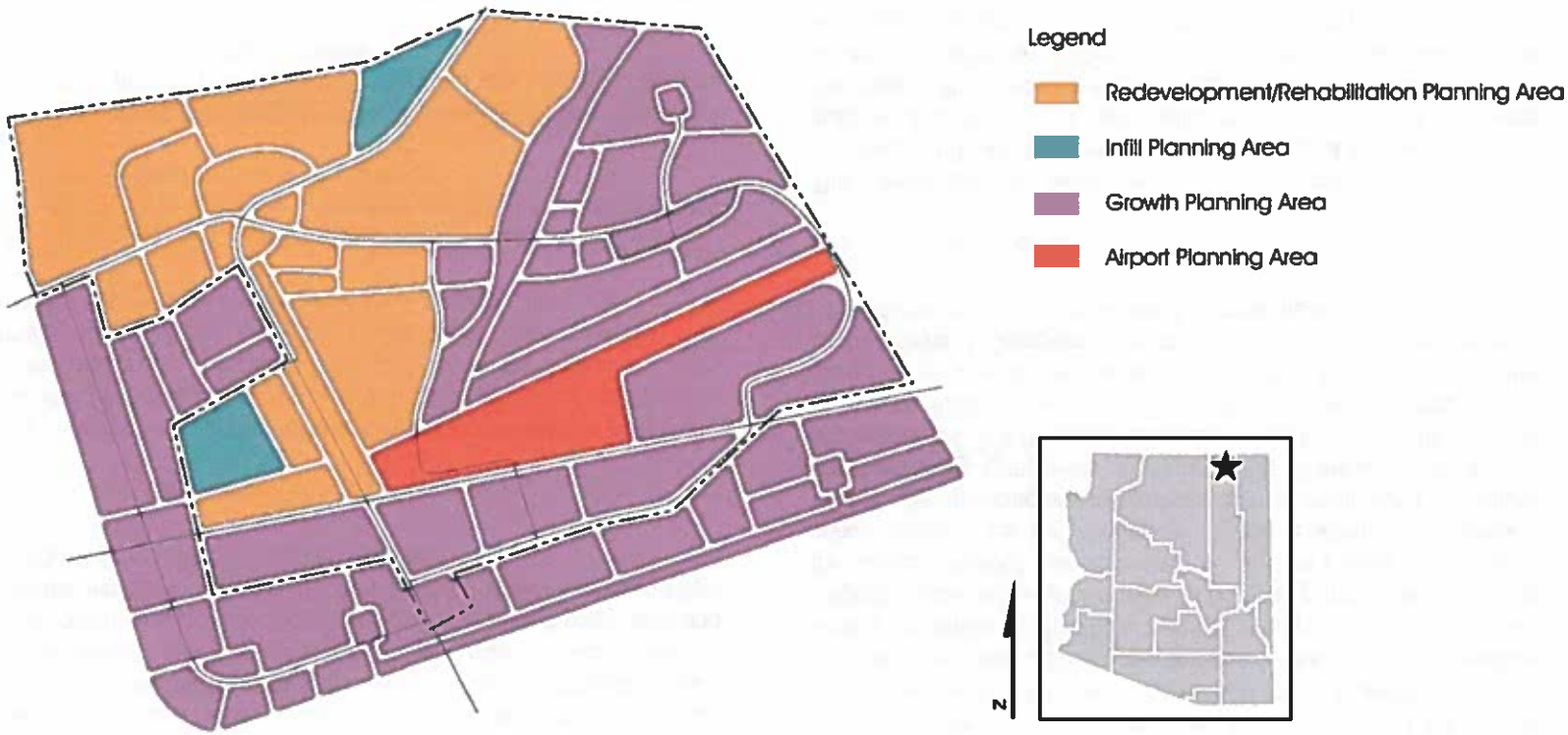
   d. Upgrading and or replacing the housing stock

   e. Defining the circulation within this planning area to include: safe, convenient and efficient multimodal streets (vehicles, pedestrian, bicycle, transit)

3. Infill Area: Includes the areas of the built environment with few infill parcels available for development is considered infill areas.

4. Airport Area: Includes development airport support commercial areas along the north side of Highway 160 in conformance to development precepts included in the Kayenta Airport Master Plan.

EXHIBIT 3: Kayenta Major Planning Areas



Kayenta Character Areas

Kayenta character areas guide the development intent, land use patterns, development character and densities/intensities. Such characteristics are determined best on area location, existing development, adjacent development, opportunities and constraints and potential economic impact of the area. Exhibit 4 shows Kayenta's Major Character Areas. These character areas are:

Agriculture/Equestrian Oriented

This character area evokes the agricultural and equestrian past of the Township and aims to bridge Kayenta's historic past with its progressive future, preserving the culture and heritage of the community while embracing innovation and new technologies. This character area includes three distinct parcels within the Township. These are:

1. Rodeo and Fair Grounds Area: located south of Highway 160 along Indian Route 591, this area includes the Kayenta Rodeo and the Kayenta Flee Market grounds.

2. The Historic Agricultural Area: located west of Highway 163 and in close proximity to the Historic Kayenta Town Center, this area includes the community garden.

3. The Horse Property Area: located at the Township gateway along Highway 163, this area includes horse raising residential properties.

Kayenta Neighborhoods

This growth area is located north of the Airport and east of the Laguna Greek Conservation Area and extends east to the Township boundary. This character area includes opportunities for future low and medium density residential neighborhoods along the proposed bus route. These neighborhoods will be served by neighborhood commercial uses along this corridor. Nestled east and north of Kayenta's major natural open space system, the Neighborhoods include a variety of recreation opportunities including and integrated system of linear parks and nature trails providing connectivity throughout this character area and to adjacent areas. Due to the scenic quality of Laguna Greek, this area will include the Kayenta Resort and Golf Club, which will offer employment opportunities to adjacent neighborhoods. Within this area is also the historic Kayenta Cemetery. This memorial lands will be preserved to honor ancestors and safeguard the Township history.

Kayenta Township Core

This redevelopment area extends from Highway 160 to the northwestern Township boundary on both sides of Highway 163 and includes a variety of civic and institutional uses, including Township Hall, new Judicial and Detention Center, schools, the Historic Kayenta Township, most of the existing housing and the NTUA Lagoons . There is a need to redefine this area through a combination of redevelopment and rehabilitation efforts. The area lacks paved roads and most of the housing stock is substandard and in need of rehabilitation, upgrade, or demolition. The Kayenta Township Core character area is designated a redevelopment area.

Kayenta Airport

The Kayenta Airport includes all lands within the Kayenta Airport Master Plan. In addition to the airport's runways, facilities, infrastructure and accident potential zones, the Airport Master Plan includes development directives to attract airport support commercial uses along the Highway 160 corridor. These support uses may include a variety of retail and service uses in keep with the Airport Master Plan.

Highway 160 Corridor

This major corridor crosses Kayenta, dividing the southern and northern portions of the community and functioning as the major east-west spine road within the Township. It includes a major intersection where Highway 160 and Highway 163 meet. The portion of Kayenta located north of Highway 160 comprises the Kayenta Township Core and includes most of the developed areas as well as major redevelopment areas, and few infill opportunities along west of Highway 163 along Highway 160. This northern portion of the corridor is more private and geared to providing community services while the southern portion is more public and offers ample opportunities for tourist and visitor oriented businesses, general services, regional commercial and employment generating industry. The southern portion of the 160 Corridor provides the opportunity for development of an integrated web of land uses, including ample opportunities for mixed-use. The intersection of highways 160 and 163 calls for a mixed use activity center geared to becoming the magnet attracting visitors to the adjacent areas. Adjacent areas will benefit from the location of convention center, visitors, center and museums in a mixed-use concept that includes artisan courtyard lofts and support retail and services in keep with the development intent of this area.

Medical Support Services

This character area focus is to develop an integrated medical campus atmosphere that includes medical and alternative medicine retail, services and light medical equipment and pharmaceutical industry incubators supporting, research and laboratory, mixed-use, higher density residential for Kayenta Medical Center employees and open space amenities in a master planned fashion.

Technology and Innovation

This character area is located south of Highway 160 at the eastern gateway of the Township and it has access to the highway and to the proposed bus route loop. It is also in close proximity to the medical campus and medical services, providing opportunities for medical industry and research to locate within this area. A portion of the area can be dedicated for park and ride. This character area provides opportunities for additional civic, education and institutional uses, research and development campuses, new technology and innovation incubators and mixed-use development.

Hospitality and Entertainment

This character area focuses on providing employment generating visitor and Navajo Nation oriented hospitality and entertainment industry needed to support and expand the current rodeo and equestrian themes while capitalizing on Navajo arts, culture and traditions.

Major Gateway Areas

Gateway areas are major entrances to the community where visitors have the first impression of the community. Due to their location along major highways, gateway areas, if properly defined, can articulate the type of experience that will invite visitors to stay longer, leave their money in the community, return on a future trip and go home to tell their families, friends and coworkers to visit the place. If properly developed, gateway areas can become major economic development players in the long-range viability a community.

The Comprehensive Plan planning process identified a total of three gateways areas within the Kayenta Township. Two of these gateway areas are urban in character and one is rural in character.

1. West Urban Gateway: located along Highway 160 west of Highway 163, due to: (a) its proximity to the proposed transit center, the Intersection of two major highways and Kayenta's Main Street; and (b) the fact that a large number of visitors drive through this entrance of the Township on their way to Monument Valley, this gateway offers the perfect location for destination uses that serve the Navajo Nation, Kayenta Township and Kayenta Chapter and include mixed-use artisan villages, visitor center, Navajo performing arts center, museums, retail and hospitality uses in close proximity to the hotel and hospitality area.

2. East Urban Gateway: located along Highway 160 at the eastern entrance to the Township, this area provides opportunities for transit oriented mixed-use development, park-and-ride facilities, employment, progress and innovation, and commerce serving the new Kayenta Medical Center.

3. Rural Gateway: Located along Highway 163, this gateway is rural in character and includes Kayenta's horse property. This area is highly scenic in character, provides safe equestrian connectivity to the Kayenta historic town center via Mustang Trail. It also provides multimodal connectivity to the Laguna Greek Resort and Golf Course, including equestrian trails through the Laguna Creek Canyon.

Transit Oriented Development Areas

There is a need within the Township to provide bus services at both local and commuting levels. A bus route loop has been identified in the 2009 Navajo Nation Long-range Transportation Plan. This bus route will assist the township develop a comprehensive multi-modal transportation system that integrates movement of people within the community as well as to and from the community.

In addition, an alternate truck route connecting to Indian Route 591 on the south and to Navajo Service Road 6486 on the north west of Highway 163 provides opportunities for the development of a transit station at the intersection of Highway 160 and the proposed Alternate Truck Route on the west gateway to the Township.

Another opportunity for transit oriented developed at a lower scale occurs at the intersection of the proposed bus route loop and Highway 160 on the east gateway of the Township.

These two transit stations will be different in service, capacity and target users. The west one will be larger in scale servicing the Navajo Nation and visitors to Kayenta, with higher density mixed-use characterizing the type of development. The east one will have a smaller scale and local focus, including shuttle services between residential areas, employment, services, Township center, Laguna Creek Resort and Golf Course area, health center, civic uses, schools, parks, recreation and open space, and other planning areas.

Employment

This character area is located north of Highway 160, east of the Kayenta Airport and west of the local bus route loop. This area will encourage development of business and industry parks as well as business incubators and business campuses that serve as major local and regional employers. Access to Highway 160 and proximity to Kayenta Airport, the bus route loop, the proposed local transit station, adjacent neighborhoods, commerce, services and open space enmities makes this area ideal for employment.

Truck Route/Trucking Services

This character area is located north of Highway 160 and south of Navajo Service Road 6486 along the proposed alternate Truck Route outside of the Township west boundary. This area will support trucking services such as truck stops, hotels, and truck service stations. Offering an alternate route along to heavy trucks will allow Kayenta to develop a formal main street along Highway 163.

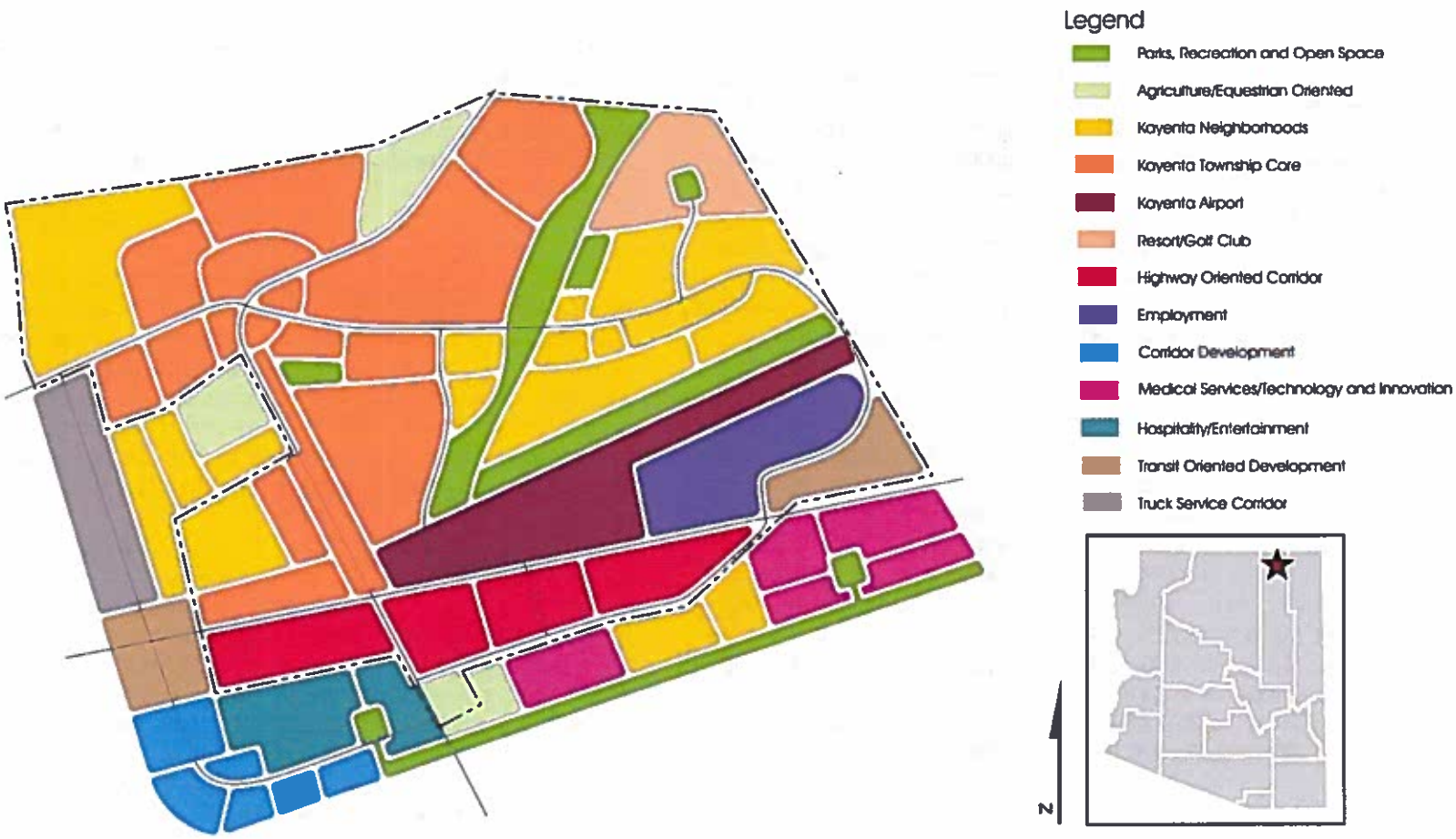
Corridor Development

This character area is located south of Highway 160 and west of Indian Route 591 along the proposed road functioning as the Alternate Truck Rout north of Highway 160 and as a connector to the Kayenta Medical Center south of Highway 160. This road corridor connects to Highway 163 and Indian Route 591, providing a service route for regional commercial, hospitality/entertainment, Highway 160 Corridor and medical support services uses. Corridor development can incorporate a variety of mixed-use and medium density uses providing residential opportunities for employees working in the hospitality/entertainment. This area also provides an ideal location for RV Park for rodeo and Monument Valley visitors.

Parks, Recreation, Trails and Open Space

This character area defines the edges by integrating rather than separating all land uses within Kayenta Township. It serves as a continuous thread connecting all the planning areas, increasing access, including multi-modal opportunities and providing seamless continuity. Only the major regional parks, open space and trail system are identified in the Major Character Areas and Land Use maps. All new development and redevelopment within the Township is required to provide parks, recreation, trails, open space and connectivity to the regional system in consistency with the standards provided in the Parks, Recreation, Trails and Open Space element of this Comprehensive Plan.

EXHIBIT 4: Kayenta Major Character Areas



Urban Design Element

This Urban Design Element seeks to define the character and identity envisioned by the community through the identification of placemaking Township-wide design themes for the entire Designated Growth Area. Specific design direction for each designated planning area is provided in the Sustainable Design Toolbox included in this element. The Urban Design Element provides the policy framework for planning and designing the built and natural environments in an integrative manner. Goals, policies and the implementation measures included in this element further the vision of the Kayenta community.

The main objective of this element is to establish the broad guidance necessary to guide the preparation of implementation tools such as area plans, master plans, planned area developments, development plans and zoning regulations governing site planning, circulation and access, architectural design, signage and lighting. This element also establishes overall design themes for Kayenta gateways, including circulation system, streetscapes, civic spaces, landscapes, open spaces, squares, plazas and parks scaled to enhance both the pedestrian and the driver's experience.

This element complements the Land Use Element by providing the urban design guidance necessary to achieve the desired urban form. While this element defines the placemaking character of streetscapes, development and the public realm for each of the gateways and activity centers identified in Kayenta, the Land Use element provides policy direction regarding land use, density, intensity and compatibility.

Overall Urban Design Element Goals

GOAL 1: CREATE PLACEMAKING THROUGH WALKABILITY

Policy 1: Design and develop Kayenta's public realm to create pedestrian-friendly streetscapes.

Rationale: Designing the public realm to include pedestrian-friendly streetscapes and requiring new development to provide pedestrian-oriented amenities such as promenades, gathering spaces, court yards and plazas encourages walkability as a mode of transportation, decreases vehicular usage, increases connectivity among different uses, promotes community health, increases quality of life, reduces vehicular emissions and traffic congestion, improves air quality, supports community sustainability, and attracts visitors and investors.

GUIDELINES

- Provide arcades, awnings and other architectural features that promote a human scale and offer protection from rain and the summer heat.
- Include pedestrian plazas and landscaped open spaces that serve multiple functions:
  a. Offer interesting public places for people to gather and enjoy the street experience;
  b. Serve as performing arts stage for Navajo dancers, musicians and story tellers;
  c. Provide space for art festivals, art fairs and community events;
  d. Invite farmers market venues;
  e. Celebrate Navajo Nation significant dates.

- Incorporate water features, sculptures, public art or special architectural features that reflect Navajo heritage and iconography as focal points.
- Include public art, benches, trash receptacles, water fountains, bike racks and other amenities to enhance the quality of the pedestrian experience.
- Differentiate the pedestrian space from the auto realm by utilizing materials with a tactile quality to define walkways, sidewalks and pedestrian crossings.
- Incorporate pedestrian-scaled street lighting and accent lighting to increase safety, placemaking and reduce the impact of light pollution into dark skies.
- Enhance the pedestrian experience by requiring drought tolerant trees and other landscaping to enhance the visual quality, provide shade and create a cooler microclimate that reduces the "heat island effect".
- Require that walkways from building entrances lead directly to the sidewalk.
- Screen parking lots adjacent to the street with landscape features that provide a pleasant visual screen and include shaded parking with solar panels on top.
- Require new development to provide underground utilities.
- Locate utility boxes in the rear of the development and provide appropriate screening to enhance the pedestrian experience.

IMPLEMENTATION MEASURES

a. Incorporate urban design standards for walkability in the preparation of development plans area plans, master plans, plan area developments, and any other implementation tools.

b. Adopt a Thoroughfare Plan to accommodate *Context Sensitive Design* principles and develop a Context Sensitive Design manual that is consistent with urban design standards for each planning area.

c. Work with NTUA providers to increase options for street light fixtures that encourage walking and safety and resolve maintenance issues.

d. Allocate Township funds and identify funding to include pedestrian amenities on streets in priority areas.

GOAL 2: CREATE PLACEMAKING THROUGH SITE PLANNING

Policy 1: Site and orient buildings to:

(1) Support the overall visual character of the character area;

(2) Enhance the value of existing and new development;

(3) Maintain view corridors;

(4) Create multi-functional spaces for social interaction;

(5) Minimize adverse visual impacts;

(6) Maximize solar energy utilization (passive solar);

(7) Reduce site disturbance and environmental impacts; and

(8) Facilitate access for residents, employees, visitors, customers and suppliers.

Rationale: Building siting and orientation are important components of placemaking. They create the visual character desired by maximizing site opportunities and minimizing adverse visual impact.

GUIDELINES

- Site buildings to blend with the natural contours of the land and to conserve, where applicable and to the maximum extent possible, the natural scenic beauty and vegetation of the site if applicable.
- Minimize cut and fill and maximize on-site and off-site views by requiring that building form is complementary to the landform.
- Orient buildings along the Laguna Creek Regional Linear Parks to allow views through and into the parks and to provide connections and visual access where possible to the its trails, recreation areas and open spaces.
- Provide primary entrances that are immediately identifiable from the public right-of-way.
- Provide secondary entrances that are conveniently accessible from the parking areas and the delivery areas that serve the building.
- Create interesting street scenes through the development of pedestrian promenades that invite interaction.
- Create plazas, courtyard spaces and pedestrian walks through coordinated placement and orientation of buildings.
- Maximize solar energy efficiency through building siting and orientation.
- Site buildings to maximize Walkability and minimize the visual impact of parking areas.

IMPLEMENTATION MEASURES

a. Adopt site planning standards for building siting and orientation in the Kayenta Zoning Ordinance.

b. Require developers to incorporate site planning standards for building siting and orientation in the preparation of development plans, area plans, master plans, planned area developments and any other implementation tools.

GOAL 3: CREATE PLACEMAKING BY IMPLEMENTING A STREET HIERARCHY

Policy 1: Develop and adopt a hierarchy of streets appropriate for each designated planning area.

Rationale: There is a functional hierarchy to streets in Kayenta. This hierarchy is expressed in the street design and the landscape treatment along the street. The primary goal of the Township's transportation element is to ensure safe, efficient and convenient circulation and access for all transportation modes through the establishment of a functional hierarchy of streets that provides the placemaking necessary to distinguish the distinct character of each planning area while providing a cohesive palette distinctive to Kayenta.

GUIDELINES

- Establish signature boulevards along Highway 160 and Highway 163 that:
  - Convey the character of the planning areas along these corridors in form and scale;
  - Instill a sense of arrival to and traveling through a destination; and
  - Provide the placemaking identity designed to enhance community members/visitors' experience as they travel on these roads.
- Enhance signature boulevards with plant materials and street furniture typical of urban settings.
- Pay attention to detail, color, shapes and textures to provide for a greater variety of materials along signature boulevards to distinguish them from other arterial roads or local roads.
- Design signature boulevards to minimize conflicts between different modes and provide connectivity to adjacent uses.

- Employ a landscape theme that is consistent with and complementary to the area.
- Utilize decorative paving patterns with varying natural colors to accentuate the vehicular, pedestrian, bicycle and equestrian entries.

IMPLEMENTATION MEASURES

a. Include development standards for signature boulevards in the Kayenta Zoning Ordinance.

b. Require all new development to incorporate signature boulevard standards in the preparation of development plans, area plans, master plans, planned area developments and any other implementation tools.

GOAL 4: CREATE PLACEMAKING BY ESTABLISHING MAJOR GATEWAYS AND ENTRY FEATURES

Policy 1: Develop and adopt a hierarchy of gateways and entry features that distinguishes the unique placemaking character of each character area:

(1) **Kayenta Gateway Center**: Main urban gateway along Highway 160 located at the west entrance of the Township.

(2) **Kayenta East Gateway**: Secondary urban gateway along Highway 160 located at the east entrance of the Township.

(3) **Laguna Creek Gateway**: Rural gateway along Highway 163 located at the northeast entrance of the Township.

(4) **Area Entry Features**: Establish primary entry features at main entrances of each major activity center that reflect the distinct placemaking character of that area for:

a. Kayenta Gateway Center;

b. The Four Corners Activity Center at the Intersection of Highway 160 and Highway 163;

c. Kayenta Main Street;

d. Kayenta Old Town Center.

(5) **Neighborhood Entry Features**: Provide entrances to residential areas that discourage through traffic and provide access to the multimodal network.

(6) **Resort and Golf Club Entry Feature**: Provide signature entrances at the resort and gulf club area that invite access to the amenities provided by the resort.

Rationale: Gateway features convey a placemaking sense of arrival that enhances the experience of travelers. They define the entrances to the Township and to the different character areas within it.

GUIDELINES

- Provide a formal landscape theme at gateway areas that is consistent with the overall landscape theme of the character area.
- Utilize decorative paving patterns at gateways and entryways with varying natural colors to accentuate the vehicular, pedestrian, equestrian and bicycle entries.
- Utilize landscape features such as monument walls, solar lighting, solar accent lighting, ornamental plantings and signage that convey a sense of arrival and reflects the placemaking identity of the area.
- Ensure that safety visibility triangles are provided at gateways and entryways.
- Employ a landscape theme that is consistent with the placemaking themes of signature boulevards and with the overall distinct placemaking character of each character area.

IMPLEMENTATION MEASURES

a. Include development standards for gateways and entryways in the Kayenta Zoning Ordinance.

b. Require new development to incorporate gateways and entryway standards in the preparation of development plans, area plans, master plans, planned area development and any other implementation tools.

GOAL 5: CREATE PLACEMAKING THROUGH THE ESTABLISHMENT OF REGIONAL MULTIUSE PATH ALONG DESIGNATED OPEN SPACE CORRIDORS

Policy 1: Develop the Laguna Creek Regional Linear Park and the Airport Regional Linear Park as continuous signature multifunctional open space corridors designed to minimize conflicts and safety hazards.

Rationale: The Laguna Creek corridor encompasses a mix of riparian habitat, naturally occurring washes, and regional signature recreational uses such as linear park, nature trails, scenic overlooks, nature study areas, equestrian trails and bicycle routes.

The Airport Regional Linear corridor allows for the development of linear park traversing a diversity of activity-oriented recreational amenities such a multi-use sport fields, ramadas and pocket parks. This regional linear park serves buffers adjacent airport uses and provides recreational amenities to the Kayenta Neighborhoods.

GUIDELINES

- Permit pedestrian promenades, amphitheaters, multi-use trails, trail nodes and parking within the 100-foot buffer from any existing wash.
- Integrate habitat to adjacent land uses through the use of principles of habitat integration.
- Permit parks, recreational facilities, multiuse trails, picnic areas, parking areas, ramadas, scenic outlooks, trail directories and sheltered structures within the 100-foot buffer along wash corridors within trail segments designated for recreation uses.
- Developed regional linear parks to provide continuity of regional recreation amenities through development areas and recreation centers.
- Design separate trails facilities for bicycle, pedestrian and equestrian users.
- Design each trail facility wide enough to permit users to travel in both directions.
- Provide a clear zone of two (2) feet or greater between bicycle and pedestrian trails.
- Maintain a clear zone of two (2) feet from each trail to any fence, tree or planted cactus.
- Develop accessible pedestrian facilities that meet the needs of older adults and ADA Standards for Accessible Design.
- Develop parking areas with vehicular access off arterial roads.
- Design interpretive nodes, trail heads, rest areas, nature study areas, and overlooks or vista areas to include: seating area under shade structure, picnic area, bicycle racks, solar lighting, drinking water fountain, restroom facilities and signage.
- Design interpretive nodes to include signage with high quality graphics that engage users of all ages indicating significant cultural, historical, or natural resources.
- Include visible directional signs with trail names, direction arrows, mileage to points of interest and mileage to major Township areas and landmark areas such as the Kayenta Main Street, Kayenta Gateway Center, Laguna Creek Resort and Golf Course, Kayenta Entertainment District, Kayenta Medical Center, Kayenta Township, Kayenta Old Town Center, Kayenta Rodeo and other relevant locations.

IMPLEMENTATION MEASURES

a. Include development standards for these multifunctional open space corridors in the Kayenta Zoning Ordinance.

b. Require all proposed development adjacent to these major regional linear parks to provide connectivity to these areas.

GOAL 6: CREATE PLACEMAKING THROUGH ARCHITECTURAL DESIGN

Policy 1: Require that buildings within the major character areas relate to each other in architectural style, massing, scale, color palettes and form.

Rationale: Architectural guidelines are established to promote a distinct, unique, recognizable and consistent architectural character for Kayenta. These guidelines are intended to promote flexibility and pertain primarily to development within the designated major character areas. They allow individuality of building character, while maintaining a sense of overall harmony throughout the Township. These guidelines also define how buildings complement each other through coordination of size, materials, colors, building mass, height, and spatial articulation. Building design also meets all applicable building codes and Federal Aviation Administration regulations where these are required. Architectural design must be reviewed and approved by the Kayenta Design Review Committee. Criteria for the formation of this committee are included in this section.

GUIDELINES

- Encourage placemaking architectural styles that incorporate Navajo Heritage and iconography, are contemporary, progressive in style, and reflect current state-of-the-art green construction technology in design and concept.
- Rely on the dynamic contrast and balance between individual building expression and the ability of new structures to interact visually with neighboring buildings to create a strong sense of unity and community.
- Provide easily identifiable building form, using building numbers, directories, maps, signs, and information kiosks where feasible and appropriate.
- Minimize the large-scale visual impact of buildings by incorporating fenestration, recesses, and projections to segment an otherwise unarticulated wall surface.
- Make provisions for outdoor "people places" such as plazas, courtyards and atriums.
- Use cantilever-style catwalks to physically and symbolically link adjacent buildings, to provide shade and to create a modern architectural effect particularly in proximity to the Gateway Center and the Transit Station Area that invites people to walk during hot Arizona summers.
- Incorporate energy-efficient building design and materials into all new buildings.
- Express the unique, special character, function and nature of the building while respecting and harmonizing with surrounding architecture.
- The building placemaking character incorporates design characteristics that define a pedestrian-oriented, compact urban environment with parking integrated into buildings.
- Encourage a "four-sided façade" architectural treatment on Kayenta Gateway Center, the Kayenta Old Town Center and along Kayenta Main Street.

Policy 2: Design building placement, orientation, and massing to create visual interest from off-site as well as on-site and to ensure efficient use of a development parcel.

GUIDELINES

- Create aesthetically interesting and functional exterior spaces such as plazas, courtyards and pedestrian walkways through coordinated placement and orientation of buildings.
- Orient buildings to maximize view potential to the open spaces and to mountain views.
- Internalize and group together service and loading areas, creating a shared service zone, or design service areas underground and away from view where feasible.
- Place and orient buildings to maximize visibility from Highway 160 and Highway 163.
- Minimize the impact of large paved parking areas by providing parking structures and shared parking where appropriate.

Policy 3: Design structures and buildings with a variety of heights to create visual interest and minimize monotony along the street frontage, provided that the maximum building height established in the Land Use Element is not exceeded.

GUIDELINES

- Require that building heights comply with all related Federal Aviation Administration safety regulations on areas adjacent to Airport where required.
- Require higher buildings to vary their heights at building entrance and lobby area, to provide a scaled transition from the public realm.
- Incorporate Context Sensitive Design solutions.

Policy 4: Design building façades and details to convey a hierarchy or order and to create visual interest through the interplay of light, shadow, color and texture.

GUIDELINES

- Define building entrances through the use of building recesses, projections, colonnades, space frames or other appropriate architectural features.
- Design building mass and fenestration in proper proportion and scale with the site, adjacent streets and developments.
- Utilize window panels, reveals, recesses, projections and other decorative elements such as molding and arches to segment an otherwise massive, unarticulated exterior wall surface.
- Discourage monotonous façades such as large glass curtain walls.

Policy 5: Encourage façades with a high level of visual interest, both at vehicular and pedestrian viewpoints.

GUIDELINES

- Define building entrances through the use of building recesses, projections, colonnades, space frames or other appropriate architectural features with a high level of visual interest for vehicular and pedestrian viewpoints.
- Enhance pedestrian approach to building with landscape, lighting, and walkway materials.
- Avoid large unbroken wall surfaces.

Policy 6: Require that building materials and colors are complementary to each other and to adjacent buildings and reflect the overall intent of the character area in which the building is located.

GUIDELINES

- Ensure that building colors and materials are harmonious and complementary to each other and reflect the color palettes and heritage of Navajo arts and culture.
- Require buildings to have an overall color theme with accent colors applied at main entrances or other special focal areas.
- Require that accent colors are not painted on wall surfaces or used as wide bands.
- Ensure that roof colors are complementary to the overall color theme of the building and harmonize with the environment natural color palettes.

Policy 7: Require that all mounted mechanical equipment is screened from public view and architecturally integrated with the main structure in terms of materials, shape, color and size.

GUIDELINES

- Encourage the use of southwest style roofs that reflect a contemporary character.
- Use sloped and curved forms at entries or other focal areas.
- Construct roof-mounted mechanical equipment and penthouses of materials compatible with the building façades.
- All roof screens shall be solid and continuous.
- Continuous grills or louvers must cover mechanical equipment.
- Communication devices such as satellite dishes, solar water heater, solar panels and antennas should be roof-mounted in a manner that the top of the equipment must be below the top of the parapet or equipment screen to be invisible from the ground. These types of devices may be integrated into the structure.
- Solar panels installed of roof surfaces must be integrated in a manner that does not negatively impact the view or produce glare that impacts other uses.
- The use of solar shingles is encouraged.

Policy 8: Require that all loading, service and delivery areas are accommodated on-site, on the side or rear of a building or underground and not visible from the public right-of-way to maximize site efficiency and minimize adverse visual impact.

GUIDELINES

- Ensure that loading docks and service and delivery areas are not visible from the streets, open spaces, or public right-of-ways.
- Provide screening such as screen walls, landscaping and/or extensions of the building wall where loading docks and service and delivery areas front public streets, open space or public right-of-ways.
- Ensure that screening walls for the service areas are compatible with the main building structure in color, design, form and materials.
- Design service areas to provide for backing and maneuvering on-site and not from a public street.
- Integrate truck docks and loading doors into the building design.

Policy 9: Establish the Kayenta Design Review Committee to review all large-scale development plans for compliance with this Urban Design Element and the specific design themes and direction provided in the Kayenta Zoning Ordinance.

GUIDELINES

- Require that the Kayenta Design Review Committee includes at least seven (7) active members appointed by the Township.

IMPLEMENTATION MEASURES

a. Establish the Kayenta Design Review Committee.

b. Require all new development to incorporate these architectural guidelines in the preparation of development plans, area plans, master plans, planned area developments and any other implementation tools.

GOAL 7: CREATE PLACEMAKING THROUGH LANDSCAPE DESIGN

Policy 1: Prepare and adopt landscape themes and guidelines for each designated planning area that reflect the area's primary purpose, instill a cohesive and seamless placemaking identity and incorporate minimum requirements for:

(1) Streetscape definition at major gateway areas;

(2) Streetscape definition along primary and secondary transportation corridors;

(3) On-site landscapes;

(4) Entry zone landscapes;

(5) Parking lot landscapes;

(6) Open space/trail system landscapes;

(7) Walls, fences and paving patterns;

(8) Water conservation and water harvesting methods; and

(9) Plant palettes that include native non-allergenic, drought-tolerant plants or xeriscapes, requiring very low water, maintenance and upkeep, having a non-invasive root system and being pest and disease resistant.

Rationale: The landscape themes render a distinct identity that reflects the placemaking character of each character area while maintaining consistency with the established urban design framework of adjacent areas. The image is clean, inviting, and composed of desert palettes that harmonize from one area to the next providing seamless continuity. In general, planting design is organic, innovative, colorful, and in some instances repetitive. The plant palette is simple yet exuberant, comprised of native vegetation, drought tolerant plants or xeriscapes and other suitable vegetation requiring very little water, maintenance and upkeep. Plants selected are also non-allergenic, have a non-invasive root system, and are pest and disease resistant. All landscape areas are of high quality and well maintained year round.

GUIDELINES (Streetscape Treatments)

- Ensure that streetscape treatment is clean, simple, modern and bold in character and reflects the placemaking identity of the character area.
- Develop a hierarchy of street scenes that reflects the area's placemaking identity and clearly defines the landscape treatments for each road segment in accordance to the density/intensities and urban design intent of the area:

1. Highway 160: Primary east/west spine road traversing the Township:

   a. Segment 1: at major west entrance of the Township.

   b. Segment 2: form Township west boundary to intersection of Highway 163.

   c. Segment 3: at intersection of Highway 160 and Highway 163.

   d. Segment 4: from Intersection with Highway 163 to the Township east entrance.

   e. Segment 5: at major east entrance of the Township.

2. Highway 163: Primary north-south road traversing the Township.
   a. Segment 1: at intersection with Highway 160.
   b. Segment 2: Kayenta Main Street, from intersection with Highway 160 to Kayenta Old Town Center.
   c. Segment 3: from Kayenta Old Town Center to the northeast entrance of the Township.
   d. Segment 4: at the northeast entrance of the Township
3. Kayenta Bus Route Loop: Secondary road linking all the planning areas.
4. Kayenta Truck Route: Truck route bypassing Main Street.

- Prepare and adopt a Plant Palette of drought-tolerant plants and xeriscapes for all the different character areas within the Township.
- Use trees and accent plants listed in the plant palette as the primary theme for streetscape definition.
- Use trees to frame the street section and create a placemaking identity along major primary roads.
- Accentuate the streetscape with massings of flowering bushes, grasses and shrubs listed in the plant palette to add a unique textural quality to the landscape.
- Design primary roads to be visually cohesive and reflect the distinct placemaking identity of the character area they serve.
- Use similar landscape elements at intersections in accordance to hierarchy of entrance.
- Ensure that plant material massing, spacing and height provide visual clues to motorists and users about the road hierarchy.
- Require that roadway planning and grading creates a variety of experiences along the road.
- Require that adjoining parcels for future phase development have the required streetscape fully implemented when the first phase of development occurs. This will include the planting of street trees and the hedges for parking lot screening.
- Have a designated landscape architect registered in the State of Arizona review impacts of proposed landscape plans on underground utilities prior to the preparation of a final landscape plan.
- Require all trees to be a minimum 24 inches box and shrubs/hedges to be a minimum 1 gallon size when installed.

GUIDELINES (On-Site Landscapes)

- Ensure that on-site landscaping has simple and geometric composition, is in scale with the building mass, parking areas and adjacent street width, incorporates visibility triangles and reflects the placemaking identity and urban design intent of the area.
- Use a limited plant palette in conformance with the adopted Plant Palette.
- Establish a theme plant palette throughout the development that expresses the urban design intent of the area, instills a sense of landscape consistency and order and brings attention to areas of significance.
- Plant large sweeps of single species along street frontages and vehicular entries.
- Include massing of similar plant materials in side and rear yards and parking lot areas.
- Encourage more detailed treatments, such as accent trees and shrubs, at formal building entries, pedestrian plazas and courtyards.
- Require that on-site finished grades meet existing street grades.
- Require coordination with adjacent properties when landscaping abuts: (1) common driveways shared with adjoining parcels; and (2) driveways along common property lines.

GUIDELINES (Pedestrian Streets)

- Provide amenities that enhance the pedestrian experience within common areas that reflect the placemaking identity of the area.
- Use plant materials appropriate in scale with the placemaking theme of the area.
- Provide seating opportunities under shaded areas along pedestrian pathways, trails and sidewalks in the form of fixed benches, informal berms, and seat walls.
- Provide picnic tables, trash receptacles and bicycle racks in pedestrian gathering areas within the street corridor at pocket parks, and along the Laguna Creek and Airport regional linear parks.

GUIDELINES (Individual Building Parcels)

- Ensure that the landscape treatment for each development parcel complements the roadway landscape, conveys the design intent of the area, creates a distinctive setting for the building and helps reinforce the pedestrian green belt system.
- Require a landscape plan prepared by a registered landscape architect and approved by the Design Review Committee as a condition for plan approval.
- Use plant materials listed in the adopted Plant Palette.
- Provide landscape amenities within setbacks.
- Provide landscape amenity areas within building setback areas that contour the ground plane to create a natural progression.
- Create opportunities for water harvesting.

GUIDELINES (Building Entry Zones)

- Provide an entry zone or a transition area between the public street access point and the private building entrance that includes the entry driveway, access to shared parking areas, visitor parking and drop-off area, and building entry area.
- Set the image and identity of a development parcel at the entry zone by providing landscape treatments that are applied in conformance with all entry zone guidelines.
- Require that project entry signage complies with all applicable signage guidelines and is integrated into the surrounding landscape.
- Require that no trees or shrubs are planted within the visibility triangle area of any entry driveway for traffic visibility purpose.
- Prohibit parking along the major signature entry driveways to the regional commerce/employment campus to showcase signature landscapes along these entry zones.
- Provide accent plant materials or specimen trees at formal building entries that do not encroach into the streetscape setback at the site entries or at sign locations.
- Clearly define visitor parking and drop-off areas with special landscape materials and enriched paving.
- Permit accent plant materials or specimen trees not listed in the Plant Palette with approval from the Design Review Committee.

GUIDELINES (Parking Lot Landscape)

- Mitigate heat/glare and "heat island effect" through the provision of landscapes that minimize the visual impact of parking areas, provide accessible, safe circulation within and adjacent to parking areas, including parking stalls, parking aisles, drive aisles, and other associated on-site vehicular areas.
- Landscape parking areas to screen them from view from adjacent streets and other properties and to reduce the adverse visual impact of large paved areas.
- Ensure that landscape materials are compatible with adjacent streetscapes and overall on-site landscape themes.
- Ensure that landscape areas within parking setback areas provide contouring of the ground plane to create a natural progression.
- Require parking lot trees at a ratio of one (1) per every four (4) linear stalls.
- Ensure that trees in parking lot areas are geometrically arranged in regularly spaced planter bays to create a formal look.
- Plant additional trees in front of stalls in bays or planters.
- Require that tree wells or planter bays within paved parking areas have a minimum-planting dimension of 8 feet.
- Locate trees in planter bays to provide shading effect to the asphalt areas.
- Ensure that visitor parking and drop-off areas are clearly defined with special landscape materials and enriched paving.
- Provide appropriate landscape screens around parking areas to reduce adverse visual impact of large paved areas.
- Utilize drought-tolerant plants and xeriscapes for parking areas listed in the adopted Plant Palette.

IMPLEMENTATION MEASURES

a. Require new development to incorporate these landscape guidelines in the preparation of development plans, area plans, master plans, planned area developments and any other implementation tools.

GOAL 8: CREATE PLACEMAKING THROUGH SIGNAGE

Policy 1: Prepare and adopt a signage ordinance that provides the specific signage guidelines for each designated planning area that is necessary to convey a cohesive and seamless placemaking identity.

Rationale: These general signage guidelines are intended to ensure consistent signage standards to reinforce the overall placemaking image of the Township, while fostering the individual identity of each area. Nonconforming or unapproved signs are brought into conformance at the expense of the property owner. Signage design, location, size and number of signs conform to these guidelines and are subject to review and approval by the Design Review Committee. Signs further the scale and urban design intent of the area.

GUIDELINES

- Ensure that sign palettes and sign themes provide visual continuity throughout the Township, further the placemaking identity of each designated planning area, are subordinate to landscape and architectural elements, and comply with all applicable building and electrical codes.
- Develop a hierarchy of signs to ensure way finding by conveying information that is needed for the visitor to understand the location of businesses and activities.
- Require that all permanent signs have a life expectancy of at least ten years and that sign materials do not delaminate, fade, distort or deteriorate within this time period.

- Require the exposed backs of all signs that are visible to the public to be concealed, finished, and properly maintained.
- Require that the number of signs, size, location and design of each sign do not exceed the maximum limitations established for each category in the signage guidelines.

IMPLEMENTATION MEASURES

a. Require new development to incorporate these signage guidelines in the preparation of development plans, area plans, master plans, planned area development and any other implementation tools.

GOAL 9: CREATE PLACEMAKING THROUGH THE ESTABLISHMENT OF SPECIFIC URBAN DESIGN CRITERIA FOR MAJOR CHARACTER AREAS

Policy 1: Provide specific urban design direction, design themes and streetscape options for major character areas.

Rationale: The Urban Design Element serves as the framework for the preparation of development plans, area plans, master plans, planned area development plans and other implementation tools, providing Township wide placemaking urban design direction and overall guidelines. This approach allows designers, architects, developers, Township reviewing staff and decision-makers to streamline the development review process without compromising the envisioned placemaking quality of development desired by the community.

IMPLEMENTATION MEASURE

a. Identify core issues, overarching goals, guiding principles and specific design criteria for major character areas.

GOAL 10: CREATE PLACEMAKING THROUGH THE PROVISION OF PUBLIC ART

Policy 1: Encourage public art throughout the Township that celebrate Navajo traditions and heritage and reflects the desired identity, urban design intent and scale of each character area.

Rationale: Public art instills community pride, enhances the visual quality of a place and contributes to its identity and sense of place. Encouraging Navajo artists to participate in the design of public art creates the identity envisioned by the community and a sense of ownership. Public art in plazas, terraces, and courtyards in between buildings visually attracts visitors by creating art forms that offer a window into the Navajo ways.

GUIDELINES

- Require that all developers dedicate one (1) percent of construction value for the provision of outdoor public art.
- Locate public art so that is reasonably visible or accessible to the public from a major road, open space, plaza, courtyard or building entrance area.
- Consider durability of the art material prior to approving design.
- Require Design Review Committee approval for all public art projects.
- Require building owners to provide ongoing maintenance of public art projects.

IMPLEMENTATION MEASURE

a. Require all new development to incorporate these public art guidelines in the preparation of development plans, area plans, master plans, development plans and any other implementation tools.

GOAL 11: CREATE PLACEMAKING THROUGH THE CREATION OF AN ARTS DISTRICT

Policy 1: Support the redevelopment and revitalization efforts of Kayenta Township by establishing a Navajo Artist Relocation Program and a Navajo Arts District.

Rationale: The guidelines included in this section serve as catalysts to provide new areas of collaboration and cooperation in the creation of implementation tools. In order to be effective, the creation of the Arts District involves artists in the design and planning process. This approach ensures that urban design complements cultural planning and provides a strong foundation to guide the economic development strategy that furthers the placemaking identity envisioned by Kayenta artists and the community. The main objectives of this approach are to establish thematic continuity, identify the most appropriate scale and cognitive structure; attract investment, and establish a distinct identity for the Arts District.

GUIDELINES

- Work with Navajo artists to redefine the historic Kayenta Old Town Center and to define the Kayenta Gateway Center to serve lower scale uses such as mixed-use artist home/studio, boutique art galleries, small restaurants and cafés and larger scale land uses such as art museums performing arts/convention center and art institutes.
- Address urban design considerations such as access, flow, parking, multimodal connectivity, walkability, interfaces, edge definition and functional relationships to the Kayenta Main Street, which connects the historic Kayenta Old Town and the Kayenta Gateway Center.
- Encourage a well defined and contiguous public realm to draw these two Art District together by requiring that all buildings gather around shared spaces instead of fragmenting the public realm and ground plane.
- Promote clear wayfinding and connectivity to the historic Old Town Center, the entertainment district, the adjacent neighborhoods and employment areas.
- Articulate the circulation concept for these Arts District areas to distinguish the different forms of mobility by applying appropriate widths and streetscape landscape palettes. These include:
  - *Mobility Streets:* these streets constitute the essential public element upon which the fabric of the Arts District is built. They convey the placemaking character unique to the Arts District and fall into three categories:
  - *Center Streets:* these streets serve the center of the Arts District and thereby attract a distinctive density or quality of use (public and private). These streets will attract the landmarks and land uses that define the placemaking identity of the Arts District.
  - *Peripheral Streets:* these streets circumscribe the core area of the Arts District and set a particular urban pattern of sub-districts. They define recognizable design elements such as main entries into the Arts District and locate reference points that give greater legibility to the Arts District structure but do not necessarily define edges.

- *Contextual Streets:* these streets serve vehicular functions over pedestrian functions and provide opportunity to access parking, deliver services, and dissipate traffic generated by regional art events. These streets include mixed-used corridors such as Kayenta Main Street with a pedestrian-oriented public realm with functional sidewalks that encourage pedestrian movement, and vehicular travel lanes that allow access to parking areas and loading docks.

  Central and peripheral streets allow more directed vehicular movement and allow more randomness in pedestrian movement. These different functions are reflected in the visual identity of the right-of-way to create placemaking legibility and wayfinding for the Arts District. The Arts District should impress itself upon the street design so that its sense of place is expressed in the public realm.

IMPLEMENTATION MEASURE

a. Require that all development support the revitalization efforts and recommendations of the Artist Relocation Program and incorporate these guidelines.

Sustainable Design Toolbox

The development standards included in the Kayenta Zoning Ordinance are derived from the overarching design themes, guiding principles and specific design criteria provided in the Sustainable Design Toolbox included in this section. The Sustainable Design Toolbox incorporates the latest sustainable best practice, zoning tools, development precepts and design standards necessary for the Township to attain long-range sustainability.

Sustainability in Kayenta is generative. It goes beyond the current practice of isolation by adopting an integrative approach. The Sustainable Design Toolbox includes the results of three community walkabouts conducted by Arrowhead Engineering and The Planning Center during the Kayenta Design Charrette. A representative from ADOT Multimodal Division also attended one of these walkabouts. The *EPA Technical Assistance for Sustainable Communities Summary* provided by the Township was also reviewed. The Sustainable Design Toolbox is incorporated in Table 1. This table identifies:

1. Core Issues
2. Overarching Design Themes
3. Guiding Principles
4. Specific Design Criteria
5. Design Concepts Illustrating the Specific Design Criteria where applicable.

Core Issues

The core issues, from a planning point of view, are the major blocks to progress and development in a community. Once identified, measures can be defined to transcend those impediments and turn them into opportunities. Kayenta Township core issues were identified during the three walkabouts conducted as part of the Kayenta Design Charrette. These core issues are addressed in the design concepts and in the policy framework included under each respective Comprehensive Plan element. These core issues are also addressed in the Kayenta Zoning Ordinance through the inclusion of best practice zoning, development standards and design guidelines. Core issues are identified in Table 1.

Overarching Design Themes

Overarching design themes identify the desired outcome needed to guide sustainable development and economic development while appropriately managing growth within the Township. They respond to each core issue by identifying the most sustainable approach to address each issue. These are provided in Table 1.

Guiding Principles

Guiding principles support the overarching design themes by providing the design precepts guiding sustainable development and economic development while appropriately managing growth within the Township. They expand on the overarching design themes by identifying the most sustainable approach needed to support such themes. These are provided in Table 1.

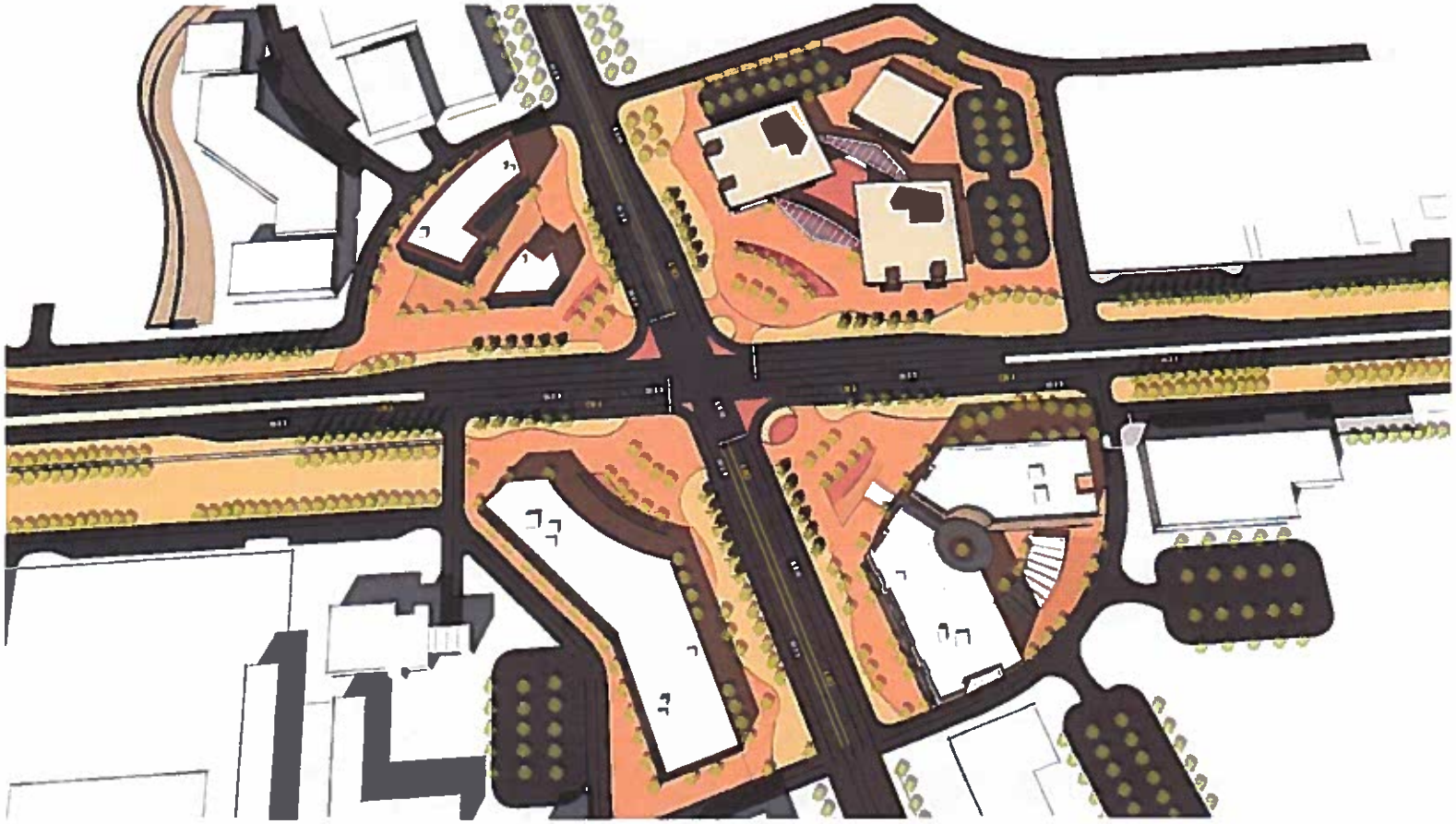
Specific Design Criteria

Specific design criteria support established Guiding Principles by providing the detailed step-by-step action plan or course of action required to support each principle. Comparable to policy statements in the policy section of the Comprehensive Plan, these are design steps that must be taken to ultimately address the core issues identified. These are provided in Table 1.

Table 1
Kayenta Township Sustainable Design Toolbox

Key Issue Identified	Overarching Design Themes	Guiding Principles	Specific Design Criteria
Character/Sense of Place Kayenta is the Main Gateway to Monument Valley, Arizona. Currently, there is no sense of arrival to a destination. Travelers drive by unaware of the Township, taking their business elsewhere.	Establish Gateways to distinguish Kayenta as a major destination and the Main Gateway to Monument Valley	Establish a hierarchy of gateways that instills a sense of arrival at all major entry points of the Township.	1. Develop a major gateway at the western entrance of the Township on Highway 160. 2. Articulate this Kayenta Gateway Center as the tourist destination and include access to visitor center and convention. 3. Establish secondary gateways on Highway 160 at the east entrance to the Township and on Highway 163 at the main entrance from those driving from Monument Valley
Circulation/Transportation Wayfinding within the Township is difficult due to lack of circulation and absence of sidewalks, paved roads and street names. Visitors wander without knowing where to go. Residents must get in the car to go few blocks away. There is no connectivity between major areas of the Township. These increase community dependency on automobile and fossil fuels.	Define a safe, efficient, convenient, accessible, intuitive and sustainable circulation network that meets the needs of both community and visitors.	Ensure that the circulation network: 1. Provides sustainable alternate modes of transportation that include access for all mobility needs; 2. Increases connectivity among all areas of the Township; 3. Defines Kayenta's Main Street; 4. Identifies best area for transit station; 5. Defines bus and shuttle routes; 6. Provides alternative Truck Servicing route; 7. Explores opportunities for park and ride; 8. Includes 911 address system for emergency services; and 9. Reduces dependency on automobile and fossil fuels.	1. Define Highway 160 and Highway 163 as the major spines or multimodal roads providing connectivity to all the planning areas. 2. Establish a hierarchy of streets that includes major highways, arterials, collectors and local streets. 3. Establish a Main Street along Highway 163 that provides connectivity to the Kayenta Gateway Center, the major activity centers at the intersection of Highway 160 and Highway 163 and the Kayenta Township Center. 4. Take advantage of the intersection of Highways 160 and 163 and of major entrances to the Township along Highway 160 to create the mixed-use synergies necessary to foster economic development.

Source: Kayenta Comprehensive Plan Design Charrette Walkabout and Site Visits, The Planning Center, 2011



Creating Character by Including Navajo Iconography in Building Design, Activity Center Concept at the Intersection of Highways 160 and 163, The Planning Center, 2011

Table 1
Kayenta Township Sustainable Design Toolbox
(Continued)

Key Issue Identified	Overarching Design Themes	Guiding Principles	Specific Design Criteria
Streetscapes The Township lacks street definition. Most of the areas with sidewalk, lack any form of landscape amenities.	Establish a circulation system of well-defined streetscapes that instill pride and provide connectivity throughout the Township.	Create hierarchy of streetscapes that include area appropriate landscape amenities that offer shade, provide seamless continuity and invite both visitors and residents to exercise and experience the spectacular outdoors.	Ensure continuity of streetscapes by: 1. Establishing specific design and landscape criteria for each type of streetscape in the hierarchy; 2. Providing continuous shade for people to be able to walk during hot summer days; 3. Defining a drought tolerant landscape palate that harmonizes with the local and regional vegetative communities; 4. Incorporating plazas, court yards, nature areas and rest areas in the overall design; and 5. Requiring all new development to provide landscaped streetscapes in conformance with the established streetscape hierarchy, landscape guidelines and plant palates.
Connectivity The Township lacks overall vehicular, pedestrian, bicycle, equestrian and trail connectivity. Horses roam free along Highway 163, crossing the highway and creating a safety hazard for horses and moving traffic.	Articulate connectivity throughout the Township while minimizing conflicts among different mobility modes.	Carefully define all mobility modes in a manner that promotes seamless connectivity, ensures safety and minimizes conflicts.	Promote connectivity by: 1. Clearly defining multi-use paths; 2. Providing clear separations between vehicular and non vehicular traffic; 3. Providing safe crosswalks; 4. Defining bicycle routes; 5. Separating equestrian trails from other transportation modes; and 6. Establishing fenced equestrian trails

Source: Kayenta Comprehensive Plan Design Charrette Walkabout and Site Visits, The Planning Center, 2011

Streetscape Concept Along Kayenta's Main Street (Highway 163) Providing Connectivity Through Different Traffic Modes to Other Planning Areas, The Planning Center, 2011

Table 1
Kayenta Township Sustainable Design Toolbox
(Continued)

Key Issue Identified	Overarching Design Themes	Guiding Principles	Specific Design Criteria
Walkability Kayenta is not a walkable community. The Township is automobile-dependent with a very low Walk Score. All errands require a vehicle. This results in a high dependence on automobile. A walkable place is lively, physically and financially healthy, fashionable, affordable, sustainable, sociable and safe. Walkability is the highest indicator of quality of life. Almost by definition, an attractive community is walkable and an unpleasant community is unwalkable.	Create and sustainable walkable community that promotes a high quality of life by increasing the Walk Score of Kayenta. Promote walking, not just for recreation, but also for trips to: work; school; shops; community services and facilities; and entertainment venues.	A walkable lifestyle is the most sustainable, low-impact, convivial way of living. Achieving and sustaining a walkable community is the most effective way to promote a high quality of life. More walking, not just for recreation, but also for trips to work, to school, to shops, is an ideal way to: 1. Improve health. 2. Increase affordability 3. Get to know your neighbors 4. Promote travel choice. 5. Reduce air and noise pollution 6. Promote a human-scaled neighborhood, 7. Reduce "heat island" effect 8. Increase Township viability 9. Increase citizen surveillance 10. Increase safety 11. Retain youth and 12. Attract the "creative class"	Arrange land uses, buildings, circulation, parking and landscape in a manner that maximizes walkability by adhering to the following criteria: • **Building Orientation and Setback** Orient buildings toward and in proximity to adjacent thoroughfares. Direct pedestrian connections to the building entry from the thoroughfare. Integrate buildings into the thoroughfare's street side with arcades, cafes, plazas, courtyards and so forth. In these locations, buildings may form a continuous built edge or street wall (a row of buildings that have no side yards and consistent setback at the thoroughfare edge). • **Definition of the Public Realm** Define the public realm in a manner that supports pedestrian travel and incorporates resting areas as well as activity areas in high pedestrian traffic areas. • **Human Scale** Ensure that higher density mixed use preserves the human scale.

Source: Kayenta Comprehensive Plan Design Charrette Walkabout and Site Visits, The Planning Center, 2011

Pedestrian-oriented Concept, Kayenta Main Street (Highway 163) Including Sidewalk, Promenade, Courtyards, Multi-Use Plazas and Public Art, The Planning Center, 2011

Table 1
Kayenta Township Sustainable Design Toolbox
(Continued)

Key Issue Identified	Overarching Design Themes	Guiding Principle	Specific Design Criteria
Walkability (continued)			• **Parking type and orientation** Parking provided in surface lots between buildings and streets defines a vehicle-dominated context with a lower priority for walking. On-street parking, and parking under or behind buildings and accessed by alleys is an urban characteristic. Thoroughfares should have a higher priority for walking. • **Block length** Development patterns with traditional urban characteristics usually have short block lengths with a system of highly connected thoroughfares, local streets and alleys. Vehicle-dominated contexts, such as power stores, have larger blocks, less complete street connectivity and usually no alleys; this pattern makes walking distances longer and, therefore, it is likely that fewer people will walk between destinations. Generally, the desirable block length is 200 to 400 feet and should not exceed 600 feet. • **Pedestrian Crossings** Pedestrian crossings along major highways should be minimized as to not obstruct traffic flow and clearly defined with special paving at traffic lights.

Source: Kayenta Comprehensive Plan Design Charrette Walkabout and Site Visits, The Planning Center, 2011

Well-defined Pedestrian Crossing Concept along Kayenta Main Street (Highway 163) at Traffic Light Intersection, The Planning Center 2011

Table 1
Kayenta Township Sustainable Design Toolbox
(Continued)

Key Issue Identified	Overarching Design Themes	Guiding Principles	Specific Design Criteria
Mixed-Use Development Kayenta's current layout follows the old Euclidian zoning. This land use and zoning pattern is highly dependant on automobile use. Smart growth incorporates sustainable city layout principles that include mixed-use development, where home, work, shops, and entertainment are at walking distance or one a short shuttle or bus ride away, substantially reducing reliance on automobile and air pollution and promoting a life style that offers a high quality of life and enhanced health and fitness. Mixed-use development creates 24-hour neighborhoods, increasing the economic potential of the area, reducing opportunities for crime, and creating the level of activity necessary for businesses to thrive. Areas designated commercial lack the roofs and activity necessary for businesses to prosper and offer little public safety after business hours. Mixing residential with commercial land use designations improves viability, increases the public safety, making mixed-use a sustainable alternative.	Identify and designate areas of the Township that can benefit from mixed-use development.	All different types of compact mixed-use development must address the specific needs of the area being served by: 1. Identifying appropriate densities and intensities; 2. Defining commercial and support business in keep with the overall intent of the area they serve; 3. Including artisan lofts, lofts, live work, and other compatible residential and commercial mixes; 4. Providing housing opportunities for new health care center, detention center and N.A.T.I.V.E Training Center. These are currently under construction and will bring new employment to the Township that will require housing; and 5. Permitting uses that support and are compatible with the main employment focus of the area.	• **Artisan Courtyards Mixed-Use** This type of mixed use is appropriate in proximity to Kayenta Gateway Center and its vital convention center, museum, and performing arts center. The artisan Courtyards combine residential, gallery and studio space for high-end world artists looking for short-term and long-term art residence near Monument Valley. • **Kayenta Old Town Center Mixed-Use** The Old Town Center is the historic core of Kayenta. It is planned to include a mix of residential, retail, shops that serve the adjacent community, bring in tourists and support Navajo artists. Mustang Trail, a multimodal path including separate equestrian trail will feature a trail node at the Old Town, incorporating the existing feed store and stables in the design. • **Kayenta Main Street Mixed-Use** This type of corridor mixed-use is intended to provide the Kayenta Main Street along Highway 163. This main street corridor will feature lower densities than the Kayenta Gateway Center. It is designed to connect the Kayenta Old Town Center and the Kayenta Gateway Center.

Source: Kayenta Comprehensive Plan Design Charrette Walkabout and Site Visits, The Planning Center, 2011

Artisans Courtyard Mixed-Use at the Kayenta Gateway Center (Highway 160), The Planning Center 2011

Table 1
Kayenta Township Sustainable Design Toolbox
(Continued)

Key Issue Identified	Overarching Design Themes	Guiding Principles	Specific Design Criteria
Mixed-Use Development (continued)			• **Kayenta Gateway Center Mixed-Use** The Kayenta Gateway Center along Highway 160 is the primary west entrance into the Township. This destination mixed-use will include live/work, lofts, convention center, Navajo Art Museum, visitor center, hotels and hospitality and Navajo Performing Arts center. • **Transit Oriented Mixed-Use** The Transit Oriented (TOD) Mixed-Use is a designation appropriate in proximity to the transit stations and shuttle stations along Highway 160 at both the east and west entrances of the Township. The transit station for visitors is located in the west entrance to the Township in close proximity to the Entertainment District and the Kayenta Gateway Center at the intersection of Highway 160 and the proposed Truck road loop. The transit station for commuters is located in the east entrance of the Township in close proximity to major employment uses. This TOD is served by the proposed bus route. Both stations will include shuttle services to the Entertainment District, the Kayenta Gateway Center the Old Town Center, the Kayenta Main Street, the Resort and Golf Club and major area attractions and respond to the needs of their users.

Source: Kayenta Comprehensive Plan Design Charrette Walkabout and Site Visits, The Planning Center, 2011

Kayenta Old Town Center Mixed-Use (Highway 163), The Planning Center 2011

Table 1
Kayenta Township Sustainable Design Toolbox
(Continued)

Key Issue Identified	Overarching Design Themes	Guiding Principles	Specific Design Criteria
Mixed-Use Development (continued)			• **Health Care Support Mixed-Use** This mixed-use designation includes housing, retail and office space designed to support the new Kayenta Health Center in an integrated health care campus layout. The Kayenta Health Care campus is envisioned to be a healthcare workforce development campus. In addition to its full-service hospital, the campus will provide a one-of-a-kind setting in Navajo Nation for training workers in the higher paying healthcare fields, as well as address the critical existing (and growing) shortage of trained workers needed at every level throughout the continuum of care. This plan's vision is in accordance with the Governor's Executive Order 2008-03, which calls for public-private collaboration "to develop a health care workforce plan designed to meet the needs of the 21st Century Arizona." • **General Mixed-Use** The General Mixed-Use land use designation provides a mix of residential, retail and office uses at lower densities.

Source: Kayenta Comprehensive Plan Design Charrette Walkabout and Site Visits, The Planning Center, 2011

Kayenta Main Street Mixed-Use (Highway 163), The Planning Center 2011

Table 1
Kayenta Township Sustainable Design Toolbox
(Continued)

Key Issue Identified	Overarching Design Themes	Guiding Principles	Specific Design Criteria
Housing A large portion of the existing housing stock in Kayenta is substandard. With three major employment generators in construction, the Kayenta Health Care Center, the detention center and the N.A.T.I.V.E Training Center, the township has a shortage of housing.	Identify all development and redevelopment efforts necessary to ensure a variety of housing types designed to meet the needs of all income ranges.	Ensure that housing development and redevelopment efforts are prioritized according to specific area needs by: 1. Inventorying the existing housing stock to determined substandard units that need: - Air conditioning/heater - Kitchen - Pluming - Roof Work - Additional room (overcrowded) - Demolition or removal 2. Establishing a redevelopment and rehabilitation area that includes all areas affected by blight to funnel funding to those area 3. Identifying areas for new housing development to serve the needs of new major employers, Kayenta Health Care Center, Kayenta Detention Center, and N.T.I.V.E. Training Center as well as the needs of the current and the projected population.	1. Utilize a mixed-use development design Toolbox that mixes residential, commercial and office uses and incorporates open space in the form of plazas and courtyards providing connectivity to planned multi-use paths (pedestrian, bicycle and equestrian), transit routes and adjacent planning areas. 2. Incorporate a variety of housing types including: single family detached and attached; multi-family and mixed-use development. 3. Locate high density multi-family development in proximity to the N.A.T.I.V.E. Training Center, the Kayenta Detention Center and the Kayenta Health Care Center. 4. Organize housing around central open space to create neighborhood amenities. 5. Locate low density residential development on the east and northwest areas of the Township along proposed bus route.

Source: Kayenta Comprehensive Plan Design Charrette Walkabout and Site Visits, The Planning Center, 2011

Kayenta Gateway Center Mixed-Use (Highway 160), The Planning Center 2011

Table 1
Kayenta Township Sustainable Design Toolbox
(Continued)

Key Issue Identified	Overarching Design Themes	Guiding Principles	Specific Design Criteria
Street Lights and Safety Kayenta currently lacks a street light and pedestrian light systems. This creates a safety issue within the Township.	Utilize energy efficient, Safe-by Design principles to increase safety while promoting dark skies.	Ensure that the integrated safe, convenient and efficient network of streets and multi-use paths providing connectivity to all planning areas include energy-efficient lighting that promotes dark skies.	1. Adopt a dark sky ordinance that promotes responsible outdoor lighting and addresses types of street, pedestrian, multi-use paths, equestrian trails and accent lights. 2. Create a hierarchy for outdoor lighting for the different modes of transportation (streets, walkways and sidewalks, multi-use paths, equestrian paths, bicycle routes, trails and bus stops) and provide standards for lighting in the Zoning Ordinance. 3. Ensure that outdoor lighting is solar powered. 4. Include development standards for building entrance accent lighting in the Zoning Ordinance.

Source: Kayenta Comprehensive Plan Design Charrette Walkabout and Site Visits, The Planning Center, 2011

Table 1
Kayenta Township Sustainable Design Toolbox
(Continued)

Key Issue Identified	Overarching Design Themes	Guiding Principles	Specific Design Criteria
Energy Efficiency Although current development within the Township does not incorporate energy efficient standards, Kayenta Township was the fourth community in the country to adopt the *International Green Construction Code (IGCC)*. As a result, the community has been asked to join a work group being facilitated by the International Code Council (ICC) to assist other communities in the nation in the adoption and enforcement of this code. With the adoption of IGCC, Kayenta has made a commitment to become an energy efficient community. As a model community, this commitment should be reflected in all future development and redevelopment efforts within the Township.	All new development and redevelopment within Kayenta Township should incorporate the latest energy performance standards.	Optimize the Township energy performance by adopting energy efficient development standards and design guidelines that support the Kayenta IGCC.	**Energy Performance** 1. Incorporate passive and active solar in all new development and redevelopment efforts. 2. Incorporate passive heating and cooling strategies in all design. 3. Provide development standards and design guidelines in the Zoning Ordinance for site and building orientation that are based on solar orientation to capture energy and maximize shade space. 4. Create a radiant barrier on south facing walls or provide cooling elements such as landscape treatments. 5. Build all new development to Platinum LEED standards. **Onsite Renewable Energy** 1. Incorporate solar panels on tops. 2. Investigate appropriate net-metering programs to offset cost of solar installation 3. Take advantage of high winds by incorporate small wind energy generators in public art and public facilities. **Green Building Materials** 1. Reuse construction materials. 2. Utilize materials with high recycled index. 3. Utilize locally available materials. 4. Incorporate rammed earth walls in design 5. Utilize reflective paint to reduce heat gain.

Source: Kayenta Comprehensive Plan Design Charrette Walkabout and Site Visits, The Planning Center, 2011

Table 1
Kayenta Township Sustainable Design Toolbox
(Continued)

Key Issue Identified	Overarching Design Themes	Guiding Principles	Specific Design Criteria
Water Conservation Kayenta currently engages in several water conservation strategies. Recycled water from the sewer lagoons is used as an irrigation sources for recreation and sport fields. This practice should continue. In addition, there are very few lawns with grass in the Township.	Conserve water by reducing potable and non-potable water uses and adopting water conservation measures and strategies as part of the design palate.	Implement a water use reduction program that incorporates a variety of strategies and education programs. Water conservation is extremely tied to climate change. Adopt a climate change program for the township that outlines the actions to be taken to reduce Kayenta's carbon footprint by 50 percent within the next 15 years.	**Reducing Water Usage** 1. Continue to use recycled water from sewer lagoons for irrigation of all recreation, sport fields and golf courses within the Township. 2. Prohibit the use of loans within the Township. 3. Require all new development or redevelopment to utilize drought tolerant and low maintenance xeriscapes with drip irrigation. 4. Adopt a plant palate that includes Kayenta native drought tolerant plants. 5. Incorporate water harvesting principles and strategies in all new development. 6. Adopt standards to reduce "heat island" effect
Infrastructure Infrastructure along Highway 163 is aging. In some cases, it has limited capacity. Insufficient water pressure near the intersection of Highway 163 and Highway 160 limits the viability of two story, compact, mixed-use development.	Prioritize infrastructure system improvements needed to support the desired development.	Ensure that major infrastructure is planned or in place to support the development patterns and land uses adopted in this Comprehensive Plan.	**Water and Wastewater Master Plan** Identify funds and conduct a Water and Wastewater Master Plan that identifies and prioritizes infrastructure needs to create shovel ready opportunities for development. **Capital Improvements Priorities** Prioritize infrastructure improvements along major development corridors, Highway 160 and Highway 163, which serve as the primary spines of the Township.

Source: Kayenta Comprehensive Plan Design Charrette Walkabout and Site Visits, The Planning Center, 2011

Table 1
Kayenta Township Sustainable Design Toolbox
(Continued)

Key Issue Identified	Overarching Design Themes	Guiding Principles	Specific Design Criteria
Parking and Service Areas Currently, most businesses in Kayenta are arranged in the old strip mall fashion and include excess parking with little shade or amenities. Service areas and loading zones are visible from public the right-of-way.	Sustainable practices that make better use of space and include beautification amenities, shade and screening measures ensure a pleasant experience for users.	All new infill, development and redevelopment efforts within Kayenta should maximize open space, reduce the amount of impervious surface and contribute to the aesthetic quality desired by the community	**Parking** 1. Establish a variety of alternatives to parking such as shared parking, parking structures, shuttle services, and park and ride facilities to minimize the sea of surface parking lots. 2. Adopt sustainable development standards and parking ratios for on-street and off street surface parking as part of the Zoning Ordinance. 3. Adopt design guidelines for parking that include a variety of strategies to reduce impervious surfaces 4. Utilize air pave and other "heat island" effect mitigation and dust abetment strategies for parking lots. 5. Incorporate landscape standards for parking lots in the Zoning Ordinance. 6. Include appropriate shading in parking lot design to minimize "heat island" effect and provide an enhanced experience for users. 7. Define appropriate landscape palate for parking areas that utilize drought tolerant plants or xeriscapes. 8. Incorporate drip irrigation and water harvesting measures in parking lot design. **Service Areas** 1. Adopt development standards and design guidelines for service areas in the Zoning Ordinance.

Source: Kayenta Comprehensive Plan Design Charrette Walkabout and Site Visits, The Planning Center, 2011

Table 1
Kayenta Township Sustainable Design Toolbox
(Continued)

Key Issue Identified	Overarching Design Themes	Guiding Principles	Specific Design Criteria
Infrastructure Infrastructure along Highway 163 is aging. In some cases, it has limited capacity. Insufficient water pressure near the intersection of Highway 163 and Highway 160 limits the viability of two story, compact, mixed-use development.	Infrastructure improvements are key to support the development densities/intensities and quality development desired by the community.	Ensure that major infrastructure has planned or in place capacity to support the development patterns and land use designations adopted in this Comprehensive Plan.	**Water and Wastewater Master Plan** Identify funds and conduct a Water and Wastewater Master Plan that identifies and prioritizes infrastructure needs to create shovel ready opportunities for development. **Capital Improvements Priorities** Prioritize infrastructure improvements along major development corridors, Highway 160 and Highway 163, which serve as the primary spines of the Township. **Transportation Network** Take advantage of ADOT multimodal transportation system improvements programs o ensure that major spine roads, truck service route and bus route are built in a manner that support this Comprehensive Plan. **Drainage and Stormwater Management** Adopt development standards for grading that detain storm water to prevent erosion, provide flood control, and incorporate water harvesting principles such as kit filters to clean run-off for irrigation reuse.

Source: Kayenta Comprehensive Plan Design Charrette Walkabout and Site Visits, The Planning Center, 2011

Land Use Element

This Land Use Element provides the broad goals, policies and implementation measures directing development in Kayenta Township. They make up the broad land use policy framework guiding all development and redevelopment decisions within the Kayenta Designated Growth Area. This Land Use Element provides an integrative land development strategy to achieve the Kayenta Community vision. This element of the Kayenta Comprehensive Plan is based on the:

- Analysis of existing conditions summarized in the *Background and Current Conditions* volume;
- Overarching design goals, guiding principles and specific design criteria included in the Sustainable Design Toolbox;
- Direction provided in the Growth Areas Element, the Urban Design Element, the Transportation Element and the Parks, Recreation, Trails and Open Space Element.

During the week-long design Charrette the community and major stakeholders identified the need to implement a flexible land use approach that:

1. Manages growth in an ordered and responsible manner based on growing smart principles.
2. Responds to changing market forces to ensure the long-term viability of Kayenta.
3. Provides a streamlined and consistent development review process.
4. Departs from traditional land use designations by adopting an integrative approach that focuses on planning area needs.
5. Directs development by establishing a strong policy framework.
6. Incorporates implementation tools such as Master Plans and Planned Area Development that include flexibility in design while requiring high quality development.
7. Promotes the synergies, partnerships and strategies necessary to establish and expand a diversified economy that includes:
    a. High-wage employment generating industry.
    b. Retail, restaurant and service revenue generating industry.
    c. Compact, mixed-use high and high quality development
    d. Navajo art, film, theater and performing arts.
    e. Tourism and eco-tourism.
    f. Technology and innovation.
8. Ensures land use compatibility through the establishment of major planning areas and the provision of transitional elements, landscaped buffers and connectivity.
9. Encourage new development to create a mix of housing opportunities that is affordable to all income ranges.
10. Integrate parks, recreation, open space and trail systems to increase connectivity, walkability and promote health.
11. Directs mixed-use development to areas that will benefit from it.
12. Furthers the revitalization and redevelopment of the Kayenta Township Core planning area as a compact, historic, mixed-used central business core.
13. Addresses the infrastructure, mobility and multimodal access needed to promote circulation throughout the planning area.

Land Use Element Goals and Policies

GOAL 1: ALIGN LAND USE STRATEGIES, URBAN DESIGN AND ECONOMIC DEVELOPMENT PRIORITIES

Policy 1: Ensure that each planning area provides the balance of land uses needed to achieve and maintain a sustainable tax revenue base and supports the urban design and economic development goals of the Township.

Rationale: A primary goal is to create a healthy balance between jobs and households throughout the Township to make Kayenta a self sustaining community. The Township facilitates balanced growth with the goal of achieving and maintaining a sustainable tax base.

IMPLEMENTATION MEASURE

a. Coordinate planning area land use decisions with the Urban Design Element, the Transportation Element and the Parks, Recreation, Trails and Open Space Element.

b. Achieve self-sufficiency by allowing flexibility while ensuring a cohesive land use approach.

GOAL 2: DEVELOP KAYENTA AS A SELF-SUFFICIENT, COMPACT, SUSTAINABLE DESTINATION

Policy 1: Provide an appropriate mix of land uses that encourages compact development, supports economic development, expands the retail, services, tourism, employment and industry sectors and promotes the efficient use of infrastructure and services to achieve self-sufficiency.

Rationale: Compact development promotes the efficient use of infrastructure, increases access, supports walkability and reduces the Township's carbon footprint. Mixed-use is a form of compact development desirable within areas of Kayenta Township that benefit from this type of development. The land use mix for Kayenta must support community needs and attract and engage tourists by capitalizing on Kayenta's uniqueness.

Examples of Mixed-use Compact Development Appropriate for a Main Street
Santa Fe Arts District, Denver, Colorado

IMPLEMENTATION MEASURE

a. Designate and maintain the appropriate mix of land uses needed to develop a self-sufficient sustainable destination.

b. Adopt specific policy direction for all major planning areas that includes the mix of land uses necessary to support economic development goals, quality of life and the efficient use of infrastructure and services.

c. Identify areas where mixed-use development is appropriate.

d. Ensure that the land use mix takes competitive advantage of the proximity to Monument Valley and serves as a magnet attracting visitors by providing a mix of retail, service, hotel and hospitality, restaurants, arts and culture and entertainment opportunities that showcase Navajo heritage and traditions to strengthen and diversify the Township's economic base.

e. Integrate the established rodeo and the horse keeping tradition of the Navajo people by providing a land use mix that fully recognizes this heritage and showcases it as part of Kayenta's uniqueness.

f. Require development plans, area plans, master plans, and planned area developments to incorporate integrated open space, parks and trails and foster walkability, as well as pedestrian and bicycle connectivity to achieve the desired quality of life.

g. Revitalize, redevelop and develop the Kayenta Township Core character area by making Kayenta Main Street and the Kayenta Old Town Center mixed-use areas a priority and by upgrading the housing stock within this area.

h. Support and expand the truck service and industry sectors of Kayenta by designated industrial land uses along the proposed Truck Service Corridor character area and the Highway Oriented Corridor along Highway 160.

i. Designate land for the Kayenta Cemetery to create a memorial park/memorial garden that serves the function of a cemetery and provides opportunities for Navajo people to pay respect to ancestors.

j. Designate regional parks, recreation, trails and open space in the Future Land Use map to ensure that connectivity to this network is provided when development adjacent areas.

k. Designate lands for the development of a resort and golf club that take opportunity of the adjacent scenery and provide connectivity to designated equestrian trails.

l. Designate lands were mixed-use Transit Oriented Development (TOD) is appropriate in the vicinity of transit station areas.

m. Define the Highway Oriented Corridor character area to include the Kayenta Gateway Center, the Kayenta Four Corners Activity Center, regional commercial, and medical support services in proximity to the Kayenta Medical Center.

n. Designate lands for the development of technology and innovation uses, research parks, business incubators and solar generation.

o. Identify land uses and strategies compatible with the intent of the Airport Master Plan to infuse vitality to the airport character area.

p. Designate lands for employment in close proximity to the airport and the proposed transit route.

q. Designated areas for low, medium and high density residential.

r. Support the vitality of the Kayenta Gateway Center, the Four Corners Center and the Kayenta Rodeo by designating lands for hospitality and entertainment in close proximity to these uses.

s. Strengthen existing and develop new public/private partnerships with all applicable Navajo agencies, Kayenta Chapter, federal, state, regional, local entities, school districts, educational institutions, chambers of commerce, non-profit organizations, private developers, investors, the Kayenta Business Association and other stakeholders to market attract and retain the diversity of land uses needed to strengthen and diversify the Township economic base.

GOAL 3: INCREASE LAND USE COMPATIBILITY BY ENHANCING THE CHARACTER OF EXISTING DEVELOPMENT.

Policy 1: Enhance the character of existing development through the provision of adequate landscape buffers or landscape amenity areas, density/intensity transitions and appropriate grading.

Implementation Measures:

a. Require that development plans, area plans, master plans and planned area development include site-appropriate land use compatibility techniques.

b. Promote land use compatibility throughout the Kayenta Designated Growth Area by implementing all applicable buffers, transition elements, setback requirements and development standards identified in the Zoning Ordinance.

c. Cluster higher-density/intensity development to allow for integrated open space.

d. Define the edges by providing seamless pedestrian, bicycle, equestrian, and nature trail connectivity and other adequate transition elements that create an integrated and smooth transition to development that is lower in density/intensity.

e. Include the option for lower-density residential cluster development in areas including topographic variations, riparian areas and/or other physical/environmental constraints.

f. Incorporate linear parks and/or natural habitat corridors where appropriate.

g. Utilize the Planned Area Development (PAD) as an implementation tool that fosters flexibility, creativity and land use compatibility.

h. Comply with the intent, policy direction and implementation strategies of each character area.

i. Locate higher-density residential uses and mixed-uses in areas served by public transit with access to commerce and public services.

j. Mitigate in an aesthetically pleasing manner all visual, noise and vibration impacts arising from major thoroughfares and the Kayenta Airport.

GOAL 4: LOCATE REGIONAL COMMERCIAL, INDUSTRIAL DEVELOPMENT AND INDUSTRIAL PARKS IN AREAS SUITED FOR SUCH DEVELOPMENT.

Policy 1: Require that regional commercial, industrial development and industrial parks comply with all applicable requirements of this comprehensive plan and of the Kayenta Zoning Ordinance.

Implementation Measures:

a. Direct high-intensity regional commercial and industrial development to character areas designated for such development along major highway corridors and thoroughfares.

b. Require that regional commercial uses prepare a master plan or planned area development in conformance with the Kayenta Zoning Ordinance.

c. Require that industrial development prepares a development plan in compliance with all applicable requirements provided in the Kayenta Zoning Ordinance.

Goal 5: SUPPORT RESIDENTIAL AREAS BY PROVIDING OPPORTUNITIES FOR NEIGHBORHOOD COMMERCIAL AND NEIGHBORHOOD-ORIENTED SERVICES.

Policy 1: Locate neighborhood commercial and neighborhood-oriented services in close proximity to the residential areas being served.

Implementation Measures:

a. Require that development plans for neighborhood commercial and neighborhood-oriented development:

(1) Mitigate all adverse visual, sound and odor impacts.

(2) Support, complement and enhance the neighborhoods being served by providing access to all mobility needs and travel modes.

(3) Include enhancements that provide visual relief and harmonize in massing, height, scale and style with the character envisioned for Kayenta.

(4) Require that such development occurs at the intersection of arterial or collector roads.

Goal 6: **Provide an adequate mix of housing types.**

Policy 1: Ensure that new residential development includes a mix of housing types that are affordable to all income ranges within Kayenta Township.

Implementation Measures:

a. Require that all new residential development complies with the intent and policy direction of the Housing Element.

GOAL 7: BALANCE PUBLIC INFRASTRUCTURE AND COMMUNITY FACILITIES PROJECTS WITH PLANNING AND ECONOMIC DEVELOPMENT EFFORTS.

Policy 1: Coordinate and anticipate infrastructure and community facilities needs and updates with existing and planned development to support economic development efforts.

Implementation Measures:

a. Prepare master plans for water, sewer, solid waste and recycling that:

(1) Include an inventory of existing infrastructure;

(2) Provide an assessment of existing and projected public facilities capacity and life expectancy based on projected growth; and

(3) Delineate service and priority expansion areas.

b. Update the Kayenta Capital Improvements Plan to provide a systematic approach to coordinate and anticipate infrastructure needs and updates.

c. Develop an efficient mechanism to coordinate and monitor new development and capital improvements.

d. Take advantage of Kayenta's strategic location with respect to Monument Valley by conducting a regional studies that identifies regional infrastructure needs that may further economic development opportunities.

e. Work with the Federal Emergency Management Agency (FEMA) to obtain Flood Insurance Rate Maps (FIRM) status.

f. Work with Kayenta Chapter to coordinate annexation strategies and develop intergovernmental agreements that allows Kayenta to expand its current boundary into the Designated Growth Boundary.

g. Continue to work with Navajo agencies to ensure that Kayenta receives adequate infrastructure and highway improvement funds.

h. Work to improve Township-wide telecommunication infrastructure through a variety of public and private efforts;

i. Collaborate with NTUA and other utility companies/agencies serving the planning area to incorporate sustainable alternative energy sources (solar, wind, biomass) as tools for economic development.

GOAL 8: IMPROVE THE DEVELOPMENT REVIEW PROCESS.

Policy 1: Establish a consistent and streamlined process for development review.

Implementation Measure:

a. Establish a flexible, efficient and equitable development process that helps navigate unique site constraint issues while ensuring high quality development.

b. Adopt and implement user-friendly Development Review Process procedures in the Kayenta Zoning Ordinance to standardize and expedite the development review process.

Policy 2: Coordinate planning efforts with all applicable agencies and Township departments to streamline the development review process.

Implementation Measures:

a. Require a pre-application conference that includes representatives from all applicable Township department heads and Navajo agencies.

b. Involved all applicable Navajo agencies and Chapter representatives as applicable from early stages of the process.

Policy 3: Evaluate development proposals for consistency with the intent and policy direction of the respective character area during the development review process.

Implementation Measures:

a. Require that all development plans, area plans, master plans and planned area developments conform to all applicable policy statements contained in this comprehensive plan and in the Kayenta Zoning Ordinance.

b. Periodically review and update zoning requirements and development standards to ensure market feasibility.

GOAL 9: ENSURE THE EFFECTIVENESS OF IMPLEMENTATION MECHANISMS.

Policy 1: Periodically review, evaluate and update ordinances for their effectiveness and to minimize conflicts.

Implementation Measures:

a. Prepare, adopt and implement the Kayenta Zoning Ordinance.

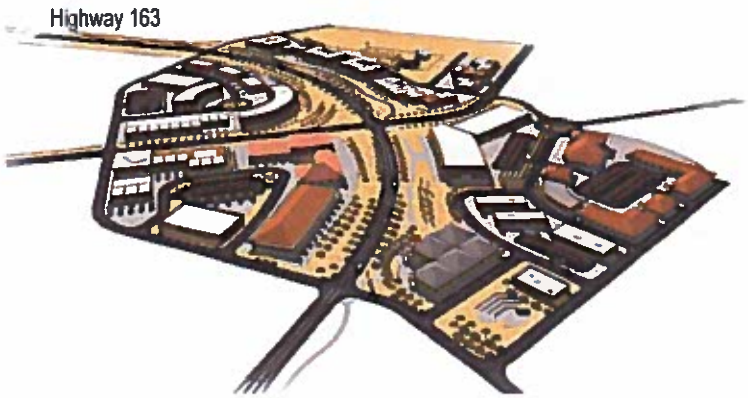
b. Discuss staff recommendations regarding ordinance revisions at Department heads meetings to establish consensus prior to issuing a staff report.

Kayenta Township Core Character Area

This character area comprises the core of Kayenta and includes Kayenta's historic downtown and most of Kayenta's developed areas. Most of this character area is located within the Kayenta Redevelopment/ Rehabilitation Planning Area. This redevelopment area extends from Highway 160 to Kayenta's northern boundary and includes areas on both sides of Highway 163 as shown on Exhibit 4, included in the Growth Areas Element.

This area includes Kayenta Township, the new judicial and detention center, schools, the Kayenta community park, the historic Kayenta Township, and the NTUA lagoons. The proposed land use designations for this area include: Civic/Institutional and Public Facilities, which include existing civic, community and public facilities, educational institutions, parks, commercial uses along Highway 160 in need for redevelopment, low, medium and high density residential uses and mixed-use development defining the Kayenta Main Street and the Kayenta Old Town Center, and the northern portion of the Four Corners Activity Center at the Intersection of Highway 160 and Highway 163.

Kayenta Old Town Center



Land Use Concept

The Kayenta Old Town Center (Old Town) is a mixed-used, walkable urban core where historic preservation, restoration, revitalization and redevelopment play a key role. These combined efforts strengthen Kayenta's image, enhances its sense of place, defines its identity and increases its revenue generating retail base. This area incorporates opportunities for mixed-use, multifamily residential and for the establishment of a community-oriented Navajo Artisans village offering lofts to Navajo artist studios located on the ground floor and residential areas on the second floor. The area incorporates community arts center and market space.

Mustang Trail at Agricultural Area, Showing Stables near Old Town.

Old Town celebrates the horse keeping tradition of Navajo people by being a focal point along Mustang Trail and providing opportunities for the creation of horse stables in proximity to the existing feed house. The multifamily uses within this area provide housing opportunities for employees of the new justice and detention center at walking distance to adjacent schools. This dynamic and vibrant focal point exudes civic pride, and functions as a mixed–use art district with an integrated work force, adequate affordable housing and thriving revenue generating businesses. Old Town serves as the historic and cultural heart of Kayenta from which Kayenta Main Street radiates.

This core includes a vital retail base, services, courtyards and plazas with outdoor performance space, art galleries, art studios, residences, parks, small family-owned restaurants, outdoor cafés creating an atmosphere that attracts visitors and residents. Old Town offers well-defined pedestrian-scaled streets and places to live, work, play, shop, learn rest, celebrate, and perform.

GOAL 1: PROMOTE OLD TOWN AS A VIBRANT, ENERGETIC COMMUNITY CULTURAL HUB OF ACTIVITY THAT DRAWS PEOPLE OF ALL AGES TO LIVE, WORK, PLAY, SHOP, DINE, AND CELEBRATE THE ARTS AND HORSEMANSHIP OF THE NAVAJO CULTURE.

Policy 1: Revitalize and redevelop the Kayenta Historic Downtown to serve as the thriving historic heart of Kayenta.

Implementation Measures:

a. Identify funding, prepare, adopt and implement the Kayenta Township Core Revitalization Plan and prioritize Old Town as part of the redevelopment strategy.

b. Identifies community reinvestment programs.

c. Strengthen and enliven the existing retail base.

d. Attracts uses that support and enhance the existing retail base.

e. Encourage the preservation, restoration and adaptive reuse of underutilized historic buildings.

f. Provide opportunities for mixed-use development (first story retail, second story residential);

g. Identify appropriate zoning mechanisms for mixed-use development in the Kayenta Zoning Ordinance;

h. Prepare, adopt and implement a Navajo Artist Relocation Program to boost Old Town redevelopment efforts.

i. Make the area vibrant, attractive and safe by utilizing Safe-by-Design principles.

j. Establishes design themes including hardscapes and landscapes for the enhancement of the entire planning area that:

Mustang Trail along Kayenta's Main Street

(1) Include well-defined, authentic and high-quality streetscapes that create a vibrant street scene;

(2) Incorporate hardscapes that reflect Navajo arts and iconography and are complementary to the historic character of the area;

(3) Take into consideration all streets and alleys in the design process to create safe, efficient and convenient circulation that includes a cohesive pedestrian-friendly network;

(4) Provide multi-modal connectivity (vehicular, pedestrian, bicycle, equestrian and transit) to all adjacent planning areas via Mustang Trail and Kayenta Main Street.

k. Include boutique style small community-oriented commercial uses integrated with the mixed use that:

(1) Serves the adjacent neighborhoods;

(2) Complements the retail focus of Kayenta Main Street;

(3) Incorporates new mixed-use development that includes retail, offices and residences;

(4) Mixed-use development must comply with all applicable requirements for Mixed-Use Development provided in the Kayenta Zoning Ordinance.

l. Create shade throughout the area with shade structures that incorporate photo voltaic fabric to generate electricity for street lights, bollards, and accent lights.

m. Carefully integrate Mustang trail along Old Town.

n. Evaluate options for solar covered surface parking and/or parking structures.

o. Incorporate options for public transit including shuttle services

p. Providing aesthetically-attractive, safe and comfortably accessible crossings for all transportation modes (pedestrian, bicycle and equestrian).

q. Provide opportunities for Navajo owned bed and breakfasts within this area.

r. Identify funding, resources and partnerships to establish shuttle service and equestrian transportation to other major destinations within the Township.

s. Serve as an anchor and generator of new urban efficiency and smart growth.

t. Provides easy and convenient access to all the different planning and activity areas within Kayenta.

u. Serves as a catalyst of urban transformation.

v. Provides a solution to auto traffic and parking challenges.

Kayenta Main Street

Kayenta Main Street (Highway 163)

Kayenta Main Street Mixed-use (retail in ground level/residential in upper level)

Land Use Concept

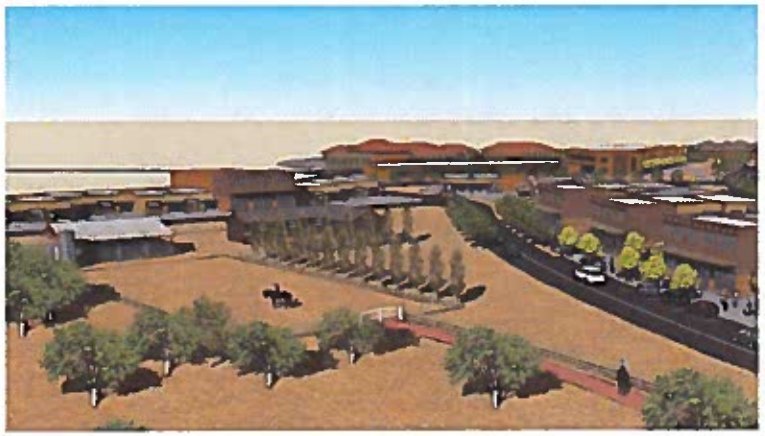
The Kayenta Main Street is located within the Kayenta Township Core character area and spans along Highway 163. This mixed-use main street corridor serves as the primary road connecting the Four Corners Center and the Kayenta Gateway Center to the Kayenta Old Town. This mixed use corridor includes residential, retail, and community centers such as the Veterans Affairs building, serving the community as well as visitors.

It provides housing opportunities for adjacent civic uses and for students attending N.A.T.I.V.E and Dine College. Main Street also serves its adjacent neighborhoods and residential areas and provides connectivity to the Laguna Creek and the Kayenta Airport regional linear parks. Kayenta Main Street also offers ample opportunities for public art as well as outdoor performance space. It incorporates small restaurants and cafes for those working on the adjacent civic uses.

Kayenta Main Street Community Centers and Outdoors Multi-use Performance Space

Kayenta Main Street Showing Mustang Trail West of Highway 163

Mustang Trail West of Highway 163



Kayenta Main Street Entrance to Equestrian Center in Old Town Next to Agricultural Area Via Mustang Trail

Kayenta Main Street includes a destination multiuse path, Mustang Trail, along the west side of the street. Mustang trail provides pedestrian, bicycle and equestrian connectivity to most planning areas within Kayenta.

GOAL 1: CREATE A VIBRANT KAYENTA MAIN STREET

Policy 1: Create the synergies necessary to develop a vibrant Kayenta Main Street that serves as a major destination corridor connecting Kayenta's major activity centers and as a focal point within this planning area.

Implementation Measures

a) Work with the Navajo Nation, the Kayenta business community and with the Kayenta Business Association to identify the public/private partnerships and funding mechanisms necessary to plan, design and develop Kayenta Main Street.

Kayenta Main Street Mixed-use (retail in ground level/residential in upper level)

b) Design Kayenta Main Street as a destination main street corridor that incorporates retail, office, restaurants, cafés, residences, community services, integrated parking and other complementary uses in a mixed-use environment.

c) Integrate open spaces, outdoor amphitheaters, gathering spaces, parks, promenades, sidewalks and trail linkages that provide connectivity to adjacent uses, parks and trails, creating a setting that makes Kayenta a destination.

d) Create shaded outdoor spaces with benches, water fountains, low walls that serve as sitting areas.

e) Incorporate landscape amenities that serve as an oasis during the summer heat for the community to gather, rest and play.

f) Provide pedestrian connectivity to transit and shuttle stops.

g) Include a shaded shuttle stop for along Main Street.

Four Corners Center

Four Corners Center (Intersection of Highway 160 and Highway 163)

Land Use Concept

The Four Corners Center is a major activity node located at the intersection of Highway 160 and Highway 163. The northern portion of the center serves as the gateway to Kayenta Main Street. Its southern portion functions as a transitional element between the higher intensity Kayenta Gateway Center located west of Highway 163 and the lower intensity regional commercial uses located east of this highway. The design of the Four Corners Centers integrates its multiple functions creating a dynamic intersection while responding to the specific needs of each corner. The design incorporates elements of Navajo believed system and Navajo iconography that can only be observe as one flies into Kayenta from the air.

Four Corners Center (Intersection of Highway 160 and Highway 163)
Plan View, Layout Design Evokes Navajo Themes and Iconography.

Northeast Corner

The Northeast Corner serves as a gateway to the Kayenta Airport including uses that greet visitors traveling by airplane. Uses appropriate for this area include airport-oriented retail, cafes, information booths, bicycle rental, car rental, greeting services, horse and jeep tours of Monument Valley, artist kiosks and any other retail and service opportunities supporting the Kayenta Airport user. This corner also serves as the main entrance or gateway to Kayenta Main Street. Providing information at this corner about Old Town in the form of directories will enhance the probability of visitors to visit the Kayenta's Old Town.

Southeast Corner

The Southeast Corner offers integrated convenience services, retail, office and hotel opportunities for families having patients at the Kayenta Health Center near by. The corner greets travelers driving from the east and serves as a transition to the adjacent regional commercial uses offering opportunities for a market place with large scale super centers serving as anchors and their accompanying retail department stores, regular retail, restaurants and services.

Southwest Corner

The Southwest Corner responds to the adjacent Kayenta Gateway Center, offering a window into the Navajo heritage, culture and traditions, inviting visitors to flow into the Gateway area for more. Appropriate uses within this corner include a Navajo Museum of Art, film industry museum showcasing the cinematography of the Southwest and the Navajo land as it appears in old westerns, equestrian museum. Additional uses include thematic restaurants featuring the Navajo culinary world, and small shops related to these museums. This corner also serves as the major point of pedestrian, equestrian and bicycle crossing for Kayenta community into the Kayenta Gateway Center, the Hospitality and Entertainment areas and the Rodeo and Fair Grounds along Mustang Trail.

Northwest Corner

The Northwest Corner responds to the adjacent Kayenta civic uses and residential neighborhoods, providing integrated convenience opportunities and gas stations and serves as a community gateway into Kayenta Main Street. This corner also serves as the major point of pedestrian, equestrian and bicycle crossing for Kayenta community into the Kayenta Gateway Center, the Hospitality and Entertainment areas and the Rodeo and Fair Grounds along Mustang Trail.

GOAL 5: DEVELOP A VIBRANT ACTIVITY NODE THAT SERVES THE MAIN FOUR CORNERS OF KAYENTA AND THEIR DISTINCT LAND USE NEEDS.

Policy 1: Create the synergies necessary to develop a vibrant Four Corners Center that serves as a dynamic activity node responding to the specific land use needs of each corner while serving as a transitional element as one moves to and from:

(1) Kayenta Airport

(2) Kayenta Main Street

(3) Regional Commercial Uses

(4) Kayenta Gateway Center

(5) Kayenta Civic Center

(6) Mustang Trail

Implementation Measures

a. Work with Navajo agencies, developers, investors and non-profit organizations to identify potential funding and to market the Four Corners to the different interest groups.

b. Engage and strengthen private/public partnerships to develop the Museum of Navajo Art.

c. Prepare an economic development strategy that targets the revival of the film industry in the Monument Valley area and identifies sponsors for the creation of a Navajo in the Films museum.

d. Design the Four Corners Center in keep with the concepts for each respective corner, responding to adjacent land use needs, serving as a transition to adjacent needs and programming the layout as an integrated activity node.

e. Incorporate plazas, courtyards, small event spaces, Navajo spirituality and iconography and Navajo public art in an integrated setting.

f. Provide connectivity to other destinations and include wayfinding elements such as directories that direct users to the different destinations radiating from the Four Corners Center.

g. Provide safe, convenient, and efficient connectivity and properly marked paved crossings on Highway 160 for pedestrians, bicycle and equestrian traveling modes along Mustang Trail.

h. Provide bicycle parking in close proximity to buildings.

i. Provide clear directional signs for equestrian users to stables located at the Hospitality and Entertainment area across from the Rodeo and Fair Grounds.

j. Provide pedestrian and bicycle connectivity to adjacent airport uses on the Northeast Corner.

k. Provide pedestrian and bicycle connectivity to adjacent regional commercial uses at the Southeast Corner.

l. Require compliance with all applicable requirements set forth in this Comprehensive Plan and in the Kayenta Zoning Ordinance.

Highway Oriented Corridor Character Area

This character area the stretch of land south of the east-west segment of Highway 160 extending from the western to the eastern urban gateways of the Township along this corridor. All land uses along this corridor require access from a primary spine road or Highway 160. The uses along this corridor are higher density/intensity revenue generating uses serving Kayenta Township and its visitors.

However, the uses along this corridor are very distinct and respond to different community needs. Appropriate transitions and treatments are required for each of these distinct uses while providing seamless continuity among the different traveling modes, streetscapes, design elements and landscape themes through cohesive and integrative site design. A master plan or a planned area development that addresses all the different components is required for development along this corridor.

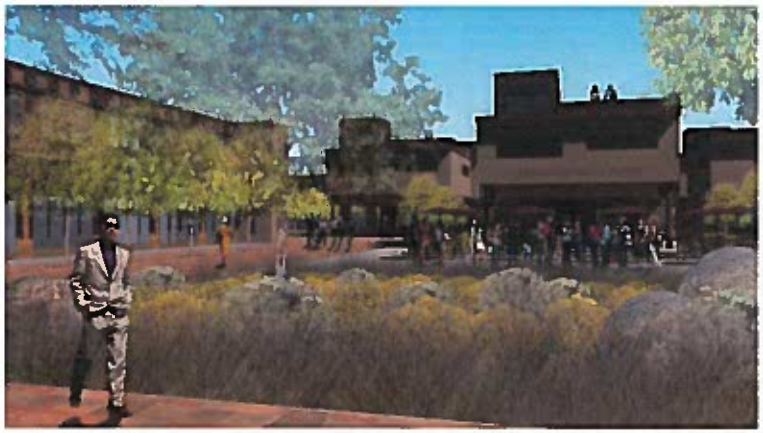
Kayenta Gateway Center, Highway 160

Kayenta Gateway Center

Kayenta Gateway Center, Highway 160

The Kayenta Gateway Center functions as the main gateway into Kayenta and Monument Valley. It includes the Kayenta Visitors Center, the Kayenta Convention Center or the Navajo Center for the Performing Arts, tourist and visitor oriented retail and services, the Navajo Artisans Courtyard incorporating a variety of activities and mixed-use live/work.

The Navajo Artisans Courtyard offers opportunities for Navajo Artist as well as artists from around the world for long term residency programs that allows them to rent space for art studio and living quarters in a layout that is inspiring and at walking distance from a variety of entertainment and art venues aimed at enliven visitors experience. The Artisans Courtyards offers common space for resident artist to teach their art media to visitors and to the community, creating a center for arts and crafts that teaches and showcases Navajo Arts to the world.



Navajo Artisans Courtyard at the Kayenta Gateway Center, Highway 160

GOAL 5: BUILD A CONVENTION CENTER OR CENTER FOR THE NAVAJO PERFORMING ARTS AND PROVIDES VENUES FOR EVENTS, MEETINGS AND CULTURAL EXPERIENCES.

Policy 1: Create the synergies necessary to develop a vibrant Kayenta Convention Center (KCC) that serves as a key contributor to the economic and cultural vitality of the Kayenta Gateway Center.

Implementation Measures

a. Work with Navajo agencies, developers, investors and non-profit organizations to identify potential funding and to market the Kayenta Gateway Center to the different interest groups.

b. Engage and strengthen private/public partnerships to develop the Kayenta Convention Center or Navajo Center for the Performing Arts.

c. Work with Dine College, N.A.T.I.V.E., Northern Arizona University and other interested universities to create an Arts Extension Campus in Kayenta that focuses on Navajo arts and to adopt an Artist Residency Program that identifies sponsors for the creation of a Navajo Arts Center.

d. Program adjacencies in an integrated manner within the Kayenta Gateway Center.

e. Incorporate plazas, courtyards, small event spaces, Navajo spirituality and iconography and Navajo public art in an integrated setting.

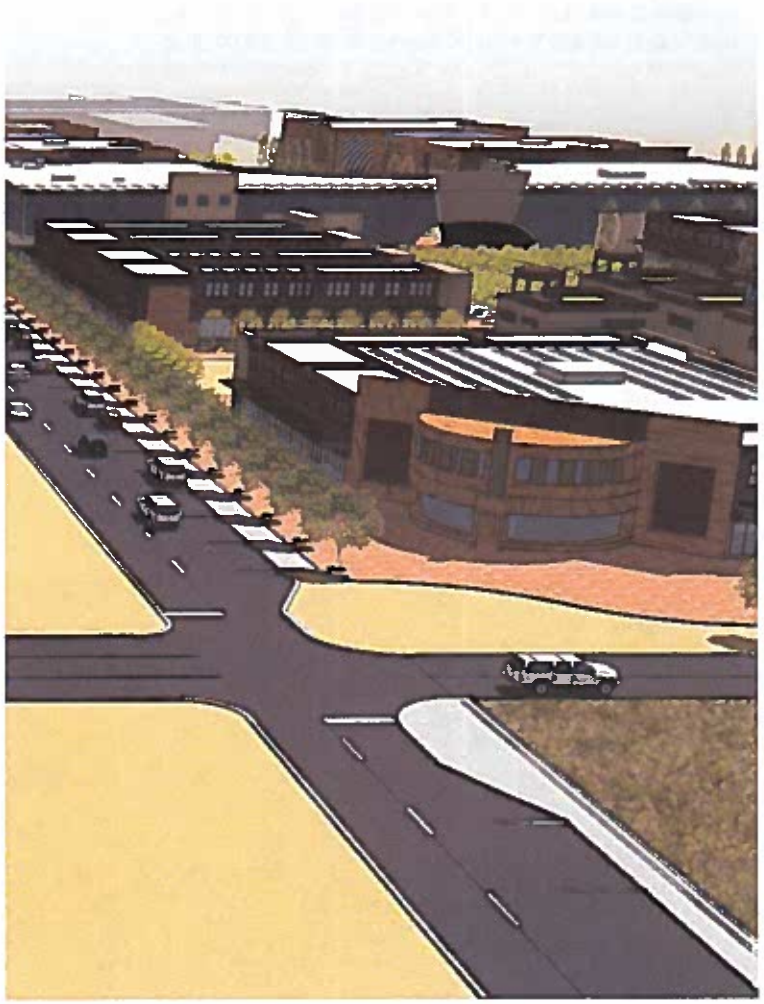
f. Provide connectivity to other destinations and include wayfinding elements such as directories that direct users to the different destinations.

g. Provide bicycle parking in close proximity to buildings.

h. Provide pedestrian and bicycle connectivity to adjacent uses.

i. Require compliance with all applicable requirements set forth in this Comprehensive Plan and in the Kayenta Zoning Ordinance.

j. Require that all new development prepare a master plan or planned area development to ensure that all programmatic design elements are kept consistent throughout the Kayenta Gateway Center.



Internal Circulator Street Serving the Kayenta Gateway Center Located Along Highway 160

GOAL 6: CREATE AN ART DISTRICT THAT IS A FOCUS OF COMMUNITY AND VISITORS ACTIVITIES, OFFERING ATTRACTIVE GATHERING PLACES AND SERVING AS THE CULTURAL HEART OF THE CITY.

Arts districts are a great tool to create placemaking or place-based destinations. If properly designed, they offer an attractive mix of gathering places, residences for artists, studio spaces, indoor and outdoor galleries, farmers markets, crafts and arts shows, community art learning center, cafés and restaurants. This type of mixed-use activity serves as the cultural heart of a community. By tapping into the creative talent of Navajo' artists, the Kayenta Navajo Arts District can become the focus of community and visitors activities, further enhancing Kayenta's sense of place and identity, and reaffirming its culture, heritage and history.

Policy 1: Create, adopt and implement the Kayenta Navajo Arts District overlay zone as part of the Kayenta Gateway Area.

Implementation Measures:

a. Develop and strengthen public/private partnerships and multi-agency collaboration from the Navajo Nation, the Arizona Office of the Governor, ADOT, Dine College, NAU, N.A.T.I.V.E., investors, philanthropists, art foundations, and non-profit organizations necessary to delineate, establish and develop the Kayenta Arts District.

b. Identify strategies to attract higher education institutions that could bring fine arts, performance, film, theater, and music programs to Kayenta to assist in the development of the Kayenta Arts District as an attractive destination that celebrates the Navajo arts, culture, traditions and folklore.

c. Establish and benefit from a Navajo Artist Relocation Program that supports the development of artist-space and residence for

Navajo artists desiring to relocate and serves as a tool for economic development.

d. Establish and benefit from the development of an Artist Residency Program through a major university Arts Extension Program to attract art students from abroad for full term residency programs to learn the techniques and art styles of the Navajo people.

e. Offer an attractive mix of gathering places, residences for artists, studio spaces, indoor and outdoor galleries, farmers markets, crafts and arts shows, cafés and restaurants within the Art District.

f. Create the synergies necessary to make the Art District function as the cultural heart of the community.

g. Require development within this overlay zone to provide connectivity to adjacent Hospitality/Entertainment District and Transit Station and Four Corners Center.

h. Provide opportunities for shared parking structures that minimize the use of the land and also service the adjacent areas.

i. Require all development within this overlay zone to prepare a Master Plan that conforms to all requirements set forth in this Comprehensive Plan and in the Kayenta Zoning Ordinance.

Kayenta Market Place (Regional Commercial)

A key element on the Highway Oriented Corridor is the Regional Commercial land or Kayenta Market Place. This commerce destination is located southeast of the Four Corners Center and east of Highway 163 along Highway 160. This land use includes large, contemporary automobile-scaled retail. Due to its location, it functions as the commerce center of Kayenta and provides opportunities for the creation of a vibrant commercial center that serves Kayenta's neighborhoods, employment centers, and tourist destination areas.

Uses permitted within this land use include highway-oriented commercial, automobile-scaled commercial, power centers, auto malls, theater and entertainment, high density commercial and mixed-use development that incorporates retail and office on the ground floor.

Currently, visitors bypass Kayenta on their way to Monument Valley and other destinations. Developing this area as a revenue-generating commerce destination that caters to both community and visitors provides opportunities to recapture a percentage of travelers utilizing Highway 160 and Highway 163. Bridging the Kayenta Market Center with all adjacent development makes a successful economic development strategy for the Township.

GOAL 1: PROMOTE KAYENTA MARKET CENTER AS THE COMMERCE DESTINATION OF THE TOWNSHIP.

Policy 1: Provide opportunities for automobile-scaled retail, outlet malls, destination power centers, high density residential, mixed-use, and landscape amenities needed to articulate the area's identity as a place making commerce destination.

Implementation Measures:

a. Establish incentives to attract automobile-scaled retail, outlet malls, power centers, boutique commerce, high-density residential and mixed-use development.

b. Identify funding mechanisms to finance and prioritize the infrastructure needed to serve these land uses.

c. Provide a shuttle or transit stop within this area.

d. Provide opportunities for public transit from the Kayenta Market Place to the different destinations within the Township.

e. Locate higher density residential and mixed-use development in close proximity to the Medical Services and Medical Support Services land uses to provide walking access to the medical services employment center.

f. Articulate the architectural and site elements of the Kayenta Market Place area as a commerce destination.

g. Requires the preparation of a PAD that integrates open space, parks, recreation and trails into the residential areas.

h. Incorporate pedestrian, bicycle, transit and shuttle connectivity to the different activity centers.

i. Ensure that all land uses within this planning area are programmed to provide seamless continuity.

j. Include appropriate landscape buffers and/or height and density/intensity transitions between residential and non-residential development.

k. Contribute to the creation of a place making destination that invites visitors as well as the residents of Kayenta.

l. Incorporate appropriate passive and active recreation courtyards in the residential areas.

m. Include signature streetscapes along Highway 160.

Highway Oriented Corridor (Medical Support Services)

A key element on the Highway Oriented Corridor, the Medical Support Services land use, or Health Services Plaza, is located east of the Kayenta Market Place along Highway 160. This land use supports the Kayenta Medical Center by providing complementary uses to the medical facilities.

Uses permitted within this land use include medical, dental and holistic or natural healing offices, outpatient clinics, medical education, research and long-term care, residences for out-patients undergoing long-term treatment, residences for families of patients who are in long-term critical care, healing spas, medical support retail, including coffee shops, restaurants, florists, gifts shops, and other support services, mixed-use residential and high density residential supporting the housing needs of the Kayenta Health Center.

Development within this area should be designed in an integrated manner, providing connectivity and clear wayfinding to the different uses and including connectivity to adjacent uses. Circulations as well as recreation and open space are integral components of the site layout. A master plan or a PAD is required within this area.

GOAL 1: DESIGN THE KAYENTA HEALTH SERVICES PLAZA AS AN INTEGRATED HOLISTIC HEALTH CAMPUS.

Policy 1: Provide opportunities for the design of a health services plaza that includes the landscape amenities needed to articulate the area's identity as a holistic health campus.

Implementation Measures:

a. Establish incentives to attract all forms of holistic healing and medical support services that complement the Kayenta Health Center located south of this land use without replicating the uses included in it.

b. Identify funding mechanisms to finance and prioritize the infrastructure needed to serve these land uses.

c. Provide a shuttle or transit stop within this area.

d. Provide opportunities for public transit from the Kayenta Market Place to the different destinations within the Township.

e. Locate higher density residential and mixed-use development in close proximity to the Kayenta Health Care Center to provide walking access to this employment center.

f. Articulate the architectural and site elements of the Kayenta Health Services Plaza as a holistic health spa destination.

g. Requires the preparation of a PAD that integrates open space, parks, recreation and trails into the residential and non-residential areas.

h. Provide opportunities for the development of a healing garden based on Navajo spiritual and holistic healing traditions.

i. Incorporate pedestrian, bicycle, transit and shuttle connectivity to the different activity centers.

j. Ensure that all land uses within this area are programmed to provide seamless continuity.

k. Include appropriate landscape buffers and/or height and density/intensity transitions between residential and non-residential development.

l. Incorporate appropriate passive and active recreation courtyards in the residential areas.

m. Include signature streetscapes along Highway 160.

Kayenta Airport

The Kayenta Airport is located north of Highway 160 and includes a strip of commercial uses along this highway corridor. Development within the Kayenta Airport planning area must support the airport and comply with the requirements set forth in the Kayenta Master Plan.

GOAL 1: WORK WITH THE KAYENTA AIRPORT AUTHORITY TO SUPPORT AND PROMOTE THE KAYENTA AIRPORT.

Policy 1: Attract compatible land uses that support the expansion and long-term viability of the Kayenta Airport.

Implementation Measures:

a. Work with the Kayenta Airport Authority to implement the Airport Master Plan and attract compatible land uses that support the expansion and long-term viability of the airport.

b. Prohibit new residential development within the Airport's Accident Potential Zones and the 65 Ldn noise contour or higher.

c. Comply with all applicable Federal Aviation Regulations requirements.

Kayenta Civic Center

Located west of Kayenta Main Street within the Kayenta Township Core Character Area, the Kayenta Civic Center includes government uses, Township buildings, and the Kayenta Justice and Detention Center. Due to its location and existing activities, this area functions as the civic heart of Kayenta.

GOAL 1: PROMOTE THE KAYENTA CIVIC CENTER AS A FUNCTIONAL AND VIBRANT CIVIC CENTER.

Policy 1: Enhance the Civic Center with courtyards, plaza, pedestrian promenades, ramadas, connectivity to adjacent uses, and attractive landscape themes to create the synergies necessary for the revitalization of the Kayenta Township Core Character Area.

Implementation Measures:

a. Establish community reinvestment programs and incentives to encourage façade improvements and the revitalization of existing Township buildings and other existing civic uses within this area.

b. Identify area for the location of a Civic Plaza that provides gathering opportunities for employees working at the Kayenta Civic Center.

c. Provide connectivity to Main Street, Mustang Trail, Old Town, and Kayenta Gateway Center.

d. Address ways to integrate court and police department facilities as well as the location of government annex buildings in an integrative manner that takes into consideration the programmatic functions and needed adjacencies of these services.

Kayenta Cemetery

Located east of the Laguna Creek Regional Linear Park and adjacent to the Kayenta residential areas, the Kayenta Cemetery offers a beautiful and private garden environment for Navajo families to honor, commemorate and remember our ancestors and loved ones. This area is not open to the public and it is only accessible by Navajo people visiting the site.

GOAL 2: ADDRESS KAYENTA CEMETERY EXPANSION NEEDS AS A LAND USE PLANNING EFFORT.

Policy 1: Work with the Kayenta Cemetery Advisory Committee to design and maintain a private, aesthetically pleasing and professionally administered municipal Cemetery.

Implementation Measures:

a. Establish a Kayenta Cemetery Advisory Committee to ensure the respectful and proper maintenance of cemetery grounds.

b. Ensure that any expansions or additions to the Kayenta Cemetery follow the guidance of the Cemetery Advisory Committee and adhere to all applicable Navajo ordinances and mandates.

c. Ensure that expansions or additions are safe, accessible, and well maintained, offer a peaceful and visually pleasing atmosphere conducive to meditation and reflection, are adequately funded for on-going maintenance, meet the needs of Kayenta community, and operate under the guidance of the Cemetery Advisory Committee according to all applicable ordinances.

Kayenta Neighborhoods Character Area

The Kayenta Neighborhoods character area is primarily a growth area including opportunities for future low-density and medium-density residential development in close proximity to employment centers, schools, regional parks, recreational facilities and neighborhood commercial land uses serving these residential areas.

Development within this character area integrates circulation, multimodal transportation, parks, recreation and open space in a seamless manner. Access to schools, neighborhood commercial services and transit are incorporated in the design of these residential areas. Neighborhood commercial activity nodes within this planning area serve the adjacent neighborhoods and provide appropriate transitions and connectivity to adjacent residential land uses. Residential areas incorporate pocket parks and community parks in conformance with the Parks, Recreation, Trails and Open Space Element.

GOAL 1: DESIGN THE KAYENTA NEIGHBORHOODS IN AN INTEGRATIVE AND SUSTAINABLE MANNER.

Policy 1: Provide opportunities for the development of high quality residential development and neighborhood commercial uses that incorporate the latest principles of sustainable design.

Implementation Measures:

Neighborhood Commercial:

a. Ensure that neighborhood commercial/activity nodes within this character area are located along the proposed bus route as shown on Exhibit 5: Kayenta Future Land Use Map.

b. Are compatible with the desired residential character of the adjacent neighborhoods.

c. Include appropriate transitions and/or landscape buffers between residential and nonresidential development.

d. Provide needed services to adjacent neighborhoods.

e. Provide connectivity to residential development, schools, open space, parks, recreation and trails.

f. Enhance the overall character of adjacent neighborhoods by providing landscape amenities and sidewalk/trail connectivity along streetscapes and perimeter buffer areas.

g. Include bus stop for transit system.

h. Comply with all applicable development standards provided in this Comprehensive Plan and In the Kayenta Zoning Ordinance.

Residential Development:

a. Comply with all applicable development standards provided in this Comprehensive Plan and in the Kayenta Zoning Ordinance.

b. Include appropriate transitions and/or landscape buffers when located adjacent to lower-density development.

c. Provide connectivity to existing schools, neighborhood commercial uses, open space, parks, recreation and trails.

d. Provide landscape amenities and sidewalk connectivity along streetscapes and perimeter buffer areas.

Industrial

There are two types of light industrial use designations within the Kayenta Designated Development Area. These are general light industrial uses and Truck Service Corridor uses. The general light industrial uses are located across the Kayenta Airport planning area along Highway 160. The Truck Service Corridor is located along the proposed Alternative Truck Route. Exhibit 5: Kayenta Future Land Use Map shows the location of these two industrial land use designations.

GOAL 1: SUPPORT THE DEVELOPMENT OF A LIGHT INDUSTRIAL INDUSTRY SECTOR TO DIVERSIFY THE ECONOMIC BASE OF THE TOWNSHIP.

Policy 1: Provide additional opportunities for industry, industry parks, distribution, warehouses, truck service corridor and industry support services within the Kayenta Designated Growth Area while ensuring land use compatibility.

Implementation Measures:

a. Include appropriate transitions and/or landscape buffers between industrial uses and lower intensity/lower density development and provide trail connectivity along buffer areas.

b. Comply with all applicable federal and state industry standards.

c. Comply with all applicable requirements included in the Kayenta Zoning Ordinance and the Kayenta Green Building Code.

Truck Service Corridor:

a. Direct truck dependent development such as distribution and warehouse, truck service stations and truck service plazas to the Truck Service Corridor.

b. Incorporate opportunities for highway oriented uses along the Truck Service Corridor that include retail sale of goods and services which appeal to the motorist and to truck service stations and hotels.

c. Includes establishments which display, rent, sell, and service trucks, motor vehicles, boats, and other related equipment.

d. Includes retail trade, personal services, and professional service that serve the motorists.

e. Permit the establishment of facilities serving the traveling public and conveniently providing needed services without endangering the movement along, as well as to and from.

f. Permit hotels, motels, gas stations, restaurants, and a motorist oriented retail activities.

General Light Industrial:

a. Direct general light industrial uses such as light manufacture and assembly uses, and auto repair and maintenance services servicing the community to the industrial area in close proximity to employment centers.

Technology and Innovation

This land use is located within the Kayenta Designated Growth Area along highway 160 at Kayenta's eastern gateway and next to the Industrial land use. This innovation zone positions Kayenta at the leading edge of technology by providing opportunities to develop high-tech industry parks, eco-parks, , high-production green-houses and contained farming, high-tech assembly/manufacture, biosciences research and development, university research park extensions, business incubators, alternative energy generation (solar/wind), solar components manufacture, and other major high-tech industry benefiting from proximity to the four states corner area, serving four adjacent states and the Kayenta Airport.

GOAL 1: TAKE FULL ADVANTAGE OF THE STRATEGIC LOCATION OF THIS PLANNING AREA IN PROXIMITY TO THE FOUR STATES CORNERS AREA AND THE KAYENTA AIRPORT.

Policy 1: Develop this planning area as innovation zone that takes full competitive advantage of its strategic location.

Implementation Measures:

a. Prepare an Economic Development Strategy designed to market, recruit and retain industry sectors appropriate for innovation zones.

b. Comply with all applicable federal and state industry standards.

c. Comply with all requirements of this Comprehensive Plan and the Kayenta Zoning Ordinance.

d. Plan, design and developed this planning area in an integrated manner that incorporates site design with the latest best practices for industry, technology and innovation, energy efficiency, and LEED standards of development.

e. Require the preparation of a PAD or master plan for this area that includes the amenities desired by today's major employers in a diversity of industry sectors.

Transit Oriented Development

This land use directs compact mixed-use development to areas designated as Transit Oriented Development in the Kayenta Future Land Use Map. The Navajo Long Range Transportation Plan 2009 identifies the location of a transit station at the intersection of the proposed Alternate Truck Route and Highway 160 west of the current Township boundary and within the Kayenta Designated Growth Area. This transit station will provide long-distance transit services to all growth areas within the Navajo Nation and other destinations. A smaller scale local transit or shuttle station is located on Kayenta's eastern gateway along the proposed bus route serving Kayenta planning areas. This local transit station includes shuttle services to all the planning areas and benefits from its proximity to major employment areas. There is opportunity to incorporate smaller scale mixed-use within the local transit station.

GOAL 1: ALIGN GROWTH MANAGEMENT TOOLS WITH ECONOMIC DEVELOPMENT PRIORITIES TO CREATE VIBRANT TRANSIT CENTERS

Policy 1: Provide opportunities for Transit Oriented Development at the West Kayenta Transit Station that supports development within Kayenta by providing:

(1) Connectivity to the Kayenta Gateway Center, the Kayenta Art District, the Kayenta Four Corners Center, and the Hospitality and Entertainment District.

(2) Access to the local shuttle and transit service.

(3) A real alternative to regional and local traffic congestion.

(4) Access to tourists from a variety of destinations via Gray Hound or other alternative transit services.

Policy 2: Provide opportunities for Transit Oriented Development at the East Kayenta Local Transit Station that supports development within Kayenta by providing:

(1) Connectivity to all employment centers, residential, commercial, industrial, hospitality, resort and golf course land uses and all destinations within the Township.

(2) Access to the regional bus transit station.

(3) A real alternative to local traffic congestion.

(4) Access to tourists from a variety of destinations inside the Township.

Implementation Measures:

a. Provide transitional elements such as height and density transitions.

b. Include landscape buffers along edges abutting lower density/intensity development.

c. Provide pedestrian-friendly landscaped streetscapes along the connecting edges that incorporate opportunities for multimodal connectivity.

b. Provide multimodal access (pedestrian, bicycle, transit, vehicular) for people with different mobility needs.

c. Comply with all applicable standards.

d. Comply with all applicable requirements provided in the different Elements of this Comprehensive Plan and in the Kayenta Zoning Ordinance.

Regional TOD Transit Station (West)

e. Work with the Navajo Nation, Kayenta Chapter, ADOT and all appropriate entities to develop the Regional Transit Station on the west side of the Kayenta Designated Growth Boundary.

f. Support a variety of mixed-use development within this TOD area that is compatible in density/intensity with the intent of this area.

g. Required the preparation of a master plan for development within this TOD area.

Local TOD Transit Station (East)

a. Work with the Navajo Nation, ADOT and all appropriate entities to develop the Local Transit Station on the east side of the Kayenta Township.

b. Support a variety of mixed-use development within this TOD area that is compatible in density/intensity with the intent of this area.

c. Required the preparation of a master plan for development within this TOD area.

Kayenta Annual Navajo Rodeo, Navajo Times, Donovan Quintero

Hospitality and Entertainment

This character area establishes a hospitality and entertainment district that supports all the surrounding land uses while serving as a catalyst for eco-tourism and economic development.

The parcel located along Indian Route 591 across from the existing Kayenta Rodeo and Fair Grounds includes the trail head for Mustang Trail and the horse stables. These uses are located adjacent to the Kayenta Rodeo and Fair Grounds and the Animal Sanctuary. This parcel provides opportunities for western type saloons celebrating the equestrian history of the Kayenta Rodeo. A small horse arena for horse training and daily shows, allowing visitors to learn the arts of roping, horse tending and horseback riding is also appropriate within this area. Establishing the Navajo Museum of Equestrian History featuring photo exhibits that display the history of horse tending in the Navajo culture could bring additional revenues while safeguarding Navajo history for future generations.

The area is designed as a tourist attraction offering a variety of rides, stables for the seasoned riders who bring their horses, and horseback riding tours of the adjacent desert lands and guided tours to Monument Valley. A variety of local enterprises spur from this area, having the Kayenta Rodeo as the focal point.

At the Kayenta Stables visitors will experience the breathtaking desert landscape on horseback rides and enjoy the valley trails, vivid sunsets, wildlife and expansive views. Economic development activities such as riding lessons, horse rides, moonlight rides, breakfast rides, steak rides and chili rides where the food is cooked on fire pits in the desert allow local vendors to incorporate their cuisine for small groups wanting to explore the Navajo ways.

The adjacent parcel offers opportunities for hotel uses, RV Park and a variety of hospitality uses catering to both the equestrian center and the Kayenta Gateway Center.

GOAL 1: PLAN DEVELOPMENT WITHIN THE HOSPITALITY AND ENTERTAINMENT AREA TO GENERATE REVENUES AND MINIMIZE THE IMPACT OF THESE LAND USES ON ADJACENT AREAS

Policy 1: Provide opportunities for small-scale and large-scale tourist-oriented businesses within this character area to employ locals and provide a variety of revenue generating activities.

Implementation Measures:

a. Work with the Central Navajo Rodeo Association and the All Indian Rodeo Cowboy Association to identify the specific needs of this area and prepare an action plan.

b. Develop the Kayenta Stables as a cohesive and integrated activity center designed to honor the environment and evoke and celebrate the Navajo ways in a respectful and culturally appropriate way.

c. Incorporate a cohesive internal circulation system providing separate horse and pedestrian connectivity to all activity areas within this character area to minimize conflicts between pedestrian and horses.

d. Develop the RV Park and parking areas in a manner that minimizes conflicts between horses, pedestrians and vehicles.

e. Provide pedestrian-friendly landscaped streetscapes along the edges that include equestrian and pedestrian connectivity.

h. Provide multimodal access to the character area (pedestrian, bicycle, transit, vehicular) for people with different mobility needs.

i. Comply with all applicable requirements provided in the different Elements of this Comprehensive Plan and in the Kayenta Zoning Ordinance.

Employment

The employment land use designation includes single-tenant or multi-tenant buildings arranged in a business park manner. This land use provides opportunities for the location of corporate headquarters, basic office space, light manufacturing, research and development, airport related facilities supporting the Kayenta Airport, and business support services, including retail servicing the needs of businesses such as coffee houses, bakeries, restaurants, cafeterias, reprographic services, and any other use complementing the activities of a well-designed and integrated business park. Development within this land use is intended to be high-intensity and highway accessible and to serve as a regional employment center.

The intent of this character area is to create an employment destination in an urban environment. Such environment includes buildings, pedestrian amenities, street-level retail or services, shared off street parking or shared parking structures integrated within buildings, outdoor amenities and access to the adjacent Kayenta Airport Linear Park and transit facilities located at the local transit station. The local transit station will provide shuttle connectivity to the Kayenta Neighborhoods and to all the planning areas.

The employment campus is built in a master planned manner to ensure circulation and access, programmatic functionality, wayfinding, and operation of facilities. Natural areas, landscape amenities, stormwater detention and collection facilities, parks and gardens, ramadas, bicycle, jogging and pedestrian paths, recreational areas, and connectivity to shuttle and transit system must be addressed in an integrative manner.

All development within this area must achieve the highest feasible LEED certification, conform to all applicable industry standards, comply with all applicable restrictions listed in the Kayenta Airport Master Plan and with all requirements in the Kayenta Zoning Ordinance and in the Kayenta Green Building Code and be energy efficient.

GOAL 1: MASTER PLAN ALL DEVELOPMENT WITHIN THE EMPLOYMENT CHARACTER AREA IN AN INTEGRATIVE MANNER

Policy 1: Require that all development within the Employment character area is planned and designed in an integrative manner by requiring the preparation of a master plan in conformance with the Kayenta Zoning Ordinance.

Implementation Measures:

a. Work with NTUA, all appropriate Navajo Nation agencies, and the U.S. Economic Development Administration (EPA) to identify the infrastructure improvements needed to make this site shovel ready to attract employment opportunities.

b. Require development within this area to comply with all applicable industry standards and with all applicable requirements listed in this Comprehensive Plan, in the Kayenta Zoning Ordinance and in the Kayenta Green Building Code.

c. Prepare a Business Park Master Plan that addresses the design character and circulation of the overall business park in accordance to the following guidelines.

d. Require development within this area to meet the highest feasible LEED accreditation and be energy efficient.

Site Planning:

a. This parcel is unique in that it is located adjacent to the proposed transit loop road. Buildings in this area must be sited with sensitivity to: each other; the Kayenta Business Park Signature Entry Boulevard; the Kayenta Business Park Signature entry and Highway 160.

b. Design buildings on this area with four-way facades.

c. Respect and utilize scenic views within this area by maintaining view corridors.

d. Buildings shall be carefully oriented as to complement the Signature entrance to the Business Park, and the intersection of this entrance and the proposed transit loop road.

e. Site buildings to leave adequate space at the intersection of Rite Road Signature Entry Boulevard with the Business Development entry road to provide for more enriched landscaping areas.

Circulation and Access:

a. Site the signature entry access to the Kayenta Business Park along the proposed transit loop road. Ensure that the entrance to the business park matches the entrance to the Transit Oriented Development area across the street and provide safe pedestrian, bicycle, and vehicular signalized crossings between these two planning areas.

b. Surface parking areas shall not be easily visible from the public right-of-way.

c. Vehicular access to the parking areas shall be at a safe distance from the intersection, and shall correspond to access ways on the opposite side of the street, as well as median breaks on the Signature Entry Boulevard.

d. Incorporate shuttle service stops in the site layout and circulation system of the Business Park.

Architectural Design:

a. The form, scale, and massing of the buildings shall respond to each other and the intersection, and shall help define the intersection as a signature entryway into the Business Park.

b. Buildings shall be contemporary in form and style, but should reflect their office or support service function, and incorporate elements of southwestern architecture.

c. A diversity of setbacks and architecture features is preferred rather than uniformity, provided that the overall Business Park maintains a cohesive identity.

Landscape:

a. Landscaping shall reflect the Signature Entry as a main gateway/focal point to the Business Park.

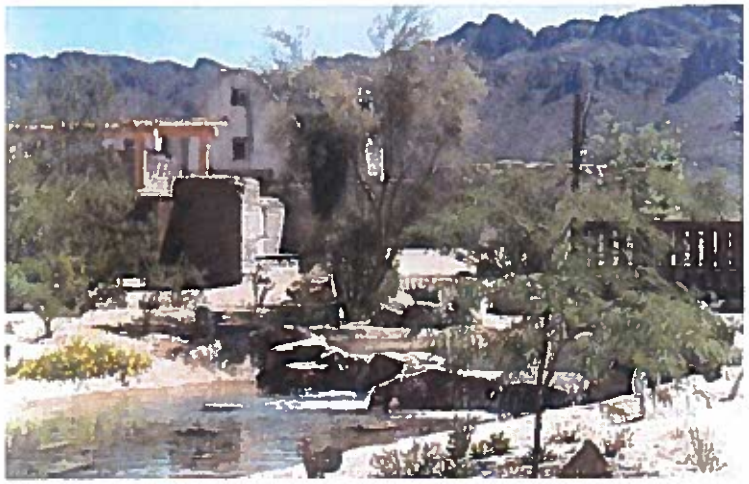
b. Accent trees with flowering color and/or palm trees should be used as plantings in accordance with the plant palette selected for the Business Park.

c. Trees should be massed to create an effect similar to native plantings in undisturbed areas.

d. Enriched paving treatments, such as interlocking brick pavers, should be used to denote crosswalks.

e. Clear views for traffic safety shall be a primary consideration when landscaping.

f. Landscaping along parcel or building entrances shall reflect the intersection as an entryway, but shall not denote the same significance given to the signature gateway into the Business Park.



Parks, Recreation, Trails and Open Space

An integrated park, recreation, trails and open space system is a critical component of any community's quality of life. In Kayenta, it is a defining element of the Township itself. The City's open space system provides places for activity and engagement, for peace and enjoyment, and for freedom and relief from the built world. It serves the social and environmental health of the Township, providing a sustainable environment. The Kayenta parks, recreation, trails and open space system is fully addressed in the Parks, Recreation, Trails and Opens Space element of this Comprehensive Plan.

GOAL 1: DEVELOP A SYSTEM OF PARKS, RECREATION, TRAILS AND OPEN SPACE THAT PROMOTES ENVIRONMENTAL STEWARDSHIP AND QUALITY OF LIFE

Policy 1: Designate land for the development of an integrate system of parks, recreation, trails and open space that provides connectivity to all the planning areas, supports a high quality of life, promotes long-term sustainability and environmental stewardship, protects environmental infrastructure and wildlife corridors and incorporates principles of habitat integration.

Implementation Measures:

a. Provide recreational opportunities that respond to the demographics of users and emerging industry trends.

b. Include innovative community-driven uses such as food production, education, and improved streetscapes as part of the parks, recreation, trails and open space system.

c. Design open spaces that include both active and passive uses.

d. Provide programming for a healthy, active lifestyle.

e. Add amenities such as concessions, where appropriate to serve and attract visitors.

f. Expand opportunities for temporary uses such as festivals, art, music concerts and farmers markets.

g. Allow active engagement with natural areas (public access/trail, wildlife observation, birding and education displays).

h. Increase cultural programming and activities based on neighborhood needs.

i. Comply with all additional requirements included in this Comprehensive Plan and in the Kayenta Zoning Ordinance.

Dove Mountain Resort Golf Course, Marana, Arizona

Resort and Golf Course

High visual quality, equestrian and pedestrian access along Laguna Wash and seclusion make the northeast corner of Kayenta the ideal place for the location of the Laguna Creek Resort and Golf Course.

The Laguna Creek Resort functions as a luxury destination spa offering a variety of holistic healing and spa services. Horseback riding tours along the Mustang Trail and Laguna Creek Regional Linear Park provide access to different destinations in Kayenta.

A small stable for horse rental and horse keeping can be developed at the resort or it can be located on the Agricultural/Equestrian Oriented lands along Highway 163, a short horseback ride away from the resort area along Laguna Creek. It is recommended that the resort provides equestrian access to the facilities.

A 9-hole executive golf course could be developed in association with the resort provided there is sufficient reclaimed water for irrigation. A passive recreation park is proposed on top of the closed landfill. Mitigation measures will need to be incorporated in the park for methane ventilation such as sealing the top of the landfill and careful turf irrigation practices.

GOAL 1: MASTER PLAN ALL DEVELOPMENT WITHIN THE RESORT AND GOLF CLUB CHARACTER AREA IN AN INTEGRATIVE MANNER

Policy 1: Require that all development within the Resort and Golf Course character area is planned and designed in an integrative manner by requiring the preparation of a master plan in conformance with the Kayenta Zoning Ordinance.

Implementation Measures:

a. Work with NTUA and all appropriate Navajo Nation agencies to identify the infrastructure improvements needed to support the development of this area.

b. Require development within this area to comply with all applicable industry standards and with all applicable requirements listed in this Comprehensive Plan, in the Kayenta Zoning Ordinance and in the Kayenta Green Building Code.

c. Require development within this area to meet the highest feasible LEED accreditation and be an energy efficient and green hotel and golf course.

d. Include a mix of hotel, conference, retail, spa services, support services, recreational facilities, golf course and golf club house within this area.

Development Standards and Design Guidelines:

a. Harmonize patterns of the past (e.g. Southwest architectural themes and styles) while introducing entirely new dynamics of community character by orienting hotel, retail, and support facilities in a manner that is responsive to adjacent residential development, Laguna Creek and spectacular views.

b. Include public art, courts, plazas, paseos, and pocket parks in the overall design.

c. Provide connectivity to Kayenta's pedestrian walkways, bicycle routes, and nature trail systems.

d. Include multimodal linkages to adjacent land uses, golf course, and golf clubhouse.

e. Design street and avenue scenes to convey arrival to a destination luxury spa hotel.

f. Provide a mix of uses that include, but are not limited to, conference center, 9-hole golf course and associated golf club house, community amenities such as health centers, fitness centers and spas, recreational facilities, and associated retail, service, and support facilities.

g. Locate golf course tees in a manner that it does not constitute a nuisance to adjacent residential areas

h. Provide convenient, accessible, and visually pleasing parking areas.

i. Parking structures within this area could liberate additional land for other desired land uses, allowing more efficient, cohesive, and user friendly design, provided that the parking structure height does not exceed the permitted height within the this area.

j. Uses in close proximity to the resort's signature entry boulevard will be hospitality, commercial and retail-dominant and serve spa, adjacent golf course and area neighborhoods

k. Uses adjacent to residential areas should be lower in both density and intensity, more community oriented, and serve the adjacent residential areas and provide appropriate density/intensity transitions or landscape buffers.

l. Casitas or hospitality villages should be located in close proximity to the golf course, club house, and recreational amenities.

m. Require that casitas or hospitality villages are located in close proximity to the residential areas in order to provide a desired density/intensity transition from resort uses to residential uses.

Site Planning:

a. The hotel and retail buildings shall physically define the entry node from the arterial road through position, size, verticality, detailing, and open space treatment.

b. The position of the buildings in relation to the Signature Entry Boulevard area shall not block the vista to the center of the development and shall incorporate view corridors with mountain views.

c. There shall be an emphasis on the interior-exterior relationship of the siting and design of the buildings where the desert setting harmonizes with architectural themes and styles.

d. The siting of hotel, golf club house, and retail buildings shall reflect sensitivity to the potential differences in scale between these uses.

e. The siting of the buildings shall acknowledge and enhance the pedestrian experience, as well as the linkages to adjacent uses and open space.

f. Unique setback distances are encouraged around access points to accommodate more intensive landscaping and hardscape treatment.

g. Retail and service-oriented uses not directly related to hospitality complex must be human scale in design and articulate the concept of a village center.

Circulation and Access:

a. It is recommended that the hotel buildings provide a turnabout/drop-off area that would enhance the entry area from the access road.

b. Major entryways to hotel buildings and retail parking areas should be staggered to avoid congestion.

c. Bicycle, pedestrian and equestrian paths should be incorporated into the design and siting of hotel and retail areas.

Architectural Design:

a. In general, hospitality areas (and grounds) should have more enhanced architectural and landscaping provisions than the retail buildings and public spaces.

b. Hotel and retail buildings should have compatible architectural styles.

c. The main entrance to the hotel is particularly important and should reflect a sense of arrival through attractive landscaping and exterior architectural treatment that makes it distinct from the rest of the buildings.

d. An atrium or lobby at the hotel entrance should be supplemented with small commercial uses to make the hotel more "visible" to the general public, and provide a source of revenue through leasing of ground-level space to retailers.

e. Materials should be local and reflect southwest architectural styles.

f. Southwestern architectural styles with stucco surfaces are preferred over stone and wood.

g. Wood cladding is not appropriate for buildings in the desert climate and should not be used.

h. Retail buildings should be pedestrian scaled with glazing at street level to allow for "window shopping".

i. Terraces and balconies are recommended as façade treatments on the hotel to provide amenity space, create shadows on the building façade, and visually break-up the building mass.

j. Metal shading screens could add a contemporary flare to the southwestern architectural features.

Landscape:

a. Accent trees with flowering color should be used as identity plantings in the Signature Entry area.

b. Shrubs and ground covers with annual or perennial color should be used to highlight key areas.

c. Provide primary landscape treatments at the signature entry, hotel main entrance and major intersections and secondary landscape treatments at driveways to clearly convey the hierarchy of the circulation system.

d. Trees should be massed to create an effect similar to native plantings in undisturbed areas.

e. Road surfaces at the Signature entry area shall be enhanced with enriched paving treatments, which should also be considered for high volume pedestrian and equestrian crossing points.

f. Parking areas should be located to minimize their visual impact, buffered with vegetation from the street, and landscaped accordingly; the emphasis in this area shall be on the "pedestrian" rather than the "vehicle".

Agriculture/Equestrian Oriented

This character area includes two distinct land uses, agriculture and equestrian oriented uses located in three distinct parcels along Mustang Trail as indicated in Exhibit 5: Kayenta Future Land Use Map.

The equestrian-oriented parcel located east of Indian Route 591 corresponds to the Kayenta Rodeo and Fair Grounds. This area is carefully planned in coordination with its adjacent Hospitality and Entertainment character area and is the home of the Kayenta Rodeo. Careful definition of the equestrian, pedestrian and vehicular circulation system providing access to this area aims at minimizing conflicts among these different travel modes.

The equestrian-oriented parcel located at the rural gateway of Kayenta along Highway 163 includes residential uses with horse property. These uses are very important in helping define the overall equestrian theme brought up by the rodeo. This area can also provide space for horse keeping and horse rental and serve the adjacent Laguna Greek Resort and Golf Course as well as horseback riders traveling along Mustang Trail. Currently horses in this area roam freely across Highway 163, creating a safety hazard for moving traffic and equines. There is a need to establish livestock regulations in the Kayenta Zoning Ordinance to keep horses properly fenced and provide fenced areas where they can roam free without becoming a safety hazard.

The agriculture parcel is located along Highway 160 and it is the historic agriculture field of Kayenta. This area continue to play a significant role in food production by including community gardens, agriculture fields and permitting new uses including Mustang Trail and contained farming

GOAL 1: PROTECT THE AGRICULTURE AND EQUESTRIAN HERITAGE OF KAYENTA

Policy 1: Protect the agricultural and equestrian heritage of Kayenta by incorporating these in the overall design of a self-sufficient community.

Implementation Measures:

e. Work with the Central Navajo Rodeo Association and the All Indian Rodeo Cowboy Association to coordinate all the equestrian uses within Kayenta in an integrative manner.

f. Protect the agricultural heritage of Kayenta by providing venues that tie food production with economic development.

g. Allow opportunities for community gardens and contained farming within the Agricultural land use designation.

h. Provide connectivity to different planning areas via Mustang Trail.

i. Adopt regulations for livestock keeping in residential areas in the Kayenta Zoning Ordinance

j. Require development within these areas to comply with all applicable industry standards and with all applicable requirements listed in this Comprehensive Plan, in the Kayenta Zoning Ordinance and in the Kayenta Green Building Code.

Corridor Development

This character area provides opportunities for the development of commercial, mixed-use, live/work and higher density residential corridor development serving the adjacent tourist oriented areas. It is anticipated that development pressures will not impact these areas until adjacent uses are developed. Therefore, this corridor will not be a priority until the Hospitality and Entertainment, the Regional Transit Station and the Kayenta Gateway Area are developed.

GOAL 1: DIRECT COMPACT LAND USES TO THE CORRIDOR DEVELOPMENT AREA THAT SUPPORT THE TOURIST ORIENTED USES IN ADJACENT PLANNING AREAS.

Policy 1: Provide opportunities for the development of compact commercial, mixed-use, live/work and higher density residential designed to serve the adjacent tourist oriented areas along this corridor as development pressure arises.

Implementation Measures:

a. Allow flexibility for market forces to better define the types of land uses appropriate within this corridor as development pressures arise.

b. Provide multimodal connectivity to adjacent areas.

c. Require development within these areas to comply with all applicable industry standards and with all applicable requirements listed in this Comprehensive Plan, in the Kayenta Zoning Ordinance and in the Kayenta Green Building Code.

Mixed-Use Development

The most important aspect of mixed-use development is the way that the project is integrated physically and functionally as to encourage pedestrian activity and walking as the primary means of moving through and around the development. Mixed-use development is encouraged in different character areas within the Kayenta Designated Growth Area.

GOAL 1: PROVIDE INTEREST AT THE STREET LEVEL TO ENCOURAGE WALKING AND TO ENHANCE THE PEDESTRIAN EXPERIENCE.

Policy 1: Align building fronts with the sidewalk or right-of-way edge providing opportunities for public art, promenades, courtyards and plazas along pedestrian corridors and including activities that enhance the pedestrian experience.

Implementation Measures:

a. Develop the ground level of a building to encourage pedestrian activity by including pedestrian-oriented elements, such as:

(1) Transparent display windows.

(2) Outdoor dining areas (cafes).

(3) Provide storefront continuity from the sidewalk

(4) Include public art or other public amenities such as fountains, benches, and sitting walls.

b. Locate on-site parking to minimize visibility from the sidewalk.

(1) Place on-site parking behind the buildings, either at-grade or within a parking structure.

(2) Provide access to parking areas through the rear of parcels.

(3) Design driveways to parking areas as part of the rhythm of the storefronts, in a way that is safe and convenient to pedestrians, providing good pedestrian visibility to drivers, and including a change in material on the sidewalk or promenade, to "warn" pedestrians where the access to the parking is located.

(4) The entrance to parking facilities should be located on a secondary street and not along highways or primary streets.

c. Locate mechanical equipment and service areas out of the public view.

d. Black, mirrored, or other opaque surfaces are prohibited.

e. Delineate new buildings and additions vertically and horizontally to reflect the human scale.

f. Incorporate a clear visual division between upper and lower floors through a change in materials, colors and use of canopies and awnings.

g. Incorporate human scale detailing through the use of reveals, belt courses, cornices, expressions of structural or architectural bays, recessed windows or doors, material or material module changes, color and/or texture differences, or strongly expressed mullions on facades of buildings that face the street.

h. Each building including a principal non-residential use (restaurants, cafes, bookstores, community centers, etc.) must incorporate at least two (2) of the following additional features on all building facades facing a public street, public plaza, or public open space:

(1) Arcades;

(2) Arbors;

(3) Contrasting building materials or textures;

(4) Street furniture at the ground floor;

(5) Outdoor eating or seating areas at the ground floor;

(6) Variations in rooflines along a single block face; or

(7) Transparent windows that allow views into and out of the building.

i. Use simple rectangular forms with horizontal roof forms on commercial and mixed-use structures.

j. Use of pitched rooflines on residential structures is appropriate provided it harmonizes with the roof geometry of adjacent buildings.

k. Use parapet walls detailed with cornice features for screening flat roofs.

l. Clearly identify the primary entrance to the building and oriented to the street.

m. Use Architectural features to provide weather protection and highlight building entrances and features.

n. Design buildings with careful incorporation of signage and lighting.

o. Design outdoor spaces to enliven the sidewalk level and provide for private open space for shoppers, employees, and residents.

p. Comply with all additional requirements included in this Comprehensive Plan and the Kayenta Zoning Ordinance.

<u>Kayenta Main Street:</u>

a. Divide buildings into modules that provide visual interest and serve to create a traditional Main Street.

b. Create modules of 25 to 50 foot wide as traditionally found in Main Street environments.

EXHIBIT 5: Kayenta Future Land Use Map

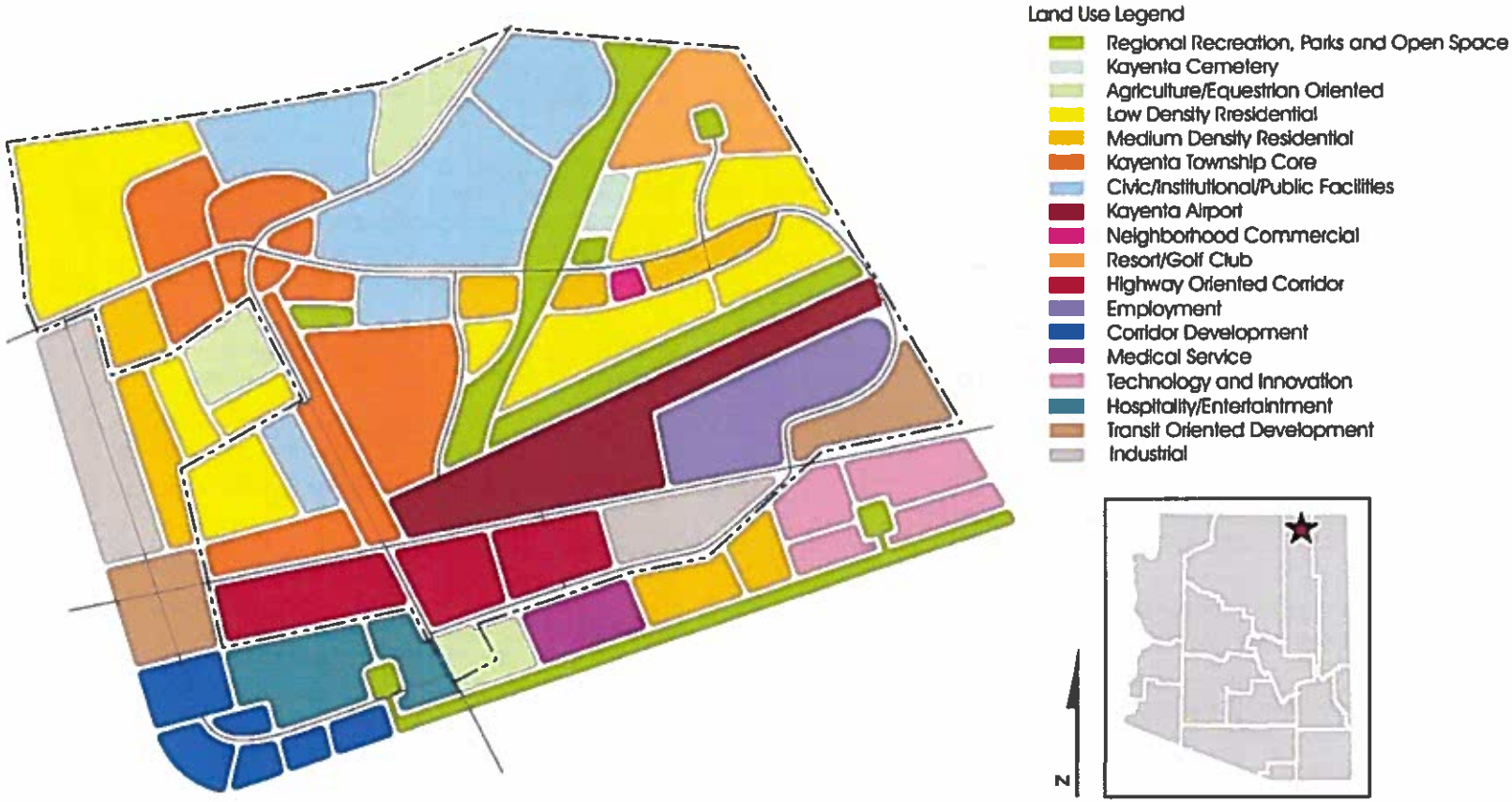
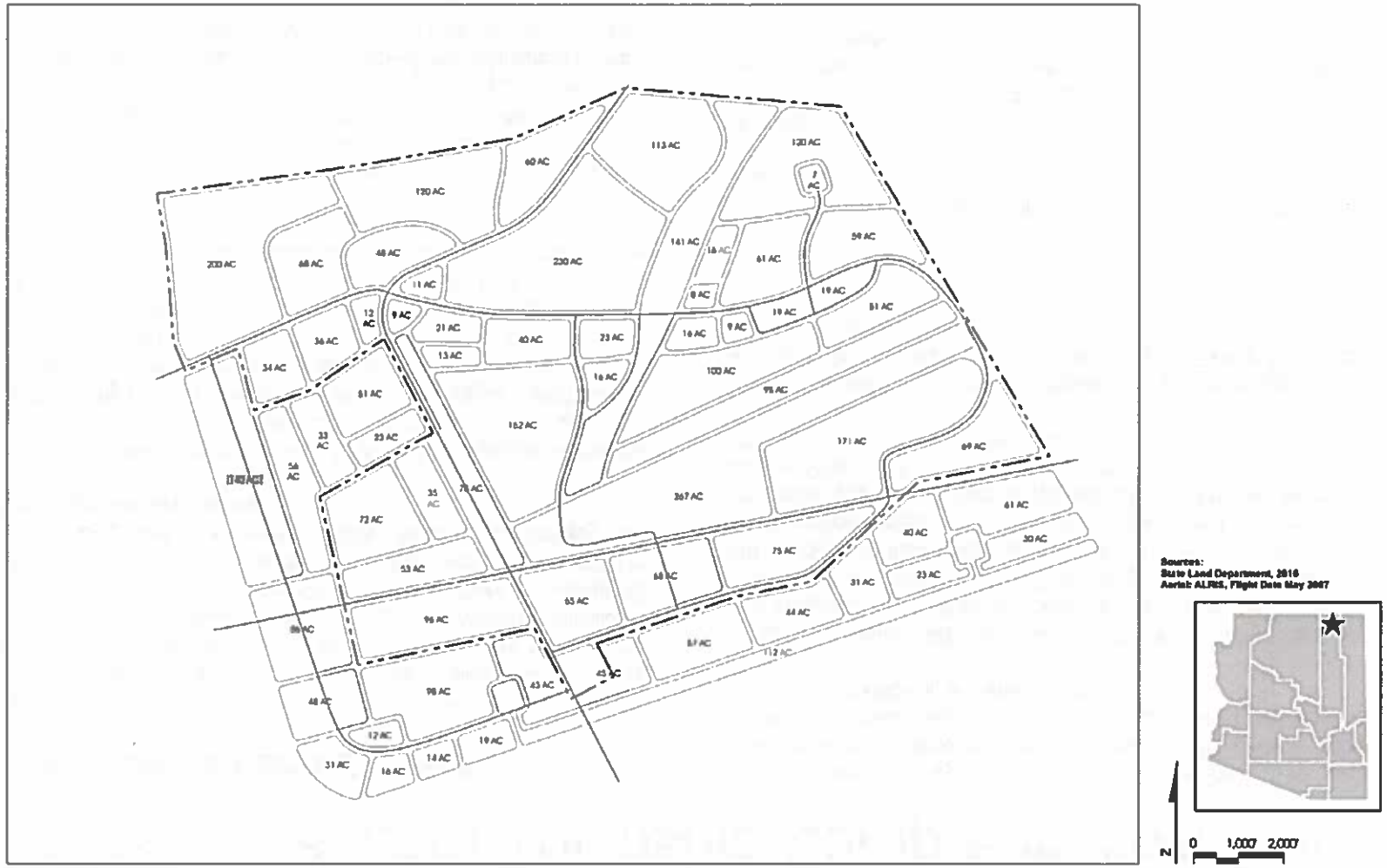


EXHIBIT 6: Kayenta Future Land Use Map (Land Use Acreage)



Transportation and Circulation

All the land, water, and air routes make up the transportation and circulation system of a community. Such system allows the movement of people and goods and is a key factor in the economic success of a region. A safe, efficient, accessible and convenient multimodal transportation system providing access and connectivity via a variety of transportation modes to all the destination areas within the Township is a vital component to Kayenta's viability, livability, sustainability and long-range economic success.

The primary and often only means of transportation across the Navajo Nation is cars and trucks. These are the primary forms of mobility for families living in the different growth centers. The Navajo Nation Growth Centers are small satellite urban communities designated for development and economic activity. Kayenta is the only Township within the Navajo Nation that functions as an urban destination. Its strategic location as the gateway to Monument Valley requires a transportation and circulation system that addresses both regional as well as local transportation and circulation needs.

The close proximity between these growth centers and their satellite communities creates commuter, home-to-work traffic and other trips between these communities. Development along the connecting corridor cannot be planned in isolation and require regional planning. Such comprehensive regional transportation efforts, addressing corridor connections between these growth centers and their satellites must also integrate street, pedestrian and bicycle circulation systems between these communities as well as the inter-modal connection needs at each community.

Currently, convenient, safe and efficient walkways defining the public realm, creating a sense of place and providing shortcuts and connectivity to goods, services, amenities, recreation, parks, trails and open space, do not exist for community members or visitors to shop, visit, or exercise. Bicycle routes are none existent. This high dependency on automobiles, makes these growth centers highly dependant on fossil fuels. As a result, both community health and the environmental wellbeing are adversely impacted.

In Kayenta, approximately ninety-seven (97) percent of the population uses the typical means of travel. These are automobiles, pick-up trucks, motorcycles and some bicycles. The Navajo Nation Transit System (NNTS) provides transit services throughout the Navajo Reservation. NNTS provides transit services between Kayenta and Window Rock. The transit bus system departs Kayenta at 6:00 AM and arrives in Window Rock at 10:00 AM. The return trip departs Window Rock at 2:00 PM and arrives in Kayenta at 6:00 PM.

There is a need to define the internal circulation of Kayenta to accommodate the future land uses designated in Exhibit 5: Kayenta Future Land Use Map.

Multimodal Long Range Transportation

Concurrent to the preparation of this Comprehensive Plan, The Arizona Department of Transportation (ADOT) is conducting the Planning Assistance for Rural Areas (PARA) study for Kayenta Township. Multimodal Long Range Transportation Study is prepared for the Navajo Nation Division of Transportation (NNDT) and addresses the needs of multiple jurisdictions as well as the needs of neighborhoods within such jurisdictions.

The principal focus of the proposed study is to address the most critical transportation planning needs identified by the Navajo Nation Division of Transportation (NNDT). Development growth centers within the Nation lack the updated transportation plans to guide their development into larger urbanized centers. There are few planned and developed streets, sidewalks and walkways around schools and housing tracts. As

a result, comprehensive planning is needed for strategic, controlled development and access management.

The multimodal transportation plan will include the following objectives:

- Develop transportation plans for rural communities of the Navajo Nation in order to promote travel safety, mobility, enhance economic vitality and improve community livability and increase community sustainability.
- Support current and long-range planning for economic and community development.
- Address transportation needs for each Navajo community in regards to multi-modal transportation needs for vehicular, pedestrian and bicycle transportation that promotes safety for community residents, commuters and visitors while enhancing the quality of life.
- Address inter-modal connections between vehicular, airport and transit systems for commuter and emergency needs.
- Recommend transportation improvements of the State and BIA and other road systems within and between these communities, including impacts to Navajo Nation's transportation network and other regional transportation systems.
- Recommend improvements of multi-modal and inter-modal transportation to address such needs within and between the communities including impacts to the Navajo Nation's total transportation network and the regional transportation system.

An extensive public participation program is included as part of this study that will allow the NNDT to actively seek input from neighbors, business owners and major stakeholders and incorporated their priorities into the plan and their program for improvements. Extensive community outreach will result in stronger community support for funding transportation improvements. A technical Advisory Committee (TAC) has been established to closely coordinate this study. The following agencies are represented on this Committee:

- Navajo Division of Transportation
- ADOT Holbrook District Engineer
- Many Farms Chapter Representative
- St. Michaels Chapter Representative
- Fort Defiance Chapter Representative
- ADOT Multimodal Planning Division
- Navajo Region Bureau of Indian Affairs
- BIA Roads Agency Engineers, Ft. Defiance and Chinle
- ADOT Environmental Planning Group
- Arizona State Land Department
- Apache County
- ADOT Communication & Community Partnership

Navajo Nation/Navajo DOT/ADOT/FHWA/Navajo County Partnership

The Navajo Nation is largely based in Arizona. The Nation also extends into Utah and New Mexico. The reservation is 27,000 square miles and is larger than 10 of the 50 states in the United States. Navajo land has a vast diversity in terrain ranging from the high desert to mountainous regions. It is well known for the majestic Red Rocks that are a breathtaking view in the Arizona sunset.

There are six scenic routes on Navajo land. One is Navajo Mountain Road that traverses 58 miles along SR98 from Page, Arizona to the intersection of US160. This route is a great way to enter the Nation for first time visitors. Second is the Kayenta-Monument Valley Scenic Byway located on US163 and is known as the "Gateway to Monument Valley." It begins in Kayenta, AZ and ends at the Utah border. Third is the Flat Mesa Rock Scenic Road that is located on US191 between milepost 467 and 510. The road weaves through northeastern Arizona. Fourth is the Fredonia-Vermilion Cliffs Scenic Road that traverses 82 miles along SR89A between mileposts 525 and 607. This is known as the gateway to the Colorado River in Marble Canyon and to the North Rim of the Grand Canyon. The fifth scenic route is Among the People Scenic Road that weaves through the high desert, mountains, valley, canyon country and lakes. It is 105 miles long from I-40 near the Arizona and New Mexico Border and north towards Canyon De Chelly National Monument on Navajo Routes 12 and 64. The last one is a road network that encompasses a web roadway in Utah and New Mexico (Navajo Scenic Roads).

2009 Navajo Nation Long-Range Transportation Plan

The 2009 Navajo Nation Long Range Transportation Plan (LRTP) is a twenty-year comprehensive plan developed and updated by the Navajo Division of Transportation (Navajo DOT) in a five-year cycle. The 2009 LRTP identifies the Nation's multi-modal transportation needs over the next 20 years and develops strategies to meet them. The plan provides long range planning policies and implementation strategies for the Navajo Indian Reservation Roads (IRR) Program improvements. It is based on a comprehensive analysis of all pertinent factors and issues affecting the Navajo Nation's existing and future transportation needs.

This transportation element builds from previous studies and defines the transportation and circulation system needed to support the vision of the community.

Transportation and Circulation Element Goals

Establishing a safe and efficient transportation network that includes access to alternate modes (vehicular, pedestrian, bicycle, transit and equestrian) is a key component for the development of Kayenta as a self-sufficient and sustainable community. This element reaffirms a commitment to the future of the Township and seeks to provide an integrated transportation and circulation system that:

1. Provides an attractive and pedestrian-friendly gateway to a revitalized Kayenta;
2. Articulates a placemaking sense of arrival to a destination;

3. Defines the different planning areas by providing a seamless and intuitive transportation and circulation network that connects all areas of the Township;

4. Serves as the main gateway to Monument Valley;

5. Improves the regional transportation system;

6. Establishes a safe, efficient and convenient regional transportation system by minimizing number of access points to Highway 160 and Highway 163 and by establishing a hierarchy of arterial, collectors, local and ring roads;

7. Minimizes local and regional traffic congestion; and

8. Includes multi-modal (pedestrian, bicycle, transit, equestrian) connectivity to the different destinations within the Township.

The implementation of the overall direction provided in this Transportation and Circulation Element, the Land Use Element, the Parks, Recreation, Trails and Open Space Element, and the Urban Design Element allows Kayenta to become a sustainable and vibrant destination with a strong placemaking identity, character and sense of place.

GOAL 1: PROVIDE A SAFE, CONVENIENT AND EFFICIENT MULTIMODAL TRANSPORTATION NETWORK THAT FURTHERS ECONOMIC DEVELOPMENT GOALS.

Policy 1: Establish and maintain a safe, convenient and efficient level of service standard for all motorized and non-motorized transportation systems within the Designated Growth Area that:

(1) Meets the community's current and projected transportation and circulation needs;

(2) Furthers the Township's economic development goals;

(3) Ensures appropriate traffic flow throughout the Kayenta Designated Growth Area; and

(4) Supports regional long-range regional transportation goals;

Policy 2: The road network supports the development intent of each character area and furthers the placemaking direction established in the Urban Design Element.

Rationale: A primary goal is to create a destination environment that serves residents and attracts visitors to the area. Kayenta's parks, recreation, trails and open space system offers a broad range of local and regional opportunities in keeping with the Township's economic development goals. Likewise, successful and functional activity centers rely on pedestrian environments that are safe and convenient with short walking distances, and include comfortable placemaking surroundings.

In addition to development adjacent to the street, this environment is also shaped by the design of the public realm, including public streets, sidewalks and gathering spaces. The circulation concept provided in this element complements the land use, urban design and economic development concepts by incorporating pleasant and convenient walking facilities, and amenities within the public street right-of-way and public spaces, such as streets, landscaped areas and plazas.

IMPLEMENTATION MEASURES

(1) Continue to coordinate regional route improvements with NDOT, ADOT, FHWA, and BIA.

(2) Ensure that all regional route improvements further Kayenta's vision and economic development goals.

(3) Require that all major and minor arterials within the Kayenta Designated Growth Area maintain a "D" Level of Service or higher in order to maintain traffic flow.

(4) Integrate the proposed Alternate Truck Route and the Proposed Transit Route as major components in the Future Land Use Plan.

(5) Require that all development proposals analyze proposed development traffic impact on the existing roadway network.

(6) Revitalize and redevelop the area of the Township designated as the Redevelopment/Rehabilitation Planning Area or Kayenta Township Core Area to incorporate an integrated and well defined system of local streets that incorporate paved, streets, sidewalks, streetscapes, multimodal connectivity to other planning areas, and 911 address system.

(7) Review all proposed roadway improvements prior to scheduling such improvement in the Capital Improvements Plan to determine if such improvement furthers the policy direction provided in this Comprehensive Plan.

(8) Where the roadway is maintained and/or operated by another jurisdictional authority, notify such jurisdiction in writing if any identified roadway improvement plans are not consistent with the policy direction of this Comprehensive Plan.

(9) Require that all development plans, area plans, master plans and planned area developments conform to the policy direction provided in this element.

GOAL 2: REDUCE THE DEPENDENCE ON AUTOMOBILE BY ENSURING THAT ALTERNATE TRANSPORTATION MODES ARE AVILABLE WITHIN THE DESIGNATED GROWTH AREA

Policy 1: Provide a comprehensive multimodal transportation network that serves existing and planned development.

Rationale: A comprehensive multimodal transportation network that integrates commuter/express service needs, circulator (local) transit needs, special service needs (such as dial-a-ride), transit service, pedestrian and bicycle access, and equestrian trails in those areas designated for equestrian mobility is integral to the long-range viability of Kayenta.

IMPLEMENTATION MEASURES

a. Conduct a Comprehensive Transit Study that addresses:

(1) Commuter/express shuttle service needs;

(2) Circulator or local transit needs;

(3) Special service needs, including Dial-a-Ride services;

(4) Regional transit and tourist traveling needs;

(5) Size and scale of regional transit station and local transit station.

b. Prepare a Kayenta Transportation Master Plan that incorporates the Comprehensive Transit Study results and the PARA Study results in conformance with the policy direction of this Comprehensive Plan.

c. Require that all development plans, area plans, master plans and planned area developments conform to policy direction provided in Kayenta Transportation Master Plan.

GOAL 3: SYSTEMATICALLY IMPLEMENT ALL APPLICABLE REGIONAL TRANSPORTATION GOALS IN A LOGICAL, EQUITABLE AND TIMELY FASHION TO ENSURE THAT ADOPTED LEVEL OF SERVICE IS MAINTAINED THROUGHOUT THE KAYENTA DESIGNATED GROWTH AREA

Policy 1: Adopt standards for fund identification, right-of-way and roadway design phasing.

Rationale: The systematic implementation of regional transportation goals in a logical, equitable and timely fashion requires the adoption of standards for fund identification, rights-of-way and roadway design phasing.

IMPLEMENTATION MEASURES

a. Establish a mechanism for the identification and allocation of funds necessary for the timely development of roadway improvements as part of the Capital Improvements Plan.

b. Require, where feasible and applicable, that road improvements are designed so they may be easily and economically upgraded to their ultimate configurations without requiring major reconstruction of the original roadway infrastructure.

c. Prepare, adopt and implement a Major Streets and Routes Plan as part of the Kayenta Transportation Master Plan that identifies the location and width of required right-of-way dedications for all Township arterial roadways at buildout.

d. Protect future right-of-way from building encroachment by establishing right-of-way setback requirements for all buildings and structures along new or improved arterial roads.

e. Require new development or expansion of existing development to provide the established right-of-way.

f. Require that roadway improvement projects are phased as recommended by the Township Engineer.

g. Require that all development plans, area plans, master plans and planned area developments conform to policy direction provided in Kayenta Transportation Master Plan and in this Comprehensive Plan.

GOAL 5: LIMIT THE NUMBER AND FREQUENCY OF CONNECTIONS AND ACCESS POINTS TO ARTERIAL ROADS

Policy 1: Limit the number and frequency of connections and access points to arterial roads by incorporating access management concepts where feasible and appropriate.

Rationale: Access Management is the process that provides access to land development while simultaneously preserving the flow of traffic on the surrounding road system in terms of safety, capacity, and speed. Access Management involves changing land use planning and roadway design practices to limit the number of driveways and intersections on arterials and highways, constructing medians to control turning movements, encouraging clustered development, creating more pedestrian-oriented streetscapes, improving connectivity, and road space reallocation to encourage efficiency.
Although Access Management is primarily intended to improve motor vehicle traffic flow, it can integrate transportation and land use planning. It can help convert automobile-oriented strip development into more accessible land use patterns that are better suited to walking, cycling and public transit.

By adopting an Access Management Program, the Township establishes a mechanism that discourages strip development by limiting direct access to arterial streets from individual parcels. A variety of techniques such as the use of median divided arterials, frontage roads, and collector streets are used to limit access points to arterial roads and provide shared access where feasible and appropriate. This approach assists the Township in maintaining the established Level of Service while providing a safe, convenient and efficient multi-modal transportation network with a well-defined public realm.

IMPLEMENTATION MEASURES

a. Work with ADOT to establish the Access Management Program.

b. Adopt an Access Management Program for highways and arterials within the Kayenta Designated Growth Area that identifies all the actions Kayenta will take to maintain the safety and traffic carrying capacity of major arterials. These actions may include enacting ordinances that control driveway location as well as design guidelines and standards for limited access that support ADOT roadway design standards as well as the development intent of each designated planning area.

c. Simplify timing for an orderly progression of traffic signal phasing through a uniform spacing pattern of all new driveways and median breaks.

d. Require that all development plans, area plans, master plans and planned area developments reflects the standards for ingress and egress adopted in the Access Management Program.

Concept Showing a Business Park with a Shared Entry Drive that Offers Limited Access

GOAL 6: PROVIDE SAFE AND CONVENIENT MULTIMODAL CROSSINGS THAT CONNECT DESTINATIONS WITHIN THE TOWNSHIP.

Policy 1: Establish safe and convenient multimodal crossings access points along Highway 160, Kayenta Main Street and at the regional and local transit stations.

Rationale: Safe pedestrian, bicycle and equestrian access points ensure the vitality of a planning area.

Safe At-Grade Pedestrian, Bicycle, and Equestrian Crossing Concept Connecting the Kayenta Civic Center and the Kayenta Main Street

IMPLEMENTATION MEASURE

a. Require all development plans, area plans, master plans and planned area developments to incorporate safe and convenient multimodal crossings at designated access points.

GOAL 7: ENSURE SAFE, CONVENIENT AND EFFICIENT MULTIMODAL TRANPORTATION IN KEEPING WITH THE DEVELOPMENT INTENT OF EACH CHARACTER AREA

Policy 1: Require that all new development respond to the specific transportation and circulation needs and the development intent of the character area where such development is located.

Rationale: Each planning and character area defined in the Growth Areas and in the Land Use elements, includes policy direction for safe, convenient and efficient multimodal transportation in keeping with the development intent of the respective area.

IMPLEMENTATION MEASURE

b. Require all development plans, area plans, master plans and planned area developments to incorporate safe, efficient and convenient multimodal transportation and support the specific development intent of the planning or character area in which such development is located.

GOAL 7: DEFINE MUSTANG TRAIL IN ACCORDANCE TO CHARACTER AREA NEEDS WITHOUT COMPROMISING SAFETY

Policy 1: Ensure that each segment of Mustang Trail is designed to reflect the character and intent of the land uses and character areas it traverses without compromising safety.

Rationale: Each planning and character area defined in the Growth Areas and in the Land Use elements, includes policy direction for safe, convenient and efficient multimodal transportation in keeping with the development intent of the respective area. It has several character segments.

Mustang Trail Segment 1: Urban

Form Rodeo Trailhead located on the west side of Indian Route 591 across from the Kayenta Rodeo and Fair Grounds to the Highway 160 crossing access point.

Mustang Trail Segment 2: Urban

Form the Highway 160 crossing access point to Kayenta Old Town Stables along Main Street.

Mustang Trail Segment 3: Urban/Rural

Form Kayenta Old Town Stables to the Laguna Creek crossing (Highway 163 natural underpass).

Mustang Trail Segment 4: Rural

Form the Laguna Creek crossing (Highway 163 natural underpass) to the Laguna Creek Resort and Golf Course.

Mustang Trail Segment 5: Rural

Form the Laguna Creek crossing (Highway 163 natural underpass) to the Kayenta Airport via the Laguna Creek Regional Linear Park.

Mustang Trail Segment 6: Urban

Form the Kayenta Airport Regional Linear Park to Kayenta Main Street with one crossing access point at Highway 163.

IMPLEMENTATION MEASURE

c. Require all development plans, area plans, master plans and planned area developments to include connectivity to Mustang Trail in conformance with the specific development intent of the planning or character area in which such development is located and in compliance with the character of the Mustang Trail segment within such area.

d. Equestrian Trail must conform with the following guidelines:

(1) Design separate trail facilities for equestrian users.

(2) Design equestrian trails wide enough to permit users to travel in both directions.

(3) Provide appropriate fencing to avoid conflicts with other travel modes.

(4) Provide a clear zone of five (5) feet or greater between equestrian trails and bicycle and pedestrian routes and trails.

(5) Provide a vegetated buffer between bicycle/pedestrian and equestrian trails with a planted median separating equestrian trails from other trail modes.

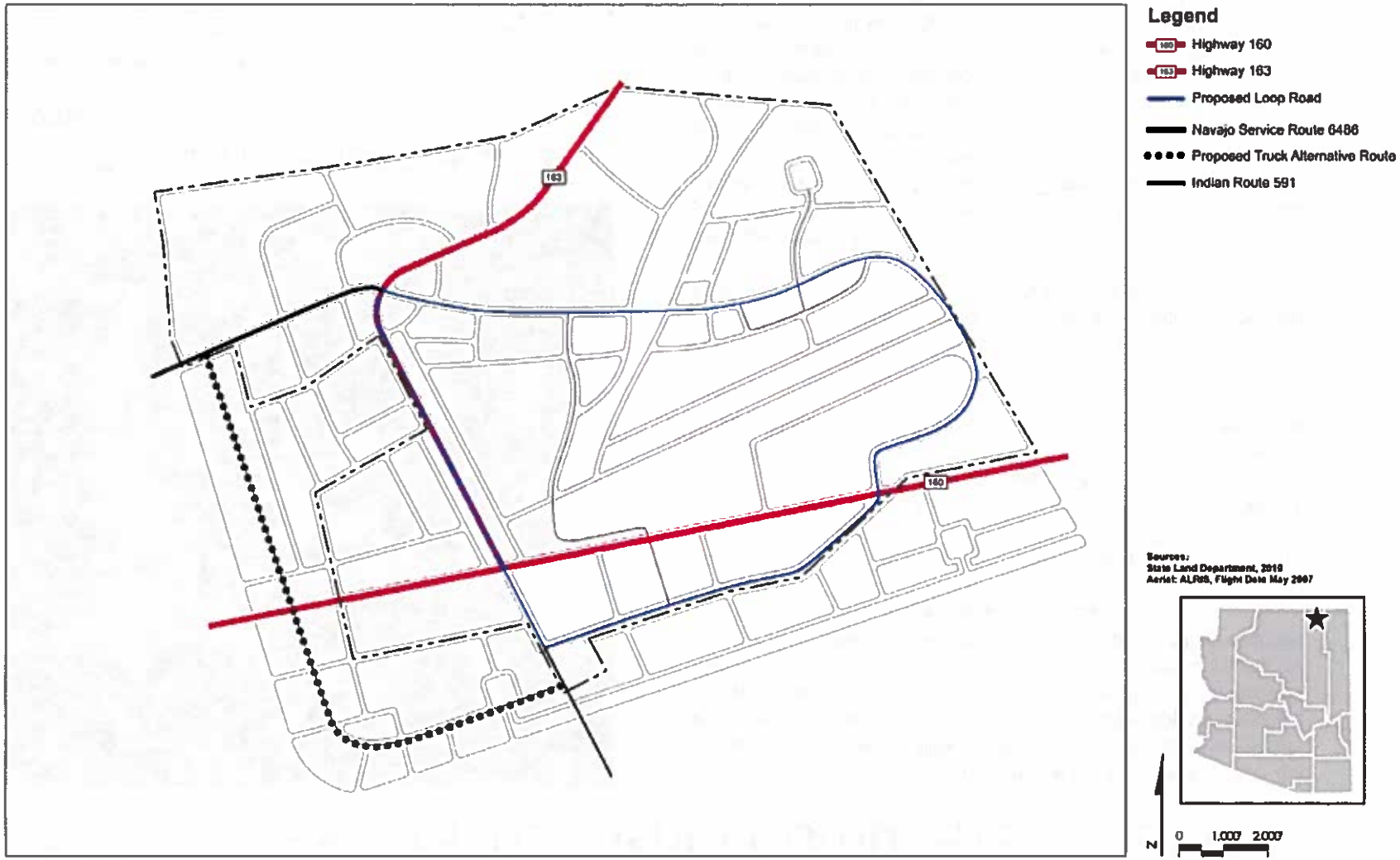
(6) Maintain a clear zone of two (2) feet from each equestrian trail to any fence or tree.

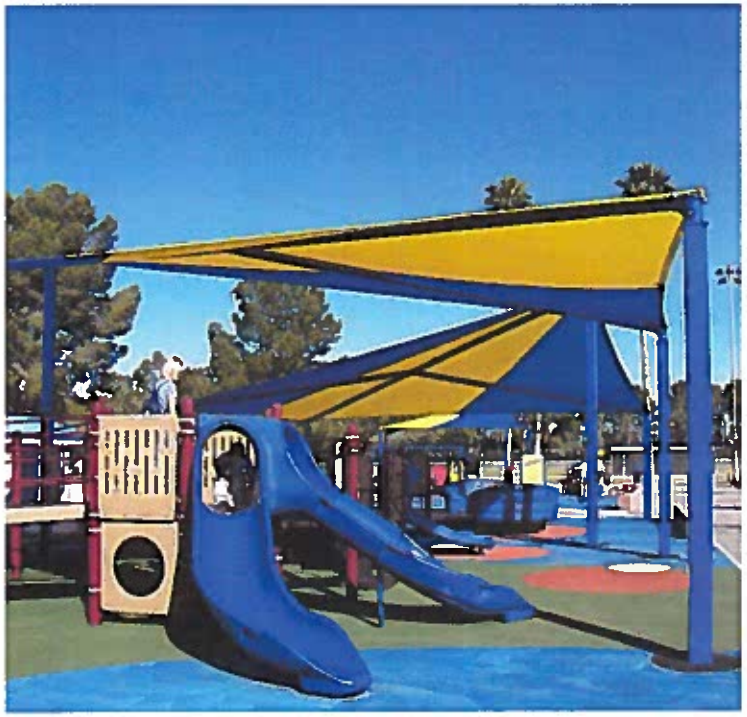
(7) Only two at-grade equestrian crossing access points are permitted along Mustang Trail: one connecting Main Street and the Kayenta Civic Center; the other one across Highway 160.

(8) Include directional signs with trail names, direction arrows, mileage to points of interest, and other relevant information where they will be clearly visible

Kayenta Township Comprehensive Plan

EXHIBIT 7: Kayenta Planned Transportation and Circulation





Parks, Recreation, Trails and Open Space Element

Kayenta residents place a high priority in the development of an integrated system of parks, recreation, trails and open space. Such system provides connectivity throughout the Kayenta Designated Growth Area. Parks, recreation, trails and open space should make up part of the natural fabric of the community and provide a sense of place and identity.

Many visitors come from all over the world to adventure into the wonders of Monument Valley. A strong system of parks, recreation, trials and open spaces lures visitors to have a longer stay and provide a variety of passive and active recreation opportunities for community members. This system functions as the unifying thread connecting all areas of the Township in a seamless manner. It also contributes to the health of the community by increasing its quality of life.

The surrounding desert valleys and mountain peaks contribute scenic beauty to the Kayenta Designated Growth Area and offer a multitude of recreational opportunities such as nature and bird watching, horseback riding, camping and outdoor activities. Kayenta's great outdoors, weather, abundant birding, hiking and biking opportunities, and its beautiful landscapes and mountain views draw visitors from around the world.

Developing Mustang Trail as a multiuse signature trail will provide the necessary connectivity desired by Kayenta's residents and will contribute substantially to the community's identity and sense of place.

This element provides a 20 year vision and the broad policy direction for parks, recreation, trails and open space within the Kayenta Designated Growth Area. In conjunction with the Transportation and Circulation Element, it provides the framework to define parks, recreation, trails, and open spaces with the placemaking quality envisioned by the community. The main objective of this element is to provide guidance for the establishment of appropriate Levels of Service for the provision of parks, recreation, trails and open space within the Kayenta Designated Growth Area. Additional policy direction for each character area is provided in the Growth Areas Element, the Land Use Element and the Transportation and Circulation Elements.

Parks, Recreation, Trails and Open Space Goals and Policies

Parks, recreation, trails and open spaces provide the community with a sense of place and identity and enhance the livability of the Township. A diverse range of active and passive recreation opportunities will meet the needs of existing and future neighborhoods and further the vision of Kayenta as a destination. The Township already has recreational amenities but lacks a comprehensive master plan to ensure coordinated planning efforts for future and existing recreational amenities.

GOAL 1: PROVIDE A DIVERSE RANGE OF ACTIVE AND PASSIVE RECREATION OPPORTUNITIES IN KEEPING WITH THE DIFFERENT CHARACTER AREAS.

Policy 1: Prepare, adopt and implement a Parks, Recreation, Trail and Open Space System Master Plan that addresses all these needs in an integrated manner.

Policy 2: Provide for a variety of recreation facilities and programs that meet the community's current and projected needs.

Policy 3: Require new development to provide connectivity to existing and proposed parks, pedestrian, bicycle, equestrian and nature trail systems to enhance the sense of place and character of the Township and link its different character areas.

Implementation Measures:

a. Prepare an Parks, Recreation, Trails and Open Space, Master Plan that:

(1) Defines walking, biking, horseback riding and hiking system throughout Kayenta in conformance with the direction of this Comprehensive Plan;

(2) Provides connectivity to Monument Valley and other regional open spaces and riparian areas;

(3) Identifies standards for passive and active recreation that exceed national minimum standards;

(4) Establishes a hierarchy of parks that includes pocket parks, neighborhood parks, community parks, and regional parks and provides appropriate standards for the development of these parks;

(5) Identifies the types of passive and active user-based recreation facilities needed to support the needs of the existing and projected population;

(6) Identifies funding opportunities for acquisition and maintenance of parks and trails;

(7) Identifies public/private partnerships that will foster this endeavor; and

b. Require all new developments to install sidewalks and provide bicycle and trail connectivity.

c. Require protection of high value ecological features including existing wildlife corridors and riparian areas.

d. Provide opportunities for community input in the planning, site selection, and design of parks or recreation facilities to ensure neighborhood and community needs are met.

e. Establish annual events such as a "Runner's Run" tour connecting all current parks and major landmarks and an annual "Kayenta Bike Tour" to Monument Valley.

GOAL 2: PRESERVE AND ENHANCE THE INTEGRITY AND QUALITY OF EXISTING PARKS AND RECREATION.

Policy 1: Protect, maintain and upgrade existing public parks and recreational facilities.

Implementation Measures:

a. Protect existing public parks and recreation facilities from new non-residential development encroachment through the provision of landscaped buffers and density/intensity transitions.

b. Identify and secure funding as part of the annual Capital Improvements Program for protecting, preserving, maintaining and upgrading public parks and recreation facilities and programs.

c. Consider charging park user fees or permits at park locations to visitors and users that live outside of the Kayenta designated service area.

d. Maintain and expand recreation programs to keep up with demographic changes.

e. Work in partnership with Home Owner Associations to ensure maintenance of existing parks within private developments.

f. Require that all development plans, area plans, master plans and planned area developments comply with all requirements included in this Comprehensive Plan.

g. Adopt and maintain Level of Service for parks, recreation trails and open space.

GOAL 3: PROVIDE CONNECTIVITY AND ACCESSIBILITY TO MAJOR DESTINATIONS WITHIN THE KAYENTA DESIGNATED GROWTH AREA.

Policy 1: Develop an integrated park, recreation, trails and open space system that provides connectivity and accessibility to:

(1) Major character areas and destinations within the Kayenta Designated Growth Area;

(2) Mustang Trail,

(3) Airport Regional Linear Park;

(4) Laguna Creek Regional Linear Park;

(5) Resort and Golf Course;

(6) Rodeo and Fair Grounds;

(7) Historic trails;

(8) Washes and riparian corridors

(9) Local and regional attractions;

(10) Monument Valley.

Implementation Measures:

b. Develop Mustang Trail as a multiuse path designed to enhance Township connectivity, provide access to all destinations and mobility needs, reduce automobile use and encourage alternative modes of travel.

c. Locate new parks and recreation facilities within walking distance of existing residential, commercial, mixed-use and employment centers.

d. Require the equal distribution of regional and community parks and recreational facilities throughout the Kayenta Designated Growth Area and in locations that provide accessibility through several modes of travel (pedestrian, bicycle, vehicular, public transit).

e. Require, wherever possible, that new parks and recreation facilities include access to public transit routes for persons with different mobility needs, elderly, teens and the economically disadvantaged.

f. Provide new and upgraded parks and recreation facilities that employ barrier-free design principles that make them accessible and safe to all community members regardless of age or physical ability.

g. Require residential areas to incorporate parks and a well-defined, integrated and accessible trail system that provides connectivity to nearby bike routes, trail systems, parks and open space.

h. Require mixed-use areas to incorporate walkways, promenades, plazas, courtyards and connectivity to nearby bike routes, trail systems, parks and open space.

i. Include a balance between programmed and non-programmed use of recreational facilities throughout the Kayenta Designated Growth Area to increase availability to the greatest variety of users.

j. Require that all development plans, area plans, master plans, and conform to the policy direction provided in this element and satisfy the connectivity, opportunity and availability components for locating and designing new parks and recreation facilities.

GOAL 4: DEVELOP MUSTAND TRAIL AS AN INTEGRATED MULTIUSE PATH LINKING ALL THE MAJOR DESTINATIONS WHILE REFELCTING CHARACTER AREA CHARACTERISTICS.

Policy 1: Develop Mustang Trail as a cohesive and integrated multi-use trail that unifies all major destinations of Kayenta while reflecting the characteristic of the character area by identifying segment character areas.

Implementation Measures:

a. Work with ADOT, as well as major local, regional and state agencies and stakeholders, to plan, design and develop Mustang Trail in accordance to criteria provided in the Transportation and Circulation Element and the guidelines provided in Table 2.

b. Provide signalized, safe and separate pedestrian and equestrian crossings at Kayenta Main Street and at Highway 160.

GOAL 5: DEVELOP THE LAGUNA CREEK REGIONAL LINEAR PARK AS A REGIONAL RECREATIONAL AMENITY THAT CONTRIBUTES TO KAYENTA'S IDENTITY AND SENSE OF PLACE.

Policy 1: Develop an integrated system of nature trails, equestrian trails, and mountain bike trails that provides connectivity to adjacent community parks, recreation facilities and land uses.

Implementation Measures:

a. Develop the Laguna Creek linear park as a regional amenity that contributes to Kayenta's identity and sense of place, serves as a regional recreational amenity and as the rural segment of Mustang Trail.

b. Include specific guidelines and design criteria necessary to implement the community's vision for the Laguna Creek Regional Linear Park in the Parks, Recreation, Trails and Open Space Master Plan.

c. Require all development adjacent to the Laguna Creek Regional Linear Park to provide pedestrian and mountain bike connectivity to this park.

GOAL 5: DEVELOP THE AIRPORT REGIONAL LINEAR PARK AS A REGIONAL RECREATIONAL AMENITY THAT CONTRIBUTES TO KAYENTA'S IDENTITY AND SENSE OF PLACE.

Policy 1: Develop an integrated system of nature trails, equestrian trails, bicycle routes, mountain bike trails that provides connectivity to regional sport fields located along this linear park and adjacent community parks, recreation facilities and land uses.

Implementation Measures:

a. Develop the Airport linear park as a regional amenity that contributes to Kayenta's identity and sense of place, serves as a regional recreational amenity, includes active and passive recreation, and functions as an urban segment of Mustang Trail.

b. Include specific guidelines and design criteria necessary to implement the community's vision for the Kayenta Airport Regional Linear Park in the Parks, Recreation, Trails and Open Space Master Plan.

c. Require all development adjacent to the Kayenta Airport Regional Linear Park to provide pedestrian and mountain bike connectivity to this park.

GOAL 6: PROVIDE AN APPROPRIATE MIX OF PASSIVE AND ACTIVE RECREATION WITHIN EACH CHARACTER AREA THAT SUPPORTS THE DEVELOPMENT INTENT OF SUCH AREA.

Policy 1: Support the development intent of each planning area by:

(1) Providing specific direction for the provision of passive and active recreation;

(2) Establishing a hierarchy of parks that serves the specific needs of the area; and

(3) Adopting standards for the provision of active and passive recreation in the Parks, Recreation, Trails and Open Space Master Plan.

Implementation Measures:

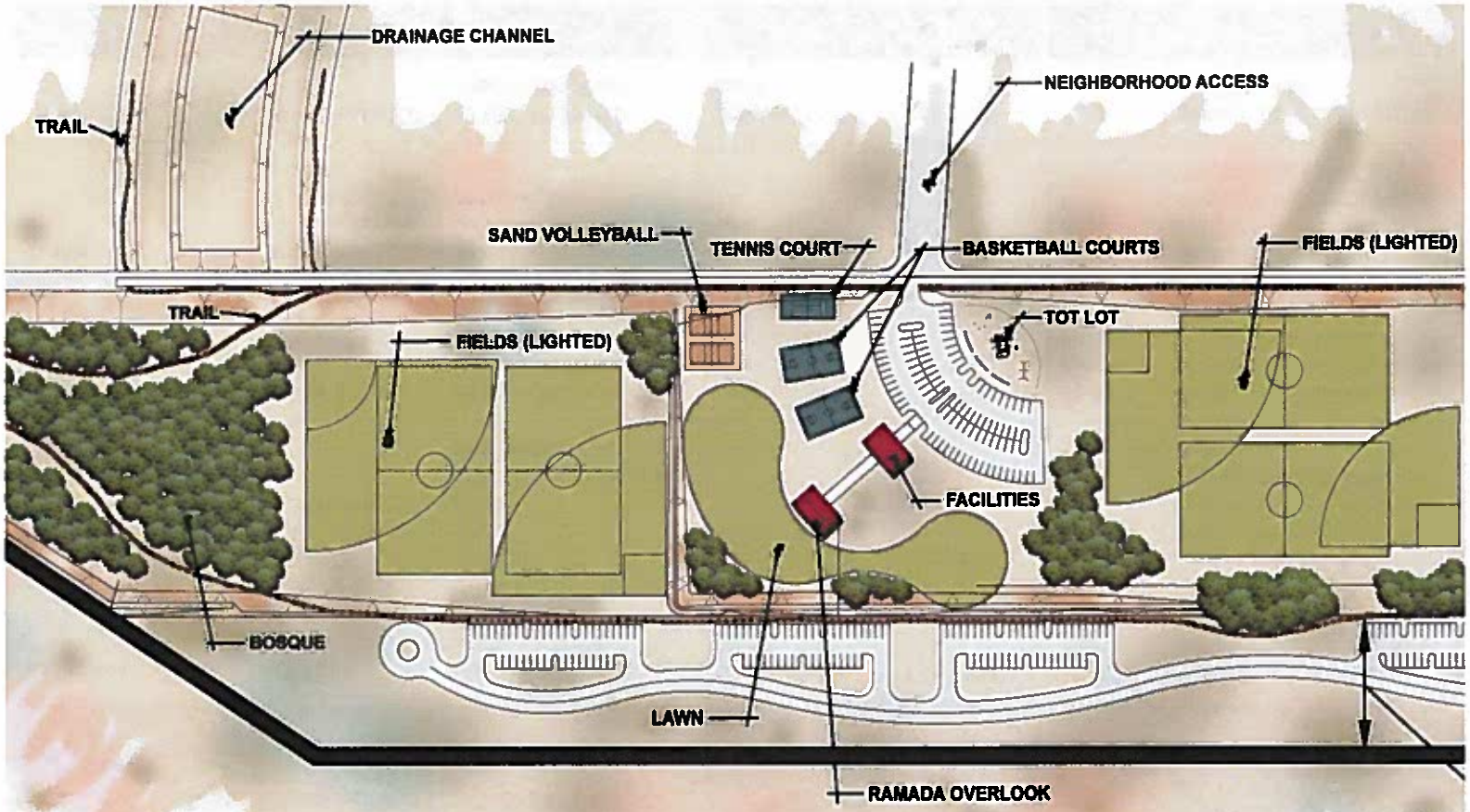
a. Prepare and adopt a Parks, Recreation, Trails and Open Space Master Plan to implement the concepts provided in this Comprehensive Plan.

b. Until the Kayenta Parks, Recreation, Trails and Open Space Master Plan is completed, provide forms of passive and active recreation selected by the community based on the national standards provided in Table 3. Table 3 includes widely accepted standards for active and passive recreation. Active recreation includes fields, courts, swimming pools, trails, and facilities that promote recreation activities. Passive recreation includes ramadas, gardens, picnic areas and facilities that allow its users to gather, relax and contemplate nature without needing to engage in a specific sports or activity.

Table 2
Mustang Trail Character Areas by Trail Segment

Trail Segment	Segment Length	Type	Bicycle	Equestrian	Sidewalk	Nature Trail	Mountain Bike
1	Form Rodeo Trailhead located on the west side of Indian Route 591 across from the Kayenta Rodeo and Fair Grounds to the Highway 160 crossing access point.	Urban	Yes	Yes	Yes	No	No
2	Form the Highway 160 crossing access point to Kayenta Old Town Stables along the west side of Kayenta Main Street.	Urban	Yes	Yes	Yes	No	No
3	Form Kayenta Old Town Stables to the Laguna Creek crossing (Highway 163 natural underpass) along the west side of Highway 163.	Urban/ Rural	Yes	Yes	Yes	No	No
4	Form the Laguna Creek crossing (Highway 163 natural underpass) to the Laguna Creek Resort and Golf Course.	Rural	No	Yes	No	Yes	Yes
5	Form the Laguna Creek crossing (Highway 163 natural underpass) to the Kayenta Airport via the Laguna Creek Regional Linear Park.	Rural	No	Yes	No	Yes	Yes
6	Form the Kayenta Airport Regional Linear Park to Kayenta Main Street with one crossing access point at Highway 163.	Urban	Yes	Yes	Yes	Yes	Yes

Notes: Fencing is required for equestrian trails along those segments that are urban in character.
Separation between equestrian and non-equestrian trails, including vegetation buffer, is required on multi-use trails that are rural in character.



Example of Active Recreation: Sand Volleyball, Basketball, Tennis Courts, Fields, The Planning Center

Table 3
Recreation, Parks, Trails and Open Space Standards

ACTIVITY/ FACILITY	RECOMMENDED SPACE REQUIREMENTS	RECOMMENDED SIZE AND DIMENSIONS	RECOMMENDED ORIENTATION	NO. OF UNITS PER POPULATION	SERVICE RADIUS	LOCATION NOTES
Badminton	1620 sq. ft.	Singles – 17'x44' Doubles – 20'x44'	Long axis north-south	1 per 5000	¼ -1/2 mile	Usually in school, recreation center or church facility. Safe walking or bike access.
Basketball 1. **Youth** 2. **High School** 3. **Collegiate**	2400-3036 sq. ft. 5040-7280 sq. ft. 5600-7980 sq. ft.	46-50'x84' 50'x84' 50'x94' with 5' unobstructed space on all sides	Long axis north-south	1 per 5000	¼ - ½ mile	Same as badminton. Outdoor courts in neighborhood and community parks, plus active recreation areas in other park settings.
Handball (3-4 wall)	800 sq. ft. for 4-wall 1000 for 3-wall	20'x40' – Minimum of 10' to rear of 3-wall court. Minimum 20' overhead clearance	Long axis north-south. Front wall at north end.	1 per 20,000	15-30 minute travel time	4-wall usually indoor as part of multi-purpose facility. 3-wall usually outdoor in park or school setting
Tennis	Minimum of 7,200 sq. ft. single court (2 acres for complex)	36'x78'. 12' clearance on both sides; 21' clearance on both ends.	Long axis north – south	1 court per 2000	¼-1/2 mile	Best in batteries of 2-4. Located in neighborhood/community park or adjacent to school
Volleyball	Minimum of 4,000 sq. ft.	30'X60'. Minimum 6' clearance on all sides	Long axis north-south	1 per 5000	¼ - ½ mile	Same as other court activities (e.g. badminton)

Source: Lancaster, R.A. (Ed.). (1990), Recreation, Parks and Open Space Standards and Guidelines, Ashburn, VA. National Recreation and Parks Association.

Table 3
Recreation, Parks, Trails and Open Space Standards
(Continued)

ACTIVITY/ FACILITY	RECOMMENDED SPACE REQUIREMENTS	RECOMMENDED SIZE AND DIMENSIONS	RECOMMENDED ORIENTATION	NO. OF UNITS PER POPULATION	SERVICE RADIUS	LOCATION NOTES
Baseball 1. **Official** 2. **Little League**	3.0-3.85 A minimum 1.2 A minimum	Baselines – 90' Pitching distance 60 ½' foul lines – min. 320' Center field – 400'+ Baselines – 60' Pitching distance – 46' Foul lines – 200' Center field – 200' – 250'	Locate home plate to pitcher throwing across sun and batter not facing it. Line from home plate through pitchers mound run east-north-east.	1 per 5000 Lighted 1 per 30,000	¼ - ½ mile	Part of neighborhood complex. Lighted fields part of community complex.
Field Hockey	Minimum 1.5 A	180' x 300' with a minimum of 6' clearance on all sides.	Fall season – long axis northwest to southwest. For longer periods north-south	1 per 20,000	15-30 minutes travel time	Usually part of baseball, football, soccer complex in community park or adjacent to high school.
Football	Minimum 1.5 A	160' x 360' with a minimum of 6' clearance on all sides.	Same as field hockey.	1 per 20,000	15-30 minutes travel time	Same as field hockey.

Source: Lancaster, R.A. (Ed.). (1990), Recreation, Parks and Open Space Standards and Guidelines, Ashburn, VA. National Recreation and Parks Association.

Table 3
Recreation, Parks, Trails and Open Space Standards
(Continued)

ACTIVITY/ FACILITY	RECOMMENDED SPACE REQUIREMENTS	RECOMMENDED SIZE AND DIMENSIONS	RECOMMENDED ORIENTATION	NO. OF UNITS PER POPULATION	SERVICE RADIUS	LOCATION NOTES
Soccer	1.7 – 2.1 A	195' to 225'x330' to 360' with a minimum 10' clearance all sides.	Same as field hockey.	1 per 10,000	1-2 miles	Number of units depends on popularity. Youth soccer on smaller fields adjacent to schools or neighborhood parks.
Golf-driving Range	13.5 A for minimum of 25 tees	900'x690' wide. Add 12' width for each additional tee.	Long axis south-west-northeast with golfer driving toward northeast.	1 per 50,000	30 minutes travel time.	Part of a golf course complex. As separate unit may be privately owned.
¼ Mile Running Track	4.3 A	Overall width – 276' Length – 600.02' Track width for 8 to 4 lanes is 32'.	Long axis in sector from north to south to north-west-south-east with finish line at northerly end.	1 per 20,000	15-30 minutes travel time	Usually part of high school, or in community park complex in combination with football, soccer, etc.

Source: Lancaster, R.A. (Ed.). (1990), Recreation, Parks and Open Space Standards and Guidelines, Ashburn, VA. National Recreation and Parks Association.

Table 3
Recreation, Parks, Trails and Open Space Standards
(Continued)

ACTIVITY/ FACILITY	RECOMMENDED SPACE REQUIREMENTS	RECOMMENDED SIZE AND DIMENSIONS	RECOMMENDED ORIENTATION	NO. OF UNITS PER POPULATION	SERVICE RADIUS	LOCATION NOTES
Softball	1.5 to 2.0 A	Baselines – 60 ' Pitching distance- 46' min. 40' women. Fast pitch field Radius from Plate – 225' Between foul Lines. Slow Pitch – 275' (men) 250'(women)	Same as baseball	1 per 5,000 (if also used for youth baseball)	¼ - ½ mile	Slight differences in dimensions for 16" slow pitch. May also be used for youth baseball.
Multiple Recreation Court (basketball, volleyball, tennis)	9, 840 sq. ft.	120' x 80'	Long axis of courts with *primary* use is north-south	1 per 10,000	1-2 miles.	
Trails	N/A	Well defined head maximum 10' width, maximum average grade is 5% not to exceed 15%. Capacity rural trails – 40 hikers/day/mile. Urban trails – 90 hikers/day/mile.	N/A	1 system per region	N/A	

Source: Lancaster, R.A. (Ed.). (1990), Recreation, Parks and Open Space Standards and Guidelines, Ashburn, VA. National Recreation and Parks Association.

Table 3
Recreation, Parks, Trails and Open Space Standards
(Continued)

ACTIVITY/ FACILITY	RECOMMENDED SPACE REQUIREMENTS	RECOMMENDED SIZE AND DIMENSIONS	RECOMMENDED ORIENTATION	NO. OF UNITS PER POPULATION	SERVICE RADIUS	LOCATION NOTES
Archery Range	Minimum 0.65 A	300' Length x Minimum 10' wide between targets. Roped clear space on sides of range minimum 30', clear space behind targets minimum of 90'x45' with bunker.	Archer facing north = or – 45 degrees.	1 per 50,000	30 minutes travel time	Part of regional or metro park complex.
Golf **1. Par 3 (18 hole)** **2. 9-hole standard** **3. 18-hole standard**	 50-60 A Minimum 50 A Minimum 110 A	Average length vary 600-2700 yd. Average length –2250 yards Average length 6500 yards	Majority of holes on north-south axis	-- 1/25,000 1/50,000	½ to 1 hour travel time	9 hole course can accommodate 350 people/day. 18 hole course can accommodate 500-550 people/day. Course may be located in community or district park, but should not be over 20 miles from population center.

Source: Lancaster, R.A. (Ed.). (1990), Recreation, Parks and Open Space Standards and Guidelines, Ashburn, VA. National Recreation and Parks Association.

Table 3
Recreation, Parks, Trails and Open Space Standards
(Continued)

ACTIVITY/ FACILITY	RECOMMENDED SPACE REQUIREMENTS	RECOMMENDED SIZE AND DIMENSIONS	RECOMMENDED ORIENTATION	NO. OF UNITS PER POPULATION	SERVICE RADIUS	LOCATION NOTES
Swimming Pools	Varies on size of pool and amenities. Usually ½ to 2 A site.	*Teaching*- minimum of 25 yards x 45' even depth of 3 to 4 ft. *Competitive* – minimum of 25 m x 16 m. Minimum of 27 square feet of water surface per swimmer. Ratios of 2:1 deck vs. water.	None-although care must be taken in siting of lifeguard stations in relation to afternoon sun.	1 per 20,000 (Pools should accommodate 3 to 5% of total population at a time.)	15 to 30 minutes travel time	Pools for general community use should be planned for teaching, competitive and recreational purposes with enough depth (3.4m) to accommodate 1m and 3m diving boards. Located in community park or school site.

Source: Lancaster, R.A. (Ed.). (1990), Recreation, Parks and Open Space Standards and Guidelines, Ashburn, VA. National Recreation and Parks Association.

Hierarchy of Parks

The National Recreation and Parks Association developed a park classification system that includes guidelines for the establishment of a hierarchy of parks. These guidelines serve as a foundation from which communities can adopt level of service standards for parks, trails, and open space. A hierarchy of parks based on these national guidelines is provided in the following section.

Typical Pocket Park Design by The Planning Center

Pocket Park

A pocket park is the smallest park in the park classification system and should be considered as an alternative when providing a typical neighborhood park is impractical. Pocket parks provide open space and meet the recreational needs in high density urban neighborhoods. The site should be residential in scale and character and provide a quiet setting for park use. It should have a strong emphasis on passive uses such as picnic and sitting areas, include shade, and provide visibility from all adjoining streets to provide an inviting and safe environment. Table 1 lists standards for pocket parks.

Typical Pocket Park Design by The Planning Center

Neighborhood Park

A neighborhood park is the basic unit of the park system and serves as the recreational focus of an individual neighborhood. Surrounding uses should be predominantly single family or multi-family residential. Playgrounds, trails and usable open spaces are generally given the highest priority.

Park development should achieve a balance between active use areas such as sport fields and game courts and passive use areas intended for sitting, picnicking and relaxing. About half of the park area should incorporate passive activities and natural features. Uses requiring chain link fencing should be minimized in order to make the park visually attractive.

Typical Neighborhood Parks Designed by The Planning Center

Neighborhood parks are not intended for programmed activities that attract users from outside the neighborhood. Noise, glare, parking problems and street congestion should be minimized to provide a secured environment.

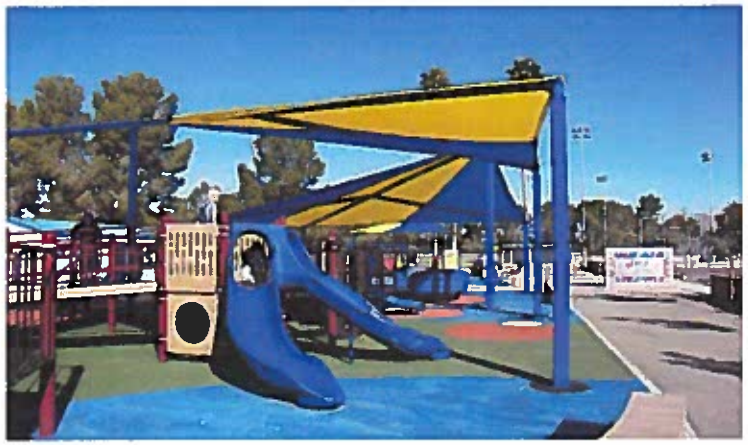
Typical Neighborhood Parks Designed by The Planning Center

Community Park

Community parks are typically larger in size than neighborhood parks and serve several neighborhoods with both active and passive recreational facilities. Group activities are well integrated and may include highly used recreational facilities such as programmed athletic sports fields, swimming pools and recreation centers, which are less appropriate for neighborhood parks due to the noise and vehicular traffic they generate.

Community parks may also contain large passive open space areas or preserve unique landscapes. About 25-50% should be undeveloped green or open space. This type of park, due to their location on major thoroughfares, provides a visual break in the built environment.

Most of the park should be visible from adjoining streets. When located abutting a linear park, it provides opportunities to connect with adjacent neighborhoods, art districts or schools via hiking, nature or biking trails along the linear park.



Example of Community Park

Typical Regional Park Designed by The Planning Center

Regional Park

Regional parks supplement community and neighborhood parks, serving broader based recreation needs in addition to those addressed in smaller parks. The increased size permits larger development of both active and passive facilities, providing a wide range of recreational pursuits.

Regional parks should include sizeable areas of undeveloped land with natural vegetation and/or water features. When possible, major thoroughfares should be routed around regional parks rather than through them. Regional parks can also incorporate linear parks and provide connectivity to the regional trail system.

Linear Park

Linear parks are greenways of open space that offer scenic beauty and allow safe, uninterrupted pedestrian, bicycle or equestrian movement along natural or built corridors. They are generally located along washes, creeks, streams or in association with major thoroughfares or boulevards. This type of park is ideal along major washes or riparian habitats or wildlife corridors. They can also serve to buffer residential areas from higher intensity uses such as the Kayenta airport. When linked to trails, walkway and bikeway systems, linear parks can provide connectivity to other parks, residential neighborhoods, schools, libraries and businesses. Linear parks provide breaks in the urban development pattern, conserve ecologically unique areas along riparian corridors, incorporate habitat restoration, and provide long stretches of open space well suited for multi-use trail systems.

Environmental Planning Element

The *General Plan Background and Current Conditions* volume provides analysis of environmental opportunities and challenges impacting the Designated Growth Area. This element includes the policy framework necessary to minimize the impacts of development on air quality, water quality, energy conservation and natural resources. The goals, policies and implementation strategies provided in this element address community wide concerns.

The policies and strategies under this element have communitywide applicability and shall not require the production of any additional environmental impact statement or similar analysis beyond the requirements of state and federal law.

This Environmental Planning Element ensures that growth and development is balanced with the protection and enhancement of the environmental infrastructure of the Township, including natural resources, open space, wildlife habitats, washes and floodplains through the use of sustainable principles. This element also addresses energy conservation, recycling, air and water quality, identifies potential flood hazards and provides policy direction for the mitigation of such hazards.

Environmental Planning Goals and Policies

GOAL 1: ACHIEVE SELF SUFFICIENCY BY REDUCING THE CARBON FOOTPRINT, PROMOTING ENERGY EFFICIENCY AND RESOURCE CONSERVATION, AND PRESERVING WILDLIFE CORRIDORS, HABITATS, WASHES, GROUNDWATER AND VIEWSHEDS.

Policy 1: Protect environmentally sensitive and riparian areas as a resource for eco-tourism.

Policy 2: Cluster development and provide integrated open space.

Policy 3: Incorporate passive and active solar methods and/or wind turbines in new development and redevelopment when feasible.

Policy 4: Investigate new technology that may reduce waste disposal costs and support alternative energy production.

Policy 5: Utilize drought-tolerant vegetation to protect environmental resources, provide shade and protection from summer heat and help reduce the heat island effect.

Implementation Measures:

a. Create guidelines to preserve and maintain undisturbed riparian vegetation and wildlife habitat and to ensure consistency in staff review.

b. Promote cluster development that provides integrated open space in new developments using implementation tools such as master plans and planned area development.

c. Establish a Utility Incentive Program to motivate customers to incorporate alternative energy sources into new and existing developments.

d. Explore opportunities in cutting-edge technology to reduce solid waste disposal and produce biomass energy.

e. Adopt a drought-tolerant plant palette that provides guidance for future development along corridors and within the major planning areas to create a distinct sense of arrival to a destination.

GOAL 2: ESTABLISH MECHANISMS TO MANAGE WATER CONSUMPTION.

Policy 1: Incorporate water conservation, reuse, and rainwater harvesting principles into new development.

Policy 2: Establish an education program that educates the community on the benefits of water harvesting, drip irrigation and sustainable options for water use and reuse as mechanisms to manage water consumption.

Implementation Measures:

a. Require that landscape plans for new development include water harvesting and drip irrigation.

b. Establish a Public Awareness Water Conservation education program that educates the community on the benefits of water harvesting, drip irrigation, and water use and reuse as mechanisms to reduce water consumption.

c. Establish a Utility Incentive Program for commercial and industrial customers designed to motivate water customers to update or replace their equipment to become more water efficient.

d. Major sources of emission in Kayenta include unpaved roads and cleared areas. Implementing programs designed to improve air quality increases the sustainability, livability and viability of the Township.

GOAL 3: PROTECT AND IMPROVE AIR QUALITY BY REDUCING SOURCES OF AIR POLLUTION.

Policy 1: Meet Federal and State Air Quality Standards by implementing programs and providing incentives designed to increase air quality and to reduce dust or fine particulate matter and carbon monoxide pollution.

Policy 2: Promote preservation of existing vegetation and revegetation of disturbed areas and limit premature removal of vegetation to assist in dust control.

Implementation Measures:

a. Implement programs to reduce dust pollution, such as paving roadways, and adopt and enforce ordinances relating to grading, dust control and construction regulations.

b. Develop programs to improve connectivity and walkability throughout the Township to encourage alternative modes of transportation that reduce emissions.

c. Implement programs designed to reduce emissions from industrial, manufacturing and vehicular sources.

d. Require preservation of existing vegetation and revegetation of disturbed areas and limit premature removal of vegetation whenever possible through the use of mitigation techniques in development plans, master plans, planned area developments and other implementation tools.

GOAL 4: PROTECT WATER QUALITY BY REDUCING SOURCES OF WATER POLLUTION.

Policy 1: Meet Federal and State Water Quality Standards by implementing programs designed to increase water quality.

Implementation Measures:

a. Continue to work with all appropriate agencies and ADEQ to ensure water quality.

b. Create an education and outreach campaign that educates the community on water quality management.

GOAL 5: MAINTAIN, PRESERVE AND PROTECT THE DESERT CHARACTER AND ENVIRONMENT OF KAYENTA TO FURTHER THE COMMUNITY SUSTAINABILITY AND ECONOMIC DEVELOPMENT GOALS

Policy 1: Retain and enhance where possible, the desert character of the area through the use of context sensitive solutions.

Policy 2: Enhance the connectivity and walkability of the Township to provide adequate access to natural features.

Policy 3: Promote Kayenta as a destination for eco-tourism.

Implementation Measures:

a. Incorporate Context Sensitive Design into planning decisions whenever possible.

b. Develop programs to preserve important riparian areas and wildlife habitats.

c. Develop programs to improve connectivity and walkability and ensure adequate access to natural features in accordance with the direction provided in this Comprehensive Plan.

GOAL 6: PREVENT FLOOD HAZARDS IN AREAS ALONG THE WASHES AND MAJOR DRAINAGEWAYS.

Policy 1: Work with the Federal Emergency Management Agency (FEMA) to minimize flood hazards and to build a resilient community.

Implementation Measures:

a. Work with Navajo Agencies and FEMA to obtain FEMA Letter of Map Revision adopting most recently completed floodplain maps.

b. Apply for Flood Insurance Rate Maps (FIRM) status with FEMA.

Community Facilities and Services Element

Community facilities include all public utilities, such as water collection, treatment, and distribution; wastewater collection and treatment; waste treatment and storage facilities; electrical utilities; schools; fire, rescue and emergency medical services; police protection; and libraries. Community facilities may also include hospitals, community centers, and other public and quasi-public facilities.

Community facilities provide services to the community. For land to be developable there must be access to a network of supporting infrastructure and community facilities, such as road frontage, potable water, and waste disposal. Property without these services generally has a lower value in land planning and development. Community facilities are integral parts of commercial centers, industrial and office parks, employment centers, civic centers and residential neighborhoods.

The Kayenta Civic Center includes governmental offices and it is a land use designation in the Kayenta Future Land Use Plan Map. A power plant may be planned in conjunction with an industrial land use. Other facilities, such as waterworks, sewage treatment plants, power substations, recycling centers and landfills have special location considerations and can be planned for separately. However, it is important to keep in mind the effect of such facilities on the future development of the areas in which they are located.

The *Background and Current Conditions* volume assesses community facilities and services adequacy for serving present and future needs. This element includes goals to achieve the placemaking character and long-range viability expressed in the community vision that will make the Township a self-sufficient sustainable destination. It also includes the policy direction and associated implementation measures for providing the desired level of public facilities and services throughout the planning horizon. The purpose of this element is to provide policy direction needed to:

1. Assist the Township in coordinating the planning of public facilities and services to make the most efficient use of existing infrastructure;
2. Align infrastructure needs with Township Economic Development Goals.
3. Facilitate identification of future investments and expenditures for capital improvements and long-term operation and maintenance costs for each character area; and
4. Provide a monitoring system that assists the Township in monitoring and managing growth.

Community Facilities and Services Element Goals

GOAL 1: ALIGN ECONOMIC DEVELOPMENT GOALS WITH THE PROVISION OF FUNCTIONAL, EFFECTIVE AND EFFICIENT PUBLIC AND PRIVATE FACILITIES AND SERVICES

Policy 1: Adopt a Community Facilities Management System that facilitates the functional, effective and efficient delivery of public infrastructure needed to sustain existing and planned development and includes:

(1) Stormwater management system;

(2) Potable water distribution system;

(3) Wastewater collection and disposal system;

(4) Solid waste collection and recycling; and

(5) Water harvesting and greywater systems.

Rationale: A primary goal of the Township is to create a self-sufficient sustainable destination. A Community Facilities Management System facilitates identification of priorities for the Capital Improvements Plan. Such integrated approach allows the Township to respond to prioritized needs and to phase infrastructure.

IMPLEMENTATION MEASURES

a. Promote joint use of stormwater detention areas for parks, sports fields and open space.

b. Identify funding options for the phased provision of a functional, effective and efficient water distribution and delivery system to major character areas.

c. Identify funding options for the phased provision of effective and efficient sanitary sewer collection, disposal and treatment system and for the treatment of effluent to provide safe wastewater disposal to major growth areas designated in the Growth Area Element.

d. Expand the existing sanitary sewer to include areas where septic tanks exist with a housing density of one (1) dwelling unit per acre or with non-residential users.

e. Prepare a Water and Wastewater Master Plan that reflects the development intent of each major character area.

f. Develop a waste management collection system that includes recycling options.

g. Identify options in the Community Facilities Management System for water harvesting, water use and reuse and greywater systems for residences, employment, commerce and industry.

h. Require that all development plans, area plans, master plans and planned area developments reflect the policy direction provided in this element.

GOAL 2: ALIGN ECONOMIC DEVELOPMENT GOALS WITH PUBLIC PROTECTION AND SAFETY

Policy 1: Include the Police Department, Fire and EMS needs in the Community Facilities Management Systems to facilitate the functional, effective and efficient delivery of public protection and safety.

Rationale: Public protection and safety is a primary goal of the Township. Therefore, in prioritizing the cost of safety and protection and identifying pro-active safety programs as the designated character areas are developed is essential.

IMPLEMENTATION MEASURES

a. Support the needs of Kayenta Police Department by:

(1) Planning the replacement of police vehicles as part of the Capital Improvements Plan;

(2) Identifying opportunities to provide maintenance to police and other Township vehicles with a Township maintenance shop.

(3) Coordinating transportation improvements with the Police Department to ensure safe, efficient and effective delivery of services.

b. Meet the administrative and operational space needs of a growing Police Department by planning for adequate location, operation and office space for the Police Department so that response time is maintained as the growth areas develop.

Policy 2: Ensure appropriate Police, Fire and EMS response times.

Rationale: As major growth areas develop, future fire and EMS station locations are must be determined. The Township promotes joint use locations for fire, police protection and EMS where feasible and appropriate to minimize costs and maintain response times. A detriment to response times in Kayenta is the lack of street definition and the absence of a 911 address system. These need to be addressed as part of the redevelopment and rehabilitation efforts of the Kayenta Redevelopment/Rehabilitation area delineated in the Growth Areas Element.

IMPLEMENTATION MEASURES

a. Support fire protection needs by:

(1) Maintaining adequate water supplies and facilities for emergency response.

(2) Studying, and revising as necessary, the location of fire hydrants in underserved areas.

(3) Coordinating transportation improvements with the Fire Department to ensure safe, efficient and effective access and maintain response times.

b. Include a Fire Department and Emergency Management Services needs assessment in the Community Facilities Management System and monitor development to anticipate the need for:

(1) Fire Department administrative office and fire station space;

(2) Training facility, equipment and staff;

(3) Fire prevention and safety education and awareness programs and materials;

(4) Emergency vehicle access to new development as designated growth areas develop; and

(5) Emergency vehicle access during flood events by providing appropriate stormwater management.

c. Require that adequate water supply and water pressure are available on-site at the time of development or redevelopment.

d. Develop and maintain programs that remove or renovate structures that are fire hazards.

e. Encourage the use of fire-proof or fire resistant materials in new construction.

f. Update zoning, building and fire codes to meet accepted fire insurance requirements.

g. Require that all area plans, master plans and planned area developments conform to policy direction provided in this element.

GOAL 3: DEVELOP QUALITY EDUCATION FACILITIES IN KEEPING WITH ECONOMIC DEVELOPMENT GOALS

Policy 1: Support the establishment of a high-quality public education system offering a full range of educational opportunities.

Rationale: A sustainable community benefits from the creation of a strong working force that becomes a magnet for industry attraction.

IMPLEMENTATION MEASURES

a. Work with NAU, Dine College, N.A.T.I.V.E, and Kayenta School District to identify high-quality job training programs to increase the skill level of the Township work force.

b. Promote opportunities for post-secondary, continuing education and vocational training by actively:

(1) Supporting development of vocational training centers, and junior college facility to serve residents and businesses;

(2) Increasing work force skills to attract high-wage paying industries;

(3) Supporting the public library system;

(4) Supporting the development of technology and innovation, agricultural extensions and a sustainability program; and

(5) Pursuing a variety of arts programs to complement the Arts District.

GOAL 4: ADOPT WASTE MANAGEMENT PROGRAM IN KEEPING WITH ECONOMIC DEVELOPMENT GOALS

Policy 1: Establish a comprehensive waste management program that includes solid waste, recycling, wildcat dumping, littering and trash reduction programs.

Rationale: Maintaining the community clean and recycling are major goals of any sustainable community. Currently, the honor students at the Monument Valley High School have a clean up and litter collection program. Educational programs are beneficial, instilling a sense of pride and improving the sense of place.

IMPLEMENTATION MEASURES

a. Work with NAU, Dine College, N.A.T.I.V.E, Monument Valley High School and Kayenta School District to develop curriculum on litter, recycling, adopt a highway, weed and seed, back to basics and any other program suitable for students to learn about these concepts at an early age and to develop adult education programs addressing these.

b. Work with Kayenta Business Association, community association, non-profit organizations to identify volunteer groups for litter removal.

c. Work with detention center to identify prisoners with good conduct that can participate in community trash removal programs.

d. Continue efforts to identify other locations to implement the "Adopt a Highway Program."

e. Apply for grants to establish a comprehensive waste management program that includes solid waste collection and reduction, recycling, wildcat dumping, littering and trash reduction programs.

f. Establish a comprehensive waste management education program that includes literature, videos and brochures.

g. Adopt, implement and enforce a litter fine for both visitors and community members.

Water Resources Element

GOAL 1: ALIGN ECONOMIC DEVELOPMENT GOALS WITH THE ADEQUATE HIGH-QUALITY SUPPLY OF WATER NEEDED TO SUSTAIN THE CURRENT AND PROJECTED POPULATION AND ACHIEVE SELF-SUFFICIENCY

Policy 1: Provide an adequate water supply of potable and non-potable water to serve the current and projected population, commerce, employment and industrial needs of the Kayenta Designated Growth Area.

IMPLEMENTATION MEASURES

a. Ensure adequate water supply to meet current and future needs.

b. Identifying various methods to recharge water to the ground sub-basin.

c. Recharging treated effluent in the Laguna Creek bed to support riparian vegetation and wildlife corridor creation.

d. Removing lands from the floodplain and recharge treated effluent to reconstruct a portion of Laguna Creek.

e. Locate and develop additional sources of groundwater for potable and non-potable needs.

f. Require that the Water and Wastewater Master Plan to identify the adequate water supply to serve current and forecasted population, commerce and industry in conformance with the:

(1) Economic development intent of each character area provided in this Comprehensive Plan;

(2) Land use distribution, densities and intensities included in this Comprehensive Plan; and

(3) Policy direction provided in the Community Facilities and Infrastructure Element.

(4) Implement water reuse and recharge opportunities to provide a reliable and high-quality water supply;

(5) Implement water conservation/drought management measures.

GOAL 2: ENCOURAGE THE ESTABLISHMENT OF WATER CONSERVATION STRATEGIES TO MANAGE WATER CONSUMPTION AND ENSURE FUTURE WATER SUPPLY

Policy 1: Identify water conservation strategies for each character area.

Rationale: Encouraging water conservation strategies supports the sustainability goals of the Township and assists in providing the water supply needed to serve current and future residential, employment, commerce and industry needs.

MPLEMENTATION MEASURES

a. Discourage the use of turf in residential, employment, commercial and industrial landscapes and along roadways in the public realm.

b. Encourage the use of air paved gravel and air grass systems in lieu of turf for sports arenas and golf courses.

c. Adopt a drought tolerant plant palette and provide incentives for the use of xeriscapes.

d. Encourage the use of efficient irrigation systems (drip/low flow) and water harvesting features in all new development or redevelopment.

e. Continue to inspect new constructions for low-water use equipment as specified in the green building code.

f. Balance water management with urban heat island mitigation by furthering the heat island mitigation goals and policies provided in the Environmental Planning Element.

g. Require that all development conform to the policy direction provided in this element.

GOAL 3: IMPLEMENT SUSTAINABLE WATER MANAGEMENT WITHIN THE DESIGNATED GROWTH AREA

Policy 1: Include supply-side sustainable water management measures such as water reuse and alternative water supplies.

Rationale: Sustainable water management involves supply-side measures such as water reuse, effluent and other alternative water supplies like appropriately treated rainwater.

IMPLEMENTATION MEASURES

a. Utilize recycled water for landscape irrigation and irrigation purposes and for large turf areas such as golf courses, sports fields, community parks and street landscapes.

b. Supports the use of greywater in residential development.

c. Utilize appropriately treated rainwater as an alternative water supply (water harvesting).

GOAL 4: EDUCATE COMMUNITY ON WATER CONSERVATION MEASURES

Policy 1: Continue to promote public awareness to reduce water use.

Rationale: Sustainable water management measures involve educating the public on demand-side water conservation measures such as installing water-efficient appliances, bathroom fittings and being 'waterwise'.

IMPLEMENTATION MEASURES

a. Continue to work with school districts and Navajo agencies to enhance awareness.

b. Support creative and effective water conservation educational programs.

c. Participation in regional advertising campaigns to enhance awareness.

d. Support voluntary programs to retrofit residential and commercial structures with low flow fixtures and recirculating hot water systems.

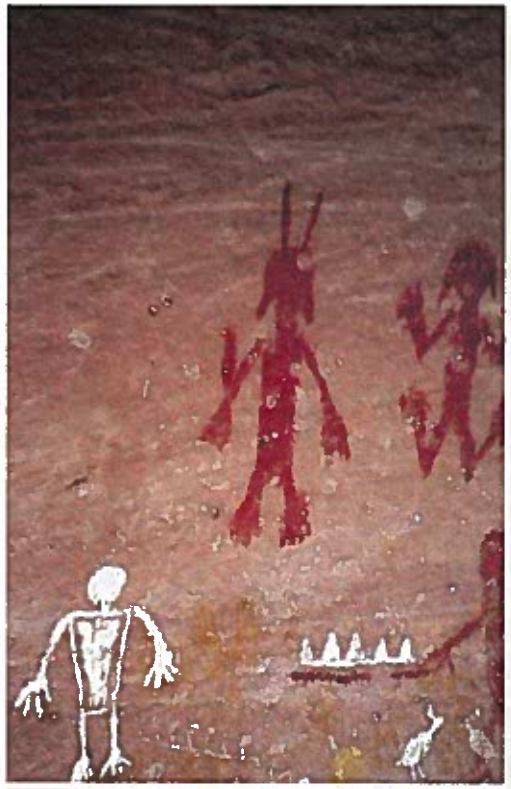
KAYENTA TOWNSHIP

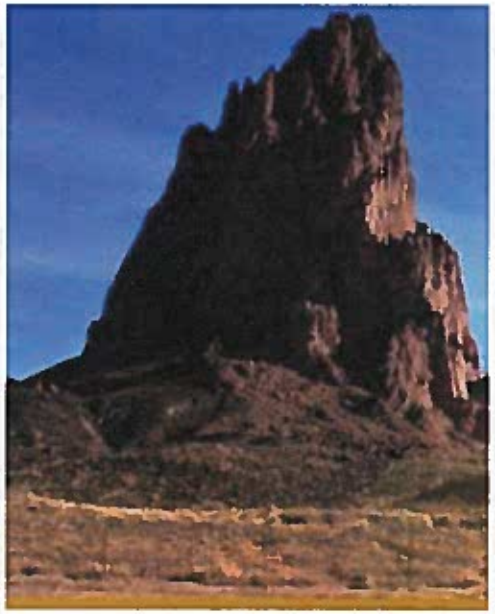
COMPREHENSIVE PLAN

BACKGROUND AND

CURRENT CONDITIONS VOLUME

Kayenta Township Comprehensive Plan





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ARROWHEAD
ENGINEERING, INC

Background and Current Conditions Volume

Kayenta Township, Navajo Nation, Arizona

Kayenta Township Comprehensive Plan

Prepared for

Kayenta Township
P.O. Box 1490
Kayenta, AZ 86033

Prepared by

The Planning Center
110 South Church Avenue, Suite 6320
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November 30, 2011

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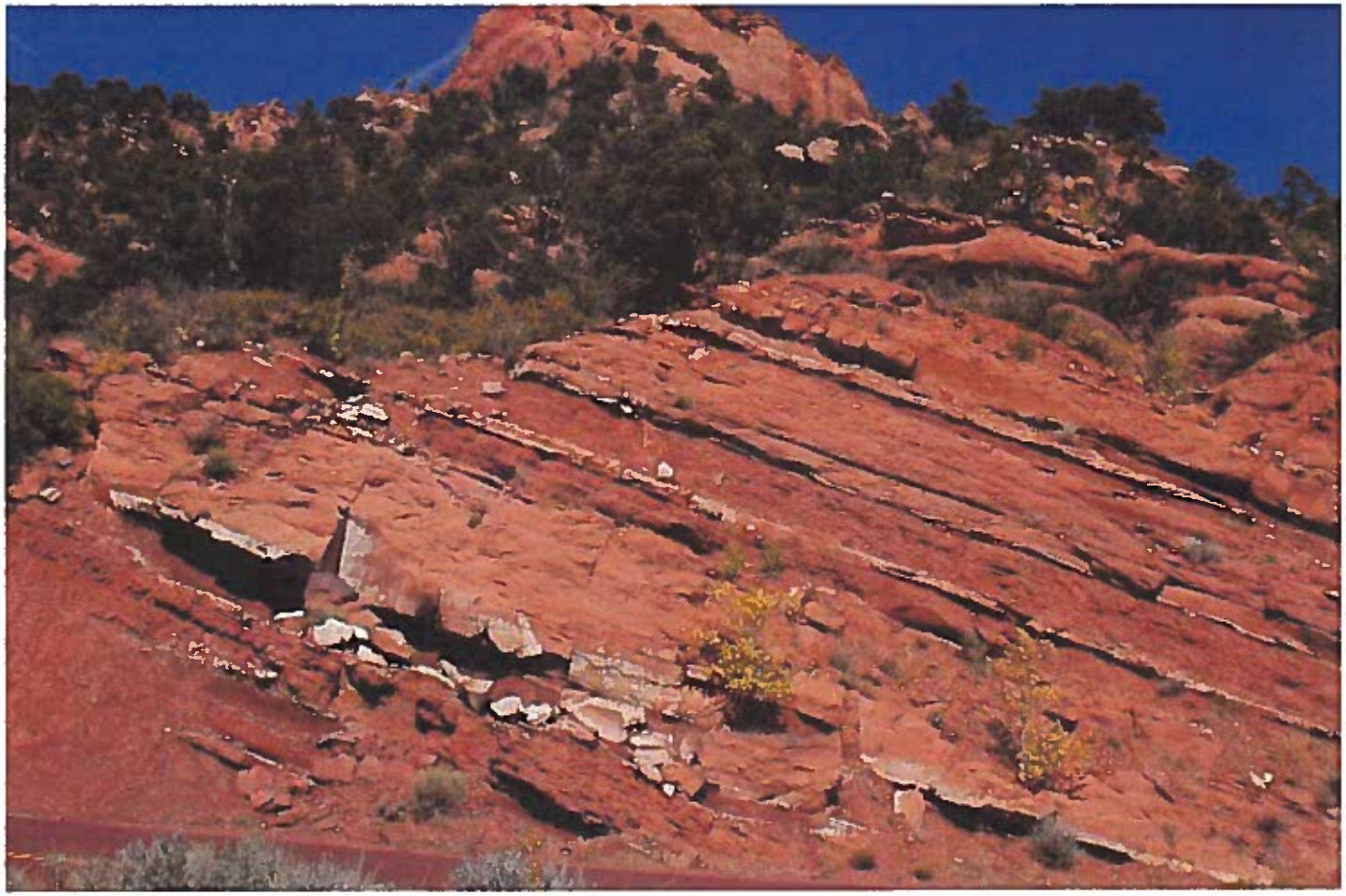

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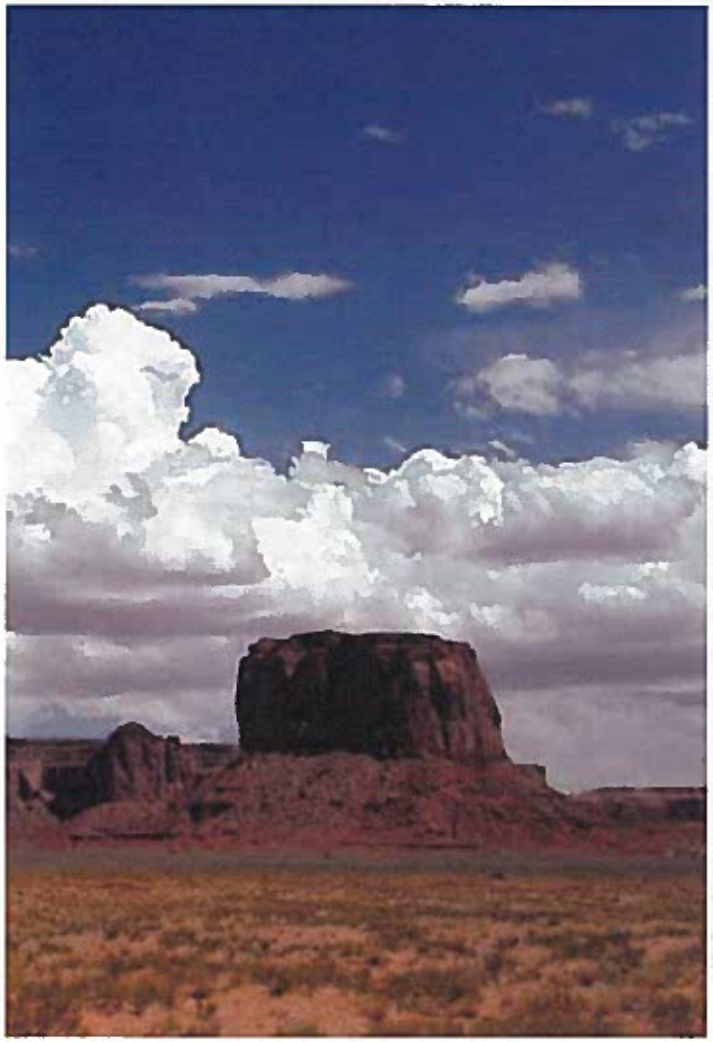
Background and Current Conditions Volume

Kayenta Township Comprehensive Plan



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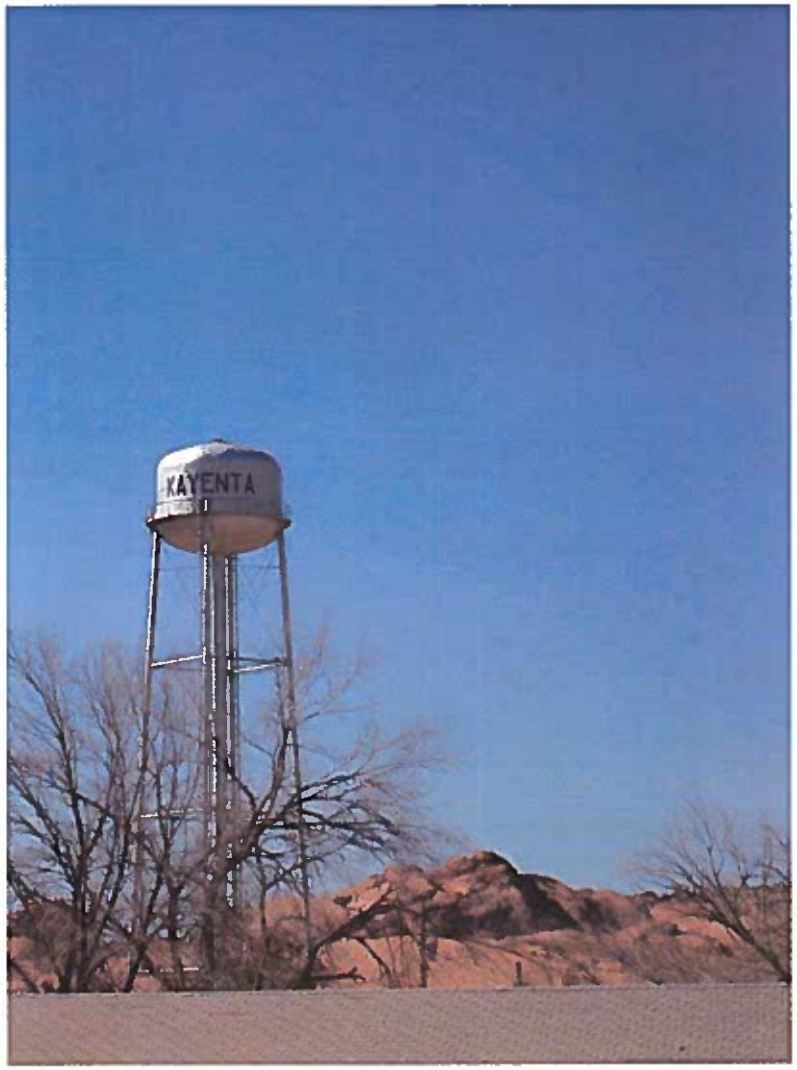
Exhibits



Exhibits (Continued)

Kayenta Township Comprehensive Plan

Kayenta Township Commission

Helen Bonnaha, Commissioner
Carol Todecheene, Commissioner
Dolores Greyeyes, Commissioner
Jodonna Hall-Ward, COmmissioner
Rodger Grey, Commissioner
Andre Cordero, Commissioner

Kayenta Chapter Administration

Stanley Clitso, President
Ruth Gilmore, Vice President
Nora Fatt, Secretary
Revaline Tate, Chapter Coordinator

Town Manager

Andre Cordero, Town Manager

Township Department Heads

Selena Begay, Finance Manager
Bradley Blair, Construction Supervisor
Chris Claw, Kayenta Volunteer Fire Department, Fire Chief
Don Jackson, Town Engineer
Ed Whitewater, Director, Economic Development Department
Gabriel Yazzie, Director, Community Development Department
Joann Begay, Parks and Recreation Department
Kee Thinn, Kayenta Police Department
Malcolm Benally, Coordinator CIO, Community Involvement Department
Philbert Tso, Building Official
Shonie De La Rosa, IT Administrator, Information Technology
Scott Benson, Public Work Supervisor

Comprehensive Plan Stakeholders

Navajo Nation Representatives

Katherine Benally, Navajo Nation Council Delegate
Marjorie Clauschee, Navajo Nation Department of Social Services, PSW
Charylene Jones, Navajo Nation Department of Social Services, Case Mgmt. Spec
Grace Kaye, Navajo Nation Housing Authority, Housing Director
Etta Smallcanyon, Navajo Head Start, Coordinator
Lavonne Yazzie, KY District Court, KY Court Administrator
Chester Stanle, KY Peacemaking Court, Peacemaker
Adelle King, Navajo WIC, Program Supervisor
Frank Donald, Jr., NN Workforce Development, Employment Officer
Dorothea Denetsosie, NN Child Support Enforcement, Enforcement Officer

Navajo Tribal Utility Authority

Vircynthia Charley, District Manager
Loretta Todecheene, Customer Service
Jason Tannie, Eng. Tech - Gas
Denny Hardy, Electrical Engineer
Rex Kontz, Deputy General Manager
Gary Yellowhair, Civil Engineer
Wally Chief, Deputy Manager -Technical Services
Caroline Tom, ROW Agent

Navajo County

Jonathan Nez, County District Supervisor
Susie Nelson, Justice of the Peace

Navajo Department of Transportation

Paulson Chaco, NDOT - Window Rock, Director

Comprehensive Plan Stakeholders
(Continued)

Arizona Department of Transportation

Don Sneed, ADOT, Multimodal Planning Division

Kayenta Education

Harry Martin, Kayenta Unified School District, Superintendent
Julius Young II, Kayenta Unified School District, Operations Director
Carol Todecheene, Kayenta Unified School District, Transportation Dir.
Gillian Vormittagg, Kayenta Unified School District, HS Principal
Marti Gilmore, Kayenta Unified School District, KMS Principal
David Hawley, Kayenta Unified School District, KIS Principal
Stenson Wauneka, Kayenta Community School, Facilities Manager
Velma Eisenberger, Kayenta Community School, Principal
Karen Lesher, Native, Superintendent
Phyllis Begay, Dine College, Center Supervisor
Marie Etsitty, Dine College, Interim President
Lorraine Benally, Northland Pioneer College, Center Supervisor
Jeanne Swarthout, Northland Pioneer College, President
Mark Vest, Northland Pioneer College, Vice President
Frankie Gilmore, Native, CTE Coordinator

Kayenta Community Services and Programs

Geraldine Laughter, Women's Shelter, Shelter Director
Linda White, KY - I.H.S., CEO
Harry Sombrero, KY Criminal Investigation, Supervisor
James Ashike, KY Behavioral Health Services, Program Supervisor
Gary Holiday, KY Behavioral Health Services, Family Therapist
Pearlina Chiquito, KY Senior Center, Program Supervisor
Bessie Mitchell, Kayenta WIC, Clinic Supervisor
Dr. Charletta Begay, Kayenta Animal Control,

Business Owners and Residents

Kevin McAuliffe, Kayenta Mobile Home Park, Owner
Travis Honanie, Frontier Communications, Network Engineer
Julene Price, Amigo Café, Owner
Genevieve Crawley, Golden Sands Café, Co-Owner
Richard Mike and Nina Heflin, Burger King, Owners
Richard Mike and Nina Heflin, Hampton Inn of Kayenta, Owners
Eva Workman, Eagle Air Med, Outreach Specialist
Abe Martinez, McDonald's of Kayenta, Owner
Bonnie Frazier, 7-2-11 Food Store,
Kim Forsyth, Conoco Giant Industries
Mark Nicholson, Speedy's, Owner
Gary Curtis, Chevron - NN Oil & Gas, Regional Marketing
Nathaniel Begay, Navajo Nation Shopping Center, CEO
Juanita Yazzie, Navajo Nation Shopping Center, Leasing Specialist
Daniel Fuller, Kayenta Post Office, Post Master
Mike G. Paulowsky, Sonic's Drive In
B&B Consultants Inc.
Tanner Jeffs, Rising Sun Materials, Supervisor
Royal Churchhill, Chief Propane, Owner
Michael W. Eggleston, Ferrell Gas,
Randal Brouchard, Kayenta Chiropractor, Owner - Co
Cheryl Harvey, Kayenta Dialysis,
Ms. Lavina Smith, Kayenta Monument Valley Inn, General Manager
Desiree LaFont Wetherill Inn Best Western, Manager
Wayland LaFont, NAPA Auto Parts, Owner
Fenessa Dayish, Navajo Arts & Crafts Enterprise, General Manager
Gregory and Myra Draper, Draper's Glass, Owners
Paul Frye, Frye Law Firm, P.C.

Comprehensive Plan Stakeholders
(Continued)

Dine Bii Association

Edith Widefoot, Assistant Executive Director
Katherine Nez, Program Coordinator
Cheryl Yazzie, Program Coordinator

Sandstone Housing

Victoria Yazzie-Ramsey, Manager
Dana Denny, Director

Community Churches

Daniel Taggart, Kayenta Bible Church, General Director
John Austin, Church of Christ, Preacher
Rev. Norma McCabe, Presbyterian Church, Pastor
Father Jerome Heriff, Our Lady Guadaloupe, Father
LDS Church, President

Consultant Team

ARROWHEAD
ENGINEERING, INC.

Merwin T. Yellowhair, P.E., CFM, Principal Engineer, Project Manager
Dennis E. Roberts, E.I.T, CFM, Civil Designer

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Maria Masque, Principal/Urban Designer/Lead Planner/Project Analyst
Tim Johnson, Landscape Architect/LEED & Water Harvesting Specialist
Daniel Bradshaw, Urban Designer/Trail System Specialist
Pedro Gastelum, GIS/Graphic Technologies/Photo Simulations Specialist

Kayenta Township Comprehensive Plan

Kayenta Township, Navajo Nation, Arizona

Kayenta, Navajo: **Tó Dinéeshzhee** is located in northeastern Navajo County, Arizona, about 20 miles south of the Utah border on U.S. 163, 148 miles north-northeast of Flagstaff, and 99 miles west of Shiprock, New Mexico. Because of its remoteness, in the early days the Kayenta region was seldom visited by non-Indians.

Kayenta Township is the only municipal-style government within the Navajo Nation. It is regarded as a political sub-division of the Navajo Nation. The Township is managed by a five-member elected town board, which hires the township manager.

Kayenta is the name for the Chapter, as well as the township. Kayenta Chapter (a political division within the Navajo Nation that is analogous to a county within a state) encompasses land in both Utah and Arizona. As a result, the Navajo Nation's census figures for Kayenta Chapter are significantly different from those of Kayenta Township.

Kayenta is a Census Designated Place (CDP) with a 2000 census population of 4,922. According to the United States Bureau of the Census, the CDP has a total area of 13.2 square miles (34.3 km²). Kayenta is located at an elevation of 5,640 feet (1,719 m).

Major Scenic Attractions

Twenty-seven miles north of Kayenta is the Navajo Nation's most famous attraction, Monument Valley Tribal Park. Betatakin, Navajo for "houses in rock shelves," and Keet Seel Ruins are about 20 miles away. The Four Corners area, a junction of Arizona, Utah, Colorado and New Mexico, the only spot in the United States where four states meet, is less than 80 miles away.

Within a 150- mile radius are a variety of parks and recreational facilities including: Grand Canyon National Park, Glen Canyon National Recreation Area, Lake Powell and Glen Canyon Dam on the Colorado River. The prehistoric Indian dwellings of Canyon de Chelly National Monument and the monoliths and arches of Monument Valley, Rainbow Bridge National Monument and the Navajo Scenic Area are nearby.

Main Gateway to Monument Valley

Located immediately south of Monument Valley, the Township serves as its main gateway, providing a variety of hotels and motels and guided tour services to visitors attracted to the area. The area offers spectacular views of geological formations that have been amply recorded in film, photography and art.

History as a Trading Post

Because of its remoteness, in the early days the Kayenta region was seldom visited by non-Indians. In 1874, Mormon emigrants traveled through on their way from Tuba City to Aneth. In 1910, the first trading post opened at Kayenta. In 1914, the March Pass School opened. In 1916, the second trading post opened. Since that time, especially with road paving through the area, Kayenta has had considerably more traffic and has been designated a "growth center" of the Navajo Nation. Navajos refer to Kayenta as Tohdenasshai.

Major Annual Community Events

The Kayenta Fourth of July Rodeo is an annual multi-day event taking place from July 1–4. Various events take place daily. The "Best of the Best" show and fireworks happen on the fourth.

The Kayenta Fourth of July Rodeo has been recognized six times as the "Rodeo of the Year" and twice as the "Outstanding Rodeo" by the All Indian Rodeo Cowboys Association, making it one of the premier rodeos in the Southwest.

Another major annual community event is the 4th of July Pow Wow. In addition, Kayenta annual events include the Monument Valley Film, Arts and Blues Festival. This Festival is the first and only Native American festival of its kind to be held on the Navajo Nation. The goal of the film festival is to bring Native made films to the people of the Navajo Nation who otherwise would not have the opportunity or means to see these films. It is also an opportunity for emerging and seasoned film makers to present their work to a primarily all Native audience. The festival is also seeks Native blues groups and artists for the opening night Blues Festival.

The Monument Valley Film, Blues and Arts Festival seeks sponsorship from businesses, organizations and individuals for on an ongoing basis. Sponsorship is what keeps this film festival free. Volunteers are also invited on an ongoing basis.

Education

Kayenta is served by the Kayenta Unified School District. Several schools within the district serve the community. Kayenta Primary School, Kayenta Intermediate School, Kayenta Middle School, and Monument Valley High School are the public schools. Part of the Bureau of Indian Affairs, the Kayenta Community School, is a boarding school serving both day and dorm students. There is also a branch of the Diné College in Kayenta. In addition, Kayenta includes the Northeast Arizona Technological Institute of Vocational Studies (N.A.T.I.V.E) District and the North Arizona University (NAU) Kayenta Campus. Educational institutions and school districts are addressed in the Community Services and Public Facilities section of this document.

Community Facilities

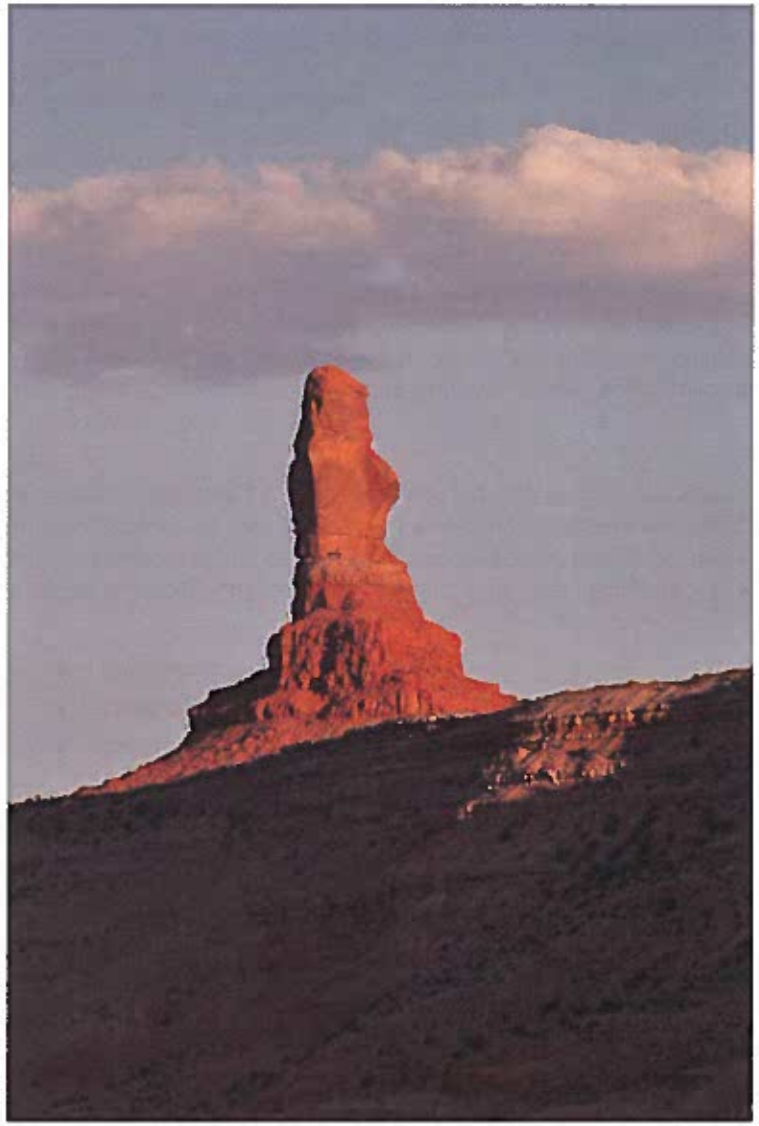
Kayenta Township offers a wide range of facilities including a Tribal Chapter House, the Kayenta Field House, five gas stations, a variety of restaurants, rodeo grounds and three gymnasiums, two softball and two football fields at the high school and BIA school. In addition there is a recreation center that includes a softball field. Additional information on community facilities is provided in the Community Services and Public Facilities section of this document.

Utility Companies

Utility companies serving the Township include the Navajo Tribal Utility Authority (NTUA) Natural Gas, Frontier Communications, and Water & Sewer Navajo Tribal Utility Authority. Utility companies and services are addressed in the Community Services and Public Facilities section of this document. There is an adopted Utility Ordinance that requires ongoing coordination with NTUA. Additional information on community facilities is provided in the Community Services and Public Facilities section of this document. Additional information on utilities is provided in the Community Services and Public Facilities section of this document.

Kayenta Airport

The Kayenta Airport is a general aviation airport located in northeastern Arizona. The airport is approximately one mile southeast of the Town of Kayenta immediately north of Highway 160. The airport encompasses approximately 140 acres of land and is owned and operated by Kayenta Township. The airport's primary mission is to serve as a medical evacuation facility. The Kayenta Airport is addressed in the Transportation section of this document.



The Comprehensive Plan

The Kayenta Township Comprehensive Plan is a long-range policy document designed to improve the quality of life of the Township. The Comprehensive Plan:

- Includes direction for development, redevelopment, infill development and compact smart growth
- Serves as a guide for decision making
- Includes strategies for redevelopment of decayed areas
- Is a legal state mandate for all Arizona jurisdictions (counties and municipalities) outside of the Navajo Nation.
- Guides the development standards and design guidelines provided in the Zoning Ordinance

As the roadmap guiding development, infill development and redevelopment within the Township, this planning tool includes the vision of the community, a thorough analysis of opportunities and challenges, the policy framework guiding development and the implementation strategies necessary to implement the plan.

The Comprehensive Plan serves as a guide for Township officials in the:

- Evaluation of proposals for development and redevelopment
- Identification of capital improvements projects
- Development of more specific studies.

It includes background data and current conditions and provides a policy framework for the refinement of implementation tools such as the zoning ordinance. It also defines all the administrative and monitoring mechanisms necessary to administer and manage the Comprehensive Plan.

The Comprehensive Plan document consists of two volumes. The *Policy Plan* volume serves as the regulatory document guiding development and redevelopment. This volume includes the community vision, guiding principles, goals, policies and implementation measures.

The *Background and Current Conditions* volume includes an analysis of opportunities and constraints, serves as the backbone of the *Policy Plan* and provides a comprehensive look of the physical, regulatory, demographic, socioeconomic and fiscal conditions impacting development within the Township.

Previous Land Planning Efforts in Kayenta

The form and character of Kayenta Township has been molded by the collaborative efforts of a variety of individuals, a multiplicity of Navajo Nation departments, and a wide diversity of public agencies under the leadership of the Navajo Nation's decision makers. Each planning process undertaken in the past has influenced the character of the community and its sense of place. In addition, such processes have assisted Kayenta in its transition from a rural to a more urban setting. Two major previous planning efforts include the Kayenta Chapter Comprehensive Land Use Plan and the Kayenta Airport Master Plan.

Kayenta Chapter Comprehensive Land Use Plan

A Kayenta Chapter Comprehensive Land Use Plan was adopted by Resolution of the Navajo Tribal Council CN-86-85 in November of 1985. The Comprehensive Plan approved the overall concept of the Land Use Planning Authority and extended local governing capacity to the community of Kayenta, officially designating the planning area as the "Kayenta Township Pilot Project".

The Advisory Committee of the Navajo Tribal Council has the authority to create a Navajo Nation entity by adoption of its Plan of Operation. Under Navajo Tribal Council direction, the Kayenta Chapter undertook the effort to develop a Land Use Plan for the Kayenta Community with the goal of developing an improved local government system that would meet the policies, expectations and hopes of the local residents and the Navajo Nation's policy of decentralizing the Government.

The Kayenta Chapter delegated to the Kayenta Planning Board (KPB) to spearhead this effort. The KPB, with the assistance of the Division of Economic Development, prepared a concept paper which provides a general description of the envisioned local land use planning and the community government recommended for the Kayenta Community and the Kayenta Township Pilot Project.

The Economic and Community Development Committee of the Navajo Tribal Council recommended support of the Kayenta Township Pilot Project concept by Resolution EDCAU-01-85. The Advisory Committee of the Navajo Tribal Council recommended to the Navajo Tribal Council approval of the overall concept of a local land use planning authority and local governing capacity in the community of Kayenta, officially designating the Comprehensive Land Use Plan as the "Kayenta Township Pilot Project" and approving the Plan of Operation for the Kayenta Pilot Project by Resolution ACO-186-85.

Per directive of the Advisory Committee of the Navajo Tribal Council, a map of the proposed land use to be withdrawn was prepared by the Kayenta Planning Board detailing the proposed jurisdiction of the Kayenta Planning Board under the plan of operation. The Navajo Tribal Council approved the concept of local government development, the overall concept of the local land use planning authority, the Plan of Operation and granted jurisdiction to the Kayenta Planning Board over the proposed area contingent upon consistency and compliance with existing policies and regulatory status of the Navajo Nation and the Federal Government.

The Navajo Tribal Council supported the Memorandum of Understanding between the Kayenta Planning Board and the Division of Economic Development and further directed these two entities to coordinate their efforts, as authorized by the Plan of Operation, with all other appropriate Tribal Divisions and Departments.

The Kayenta Comprehensive Land Use Plan was the first phase component of the overall plan for the implementation of the Kayenta Township Pilot Project. It was the product of an extensive process of community involvement and decision-making.

The purpose of the Kayenta Comprehensive Land Use Plan was to include the following:

1. An Open Space Plan which preserves for the people certain areas to be retained in their natural state or developed for recreational purposes.
2. A Land Use Plan which projects future community land needs, showing by location and extent, areas to be used for residential, commercial, industrial and public purposes.
3. A Thoroughfare Plan which improves a system of and provides design criteria for major existing and proposed streets, distinguishing between limited access, primary and secondary thoroughfares, and relating major thoroughfares to the road network and land use of the surrounding area.
4. A Community Facilities Plan which shows the location, type, area served including, but not limited to, recreation areas, schools, libraries, and other public buildings, related public utilities and services.

Kayenta Airport Master Plan

Completed in 2005, the Kayenta Airport Master Plan was financed, in part, by the Airport Improvement Program financial assistance from the Federal Aviation Administration (FAA) as provided under Title 49, United States Code, and Section 47104.
This master plan describes the overall long-range development concept for the Kayenta Airport. The concepts are illustrated in the Airport Layout Plan (ALP). The master plan document includes the data and the rationale that served as the backbone of this report. The purpose of this master plan is to provide guidelines for future airport development that satisfy aviation demand in a financially feasible manner, while balancing the aviation, environmental and socioeconomic impact of the airport in the community.

The primary objectives of the Airport Master Plan are to:

1. Develop a viably phased development plan concept that satisfies the needs of the airport in a safe, efficient, economically and environmentally sound manner.
2. Serve as a guide to decision makers, airport users and the general public for implementing airport development actions in line with both airport and community concerns and objectives.
3. Identify optimum land uses that enhance the economic benefits of the airport and that are compatible with airside development.
4. Prepare a compatible land-use and height restriction plan for the airport vicinity, including recommended zoning protection within the airport influence zone.
5. Prepare a Capital Improvements Plan that schedules development projects and reasonable cost estimates to implement the necessary to implement the Airport Master Plan.

Why is Planning Necessary

Planning, like life, is a dynamic process. Environmental conditions, market forces and individual needs and preferences change over time. As Kayenta continues to change from a rural to a more urban community, it benefits from ongoing planning efforts that acknowledge previous planning processes and addresses changes and trends not foreseen in previous exercises. Such foresight provides the continuity needed to ensure the long-term viability and sustainability of the community. Without a continuous planning process, the future character and sense of place of the community would be determined by a series of unrelated decisions leading to unintended and often undesirable results.

The planning process is a holistic process. It provides a framework by which decisions and actions can be coordinated with other community plans and development proposals. This insures that the end result will be of benefit to the whole community.

As Kayenta stands ready to accept new growth, many new and complex social, economic and environmental opportunities and constraints arise. Such opportunities and constraints must be addressed as they will impact the future of the community. Planning is the process of examining such opportunities and constraints and outlining a plan of action designed to achieve the community vision.

Comprehensive Plan Intent

This Comprehensive Plan seeks to support the community's vision in a manner that ensures the livability, viability and sustainability of the community for generations to come.

This Comprehensive Plan is created to provide specific guidance for Kayenta Township to support its community and to further the rich culture, tradition, identity and economic base of Kayenta as a unique place to live, work, learn, visit and play.

Planning Approach

The Planning Center utilizes a *Comprehensive, Systematic, and Inclusive* (CSI) approach to land planning. This approach allows us to tailor the planning process to meet the unique needs of the community and resolve controversial issues. As part of this approach, we modify the public participation program to meet community needs and include a variety of outreach strategies designed to increase community participation. This CSI approach embraces practical urban design with marketable, innovative ideas owned by the community. By understanding the roles and needs of community members, major stakeholders, Kayenta Township, and the wide array of public agencies involved in the planning process, we assist the community in creating a shared vision.

Benchmarking

Also referred to as "best practice benchmarking" or "process benchmarking", it is a process used in planning and urban design, in which the community evaluates various aspects of their processes in relation to best practices, usually within comparable communities. This process strengthens the planning process by allowing community members to see what has been successful in similar communities.

Analysis of Opportunities and Challenges

This includes a thorough analysis of physical and regulatory opportunities and constraints impacting development within the Township such as hydrology, topography, zoning and airport noise contours. It also incorporates an overview of economic trends and demographic conditions impacting development.

Market and Economic Trends

An assessment of local, regional, state, national and global market and economic trends assists the planning process in strategically formulating a set of goals and measurable objectives that can be implemented to allow the community to gain competitive advantage of current and predicted market and economic trends.

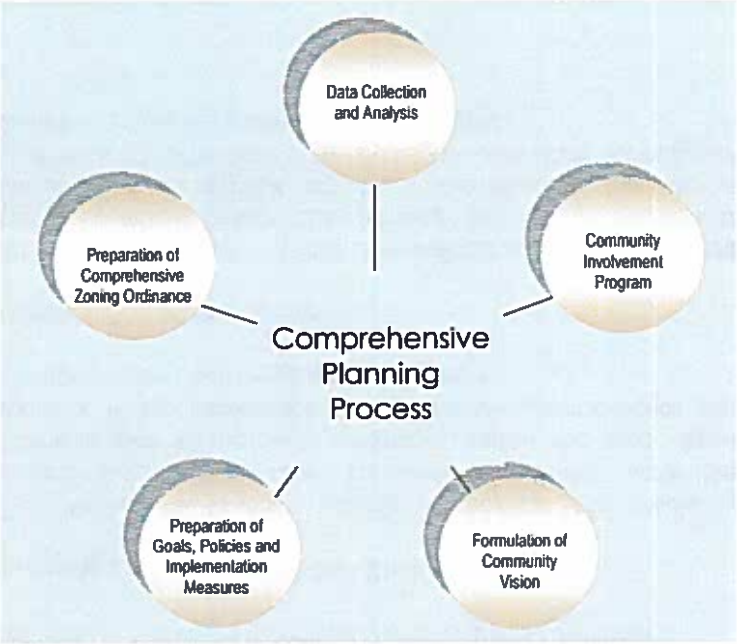
Community Visioning

Provides an opportunity for major stakeholders, residents, business owners, potential investors and developers to create a successful partnership in describing what they would like their community to be in the future. It culminates in the preparation of the Vision Statement that will guide development within the Kayenta Township.

Planning Process

The Comprehensive Plan planning process involves five basic steps:

- The collection and analysis of pertinent data concerning the physical and socio-economic characteristics of the area, which has been accomplished through the preparation of this *Background and Current Conditions* document. Although not an adopted document with legal status, it provides the foundation and basis for the formulation of the Comprehensive Plan;
- The preparation, coordination and facilitation of an all-inclusive *Community Involvement Program*;
- The formulation of a vision statement based on community priorities for future growth and development;
- The preparation of guiding principles, goals, policy framework and implementation measures that serve as the road map for future development; and
- The implementation of the Comprehensive Plan is accomplished through the preparation of implementation measures or strategies that assist in the implementation of action steps.



The Five Legged Kayenta Township Comprehensive Planning Process

Sustainable Planning and Design

This Comprehensive Plan incorporates the latest sustainable design principles to help Kayenta Township become a sustainable destination where community members can live, work, learn and play. Such balanced approach ensures that its environment, economy, society, culture and heritage and technology are preserved and enhanced for future generations. This plan takes the following sustainable design elements into consideration throughout this planning process, and incorporates these elements in the policy framework included in the *Policy Plan* volume.

Environmental Infrastructure

Creating a sustainable community requires balancing economic, social, cultural, environmental and technological forces to ensure the quality of life desired. This process begins with the assessment of the environmental infrastructure. The environmental infrastructure encompasses all the natural resources, renewable and non-renewable, including geology, topography, hydrology, drainage, soils, water, and air. Such assessment provides the foundation for sustainable development and balances natural resources with best practices to create a self sustaining community.

Economic Base

Establishing a revenue generating, vibrant and diversified economic base is a key ingredient in achieving long-range viability. Such economic base capitalizes on providing opportunities for the development of a diversified economic development portfolio that includes: retail/services; ecotourism and heritage or cultural tourism; historic cultural district establishment; and emerging new technologies.

These combined can assist the Township in becoming a sustainable destination where its residents can celebrate culture and heritage, live, work, learn and play and visitors feel the urge to have a longer stay and come back again. Such economic base will allow the community to achieve the quality of life desired.

Social Services

A sustainable community is a place where individuals can work, live, learn and play. Such place offers affordable, convenient and desirable housing, the facilities and services needed to sustain the current and projected population, an integrated health care system, a state-of-the-art education system, a diversified job training program, aging in place opportunities for elders, empowering and engaging youth programs, sacred space for seclusion and spiritual practice, space to celebrate cultural heritage and the arts, the recreation, open space, trails, and connectivity needed to sustain healthy lifestyles. Such a community provides a variety of community services and programs designed to protect, support and sustain its population.

Technology and Innovation

As the high-technology and biotechnology market sectors expand their influence, great attention has been given to creating work environments that support it. Proactively supporting the location of emerging solar and wind alternative energy industries provide an opportunity to create a sustainable energy-efficient community.

Concentrating Solar Power (CSP) offers a utility-scale, firm, dispatchable renewable energy option that can help meet the Nation's demand for electricity. Given the amount of unpopulated rural lands within the Navajo Nation, CSP could supply clean energy to the Nation's growing centers, decrease the reliance on fossil fuels, reduce the carbon footprint, and serve as a viable economic development strategy by connecting into the grid.

Contained Farming Green House

As the Nation's growth centers became more urbanized, agriculture practices receded. Currently there is no agriculture in Kayenta. This implies that all the produce consumed by the community must be transported from somewhere else.

In order to become more sustainable and self-sufficient, the Township may consider permitting contained organic farming as an alternative to more land and water consuming raw crop field agricultural practices. Contained farming occurs in contained environments that increase productivity and product quality while decreasing electricity, land and water consumption and costs. It can be established in the form of community gardens, roof gardens and green houses.

This green alternative provides an opportunity to grow pesticide free, high-quality organic produce at a fraction of the cost of raw crop agricultural practices, which require extensive fields, complex irrigation systems and large quantities of water. Kayenta Township could benefit from exploring and implementing such sustainable technologies.

Sustainability as an Economic Development Tool

Kayenta Township was the fourth community in the country to adopt the *International Green Construction Code*. As a result, the community has been asked to join a work group being facilitated by the International Code Council (ICC) to assist other communities in the nation in the adoption and enforcement of this code.

Sustainable development aims at balancing community needs with environmental infrastructure and ecosystem needs. It focuses on community needs while prioritizing the environment that sustains such community without destroying the ecological systems that sustain us.

This practice focus on meeting the needs of current and future generations in three categories of needs: environmental, social, and economic. Its approach examines the systems required by a project and proactively applies sustainable design principles whenever possible that incorporate U.S. Green Building Council strategies as well as a LEED (Leadership in Energy and Environmental Design) approach. By doing so, the community creates an environment that can also serve as an economic development tool, increasing the livability and viability of the community.

Such practice includes the following strategies:

- Planning and Analyses
- Community Character and Sense of Place
- Sustainable Development Training
- Environmentally Sensitive Site Selection
- Housing Affordability for all Income Groups
- Job Creation
- Geomorphic Grading and Drainage
- Multi-Modal Transportation and Connectivity
- Pedestrian-friendly and Bicycle-oriented Urban Fabric

- Integrated Open Space, Parks, Recreation and Trail System
- Wildlife Corridor Definition
- Urban/Rural Interface Definition
- Optimization of Pervious Surfaces
- Minimization of Heat Island Effect
- Use of Recycled or Harvested Materials
- Stormwater Quantity and Quality Control
- Wastewater Reduction and Reuse/Water Harvesting
- Utilization of Drought Tolerant Plant Palettes
- Landscape Treatments and Streescapes Amenities
- Erosion Control Using Natural Materials
- Onsite Demolition/Construction Recycling
- LEED Documentation for Certification
- Ecological Restoration
- Energy Efficiency/Alternative Energy Generation (Solar, Wind, etc)

At the larger scale, the practice of contained farming as an economic function can provide competitive advantages to economic activities related to ecotourism and heritage tourism. Local restaurants, grocery stores and hotels can benefit from purchasing high quality organic produce at a fraction of the cost. Serving organic produce in restaurants and hotels is becoming an economic trend. Tourists are more health-conscious today than they were decades ago.

Such practice also benefits the community by providing accessible, low cost, high-quality produce within a farmers' market setting. A farmers' market setting can incorporate arts and crafts, creating a new revenue opportunity for community artists, performers, story tellers and artisans. Merging new technologies with heritage and culture is an innovative and low cost way to increase revenues while achieving sustainability and celebrating community pride.

Typical Farmer's Market

Black Mesa, Kayenta, Arizona

Regional Context

Kayenta is located in northeastern Navajo County, Arizona, about 20 miles south of the Utah border on U.S. 163, 148 miles north-northeast of Flagstaff, and 99 miles west of Shiprock, New Mexico.

With an elevation of 5,660 feet, Kayenta's most prominent land feature and reference point is Black Mesa. Black Mesa is located to the immediate southwest of Kayenta and towers above the townsite at an elevation of 8,000 feet at its highest point. In addition to its spectacular scenic beauty and religious significance, Black Mesa contains within its womb an abundance of coal, sizable as a portion of the nation's coal reserve, and rich as valuable resource for the Navajo people.

Kayenta is encircled by a varied and remarkable set of land features: the red faced canyon walls of Skeleton Mesa to the west; the "Five Toes" sandstone hills of the Kayenta Formation to the North; and the solemn volcanic Church Rock and El Capitan rising to the east and northeast. Exhibit 1 shows Kayenta's regional context.

Local Context

Located at the intersection of Highways 160 and 163, Kayenta stands as one of the most remotes communities in Arizona. The nearest off-reservation towns of any significance are at distances of 90 and 130 miles away. Politically, Kayenta lies within District 8 of the Navajo Nation and within the Navajo County of the State of Arizona. Exhibit 2 shows Kayenta's local context.

Physical Environment

A community's infrastructure provides water supply, waste disposal, and pollution control services. It includes extensive networks of aqueducts, reservoirs, water distribution pipes, sewer pipes, and pumping stations. It also includes treatment systems such as sedimentation tanks and aeration tanks, filters, and septic tanks, desalination plants, incinerators and waste disposal facilities such as sanitary land fields and secured hazardous-waste storage impoundments. Such infrastructure serves two important purposes: it protects human health, and it safeguards environmental quality.

On the other end, the physical environment provides a setting, comprises the ecological system, and serves as the environmental infrastructure of a locale or region. It determines the type of development that is most suitable for its characteristics, including climate, landforms, hydrology and drainage, vegetation, view sheds, and wildlife. While the community's infrastructure protects human health and safeguard environmental quality, a balanced environmental infrastructure is vital for the community's long range sustainability and success. The following sections describe Kayenta's environmental infrastructure or physical environment.

Climate and Rainfall

Kayenta's climate is characterized as arid to semi-arid. The prevailing wind direction is from the southwest to the northeast. Based on the National Climatic Data Center from the Betatakin weather station, located 15.66 miles from Kayenta, the annual average precipitation in Kayenta is 12.81 inches. Approximately seventy (70) percent of the water precipitation falls as snow. The wettest month of the year is August with an average rainfall of 1.74 inches. However, most of the annual precipitation occurs between July and the end of October from storms originating on the Gulf of Mexico. The rainfall data's period of record is from July, 1948 to 2011.

Landforms and Topography

The Kayenta Chapter land area is located on the Colorado Plateau at elevations that range from 5,600 to 5,800 feet above sea level. The topography of the greater Kayenta area includes an array of land features, the beauty of which not only distinguishes it within the state of Arizona and the southwestern U.S. region, but it also draws worldwide visitors as an international eco-tourism and heritage tourism destination.

The internationally recognized Monument Valley, thought by some as the *Eight Wonder of the World*, and featured in John Wayne's films, is located twenty-two (22) miles to the north of Kayenta. The topography is defined by the Black Mesa, to the immediate southwest; Skeleton Mesa to the west; the "Five Toes" sandstone hills of the Kayenta formation to the North; and the volcanic Church Rock and El Capita rises to the east and northeast. These mountain ranges encircle the community of Kayenta that lies on the valley floor at an elevation of about 5,600 feet above sea level. Other scenic monuments are Owl Rock, Agathla Peak, Chaistle Buite, Comb Ridge, and Church Rock.

Owl Rock is situated in a petrified forest and is a part of the Chinle Formation. Agathla Peak, Chaistle Butte, and Church Rock are all tertiary volcanic instructive outcroppings located in the north central and north western sector of the Navajo Nation. Agathla Peak, also known as "El Capitan", stands as one of the most prominent of these volcanic outcrops, rising to height of 1,225 feet above the surrounding plains north of Kayenta. Comb Ridge, an exposure of the Red Navajo sandstone, begins its southern ridge just north east of Kayenta and extends in a northeastern direction some twenty to thirty miles. Kayenta is nestled in a unique geological setting. The township area can be generally characterized as a "flat valley" area with a slight plateau rising to the northwest. Exhibit 3 shows landforms and topography.

EXHIBIT 1: Regional Context

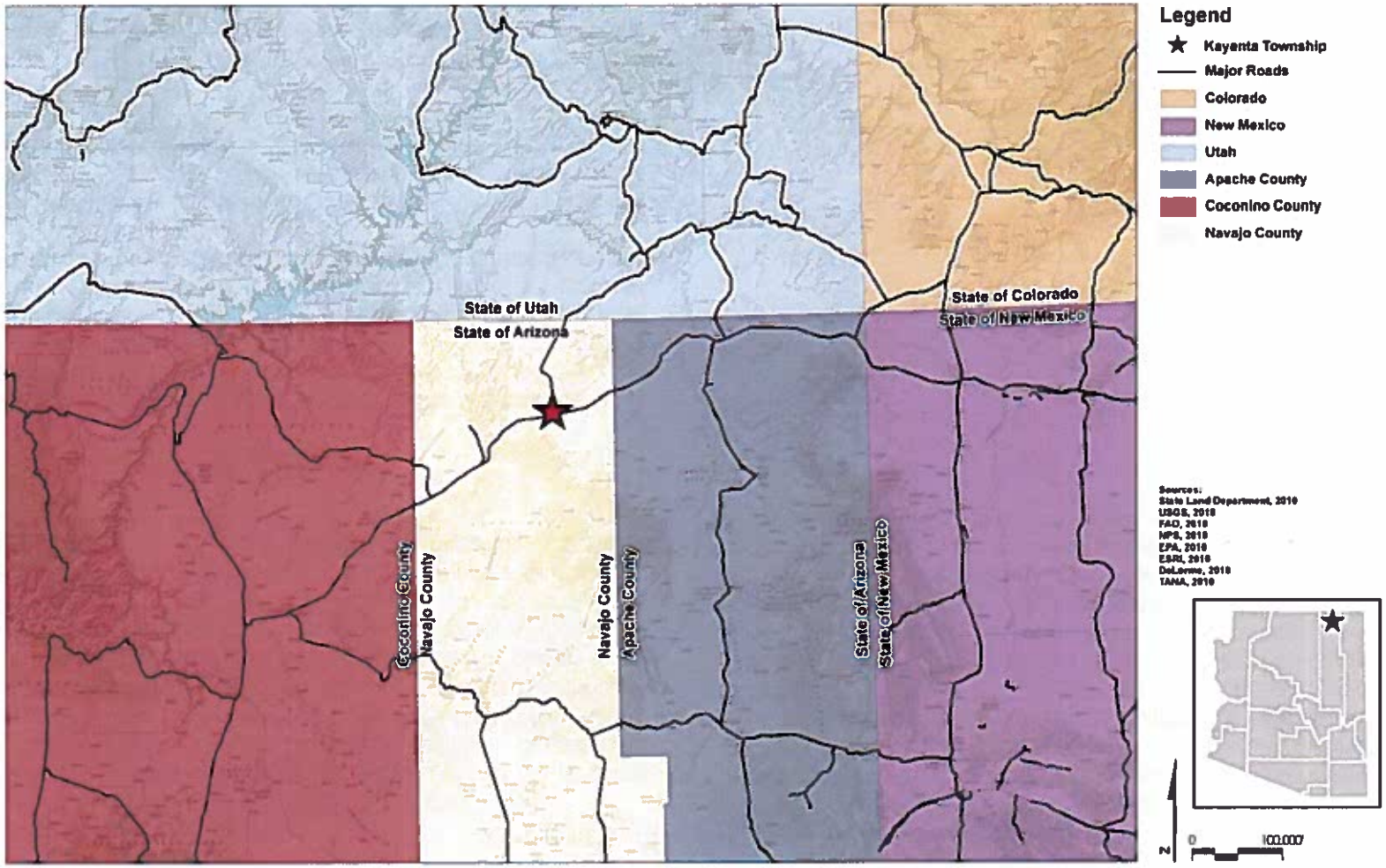


EXHIBIT 2: Local Context

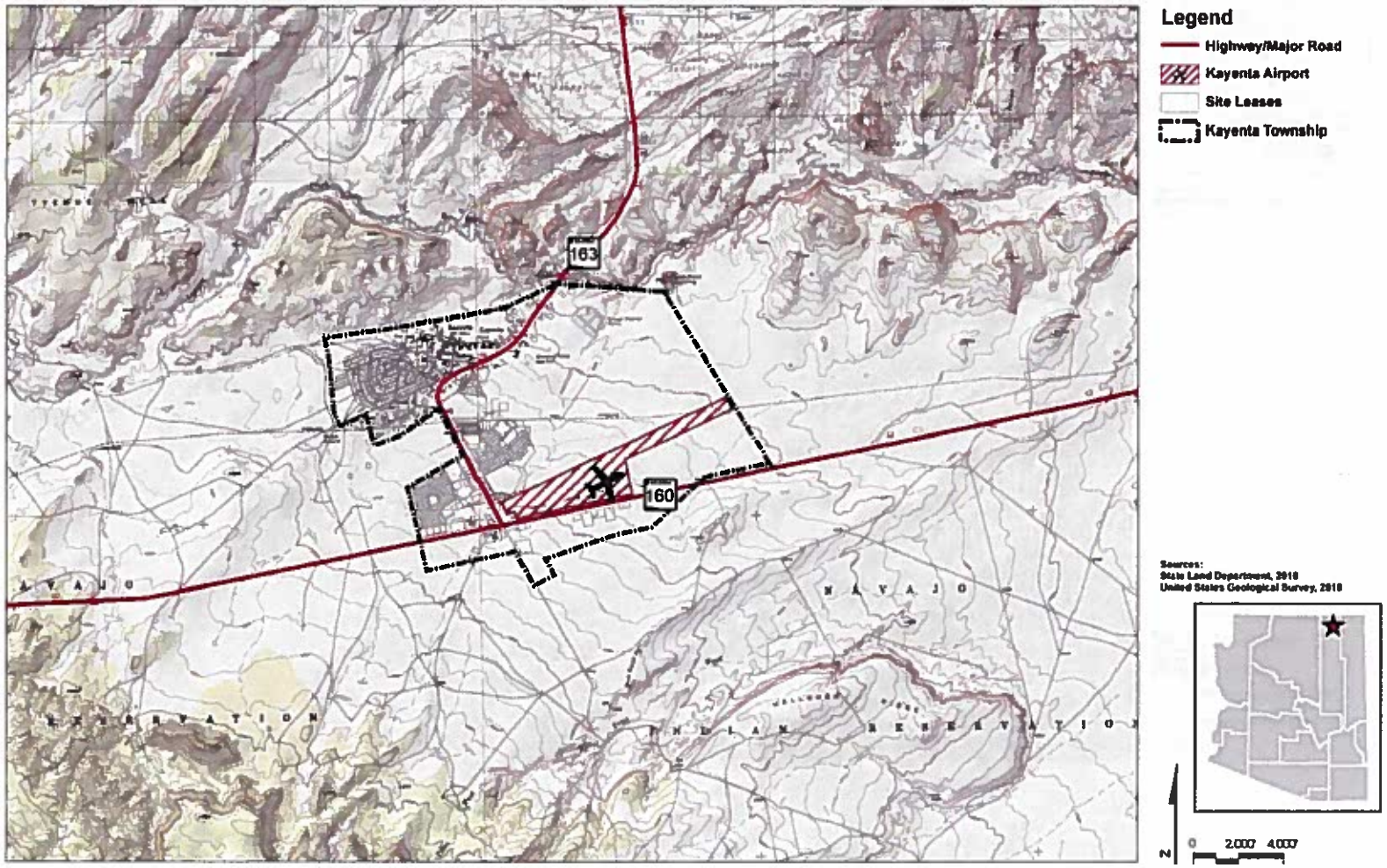
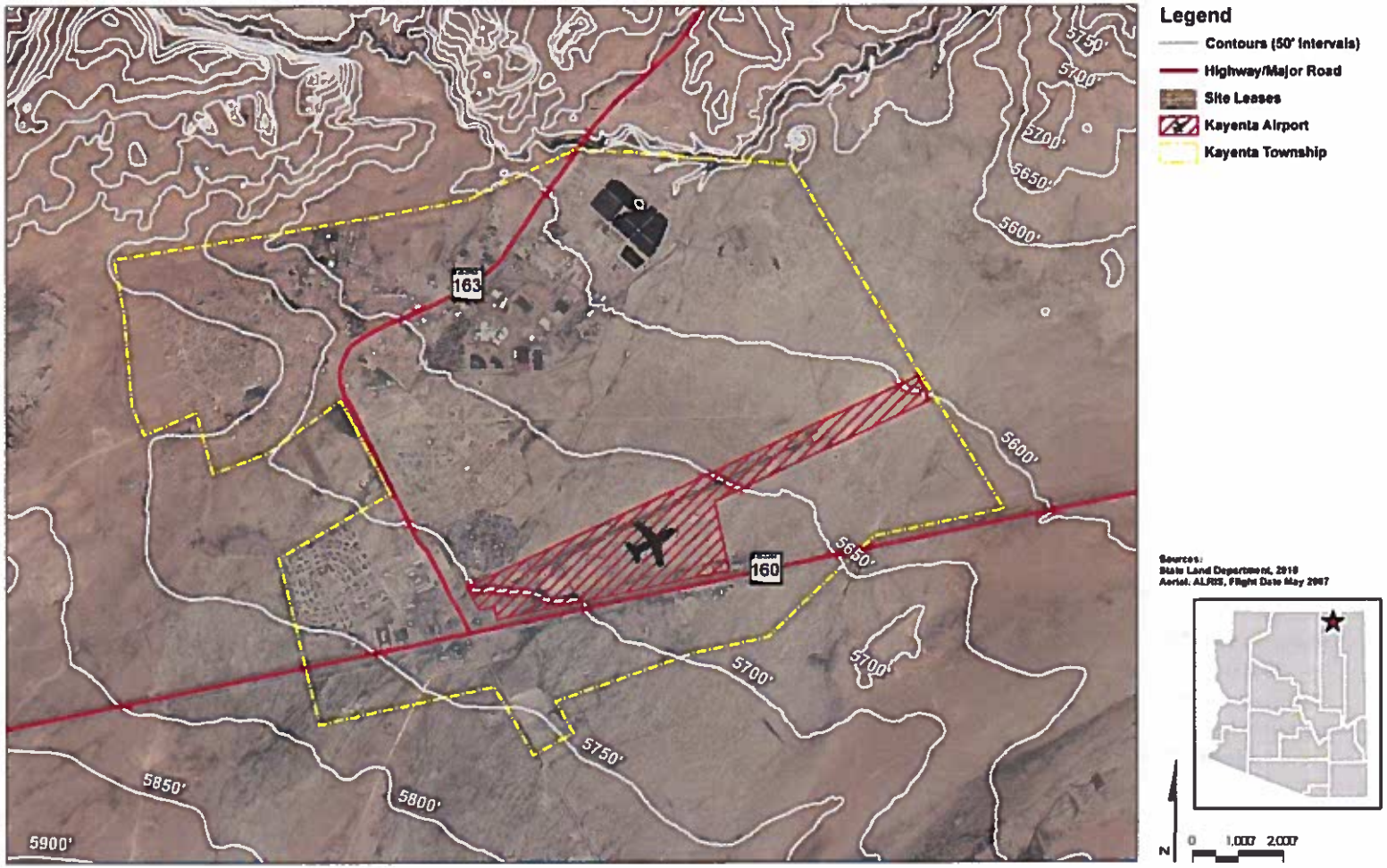


EXHIBIT 3: Land Forms and Topography



Hydrology and Floodplains

In 2011, the Arizona State Land Department and the United State Geological Survey were consulted as part of the preparation of this *Background and Current Conditions* volume. These agencies provided geospatially referenced data for the preparation of Exhibit 4. This exhibit delineates floodplain and washes consistent with 2010 state data provided by the aforementioned agencies.

Methodology

As part of the hydrology opportunities and constraints analysis, the Kayenta Township furnished Arrowhead Engineering, Inc., (AEI) with a copy of the Floodplain Management Study for the Kayenta Community and a paper copy of the corresponding Flood Hazard Area Map.

In addition, AEI utilized GIS data provided by Arizona Land Resource Information System (ALRIS) and available aerial imagery. The Flood Hazard Area Map was scanned into a digital image. The spatial reference for all maps coincides with the ALRIS datum which is NAD83 Arizona East Zone State Plane (US survey foot).

AEI digitized the Q100 floodplain into Civil 3D. Major areas of development that have changed since 1988 were also identified. Exhibit 5 shows the revised floodplain. Exhibit 6 shows new development within the Kayenta Township since 1998. As part of this opportunities and constraints analysis, AIE:

1. Reviewed P\previous studies,
2. Assessed methodologies and input data sources used in the preparation of such studies;
3. Reviewed hydrologic analysis results included in such studies;
4. Assessed recommendations provided at the time the study was conducted;
5. Provided current status for each recommendation included in such studies;
6. Included recommended actions for each recommendation proposed in previous studies; and
7. Identified deficiencies in previous studies.

Previous Floodplain Management Studies

In December 1988, the United States Department of Agriculture Soil Conservation Service prepared a Flood Management Study (FPMS) for the Kayenta Township. The purpose of the FPMS was to derive water surface elevations and frequency estimates. The results of this study were plotted in cross-sections, and subsequently used for mapping flood boundaries and identifying areas within the 100-year floodplain.

The FPMS included recommendations for floodplain management. Since the completion of this study, significant development has occurred in Kayenta.

Methodologies Used

The FPMS used the Soil Conservation Service rainfall-runoff simulation model TR-20 to estimate peak flow-frequency. Hydraulic computations were made using the U.S. Army Corps of Engineers computer program HEC-2. The output from this analysis provided the basic rating relationship for each cross section. The results were plotted on cross sections and subsequently used for mapping flood boundaries.

Data Sources Used

The FPMS utilized USGS 7.5 minute quadrangle for watershed delineation. Roughness coefficients were estimated and mapped in the field. The FPMS recommended utilizing the New Mexico Type II-75 storm distribution. A 24-hour storm duration was considered to provide the appropriate intensities.

Hydrologic Analysis Results

The annual peak flow estimates, resulting from the TR-20 analyses, for selected recurrence intervals and locations are shown in Table 1. These peak discharge estimates are considered to be representative of the land uses in place in 1988.

Recommendations and Current Status

The FPMS recommended local improvements to manage the discharge into the Kayenta Community. The document did not distinguish the responsible party charged with implementing the recommendations. Table 2 provides an overview of recommendations for non-structural measures. In addition, Table 2 includes the current status for each non-structural recommendation.

In the study a more comprehensive system considered the installation of several structural components at five locations where significant damage can be expected. These five areas are discussed in Table 3. This table provides an overview of recommendations for structural measures. In addition, Table 3 includes the current status for each structural recommendation.

FPMS Identified Deficiencies

The purpose of this section is to identify deficiencies in the 1988 FPMS prepared for the Kayenta Community. This assessment was divided into two major components. These two components include the identification of the:

1. Areas where the hydrology changed in Kayenta as a result of new development occurring since 1988; and
2. Data that is deficient in the FPMS.

Development Occurring Since1988

In the last few years, the Kayenta Township has experienced much growth. The major areas of development within Kayenta Township are shown in Exhibit 17, Existing Land Uses, provided in page 130 of this document. The location of major development is summarized on Table 4.

Table 1:
Peak Discharge Estimates
1988

Flooding Source and Location	Drainage Area (mi²)	Annual Peak Discharge (cfs)			
		10-Year	50-Year	100-Year	500-Year
Stream Channel "A"					
Above Boarding School Tributary	1.66	1280	2330	2760	3680
At outlet into Laguna Creek	2.06	1410	2580	3050	4120
Boarding School Tributary to Channel "A" at outlet	0.14	120	230	280	420
Stream Channel "B"					
At Highway 160	1.61	340	790	1030	1680
Approximately 0.4 miles below dam	2.36	330	770	990	1670
At Highway 163	3.63	410	1060	1390	2490
Above confluence with Channel "C"	4.1	400	830	1050	1420
At outlet into Laguna Creek	11.4	890	2100	2720	4160
Stream Channel "C"					
At Highway 160 Vicinity of Highway 160-163 intersection	3.51	260	740	1020	1570
Above confluence with Channel "B"	6.65	500	1260	1660	2710

Sources: Floodplain Management Study (FPMS) for the Kayenta Community, United States Department of Agriculture Soil Conservation Services, December 1988.

Table 1:
Peak Discharge Estimates
1988
(Continued)

Flooding Source and Location	Drainage Area (mi^2)	Annual Peak Discharge (cfs)			
		10-Year	50-Year	100-Year	500-Year
Channel in Kayenta Public School Complex					
Overflow of old dike	--	25	340	490	1280
At outlet into Laguna Creek	0.41	160	300	420	1130

Sources: Floodplain Management Study (FPMS) for the Kayenta Community, United States Department of Agriculture Soil Conservation Services, December 1988.

Table 2:
Floodplain Management Study Non-Structural Recommendations 1988 and Current Status 2011

Category	Recommendation (1998)	Current Status (2011)	Recommended Actions
1. Flood Hazard Information	Develop flood hazard information to be readily available to the public.	No current Flood Hazard pamphlets or information flyers are available at the Kayenta Chapter House or Kayenta Township Office.	Include policy direction in the Comprehensive Plan to take action on items 1 to 4.
2. Flood Insurance	The Kayenta Chapter may desire to become qualified for the National Flood Insurance Program.	No action has been taken toward this endeavor.	
3. Floodplain Use Regulations	Floodplain use regulations can be imposed to protect those who might consider development in the hazard areas.	No action has been taken toward this endeavor.	
4. Flood proofing	Flood proofing of existing building could provide suitable protection.	No action has been taken toward this endeavor.	
5. Relocation	The study results indicate that it may be most feasible to relocate structures.	Structures were not identified in the study.	Include policy direction in the Comprehensive Plan to conduct a study that identifies all structures within the Township that need relocation and/or retrofitting.

Sources: Floodplain Management Study (FPMS) for the Kayenta Community, United States Department of Agriculture Soil Conservation Services, December 1988. Arrowhead Engineering Current Status Review, 2011.

Table 3:
Floodplain Management Study Structural Recommendations 1988 and Current Status 2011

Locations Where Significant Damage can be Expected	Recommendation (1998)	Current Status (2011)	Recommended Actions
Kayenta Boarding School	Local runoff passed through the school grounds in a shallow depression. There is an existing low capacity pipeline that conveys some runoff though the lower part of the school property. It was decided to consider a pipeline to convey the flood flows through the school, thereby, providing a closed conduit that will give safety to the school occupants. Outlet conditions would require a flood channel to control and convey the floods to a safe discharge point.	Pending field inspection.	
Kayenta Public School Complex	When this school complex was constructed a dike and flood channel was installed along the major lengths of the southern (upstream) edge of the complex. The system was sized such to satisfactorily control what has been determined in this study as the 100-year peak flow. At the head and upstream of this system an older Dike (predating 1970) intercepts floodwater and diverts it into this dike/channel system. This study shows that the older dike will be overtopped by the 100-year flood and that it is in a weakened condition that probably will fail by action of smaller, more frequent floods. Overtopping and/or breaching of this older dike will cause flood damage to the Kayenta Public School Complex and poses the most risk to life of any of the identified problem areas. This study considered the replacement of this older dike and installing a supplemental dike to tie into the adequate dike/channel.	Pending field inspection. Records of replacement or employees involved are very difficult to track down due to the time elapsed.	

Sources: Floodplain Management Study (FPMS) for the Kayenta Community, United States Department of Agriculture Soil Conservation Services, December 1988. Arrowhead Engineering Current Status Review, 2011.

Table 3:
Floodplain Management Study Structural Recommendations 1988 and Current Status 2011
(Continued)

Locations Where Significant Damage can be Expected	Recommendation (1998)	Current Status (2011)	Recommended Actions
The Navajo Housing Project	Flood waters overflowing Highway 163 and along the road drainage ditches are the major sources of damage to this development. The existing diking along the upstream (southwest) edge of this housing along with the culverts under the entrance road into the development are inadequate to divert and control a 100-year flood thereby allowing significant flooding. This examination considered raising the existing dike, extending the diking upstream to intercept flows coming across highway 163, installing larger culverts, and constructing a downstream flood channel to a safe outlet point.	Highway 163 in recent years has been retrofitted to include a major trapezoidal channel on its western side. This channel intercepts all storm water and conveys under US 163 immediately west of the Kayenta Field House via (3) 6'x8' concrete box culverts. The Navajo Housing also has been built up approximately 2-3' in some areas and directs storm water around its development via earthen triangular channels.	
Kayenta Mobile Home PArk	Stream Channel "C" presents a major threat to this trailer court, especially along the southern and southeastern edge of the development. A 100-year flood is expected to inundate about 20 trailer spaces and cause major structural and contents damage to two or three trailers. This study examined a dike to prevent flooding of these properties. Considering that only two or three structures are damaged and that they are readily movable the obvious least cost action is relocation.	Pending field inspection	

Sources: Floodplain Management Study (FPMS) for the Kayenta Community, United States Department of Agriculture Soil Conservation Services, December 1988. Arrowhead Engineering Current Status Review, 2011

Table 3:
Floodplain Management Study Structural Recommendations 1988 and Current Status 2011
(Continued)

Locations Where Significant Damage can be Expected	Recommendation (1998)	Current Status (2011)	Recommended Actions
The intersection of Highway 160 and 163	This intersection is vulnerable from the flood flows from three major flow paths. The existing culvert under Highway 160 is inadequate and the culvert installation under the immediate downstream road is very limits. These channel constrictions can be expected to contribute to the major overtopping of both highways during a 100-year flood. The overflow will be shallow but rather high velocities. To protect the commercial facilities in this area a dike was considered to extend upstream from Highway 160, to the south, to prevent overflow of this highway and the Holiday Inn parking area. This diking would train the flow through a new battery of culverts relocated to the west in alignment with the existing downstream channel (this would eliminate the old road/culvert constriction). Another dike would extend downstream (northward) from Highway 160, from the culvert outlet to the turn in the existing channel. This diking would prevent overflow of this channel into the intersection area.	Structures were not identified in study.	

Sources: Floodplain Management Study (FPMS) for the Kayenta Community, United States Department of Agriculture Soil Conservation Services, December 1988. Arrowhead Engineering Current Status Review, 2011.

1998 FPMS Deficiencies

The USDA-SCS FPMS is an important document because it serves as Kayenta Township's best available information for floodplain management. Conducted in 1988 and given the growth occurring in the Township since this date, the FPMS is due for an update. As with most historical documents back up calculations or appendices are lost over time. Arrowhead Engineering, Inc. has reviewed the document and finds the following items are necessary to verify the historical calculations and salvage the completed work:

- Scaled maps with delineated watersheds are not provided.
- No datum references were provided in the report or flood map.
- Due to the Flood Hazard Map condition and lack of a datum reference, it was scaled to best fit the aerial survey. The limitation offered by this approach is that the floodplain delineation serves only as a visual representation. It is not an accurately surveyed boundary.
- SCS curve numbers used were not provided in the report, it only mentions that they were estimated and mapped in the field.
- Time of concentration calculations was not provided in the report.
- Rainfall data was not provided in the report, it only states the source being NOAA Atlas No. 2 Volume VIII-Arizona
- Channel's Roughness Coefficients were not provided in the report. It only mentions that they were estimated and mapped in the field.
- Plots of modeled and observed hydrographs were not included in the report.
- Plots of the channel cross sections referenced in the report were not provided only channel profiles are provided.
- Channel flood routing calculations were not provided in the report
- The aerial base map the Flood Hazard Map was generated on is outdated.
- Recommendations for Floodplain Use Regulations were not included in the study.
- Information for the National Flood Insurance Program was not provided.

Floodplain Opportunities and Constraints

Stormwater mitigation and Floodplain management must be considered during any planning effort. Floodplain constraints determine the developable capability of an area. This section includes a discussion of the opportunities and constraints related to floodplain management in Kayenta.

Floodplain Opportunities

Areas Outside of the Designated 100-Year Floodplain
It is anticipated that construction of new buildings and structures in Kayenta Township will occur outside of the designated floodway delineated on Exhibit 5. Properties outside of the designated floodways are not subject to floodplain regulations.

Table 4:
Location of Major Development s within the Kayenta Township
1988 to 2011

Development	Location
Teeh In Deeh Estates	½ mile northwest of the intersection of Highway 160 and 163.
Navajo Housing Authority Project No AZ12-148/150 Tract	1/2 mile northwest on US-163 from the intersection of US-160 & US-163, on the east side US-163.
Kayenta Community School	2 miles northwest on US-163 N from the intersection of US-160 & US-163, approximately a 1/2 mile west of US-163.
Kayenta Unified School District Housing	2 miles northwest on US-163 from the intersection of US-160 and US-163, 1/2 mile east of US-163.
Kayenta Township Offices	0.3 miles northwest on US-163 from the intersection of US-160 and US-163 on the west side of US-163.
Kayenta Recreation Area	1 mile northwest on US-163 from the intersection of US-160 and US-163 on the east side of US-163.
US Post Office	1.3 mile northwest on US-163 from the intersection of US-160 and US-163 on the east side of US-163.
Kayenta Women's Shelter	1.7 miles northwest on US-163 from the intersection of US-160 and US-163, 1/4 mile west of Comb Ridge Rd.
Holiday Inn Additional Rooms	On south west corner of US-160 and US-163.
Hampton Inn Hotel	0.3 miles west on US-160 from the intersection of US-160 and US-163, on the north side of US-160.
Kayenta Dialysis Center	0.1 miles northwest on US-163 from the intersection of US-160 and US-163 on the east side of US-163.
Sonic Drive Inn	0.4 miles west on US-160 from the intersection of US-160 and US-163, on the north side of US-160.
McDonald's	0.2 miles west on US-160 from the intersection of US-160 and US-163, on the north side of US-160.

Sources: Arrowhead Engineering, 2011.

Black Mesa Wash

Areas within the 100-year floodway fringe

It is recommended that floodway fringe areas include recreational uses, open space, and other non-structural uses. Promoting the development of an integrated system of open space, parks and trails in floodplain areas increases the community connectivity, livability and sustainability while providing a circulation system that links neighborhoods, parks, schools, commerce and other recreational and cultural facilities. Such system includes creek way corridors that can support trail development and interconnected parkways or linear parks.

These provide opportunities for the creation of nature trails that include interpretive nodes with a comprehensive signage system describing the geology, wildlife and vegetative communities of the area and including rest areas as well as exercise areas.

Nature trails along floodway fringe assist in the definition of wildlife corridors and provide opportunities for habitat integration. In addition to serving the community with a sustainable amenity, they serve as a community economic development tool, inviting and alluring visitors and enhancing their experience.

Areas within the 100-year floodway

It may be desirable, appropriate and legally permissible to construct some structures such as trail system bridges and observation decks within the designated 100-year floodway. Such structures must comply with all applicable federal regulations. Such structures must be constructed using either cantilever or pier foundations. Any structure placed below the level of the 100-year flood must be flood-proofed, designed to withstand the forces associated with floodwaters and must not impede the flood flow.

National Flood Insurance Program (NFIP)

The NFIP is based on a mutual agreement between the Federal Government and the community. Federally backed flood insurance is made available in those communities that agree to regulate development in their mapped floodplains. If the communities do their part in making sure future floodplain development meets certain criteria, FEMA will provide flood insurance for properties in the community.

Participation in the NFIP is voluntary. There is no Federal law that requires a community to join, although some states have requirements. However, a nonparticipating community faces sanctions, such as:

- Flood insurance will not be available. No resident will be able to purchase a flood insurance policy.
- If the community withdraws or is suspended, existing flood insurance policies will not be renewed.
- No Federal grants or loans for the acquisition or construction of buildings may be made in identified flood hazard areas under programs administered by Federal agencies such as HUD, EPA, and SBA.
- No Federal disaster assistance may be provided to repair insurable buildings located in identified flood hazard areas for damage caused by a flood.
- No Federal mortgage insurance or loan guarantees may be provided in identified flood hazard areas. This includes policies written by FHA, VA, and others.
- Federally insured or regulated lending institutions, such as banks and credit unions, must notify applicants seeking loans for insurable buildings in flood hazard areas that:
    a. There is a flood hazard and
    b. The property is not eligible for Federal disaster relief.

These sanctions make participation a very important decision for many communities. To join the Program, the community must submit an application. Application information is provided on Appendix A.

Floodplain Constraints

Floodplain Management Study (USDA-SCS 1988)

Water flow and drainage patterns have changed in the 23 years since the first Flood Hazard Maps were produced for Kayenta. These changes can be related to land use and erosion or other natural forces.

In the last 23 years, the Kayenta Township has experienced significant growth. An increase in development activity consequently increases the amount of impervious surfaces. Such increase results in appreciable changes in runoff patterns or volume stormwater runoff. These changes can also affect the 100-year water surface profiles and their corresponding floodplain boundaries.

The FPMS prepared in 1988 is a solid foundation to base planning decisions. However, calculations provided in the 1988 FPMS for the Kayenta Community need update to incorporate community growth since the time the study was completed. In order to quantify current Q100 peak discharges, accurately locate floodplain and start a basis for stormwater and floodplain management the FPMS should be updated. Such update should include new hydrology and floodplain calculations based on current and anticipated conditions.

To achieve this, it is highly recommended that the Kayenta Township invite the Navajo Nation Water Resources Department, the Navajo Nation EPA, and NTUA as stakeholders during the 2011 Kayenta Comprehensive Plan community engagement process to begin the conversation on how their respective standards can be implemented, or enhanced to guide future development within the Kayenta Township.

The Flood Hazard Map is a hard copy. The floodplain map was scanned, scaled and visually overlaid to best fit an aerial photo. As a result the floodplain boundaries have limitation to their use as well. The floodplain limits mapped are only for a visual representation. The floodplain limits are not available for survey verification. Flood prone areas will not be field located, platted, or recorded without survey information. An update of the Flood Hazard Map should also be conducted.

Floodplain

According to the Floodplain Management Study for the Kayenta Community (USDA-SCS 1988), the 100-year floodplain, within the study area, inundates about 960 acres. This size of flood will cover about 70 acres of urban land, 110 acres of cropland and 780 acres of rangeland.

As a result, there is significant maintenance and retrofitting costs associated with structures and facilities that are located within areas that flood. The potential for damage or destruction of property by flood makes improvements in these flood-prone areas risky. Funds could be obtained from FEMA for the preparation of a Mitigation Strategy that identifies critical facilities in need of relocation and includes a cost benefit analysis for retrofitting critical facilities in flood-prone areas.

Development of buildings and structures within the 100-year floodplains should be avoided. The areas of the town that are in 100-year floodplains are presented in Exhibit 5 as "Inundated Area 100 Year Flood." Development in areas of shallow flooding where the average depth is one foot or less should be regulated by floodplain ordinances. The areas of the town experiencing shallow flooding where the average depth is one foot or less are presented in Exhibit 5 as "Average depth Equal or Less Than One Foot"

Stormwater Ordinance

The increase in impervious surfaces causes an increase in runoff beyond that identified in the FPMS. It is recommended that a Stormwater Ordinance be drafted to enable the Kayenta Township to reduce further impact on the surrounding floodplain in these areas.

The most common approach is to require each developer to construct retention and/or detention facilities to restrict the rate at which the increased runoff leaves the property.

A volume of stormwater runoff is required to be stored on the developer's site. It is released at a restricted rate after the runoff subside (stormwater detention). A developer may store stormwater runoff for irrigation or groundwater recharge or to reduce pollution.

Watershed and Surface Water

The watershed is located in the mixed grass plains and sage brush grasslands sub-resource areas. During periods of high rainfall there is a minimum penetration of surface water because the soil contains exceptionally high concentrations of salt. A list of both indigenous and exotic vegetation is included in the Vegetative Communities section.

The drainage area associated with Kayenta involves eighteen different unnamed channels. Three of these discharge directly into Laguna Creek. Therefore, the watershed area consists of three major subareas:

1. The first major subarea is in the vicinity of Kayenta Primary School and Kayenta Community School. The total drainage area for this watershed is 2.06 mi^2. (Channel "A")
2. The second major subarea includes a channel that drains the area around Monument Valley High School. The total drainage area for this watershed is 0.41 mi^2.

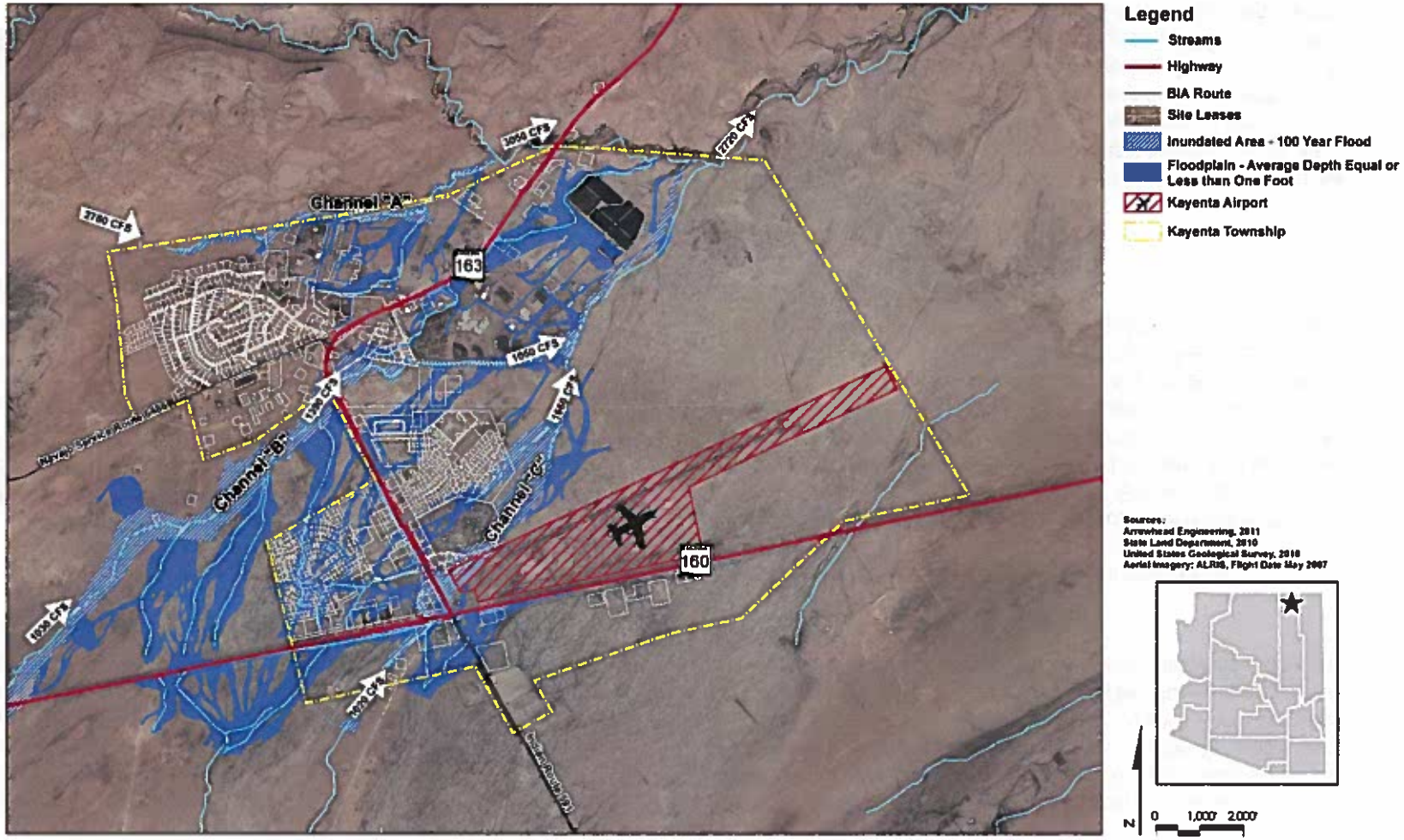
3. The third major subarea is the largest of the three, with a total drainage area of 11.40 mi². This watershed is made up of 15 streams with the longest flow path being 17.97 miles. (Channel "B" and "C".)

Natural watercourses, major washes and floodplain within Kayenta Township's drainage area are shown in Exhibit 4.

Water Resources and Water Quality

Kayenta is located at the edge of the Navajo Sandstone Aquifer which receives its recharge from an outcrop area of about 75 square miles north and west of Kayenta. The Navajo Sandstone Aquifer at Kayenta has a saturated thickness of between six and seven hundred feet. 1998 estimates indicated that the unstatic pump levels were dropping at the rate of ten (10) per 10 year period. The relative location of Kayenta near the northern edge of the Navajo Sandstone Aquifer places a limitation on the absolute capacity of wells to produce water in the immediate area because of the shallowness of the aquifer.

EXHIBIT 4: Watercourses, Major Washes and Floodplain



Soil Associations

Generalized soil associations for the Kayenta area were assessed utilizing Arizona State Land Department and Natural Resources Conservation Services 2010 soil data. Table 5 includes soil types within the Kayenta planning area. Exhibit 5 delineates generalized soil associations within the Kayenta planning area.

Table 5:
Generalized Soil Associations for the Kayenta Planning Area

Soil Association	Slopes
Berryhill family	0 to 3 percent slopes
Cauncelor-Moclom-Hawaikuh complex	1 to 60 slopes
Denzar-Sheppard-Lithic Torriorthents complex	1 to 10 percent slopes
Gotho-Aneth family complex	1 to 10 percent slopes
Rock outcrop-Needle-Lithic Torriorthents complex	1 to 25 percent slopes
Sanfeco-Sheppard complex	1 to 3 percent slopes
Sheppard-Massadona-Monue complex	0 to 10 percent slopes
Sheppard-Typic Haplargids complex	1 to 20 percent slopes
Urban land-Gotho-Tewa complex	1 to 5 percent
Urban land-Nakai Complex	1 to 5 percent slopes

Sources: State Land Department, 2010 and Natural Resources Conservation Service, 2010

The soil types in the Kayenta planning area are characterized by a number of activities, including the formation of active sand dunes and blowouts with accompanying wind erosion. Historically, while these factors cause some hindrance in vegetation growth, there are large sectors of farm land within the Kayenta Chapter. However, as Kayenta moved from a rural to a more urban community, farmlands within the township are sparse and rare.

Vegetation and Vegetative Communities

Vegetation within the Kayenta planning area consists primarily of grama grass, wheat grass, greasewood and shrubs. Scattered piñon-juniper is found in the higher elevations. The rangeland is made up of salt-desert shrub vegetation type with the dominant species consisting of mound salt brush, Russian thistle, Greene rabitbrush, annual weeds, cheat grass and galleta. Shortgrass vegetation type is located on the board, level to rolling plains and mesas at a slightly higher elevation. The dominant species are blue grama and galleta. Exhibits 6 shows generalized vegetative communities.

Wildlife

Wildlife within the Kayenta Chapter area includes deer, rabbits (cottontail and jack rabbit) prairie dogs, coyotes, bobcats and the black footed ferret. Some of the major fowl in the area include the peregrine falcon, the bald eagle, the fenugmous hawk, and the raven, which is the most numerous species. No endangered species of plants or animals were discovered during a field survey conducted in 1981 of the 19.47 acres set aside for construction of the Kayenta Shopping Center. However, the Navajo Fish and Wildlife Department believes that there are certain endangered animal species in other areas of the chapter.

Exhibit 7 overlays all opportunities and constraints described in this chapter.

EXHIBIT 5: Generalized Soil Associations

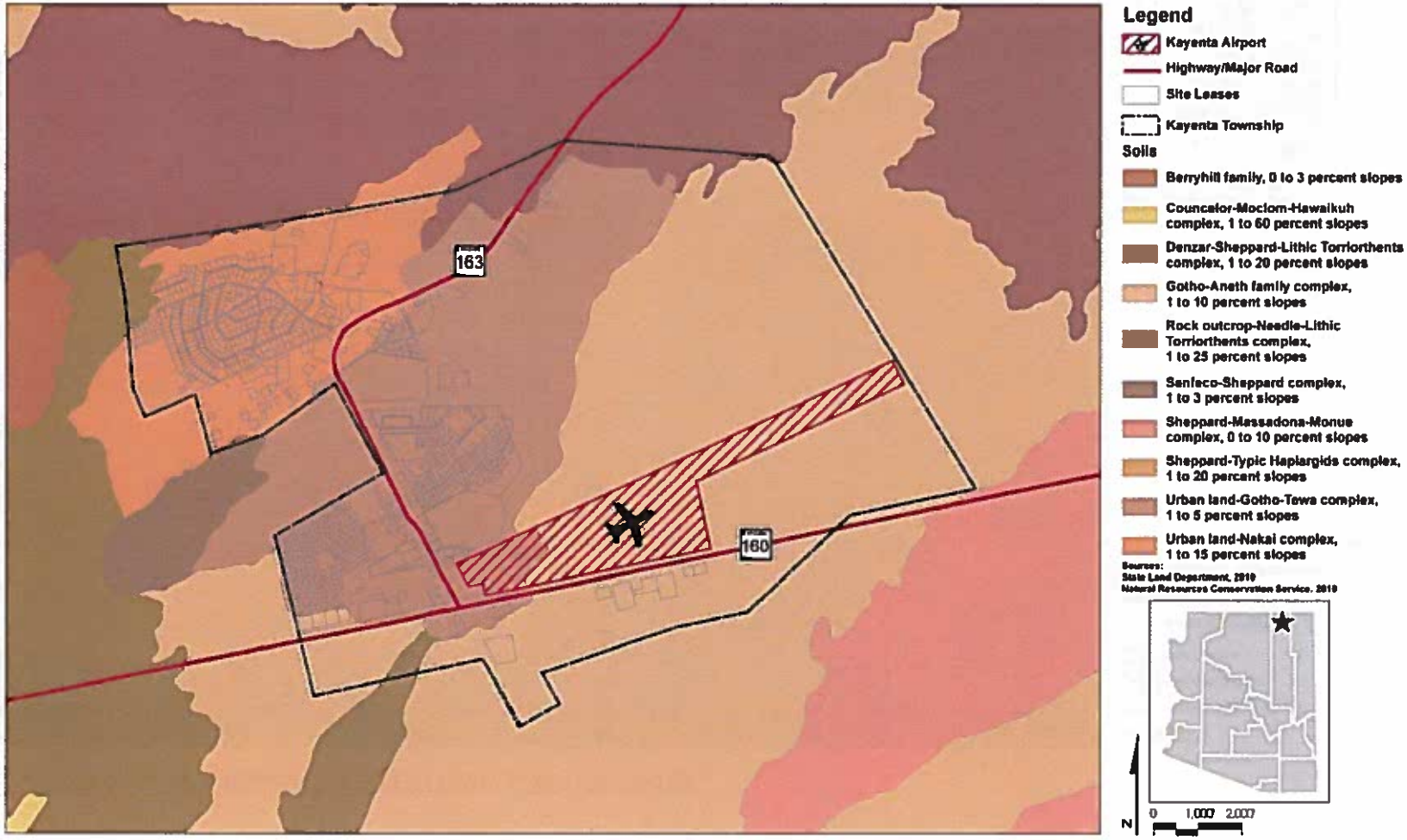


EXHIBIT 6: Generalized Vegetative Communities

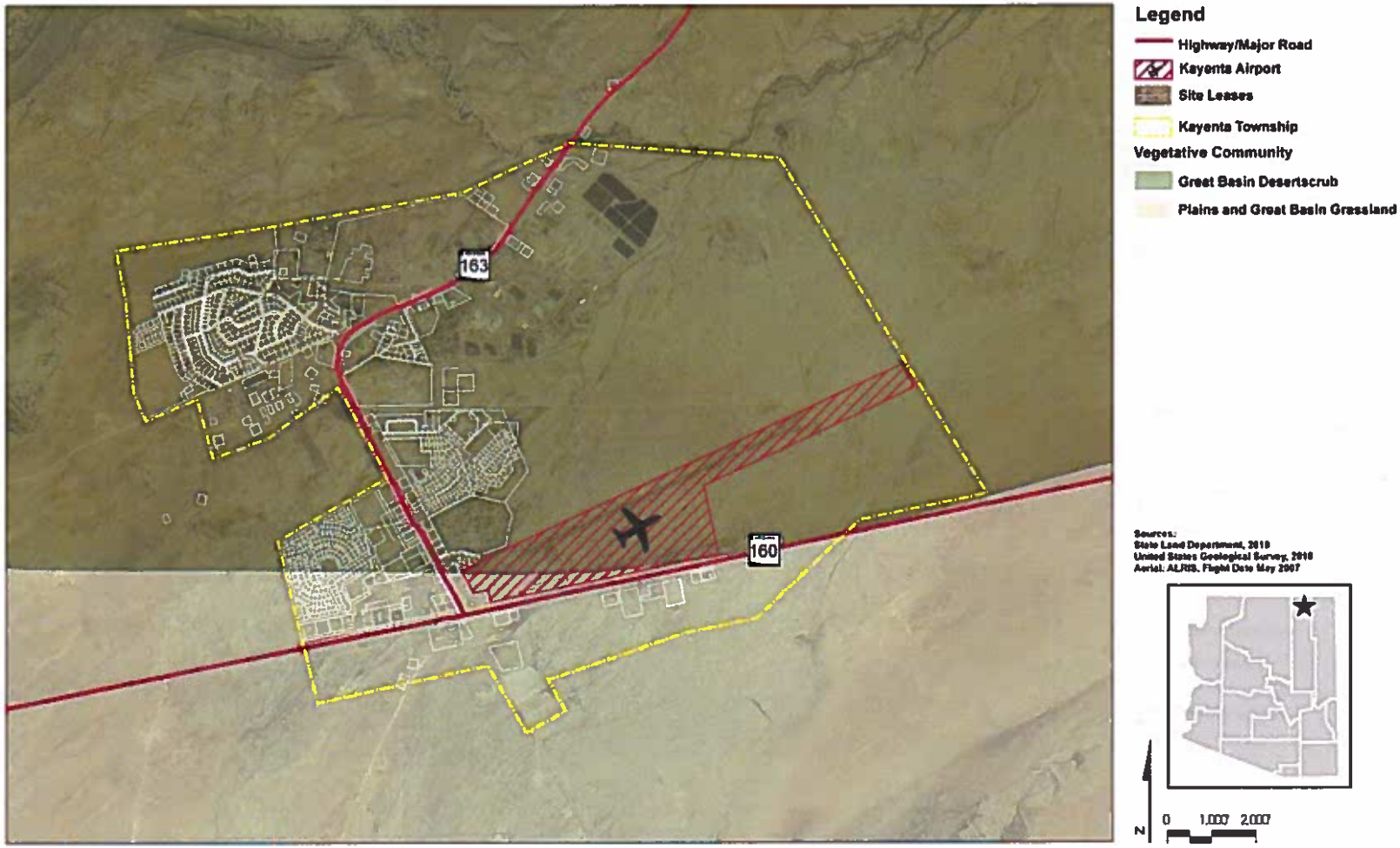
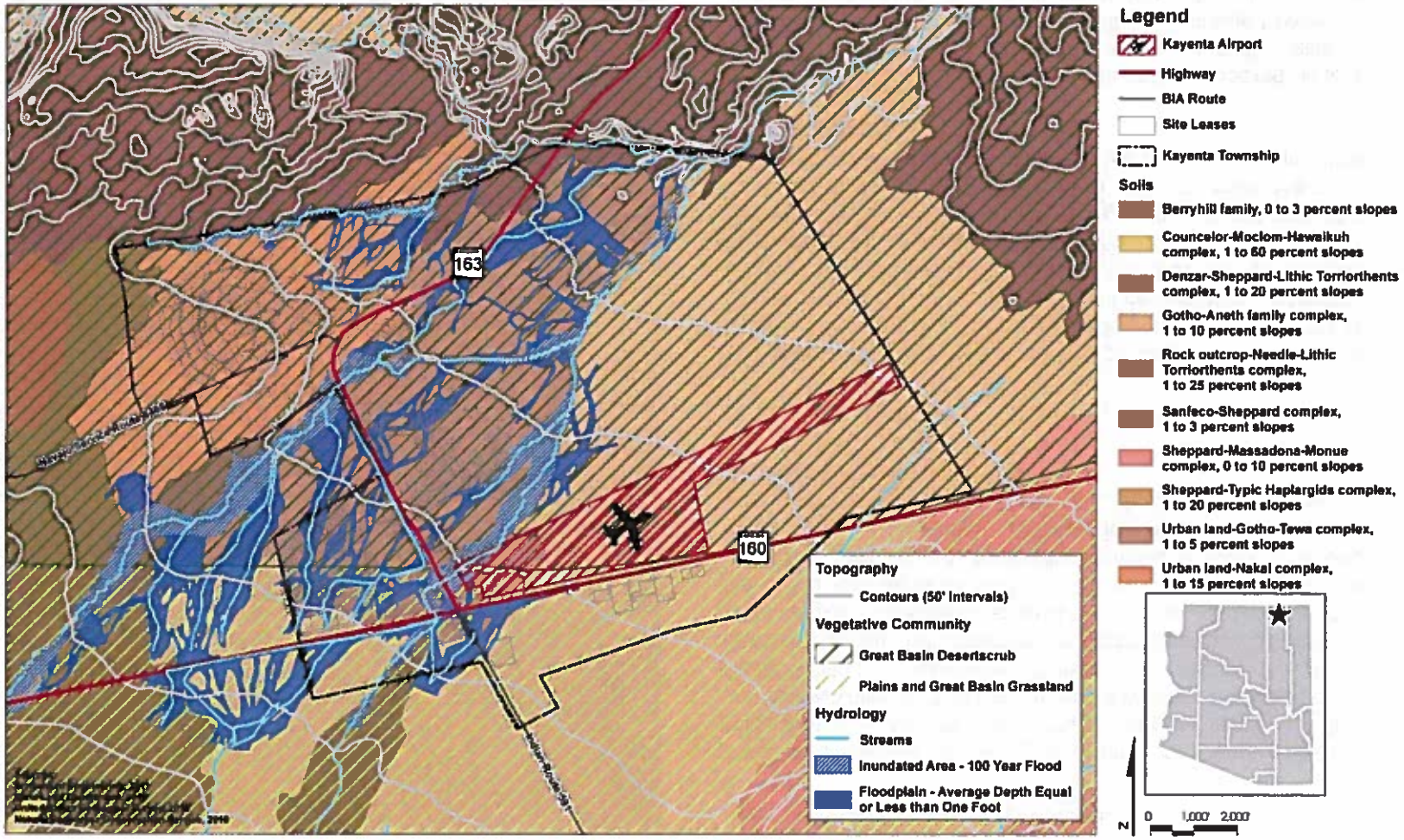
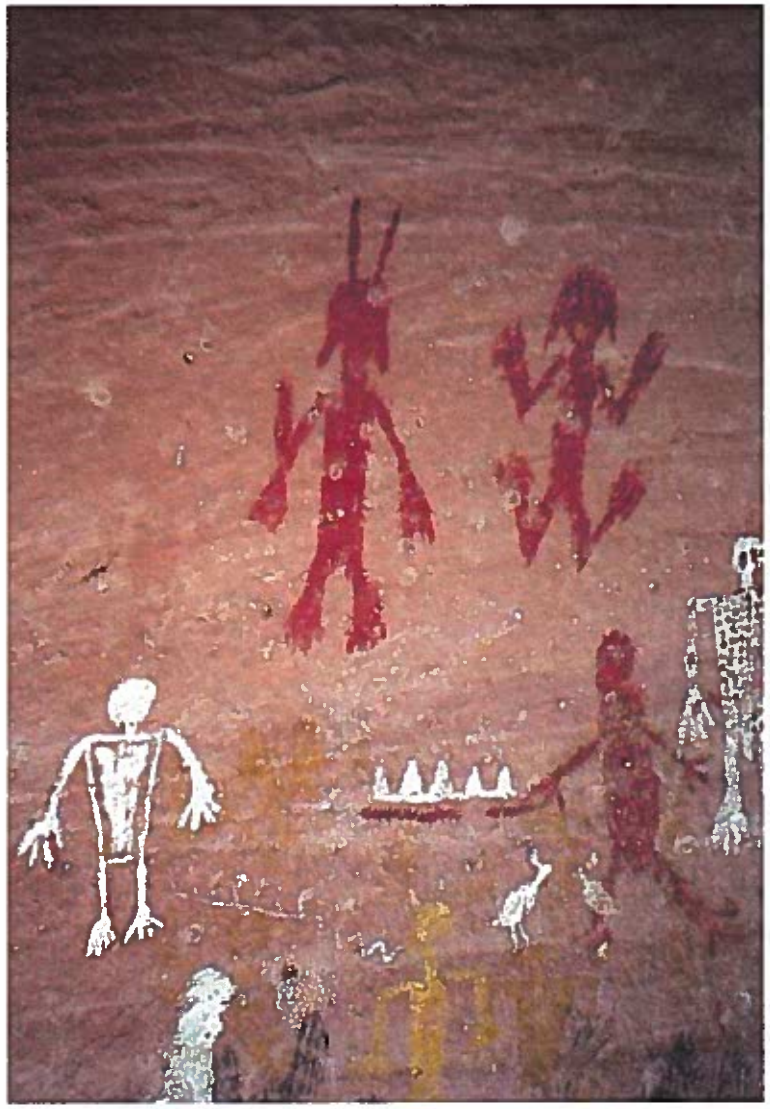


EXHIBIT 7: Opportunities and Constraints





Cultural Resources - Archaeology

There is widespread archaeological evidence of intense prehistoric occupation of the Kayenta region. This is highlighted by the Keet Seel and Batatikin ruins in Tsegi Canyon west of Kayenta. Eastwardly along Combs Ridge are innumerable cliff and pueblo dwellings. Oye House provides a striking illustration of this prehistoric population. Unconfirmed estimates place the Kayenta region at the same period of occupation in the 1100's level as Mesa Verde and Chaco Canyon. Existence of a major kiva comparable to those sites identified at Mesa Verde and Chaco Canyon is unverified. Relatively few sectors of the township area have been archaeologically surveyed. The Bureau of Indian Affairs archives include few survey maps.

Cultural Resources - Historic

The earliest report of European colonists passing within the vicinity of Kayenta dates from 1823 when a detachment of Spanish forces led by Colonel Francisco Salazar came north from the Hopi Mesa and thence eastward into the Chinle Valley to rejoin the main body of Vizcona's Navajo campaign force near Chinle. In 1892-1830 caravans of traders from New Mexico traveled the area going both back and forth from California. During the early 1800's Marsh Pass was called Puerla de Las Lemita, which in Spanish referred to the three leafed siemac that still grows in the region.

In 1885, a group of Mormons, headed by Ethan Pettit, explored the area and traded with the Navajo people. The region was rarely visited by non-Indians until 1874 when another group of Mormons traveling in their wagon from Tuba City to Aneth through Marsh Pass along the San Juan River. For many years after these brief encounters only an intermittent stream of traders and wandering prospectors who disturbed the Navajo and their Paiute allies in the northern sector of the region visited the area.

Kayenta's beginning as a community can be attributed to the first white settlers in the area, John and Louisa Wetherill, who moved from Oljato to Kayenta and built a home and a trading post in 1909. Because of the many springs in the area, the Indians name the site "To-dan-nas-sha" which means in Navajo "Flowing Springs". Two years after the Waterhills settled, a post office was established. Shortly thereafter, work began on the construction of the first school building. A year later the building was completed and named Marsh Pass School.

Coincident to this event was the official naming of the community as "Kayenta" which means "Bottomless Springs". The name was inspired by a large waterhole located approximately five miles west of the town in the Laguna Creek, nearby the current site of the Diversion Dam. The waterhole had a reputation of a drowning site for both humans and animals, some of which were never seen again. Navajo tradition explains the beginning of the "bottomless spring" to have been the home of water monsters, who having lived underground, left the present subterranean caverns when they disappeared.

A number of other developments have contributed to Kayenta's steady growth as a major community within the north central sector of the Navajo Nation. The Diversion Dam was built by the U.S. Works Project Administration in the early 1930's and was soon picked up and enhanced by workers from the Civilian Conservation Corps.

Unfortunately, the onset of World War II halted work on the dam. The dam was conceived and supported as an irrigation project by the Bureau of Indian Affairs whose primary objective was to develop better farming and grazing techniques. Their second objective was to educate farmers and younger residents of the area.

There was interfering with the Diversion Dam project, the older people guarded their traditional methods of farming, grazing and breeding and opposed the "new way" of life. The knowledge of stock raising and land use offered by farmers and stockmen from various parts of nearby states was rejected by the traditional people, resulting in the project's failure. During this period of time, there was one Council member for each district.

The Navajo Nation is also home to the Navajo Code Talkers of World War II. The Navajo language was used to create a secret code to battle the Japanese. Navajo men were selected to create codes and serve on the front line to overcome and deceive those on the other side of the battlefield. These men exemplify the unequaled bravery and patriotism of the Navajo people.

Land Ownership

Land within the Navajo Reservation is owned by the Navajo Nation. Exhibit 8 shows land ownership. A variety of private developments occur within the township in the form of land leases.

The Navajo Nation Council established the Kayenta Township Commission by Resolution CJA-3-96. The Commission oversees leases within the township following the procedures adopted in Chapter 9: Lease and Procedures ordinance (Lease Ordinance). The Commission currently has authority to process business site leases. Home site leases are submitted to the Navajo Nation Land Administration.

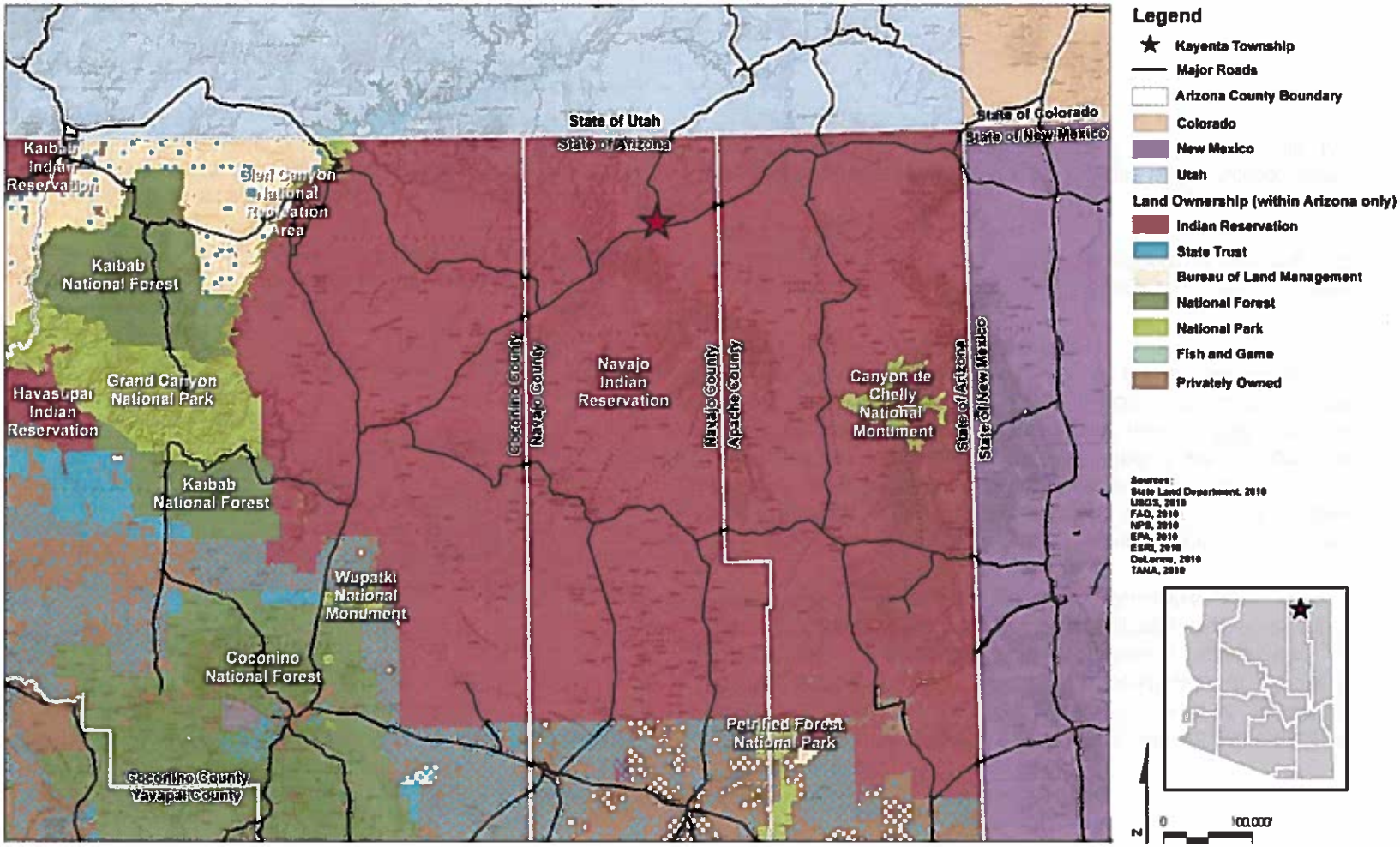
The Lease Ordinance applies to new leases, permits, licenses, right-of-ways and easements executed on or after October 16, 1998 within the Kayenta Township site. It also applies to existing leases where a current lessee wishes to renegotiate a lease, provided that there are no past due rental, or unpaid taxes on the lease.

All new leases involving surface occupancy of land within the Kayenta Township site entered into between the Kayenta Township Commission, Navajo Nation, and any lessee after the adoption of the lease ordinance is governed by the provisions enumerated in it. This includes leases between the Kayenta Township Commission, Navajo Nation, and individual members of the Navajo Tribe. It also includes leases with entities registered with the Navajo Commerce Department or its successors, partnerships and joint ventures between Navajo and non-Navajo entities, and other outside legal entities.

This ordinance also governs leases on previously withdrawn or leased land, including but not limited to industrial parks, shopping centers, trading post sites and other commercial leases. Leases may be granted for a term up to 99 years or less. The regulations included in the ordinance set forth standards for determining the term of a lease.

A developer proposing for the leasing of land within the Kayenta Township site on the Navajo Reservation is required to submit an application for a lease with a development plan, a business plan, and/or financial plan as specified by the Kayenta Township Commission.

EXHIBIT 8: Land Ownership



Community Services and Public Facilities

This chapter identifies the community services and public facilities providing services to the Kayenta community.

Education Services

The growth of the two Kayenta school systems, the Bureau of Indian Affairs (B.I.A) and the state supported public schools have had a direct economic impact on the development of the community and was the community's economic backbone during the 50's and 60's. Since then, the Black Mesa Mines became a major economic development force. The school system will continue to play a significant role in the economic development of Kayenta.

The first school to open in Kayenta was the B.I.A Kayenta Boarding School in 1910. It operated until 1935, when the school closed until 1939 when it reopened as a day school only. In 1955, a new boarding school was built which was later expanded in 1961 to its present size. Since then, the B.I.A. school's enrolment has fluctuated over the years.

The Kayenta Public District #27 began with one school room in 1930. In 1955 the public schools were utilizing classrooms in the new B.I.A. school building. It was not until 1960 that an elementary school was built. The high school was built in the fall of 1964. This facility burned down in June of 1978. Shortly thereafter, construction began on a new high school that was soon completed in the early spring of 1979.

In the spring of 1981, a new middle school was completed on the same site of the old high school. On December of 1982, a new intermediate school began construction. It was completed on January of 1983.

Kayenta Unified School District

The Kayenta Unified District is located in Kayenta, AZ and includes 4 schools that serve 2,179 students in grades PK through 12. The District spends $10,875 per pupil in current expenditures. Of this total, approximately 43 percent is spent on instruction, approximately 52 percent is spent on support services, and approximately 4 percent is spent on other elementary and secondary expenditures.

In terms of student-teacher ratio, the Kayenta Unified School District has 15 students for every full-time equivalent teacher, with the AZ state average being 20 students per full-time equivalent teacher. The Kayenta Unified District had a grades 9-12 dropout rate of 4 percent in 2008. The national grades 9-12 dropout rate in 2007 was 4.4 percent. In the Kayenta Unified District, 10 percent of students have an IEP (Individualized Education Program). An IEP is a written plan for students eligible for special needs services.

The Kayenta Unified District serves 25 percent English Language Learners (ELL). ELL students are in the process of acquiring and learning English Language skills.

Table 6 lists public schools within the Kayenta Unified School District and provides their characteristics. Table 7 lists schools within the Central Navajo Education.

Table 6:
Public Schools within the Kayenta School District 2011

School	Grades	Enrolment
Kayenta Intermediate School N. Hwy 189 Kayenta, AZ 86033	3-5	452
Kayenta Primary School Hwy 163, Kayenta, AZ 86033	PK-K-2	405
Kayenta Middle School North U.S. Hwy 163, Kayenta, AZ 86033	6-8	445
Monument Valley High School Hwy 163, Kayenta, AZ 86033	9-12	876

Sources: U.S. Department of Education, 2011

Northeast Arizona Technological Institute of Vocational Education

The Northeast Arizona Technological Institute of Vocational Education (NATIVE) is a joint technological education district in the Arizona portion of the Navajo Nation. Its programs are available to students at the member schools. The member schools include:

- Chinle High School
- Ganado High School
- Monument Valley High School
- Pinon High School
- Red Mesa High School
- Valley High School (Apache County, Arizona)
- Tuba City High School
- Window Rock High School

Northern Arizona University Kayenta Campus

Northern Arizona University (NAU) includes a Kayenta Campus. This campus includes the following degrees:

- Counseling/School Counseling (MEd) (Masters)
- Educational Leadership - Principal (K-12) (MEd) (Masters)
- Elementary Education (BSEd) (Bachelors)
- Elementary Education-Continuing Professional Emphasis (MEd) (Masters)
- Non Degree - Personal Enrichment (Graduate)
- Principal Certificate (Certificate)
- Reading Specialist Endorsement (K-8) (Endorsement)

Online Bachelor's Degree Programs offered at NAU Kayenta include:

- Certificate in Hotel & Restaurant Management
- Bachelor of Science in Health Sciences
- Bachelor of Business Administration
- BA/BS in Interdisciplinary Studies-Administration of Justice (90/30)
- BA/BS in Interdisciplinary Studies-Emergency Services Administration (90/30)
- BA/BS in Interdisciplinary Studies-Public Management (90/30)

Native Monument Valley High

Native Monument Valley High School is located in Kayenta, AZ and is one of 8 high schools in Northeast Arizona Technological Institute of Vocational Education School District. It is a voc/tech school that serves students in grades 9-12.

Arizona Virtual Academy

The Arizona Virtual Academy (AZVA) is a charter school that gives Arizona kids in grades K-12 the chance to learn in the ways that are right for them. AZVA offers:

- The award-winning K[12] curriculum
- Full-time, tuition-free online public school option
- Support from highly qualified, state-certified teachers
- An active, supportive school community
- A range of extracurricular activities
- A robust Advanced Learner Program
- A program that has achieved Adequate Yearly Progress (AYP) six out of the last seven years
- A high school diploma that meets all state requirements for graduates

Chilchinbeto Community School

Chilchinbeto Community School is located in Kayenta, AZ and is in Chilchinbeto Community School District. This school is one of 13 schools in Western Navajo Education Line Office School District. It is a public school that serves students in grades K-8.

Kayenta Community School

Kayenta Community School is located in Kayenta, AZ and is one of 13 schools in Western Navajo Education Line Office School District. It is a public school that serves students in grades K-8. Highway 163, PO Box 188 Kayenta, AZ 86033 (928) 697-3439.

Diné College

Diné College is a two-year, tribally controlled community college, serving the 27,000 square-mile (about 70,000 km²) Navajo Indian Reservation, which spans the states of Arizona, New Mexico, and Utah.

Its main campus is in Tsaile, an unincorporated community in Apache County, Arizona. It also has seven other campuses on the reservation in Arizona (three in Apache County (Chinle, Ganado and Window Rock), one in Coconino County (Tuba City), and one in Navajo County (Kayenta), one in McKinley County, New Mexico (Crownpoint) and one in San Juan County, New Mexico (Shiprock).

The college is directed by an eight-member Board of Regents confirmed by the Government Services Committee of the Navajo Nation Council. The name Diné comes from the traditional name for the Navajo, meaning "the people."

Current enrollment is 1,830 students, of which 210 are degree-seeking transfer students for four-year institutions. The main Tsaile campus includes eight 15-room dormitories housing about 150 students. Each octagonally-shaped unit has a fireplace in the center, and is described by the college as a "hooghan away from hogan" -- a reference to the traditional circular Navajo *hogan* dwelling.

The college first opened in 1968 as the Navajo Community College, the first college established by Native Americans for Native Americans. It was originally housed at the Rough Rock Community School while current location was under constructions. Dr. Robert Roessel was an advocate for the Navajo language and culture. Although Rosessel was white the Navajo had much respect and considered him a Navajo Elder. He stayed at Rough Rock while the College moved to Tsaile.

Dr. Ned Hatathli became the first president of Navajo Community College in 1969 when it relocated to its new location in Tsaile. Dr. Tommy Lewis became president in August 1992. At this time, funding from the BIA was around $4 million a year. Under his leadership, funding from the BIA increased to about $7.3 million a year in 2000.

The usage of the Navajo Language Culture was strengthened and the Board made a decision to use it throughout the institution. Under the 1994 Equity in Education legislation of the US Congress, it became a Land Grant Institution, joining the ranks of the 1864 and 1890 land grant colleges.

During the summer of 1997 the Administration changed their name from Navajo Community College to Diné College to reflect their name for themselves meaning The People. In 1998, Diné College bestowed its first baccalaureate degrees under the Diné Teacher Education Program, accredited under a partnership with Arizona State University. In 1998, the Library was rededicated the Kinyaa'áanii Charlie Benally.

Diné College offers Associate of Arts (AA), Associates of Science (AS), and Associate of Applied Science (AAS) programs. The Center for Diné Studies, applies Navajo Sa'ąh Naagháí Bi'keh Hózhǫǫn principles to advance quality student learning through Nitsáhákees (Thinking), Nahat'á (Planning), Iiná (Living) and Siihasin (Assurance). It also prepares its students by offering courses of the Diné language, history, and culture in preparation for further studies and employment in a multi-cultural and technological world.

The Uranium Education Program at the Shiprock campus is an empowerment program for Navajo concerning radiation and environmental health issues arising from the legacy of former uranium mining/milling operations and other serious environmental impacts on the Navajo reservation.

The Institute for Integrated Rural Development (IIRD) was established in 1996 by the Diné College Board of Regents as part of their Strategic Plan for carrying out their responsibilities as a 1994 Land-Grant Institution. IIRD is charged with developing and administering education, research, economic, and community-based projects that promote and demonstrate sustainability in food production, agriculture sciences, rural community development, health and environment, government, economic development, and natural resource management.

Other Regional Educational Facilities Serving Kayenta Township

Other educational facilities serving Kayenta students are included in this section.

Shonto Preparatory Technology High School

Shonto Preparatory Technology High School also is a state charter high school in Shonto, Arizona. The school is part of the Shonto Preparatory School district, which also includes a K-8 Bureau of Indian Affairs school.

The Indian Affairs education facilities were founded in 1933 out of a local desire to have students attend a school closer to home. It moved to its current location in 1966.

The Shonto Boarding School, as it was called, became a BIA/charter school in 1996, and the charter high school was added in 1997. The school serves students from rural areas such as Black Mesa, Inscription House, and Kayenta, with children being bussed in from as far as forty miles away. The current high school site was built in 2005-06 and includes 17 classrooms, a vocational school, and multi-purpose hall.

The district has 618 students. Of that number, 99.6% are Native American, and over 90% are eligible for free or reduced lunch programs.

Dennehotso Boarding School

The Dennehotso Boarding School is a KG-08 public school. It is one of 13 schools within the Western Navajo Education Line Office District. It is located in East Highway 160 in Dennehotso, Arizona.

Education as a Principal Economic Activity

In 1986, approximately 323 people were employed by the Kayenta Public School system. As provided by the Arizona Commerce Authority, the *educational and health services* economic activity sector in Kayenta employed approximately 3,425 persons in 2008. This economic activity sector is second to the *government* activity sector, which employs approximately 10,800 in Kayenta. The Kayenta Unified School Districts includes 4 schools that serve 2,179 students in grades PK through 12.

Central Navajo Education Office District

The Central Navajo Education Line Office District includes 10 schools. These schools are listed in Table 7.

Table 7:
Central Navajo Education Line Office District
2011

School	Grades	Enrolment
Rough Rock Community School Chinle AZ, 86503	KG-12	563
Many Farms High School Many Farms AZ, 86538	9-12	526
Rock Point Community School Highway 191, Rock Point AZ, 86545	KG-12	500
Lukachukai Navajo Route 13, Lukachukai AZ, 86507	KG-8	469
Chinle Boarding School PO Box 70, Many Farms AZ, 86538	KG-8	445
Jeehdees'a Academy Inc. (Low Mountain) PO Box 1073, Pinon AZ, 86510	KG-8	268
Cottonwood Day School PO Box 6003, Chinle AZ, 86503	KG-8	244
Pinon Community School PO Box 159, Pinon AZ, 86510	KG-12	163
Nazlini Community School PO Box 35, Ganado AZ, 86505	KG-6	125
Black Mesa Community School PO Box 97, Pinon AZ, 86510	KG-8	37

Sources: U.S. Department of Education, 2011

Exhibit 9 shows schools within the region. Exhibit 10 shows schools within the Kayenta Unified School District office.

EXHIBIT 9: Schools within the Navajo Nation Region Serving Kayenta

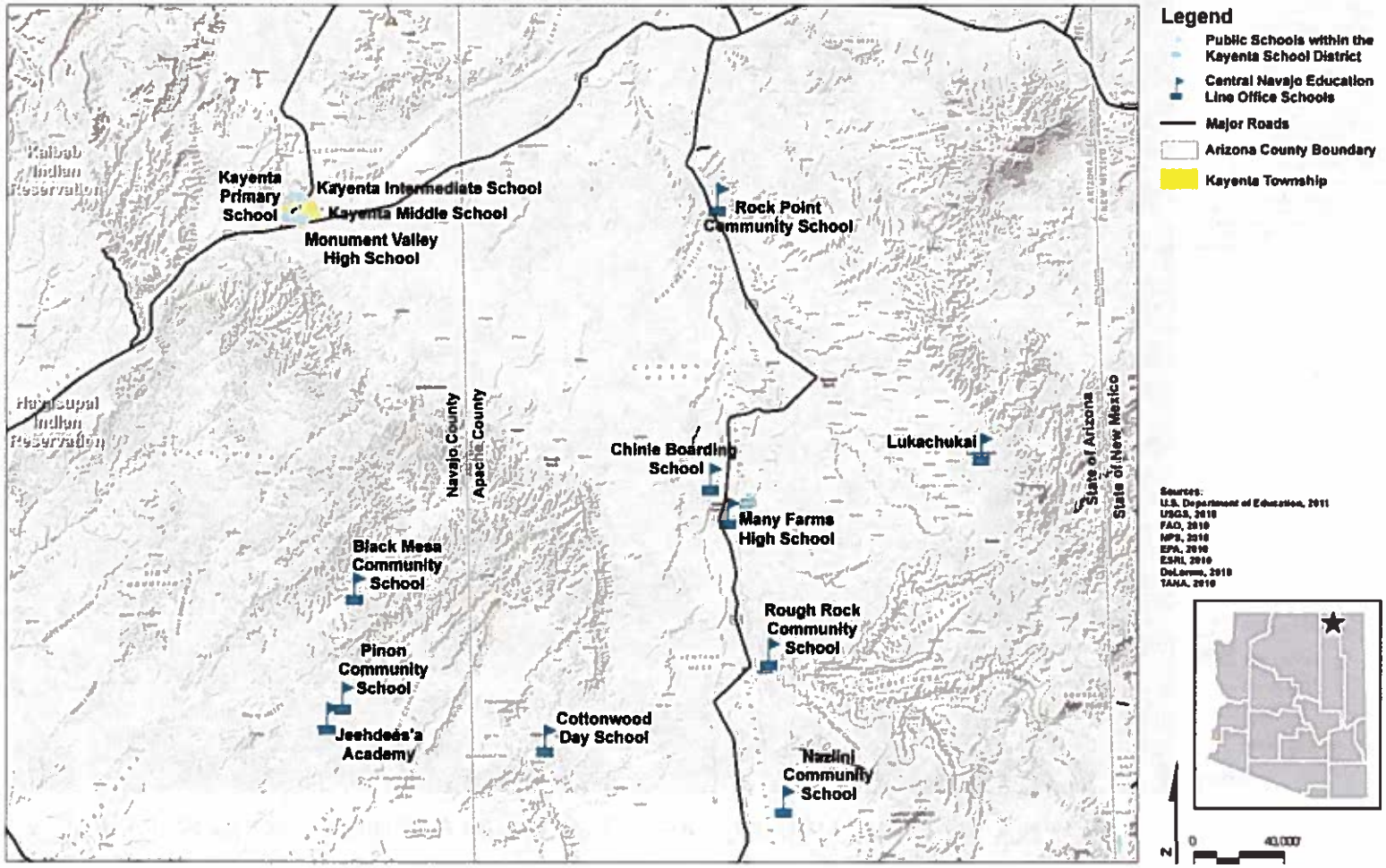


EXHIBIT 10: Schools within the Kayenta Unified School District and N.A.T.I.V.E

Health Care Services

In 1935, the Tuberculosis Sanatorium, a 52 bed facility, opens in Kayenta Township. The sanatorium remained open until January 1944, when it closed due to World War II and the lack of doctors. When the facility was closed, the government asked Mrs. McGaffin, the wife of the Presbyterian missionary, if she would dispense necessary medicines to the sick. After consenting, her services included the taking the very ill to the Tuba City Hospital and Ganado Hospital.

During the 1950's, The Ganado Presbyterian Hospital sent medical teams to Kayenta once a month for medical treatment at the church. Two of three patients were seen during these monthly visits.

In 1959, the U.S.P.H.S clinic was built and became the core for four other clinics which are located in Dennehotso, Chilchinbeto, Inscription House and Shonto. Outpatient medical services, community health and dental services as well as environmental health services are provided out of the Kayenta Clinic. Twenty-four (24) hour, seven (7) day a week emergency services are available at the Kayenta I.H.S. Clinic. Most inpatients were hospitalized at the Tuba City I.H.S. Hospital, 75 miles from Kayenta.

In the spring of 1981, an additional health services facility was established. This facility became the Kayenta Designated Community Health Services (K.C.H.S). This health service facility was obtained through the cooperative efforts of several citizens who saw the need for local medical services for many of the Peabody employees and others who could pay for health services. Outpatient medical and dental services are available at this facility five (5) days a week.

The Navajo Area Indian Health Service (NAIHS) is the primary health care provider on the Navajo Nation. NAIHS program administration is divided into 8 service units: Chinle, Crownpoint, Fort Defiance, Gallup, Kayenta, Shiprock, Tuba City, and Winslow Service Units. Within these service units, NAIHS facilities include 6 hospitals, 9 health centers, 12 health stations, and 18 dental clinics (2007). NAIHS also provides over 50 primary care services at schools and about 60 at Chapter.

Other health care facilities are contract facilities located within or near the Navajo Nation. These include Sage Memorial Hospital (Ganado, AZ), Presbyterian Medical Services (Cuba, NM and Farmington, NM),

Winslow Memorial Hospital (Winslow, AZ), and San Juan Health Care Services (Montezuma Creek, UT). These facilities generated approximately 78,000 outpatient visits and 2,300 inpatient admissions annually. Others are private facilities, mostly small dental clinics, and one private clinic provides family care in St. Michael, AZ.

The Monument Valley Adventist Hospital is located some 30 miles away from Kayenta. This facility is utilized by township and regional residents. Monument Valley Adventist Hospital is a 27 bed facility with 4 doctors, 2 dentists and six nurses. This facility is antiquated and it need of renovation.

As population grew, the outpatient services were delivered in a building that was too small to serve the needs of the population. Multiple trailers were used for health services delivery. In response to a need for additional space, temporary holding capabilities for certain types of emergencies, as well as the need to offer needed services such as a block bank, a blood gas machine, and nighttime support staff, the new Kayenta hospital is under construction. This new facility is being built to accommodate the health care needs of the current and projected populations.

Kayenta Health Care Center

The Kayenta Health Care Center is currently under construction. The Center includes 25 dental chairs, surgery facilities, 13 hospital beds, 129 staff quarters, and 150 new employment positions in addition to current health care staff.

Public Utilities

Navajo Tribal Utility Authority (NTUA) is the major utility provider on the Navajo Nation. NTUA provides service for the community's Water, Sanitary Sewer, Gas and Electric. NTUA is an enterprise of the Navajo Nation. Data, cable, and telephone services are provided by Frontier Communications. The Kayenta Township handles all solid waste through its waste transfer station.

Arrowhead Engineering, Inc (AEI) was commissioned by Kayenta Township to review future and current capacity utilizing existing data. The township's objective is to manage its public utilities by ensuring their capacity to support current and future growth. In general, all utilities will require increased capacity. This section summarizes Arrowhead Engineering, Inc.'s review of the available utility capacity based on data provided by NTUA.

Methodology

The Kayenta Township furnished Arrowhead Engineering, Inc. with digital copies of NTUA's existing infrastructure in Kayenta. In addition, AEI has made use of GIS data provided by Arizona Land Resource Information System (ALRIS), GIS data provided by NTUA, and available aerial surveys.

Based on such data, AEI developed spatially correct utility infrastructure maps. The spatial referencing for the maps are set at NAD83 Arizona East Zone State Plane (US survey foot). These maps overlaid the utility infrastructure onto current color aerial imagery to delineate water, sewer, gas, and electric utilities.

Water System Assessment

The Navajo Tribal Utility Authority (NTUA) Kayenta District operates and maintains the public water system within Kayenta. NTUA is responsible for providing safe drinking water. The water system is intended to serve all areas within the Township Limits, as well as other communities outside the Township Limit.

Presently, the only source of potable water for Kayenta is groundwater from the Navajo Aquifer. The Navajo aquifer is the source of water for industrial and municipal uses in the Kayenta area. "The Navajo aquifer is composed of three hydraulically connected formations - the Navajo Sandstone, the Kayenta Formation, and the Lukachukai Member of the Wingate Sandstone - that function as a single aquifer."(USGS 2010-1038)

The Kayenta Wells Chart, a study completed by the Indian Health Service Engineering Department of Kayenta in 1984, reported the static water levels and pumping capacity (gallons per minute) for each well in the study area. Such study also indicated that the Kayenta water system consisted of seven (7) wells and four (4) water storage tanks at the time the study was prepared. It also reported that the Township was pumping all seven wells at near capacity levels. The pump that served the Wetherill Heights sector pumped 24 hours per day to meet water demands.

The study also indicated that the storage water tanks were located at elevations which did not provide the pressure per square inch (psi) ratings necessary for sprinkler systems in large commercial and public buildings. At the time this study was prepared, Kayenta used approximately five thousand (5,000) acre feet of water per year.

NTUA reports that the township water system currently consists of seven (7) wells that feed into seven (7) water storage tanks, the largest of which holds one million gallons. The current total water storage a capacity is 2,640,000 gallons. There are approximately 98 miles of water distribution lines serving a population of approximately 5,280 people with 983 service connections. Exhibit 11 delineates the existing water system mains.

Water Wells

NTUA provided pump performance data for each existing water well serving the Kayenta water system. Exhibit 11 identifies water well location. Table 8 describes well location and well production capacity in gallons per minute (gpm). In addition to the existing wells list provided by NTUA on Table 8, the Township recently drilled a new well. This well is located southeast of Chief propane.

Currently, the Kayenta well system has the capability to produce 1,298,880 gallons per day (gpd) or 902 gpm.

Storage Tanks

According to NTUA, seven (7) water storage tanks serve the Kayenta water system. The capacity of each storage facility is included in Table 9. Exhibit 11 shows location of storage tanks. Currently, Kayenta has a total storage capacity of 2,640,000 gallons. Exhibit 11 shows existing water reservoirs.

Table 8
Kayenta Township Water Well Location and Production
in Gallons per Minute (gpm)

NTUA Well	Well Location	Well Production (gpm)
1	±600 feet northwest of the intersection of Diversion Dam Rd. and Laguna Wash Rd.	95
2	On the southwest portion of the Kayenta Unified School District parcel in the vicinity of NTUA's substation.	95
3	Approximately 1 mile northwest of the intersection of US-160 & US-163 in the vicinity of the Kayenta Field House.	125
4	½ mile southwest of the intersection of US-160 & US-163.	95
5	1.3 miles southwest of the intersection of US-160 & US-163 and ¼ mile south off of US-160.	225
6	1 mile south of the intersection of US-160 & US-163 on the west side Navajo Route 591.	175
7	Approximately 1 mile east of the intersection of US-160 & US-163 in the vicinity of the Navajo County Office.	92
	Total Well Production	**902**

Sources: Navajo Tribal Utility Authority, 2011

EXHIBIT 11: Existing Water System (Water Mains, Water Tanks and Water Wells)

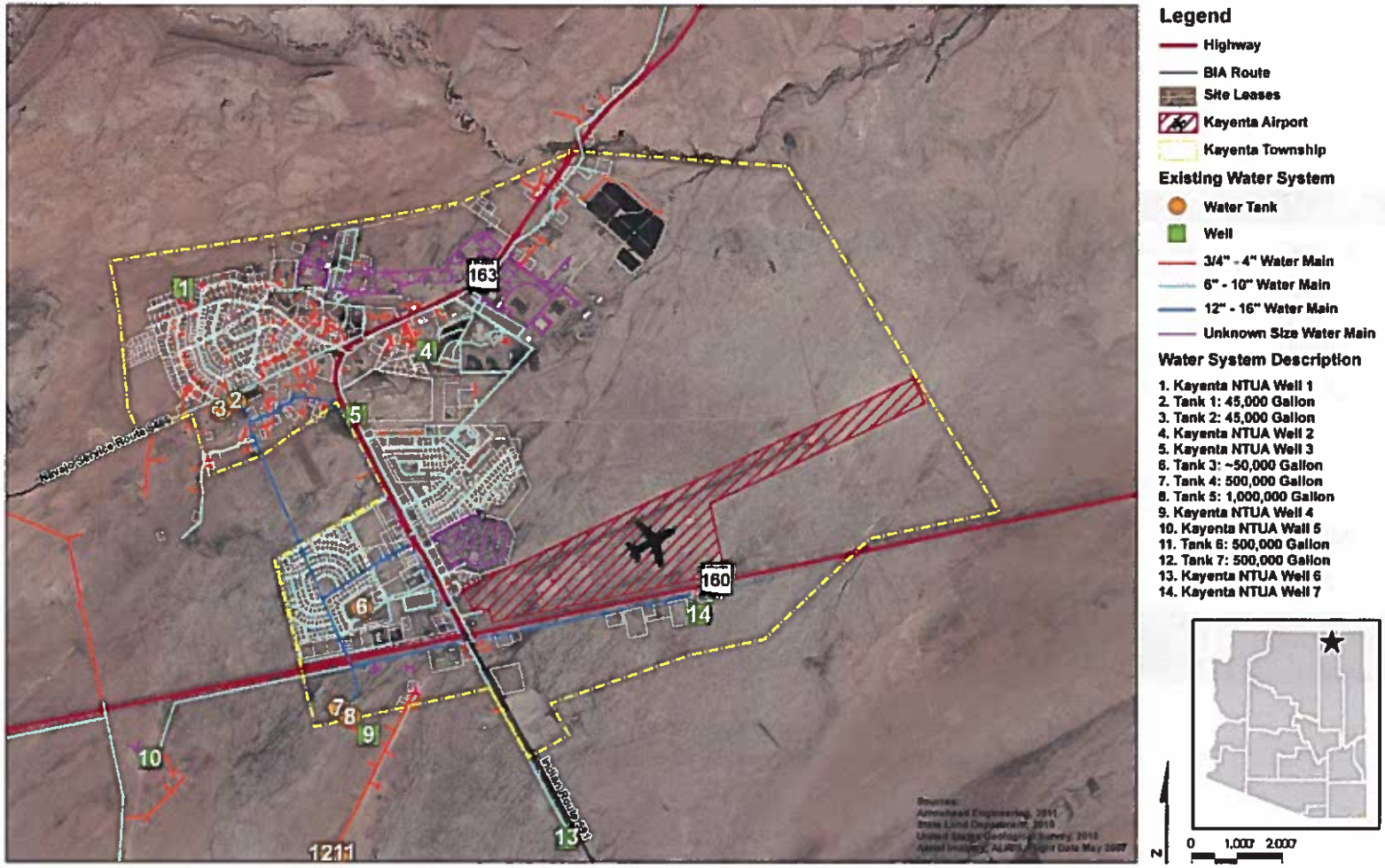


Table 9:
Kayenta Township Water Storage Tank Location and Capacity
in Gallons per Minute (gpm)

Storage Tanks	Storage Tank Location	Tank Capacity (gpm)
1	½ mile southwest of the intersection of Wetherill Rd and US-163 on the south side of Wetherill Rd.	45,000
2	½ mile southwest of the intersection of Wetherill Rd and US-163 on the south side of Wetherill Rd.	45,000
3	Approximately 1/4 mile north of the intersection of Bailey Dr. and US-160 in the vicinity of Kayenta Head Start.	50,000
4	Approximately ½ mile southwest of the intersection of US-160 & US-163.	500,000
5	Approximately ½ mile southwest of the intersection of US-160 & US-163.	1,000,000
6	Approximately 3 miles southwest of the intersection of US-160 & US-163.	500,000
7	Approximately 3 miles southwest of the intersection of US-160 & US-163.	500,000
	Total Well Production	**2,640,000**

Sources: Navajo Tribal Utility Authority, 2011

Water Distribution System

AIE compiled data received from NTUA and Kayenta Township to determine the total length and sizes of pipe within the system. The water distribution system includes differing pipe sizes and pipe materials. Table 10 shows total length in feet per type of pipe.

Table 10
Kayenta Water System Total Pipe Length

Pipe Diameter (Inches)	Total Pipe Length (Feet)
Laterals (Unknown size)	30,326
3/4	156
1	38
2	62,144
4	83,476
6	230,778
8	37,765
10	2,737
12	15,939
16	10,083
Unknown Size	42,990

Sources: Navajo Tribal Utility Authority, 2011

The following data deficiencies were observed:

- Approximately 8 miles of water pipe are identified as having unknown pipe sizes.
- Approximately 6 miles of water pipes are identified as water laterals. These pipe sizes are unknown. They were assumed as being in the ¾-inch to 4-inch category.

According to Table 10, of approximately 98 miles of pipe, about 33 miles (34 %) is 3/4-inch to 4-inch, about 51 miles (53%) is 6-inch to 10-inch, about 5 miles (5%) is 12-inch to 16-inch, and there is about 8 miles (8%) of water pipe identified as having an unknown pipe size.

Water Supply

AEI was not provided with historical records of well production for the NTUA wells. Such records are required to provide and assessment of water supply.

Water Demand

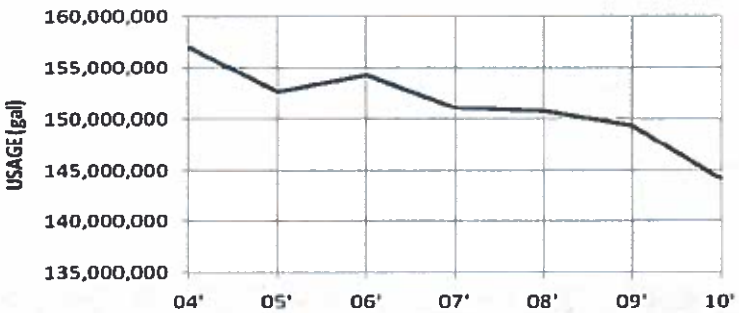
The daily demands for the Kayenta water service area were extracted from the NTUA SAP Consumption and Sales Report, dated 01/01/04 to 12/31/10. The average daily total usage is 414,626 gallons per day (gpd) or 288 gpm. This report will utilize the average usage per day of 288 gpm to calculate the remaining demands.

The following equations were used to determine average day peak month (ADPM, peak day demand (PDD) and peak hour demand (PHD). Figure 1 illustrates the historical usage demand.

- 1.5 average day peak month (ADPM) factor
- 2.0 peak day demand (PDD) peaking factor
- peak hour day (PHD) peaking factor

- Average Day Demand (ADD) = 414,626 gpd = 288 gpm
- ADPM = 1.5 * ADD = 621,939 gpd = 432 gpm
- PDD = 2.0 * ADD = 829,252 gpd = 576 gpm
- PHD = 3.5 * ADD = 1,451,191 gpd = 1008 gpm

Figure 1
Historical Usage Demand



Source: Navajo Tribal Utility Authority, SAP Consumption and Sales Report, dated 01/01/04 to 12/31/10

The historical water usage graphic provided in Figure 1 depicts a significant reduction in water consumption of approximately 13 million gallons of water consumption from 2004 to 2010. Such reduction in water consumption may be attributed to a decrease in agricultural land uses that rely heavily on water irrigation and an increase in urban land uses with lower water consumption rates as a result of steady urban growth. According to Figure 1, there are approximately 13 million gallons of water available for future development.

Total Water Capacity

A comparison between the existing water demand and the total storage capacity indicates that the Kayenta Water System has capacity for the existing land uses. Water capacity necessary to support the land uses depicted in the future land use map is provided in the Water Resources Element of the Comprehensive Plan volume.

ADEQ Bulletin 10, standards, recommends water for one day of average day peak month is recommended for storage sizing. Fire flow is not provided and not included in the storage calculations. The ADPM is 621,939 gallons. Kayenta has a total storage capacity of 2,640,000 gallons per Table 9, and can provide approximately 4.2 days of storage for the system, which is 4.2 times the minimum sizing requirement.

Water System Opportunities

The Kayenta Township is in a unique position. The Township infrastructure is provided by an independent entity outside of township government. This creates opportunities for interagency agreements as well as for capital improvements coordination and prioritization. It also provides an opportunity for NTUA to be involved in the preparation of the Kayenta Township 2011 Comprehensive Plan and Zoning Ordinance from its early stages. NTUA can provide valuable insight with respect to planned growth criteria and capitol improvements priorities.

Water System Constraints

There were no records provided describing the relationship between Kayenta Township and NTUA, regarding planned future development in Kayenta.

Wastewater Treatment System Assessment

NTUA Kayenta district is responsible for collecting and treating wastewater or sanitary sewer within the Kayenta Township. Kayenta utilizes a lagoon sewerage treatment system. NTUA also performs all water quality testing, chemical composition analysis, and performs maintenance of the treatment plant, aeration ponds, pumping stations, piping systems, and other sewage treatment facilities. Exhibit 12 shows Existing Sewer System.

The Kayenta community wastewater treatment facility provides services to all education facilities, commercial and housing areas. Six stabilization ponds are located northeast of Kayenta Public School. The effluent from the lagoon is filtered and chlorinated to 100% purity before being discharged into the Laguna Wash. Part of this discharged wastewater is utilized by the Kayenta School District to water their football field and lawns.

To maintain the 100% water purity, water samples area taken each month for analysis. Estimates indicate that the sewer system can handle twice the current load. NTUA avoids the use of lift stations because of significant maintenance costs. Lift stations are only used when the wastewater nears the lagoons. The system is dependent on gravity flow. Unconfirmed observations concerning the east central sector of the township indicates this area to be lower than the sewer lagoons.

Existing Wastewater System Collection and Treatment

The NTUA-Kayenta wastewater treatment lagoon facility is located in north east side of town, east of US-163. The Kayenta Lagoon Wastewater System encompasses approximately 37 acres, with facilities that include the headworks, aeration ponds and percolation ponds.

The treatment plant consist of six facultative lagoon operated in series. Currently only two (2) ponds out of the six (6) are being used. The only pretreatment of wastewater flows at this facility is a barscreen with a two-inch opening. There is an influent gate box that can direct the influent flow to either cell 1 or to cell 2. The lagoon system is equipped with ultra-sonic meters to measure the influent and effluent. Effluent is chlorinated and discharged from an 8-inch pipe from Cell #6 to a discharge outfall, to Laguna Wash.

The daily Influent and effluent flows for the Kayenta wastewater treatment lagoon facility were extracted from the NTUA Daily Flow Records, dated January 2011.The Kayenta Lagoon System currently treats an average daily flow of 0.53 mgd with a design capacity of 0.9 mgd and an average effluent flow of 0.286 mgd. The lagoon system currently has an average daily storage of.245 mgd or 32,710 cubic feet per day.

Distribution System

AEI compiled data received from NTUA and Kayenta Township to determine the total length and sizes of pipe within the system. The sewer system includes differing pipe sizes and pipe materials. Pipe length and diameter is shown in Table 11.

Table 11
Kayenta Wastewater System Total Pipe Length

Pipe Diameter (Inches)	Total Pipe Length (Feet)
3"	178
4"	12,358
6"	16,424
8"	68,509
10"	21,077
12"	25,891
16"	1,928
3"	178
4"	12,358
6"	16,424
8"	68,509

Sources: Navajo Tribal Utility Authority, 2011

As provided on Table 11, of approximately 28 miles of pipe, about 2 miles (9 %) is 3-inch to 4-inch, about 20 miles (72%) is 6-inch to 10-inch, and about 5 miles (19%) is 12-inch to 16-in.

Wastewater System Opportunities

The NTUA sewer lagoon is near capacity while the Township is proposing several large scale projects in the immediate future. In order to provide adequate wastewater treatment capacity, the preparation of a Wastewater System Master Plan is recommended. The 2011 Comprehensive Plan provides an opportunity to include the policy direction needed to prioritize wastewater system capacity improvements. NTUA's involvement in the 2011 Comprehensive Plan is highly recommended.

Wastewater System Constraints

Regulatory and Permitting Requirements

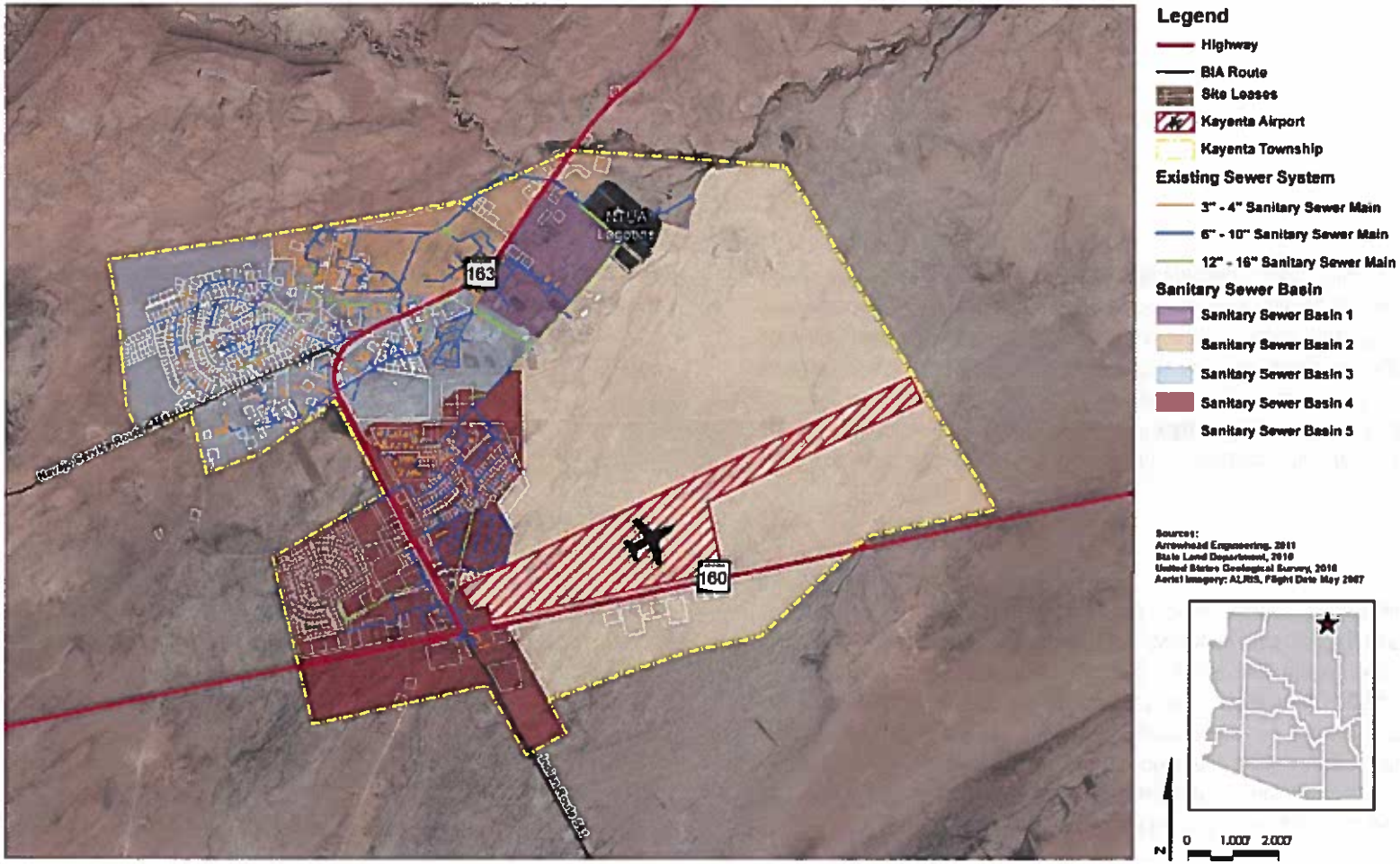
NTUA has jurisdiction of the sewer infrastructure in Kayenta. Coordination with NTUA will be required for all infrastructure improvements and additions. NTUA administers the design and permitting processes throughout the entire life of the project. NTUA has adopted regulations intended to protect the public health, safety and welfare, as well as to protect the environment. NTUA is also regulated by the Navajo Nation Environmental Protection, Water Quality Act of 1987 and the "EPA Policy for the Administration of Environmental Programs on Indian Reservation" (Nov 8, 1987). However, the review procedures and costs associated with compliance may serve to delay or preclude some activities and/or projects.

Existing Sewer System

Kayenta's sewer collection and treatment system are adequate for the current population. However, the system requires expansion in order to support the projected population. Changes in land use patterns and/or land use density/intensity will require utility upgrades. Exhibit 12 depicts the sewer basin.

AEI was not provided with analysis or evaluations necessary to determine deficiencies throughout the collection and treatment system currently in place. It is assumed that it is NTUA's responsibility to evaluate the sewer system to ensure that infrastructure deficiencies are adequately addressed and that infrastructure is in place prior to the approval and/or construction of future development. The type of comprehensive assessment of the community's wastewater treatment system provided in a Wastewater Master Plan would benefit Kayenta. This type of facility capacity master planning will assist in determining if existing sewer system facilities can accommodate the planned future developments.

EXHIBIT 12: Existing Wastewater System



Solid Waste Disposal System

The Kayenta Township Public Works Department operates the public facilities for the safe and sanitary disposal of solid waste generated within Kayenta under authority from the Navajo Nation. The Transfer Station is located northwest of the Kayenta Lagoon System. The Kayenta Township Public Work Department Transfer Station Enterprise offers trash pickup service, but the majority of the public haul their solid waste to the transfer station. Since Kayenta does not have a landfill, during the week, a truck has to deliver that week's trash to The White Mesa Landfill just past Bluff, Utah, which is about 89 mile one way.

Data, Cable and Telephone Service

Data, cable, and telephone services are provided by Frontier Communications. Consistent with the provision of electrical service, it is assumed that all of the existing overhead telephone and cable television facilities will be placed underground, and all new facilities will be placed underground in all new public and private streets.

Electrical

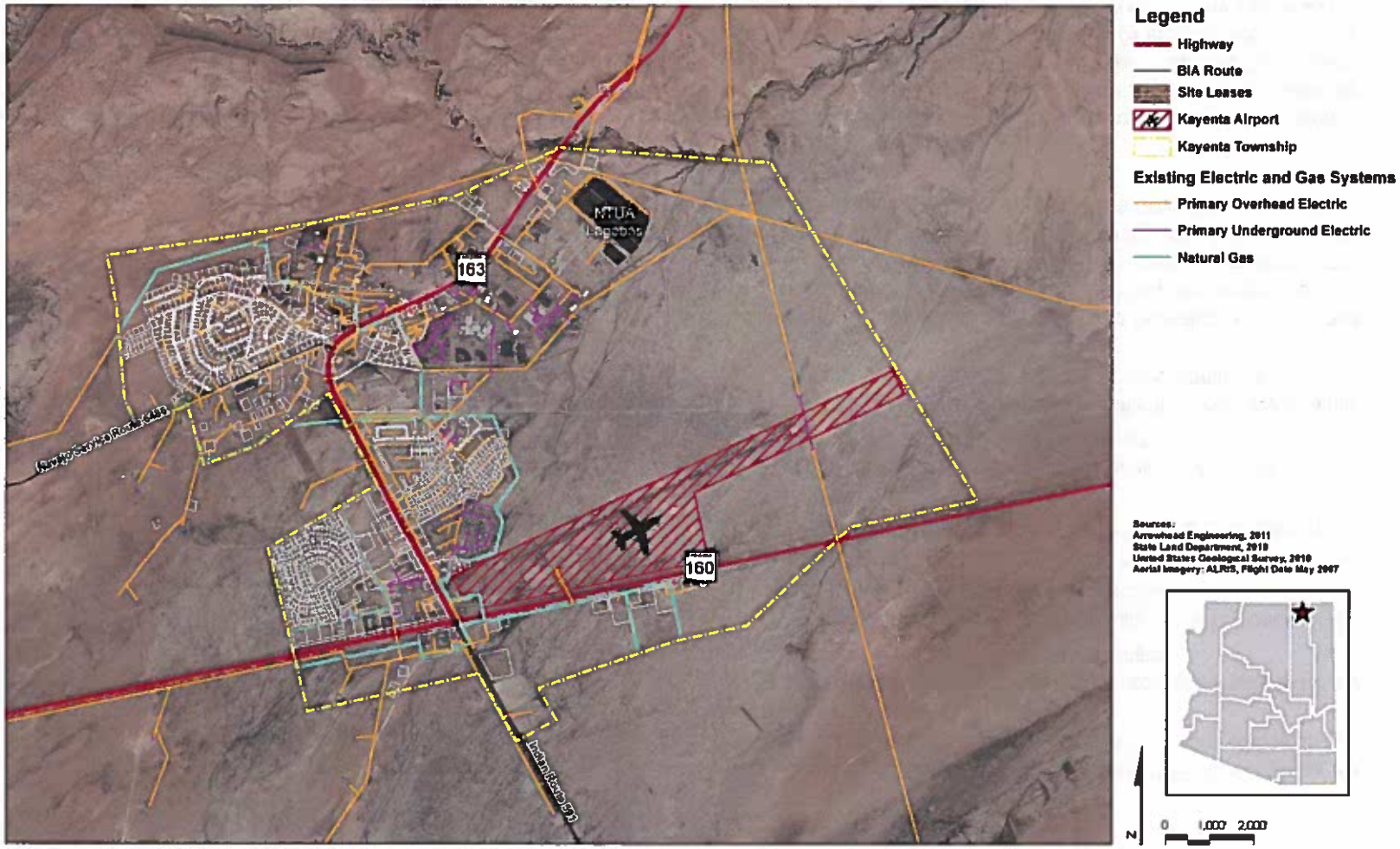
NTUA provides electrical services throughout the Navajo Nation. In addition to serving Kayenta, the Kayenta NTUA regional station service area includes the chapter areas of Chilchinbeto, Oljato, Dennehotso, Shonto, Inscription House, Black Mesa, Mexican Water, Tuba City, LaChee, Bodaway, and Rock Point. The office provided electricity to 3,155 customers in Kayenta in 1986. The number increased to 4,922 customers in 2,000 and it currently provides all the electrical needs for the Township. NTUA will continue to plan for growth and expansion.

The majority of the electric lines provide 14.4 and 24.9-kilovolt service, and nearly all the lines are located overhead. Future development within Kayenta would increase electric demand, since many of the existing land uses have low electric requirements. As development proceeds and as streets are constructed or reconfigured, upgraded service may be required. It is assumed that all new streets within specific planned areas will incorporate overhead and underground 14.4 and 24.9-kilovolt service. Exhibit 13 Shows existing electric and gas facilities.

Gas Service

NTUA provides gas service to the Kayenta Township. The source of their gas is delivered by Questar Southern Trails Pipeline from a 16" natural gas transporter. Exhibit 13 Shows existing electric and gas facilities. The 7 ½ miles of gas lines within Kayenta consist of high-pressure polyethylene lines. Future development within Kayenta is anticipated to increase demand for gas service, and existing and new streets within the plan area may require high-pressure plastic lines.

EXHIBIT 13: Existing Electrical and Gas Utility Systems



Recreation, Parks, Trails and Open Space

A well integrated system of parks, trails and natural open spaces is an essential component of a sustainable community. Such an integrated system provides opportunities for recreation, enjoyment, exercise and beautification essential for the health and well being of community members. Incorporating these throughout the community and providing connectivity among these areas establishes a strong community identity, contributes to the area character and instills a strong sense of place. It also preserves valuable natural resources, and improves air quality. A system of natural open spaces, parks, and trails that is regionally unique and that blends recreation and the natural and built environments assists a community in achieving its vision of becoming a sustainable community. Protecting the ecological infrastructure of the area is an essential step towards this goal.

Standards and Guidelines

The National Recreation and Park Association (NRPA) recognizes the importance of establishing and using park and recreation standards as:

1. A national expression of minimum acceptable facilities for the residents of urban and rural communities.
2. A guideline to determine land requirements for various kinds of park and recreation areas and facilities.
3. A basis for relating recreational needs to spatial analysis within a community-wide system of parks and open space areas.
4. One of the major structuring elements that can be used to guide and assist regional development.
5. A means to justify the need for parks and open space within the overall land-use pattern of a region or community.

The purpose of such guidelines is to present recreation, park, trail and open space standards that are applicable nationwide for planning, land acquisition, and development of active and passive recreation, park, trail and open space, primarily at the community level. These standards should be viewed as a guide. They address minimum, not maximum, goals to be achieved.

These standards are interpreted according to the particular situation to which they are applied and specific local needs must be addressed during the preparation of a Recreation, parks, Trails and Open Space Master Plan. The standard derived from early studies. Recommended park acreages are based on nationwide averages. The expression of acres of park land per unit of population or the standard of 10 acres per 1,000 of population came to be the commonly accepted standard used by most communities in the United States.

Other standards adopted include the "percent of area" approach, determined by user characteristics and participation projections, and area use based on the carrying capacity of the land. Changes in standards are a measure of the growing awareness and understanding of both participant and resource (land, water, etc.) limitations. Parks are for people. Park, recreation, and planning professionals must integrate the art and science of park management in order to balance such park and open space resource values as water supply, air quality, wildlife habitat, vegetative communities, overall sustainability, etc.

Hierarchy of Parks

The desired quality of life in a community includes recreational amenities, habitat restoration and integration, as well as preservation of open space, particularly along major washes and riparian corridors. It balances the built and natural environments. It also includes access to and integrated trail system. Such trail system includes access to pedestrian, bicycle and equestrian users and provides connectivity to the different areas, or land uses, within the community, including residential areas, schools, parks and recreational facilities. It also provides access to all segments of the population to a variety of recreation programs.

A first step towards achieving such quality of life is the adoption of levels of service standards for the provision of recreation, parks, trails, and open space. These standards can be used as general guidelines until a Recreation, Parks, Trails and Open Space Master Plan is prepared and adopted by the community. The policy direction in the form of action steps required to procure such open space is included in the community comprehensive or Comprehensive Plan. Such framework guides the preparation of future documents and the incorporation of implementation tools for recreation, parks, trails and open space. The following section and the table provided in the following page include recommended national guidelines for parks and recreational facilities.

The National Recreation and Parks Association developed a park classification system that includes guidelines for the establishment of a hierarchy of parks. These guidelines serve as a foundation from which communities can adopt level of service standards for parks, trails, and open space. A hierarchy of parks based on these national guidelines is provided in the following section.

Typical Pocket Park Design by The Planning Center

Pocket Park

A pocket park is the smallest park in the park classification system and should be considered as an alternative when providing a typical neighborhood park is impractical. Pocket parks provide open space and meet the recreational needs in high density urban neighborhoods. The site should be residential in scale and character and provide a quiet setting for park use. It should have a strong emphasis on passive uses such as picnic and sitting areas, include shade, and provide visibility from all adjoining streets to provide an inviting and safe environment. Table 1 lists standards for pocket parks.

Typical Pocket Park Design by The Planning Center

Neighborhood Park

A neighborhood park is the basic unit of the park system and serves as the recreational focus of an individual neighborhood. Surrounding uses should be predominantly single family or multi-family residential. Playgrounds, trails and usable open spaces are generally given the highest priority.

Park development should achieve a balance between active use areas such as sport fields and game courts and passive use areas intended for sitting, picnicking and relaxing. About half of the park area should incorporate passive activities and natural features. Uses requiring chain link fencing should be minimized in order to make the park visually attractive.

Typical Neighborhood Parks Designed by The Planning Center

Neighborhood parks are not intended for programmed activities that attract users from outside the neighborhood. Noise, glare, parking problems and street congestion should be minimized to provide a secured environment.

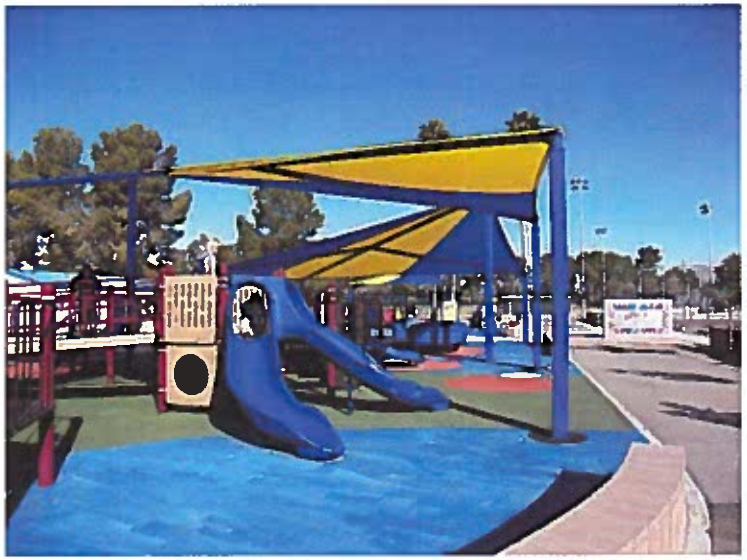
Typical Neighborhood Parks Designed by The Planning Center

Community Park

Community parks are typically larger in size than neighborhood parks and serve several neighborhoods with both active and passive recreational facilities. Group activities are well integrated and may include highly used recreational facilities such as programmed athletic sports fields, swimming pools and recreation centers, which are less appropriate for neighborhood parks due to the noise and vehicular traffic they generate.

Community parks may also contain large passive open space areas or preserve unique landscapes. About 25-50% should be undeveloped green or open space. This type of park, due to their location on major thoroughfares, provides a visual break in built environment.

Most of the park should be visible from adjoining streets. When located abutting a linear park, it provides opportunities to connect with adjacent neighborhoods, art districts or schools via hiking, nature or biking trails along the linear park.



Example of Community Park

Regional Park

Regional parks supplement community and neighborhood parks, serving broader based recreation needs in addition to those addressed in smaller parks. The increased size permits larger development of both active and passive facilities, providing a wide range of recreational pursuits.

Regional parks should include sizeable areas of undeveloped land with natural vegetation and/or water features. When possible, major thoroughfares should be routed around regional parks rather than through them. Regional parks can also incorporate linear parks and provide connectivity to the regional trail system.

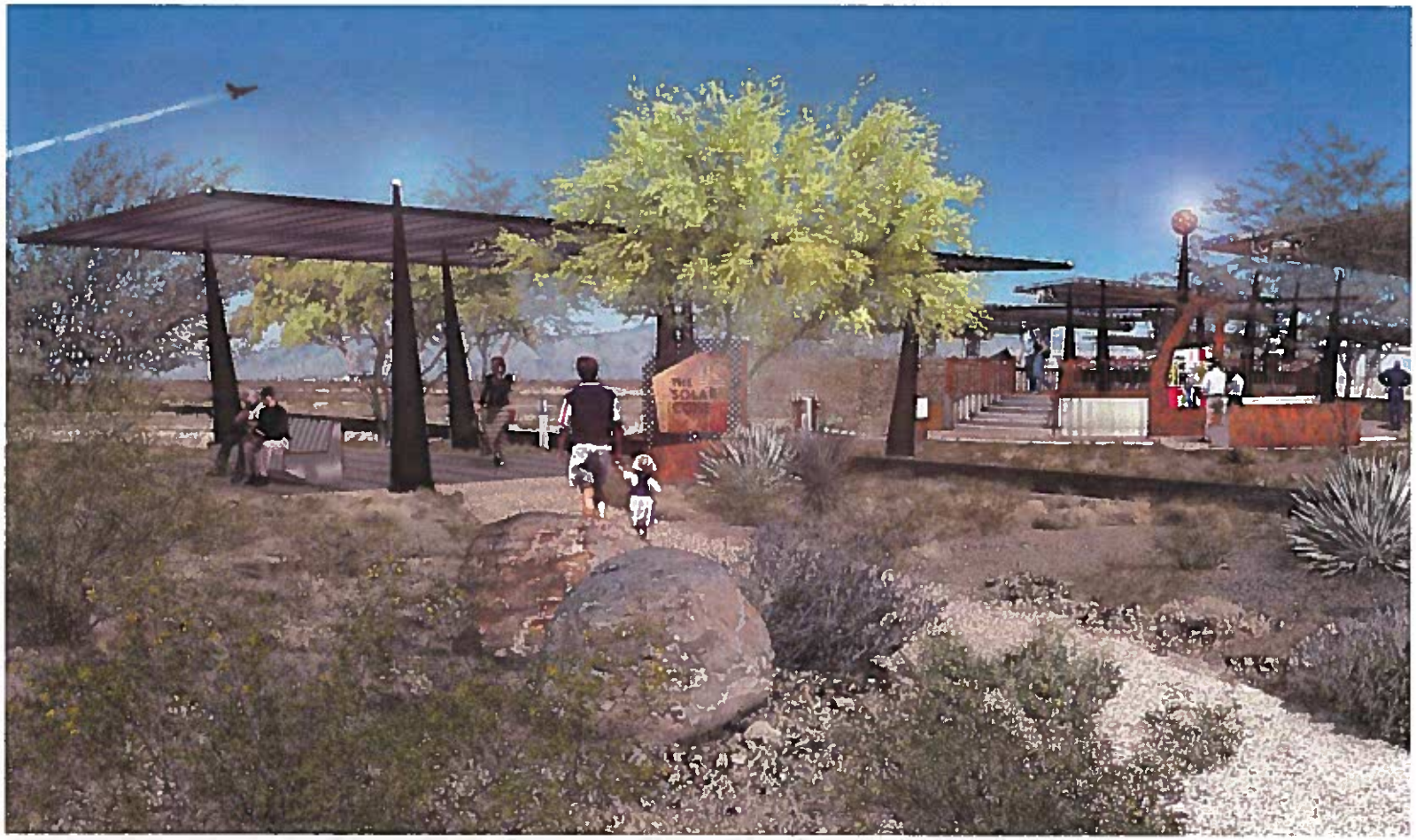
Typical Regional Park Designed by The Planning Center

Linear Park

Linear parks are greenways of open space that offer scenic beauty and allow safe, uninterrupted pedestrian, bicycle or equestrian movement along natural or built corridors. They are generally located along rivers, streams or in association with major thoroughfares or boulevards. This type of park is ideal along major washes or riparian habitats or wildlife corridors. They can also serve to buffer residential areas from higher intensity uses such as the Kayenta airport. When linked to trails, walkway and bikeway systems, linear parks can provide connectivity to other parks, residential neighborhoods, schools, libraries and businesses.

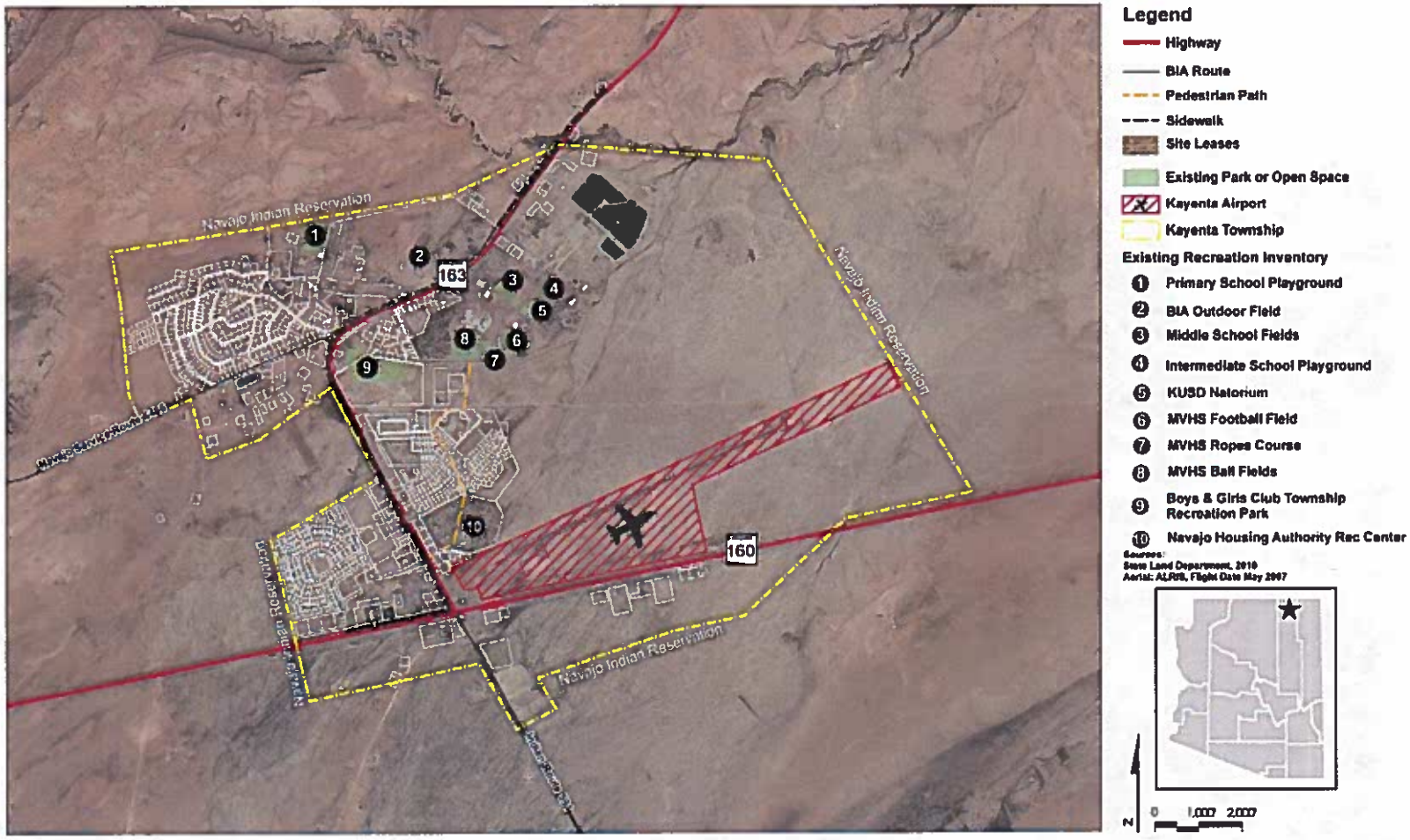
Linear parks provide breaks in the urban development pattern, conserve ecologically unique areas along river corridors, incorporate habitat restoration, and provide long stretches of open space well suited for multi-use trail systems.

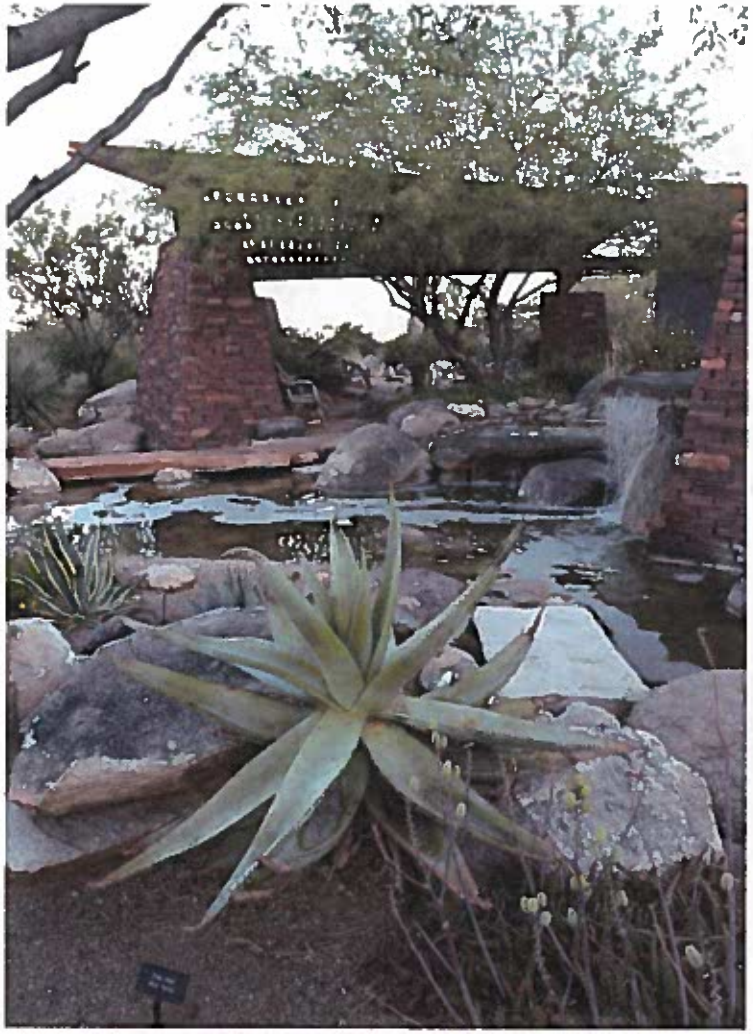
Exhibit 14 shows parkas, recreation, trails and open space facilities within Kayenta Township.



Interpretive Node on Natural Trail System Designed by The Planning Center

EXHIBIT 14: Kayenta Township Existing Parks, Recreation, Trails and Open Space.

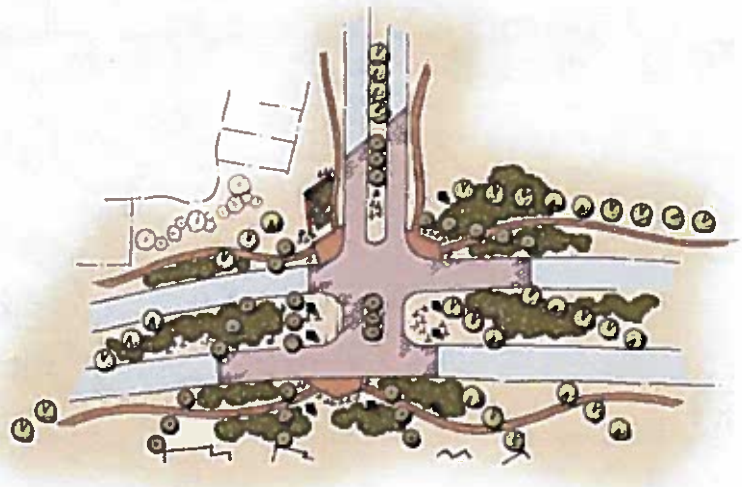




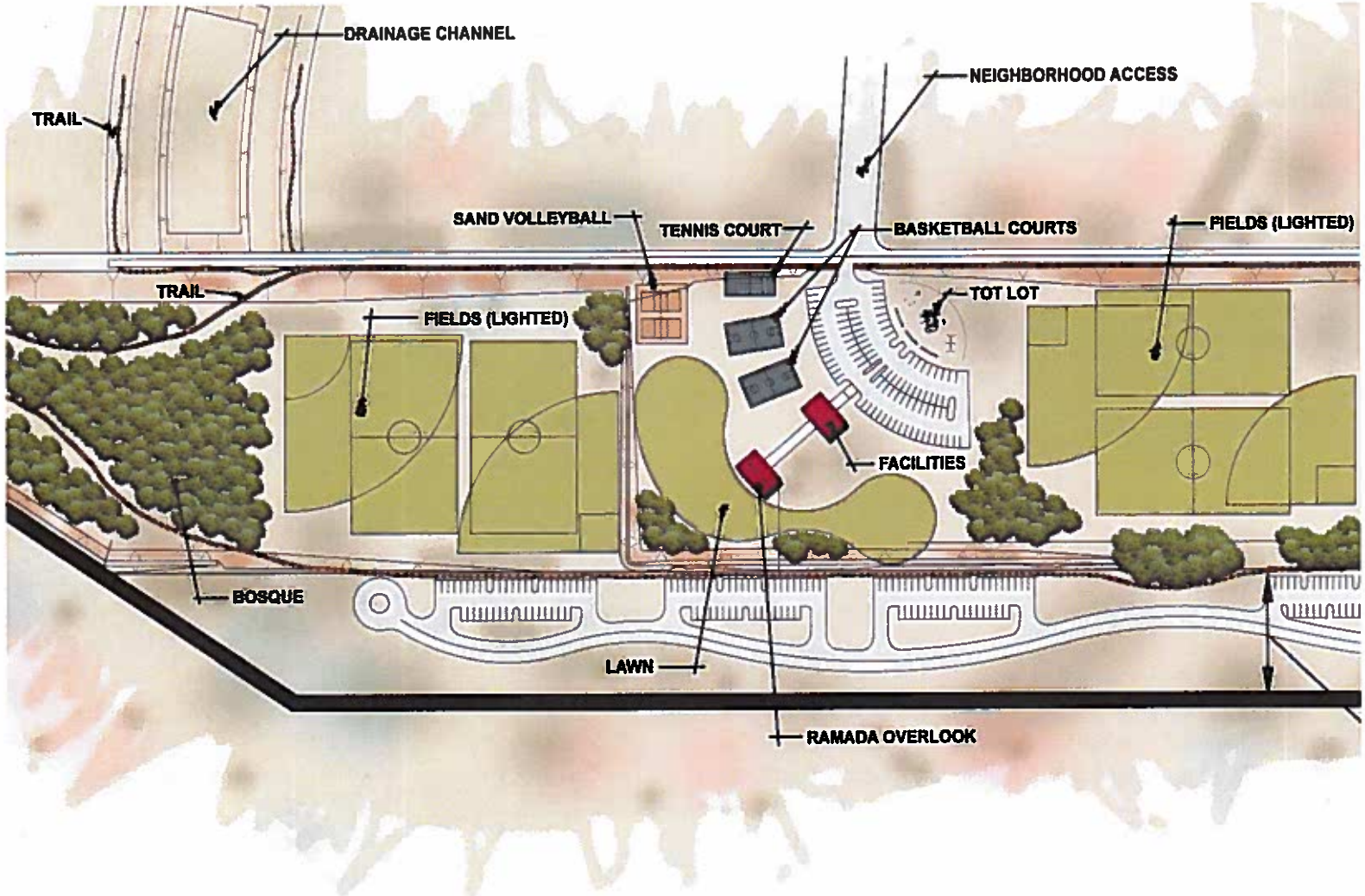
Example of Passive Recreation: Community Garden, Pima Canyon, Pima County, Arizona, The Planning Center

Standards for Active and Passive Recreation

Table 12 includes widely accepted standards for active and passive recreation. Active recreation includes fields, courts, swimming pools, trails, fishing areas, and facilities that promote recreation activities. Passive recreation includes ramadas, gardens, picnic areas and facilities that allow its users to gather, relax and contemplate nature without needing to engage in a specific sports or activity.



Example of Active Recreation: Multi-Use Path, Including Opportunities for Jogging, Hiking and Bicycle Riding, The Planning Center



Example of Active Recreation: Sand Volleyball, Basketball, Tennis Courts, Fields, The Planning Center

Table 12
Recreation, Parks, Trails and Open Space Standards

ACTIVITY/ FACILITY	RECOMMENDED SPACE REQUIREMENTS	RECOMMENDED SIZE AND DIMENSIONS	RECOMMENDED ORIENTATION	NO. OF UNITS PER POPULATION	SERVICE RADIUS	LOCATION NOTES
Badminton	1620 sq. ft.	Singles – 17'x44' Doubles – 20'x44'	Long axis north-south	1 per 5000	¼ -1/2 mile	Usually in school, recreation center or church facility. Safe walking or bike access.
Basketball **1. Youth** **2. High School** **3. Collegiate**	2400-3036 sq. ft. 5040-7280 sq. ft. 5600-7980 sq. ft.	46-50'x84' 50'x84' 50'x94' with 5' unobstructed space on all sides	Long axis north-south	1 per 5000	¼ - ½ mile	Same as badminton. Outdoor courts in neighborhood and community parks, plus active recreation areas in other park settings.
Handball (3-4 wall)	800 sq. ft. for 4-wall 1000 for 3-wall	20'x40' – Minimum of 10' to rear of 3-wall court. Minimum 20' overhead clearance	Long axis north-south. Front wall at north end.	1 per 20,000	15-30 minute travel time	4-wall usually indoor as part of multi-purpose facility. 3-wall usually outdoor in park or school setting
Tennis	Minimum of 7,200 sq. ft. single court (2 acres for complex)	36'x78'. 12' clearance on both sides; 21' clearance on both ends.	Long axis north – south	1 court per 2000	¼-1/2 mile	Best in batteries of 2-4. Located in neighborhood/community park or adjacent to school
Volleyball	Minimum of 4,000 sq. ft.	30'X60'. Minimum 6' clearance on all sides	Long axis north-south	1 per 5000	¼ - ½ mile	Same as other court activities (e.g. badminton)

Source: Lancaster, R.A. (Ed.). (1990), Recreation, Parks and Open Space Standards and Guidelines, Ashburn, VA. National Recreation and Parks Association.

Table 12
Recreation, Parks, Trails and Open Space Standards
(Continued)

ACTIVITY/ FACILITY	RECOMMENDED SPACE REQUIREMENTS	RECOMMENDED SIZE AND DIMENSIONS	RECOMMENDED ORIENTATION	NO. OF UNITS PER POPULATION	SERVICE RADIUS	LOCATION NOTES
Baseball 1. **Official** 2. **Little League**	3.0-3.85 A minimum 1.2 A minimum	Baselines – 90' Pitching distance 60 ½' foul lines – min. 320' Center field – 400'+ Baselines – 60' Pitching distance – 46' Foul lines – 200' Center field – 200' – 250'	Locate home plate to pitcher throwing across sun and batter not facing it. Line from home plate through pitchers mound run east-north-east.	1 per 5000 Lighted 1 per 30,000	¼ - ½ mile	Part of neighborhood complex. Lighted fields part of community complex.
Field Hockey	Minimum 1.5 A	180' x 300' with a minimum of 6' clearance on all sides.	Fall season – long axis northwest to southwest. For longer periods north-south	1 per 20,000	15-30 minutes travel time	Usually part of baseball, football, soccer complex in community park or adjacent to high school.
Football	Minimum 1.5 A	160' x 360' with a minimum of 6' clearance on all sides.	Same as field hockey.	1 per 20,000	15-30 minutes travel time	Same as field hockey.

Source: Lancaster, R.A. (Ed.). (1990), Recreation, Parks and Open Space Standards and Guidelines, Ashburn, VA. National Recreation and Parks Association.

Table 12
Recreation, Parks, Trails and Open Space Standards
(Continued)

ACTIVITY/ FACILITY	RECOMMENDED SPACE REQUIREMENTS	RECOMMENDED SIZE AND DIMENSIONS	RECOMMENDED ORIENTATION	NO. OF UNITS PER POPULATION	SERVICE RADIUS	LOCATION NOTES
Soccer	1.7 – 2.1 A	195' to 225'x330' to 360' with a minimum 10' clearance all sides.	Same as field hockey.	1 per 10,000	1-2 miles	Number of units depends on popularity. Youth soccer on smaller fields adjacent to schools or neighborhood parks.
Golf-driving Range	13.5 A for minimum of 25 tees	900'x690' wide. Add 12' width for each additional tee.	Long axis south-west-northeast with golfer driving toward northeast.	1 per 50,000	30 minutes travel time.	Part of a golf course complex. As separate unit may be privately owned.
¼ Mile Running Track	4.3 A	Overall width – 276' Length – 600.02' Track width for 8 to 4 lanes is 32'.	Long axis in sector from north to south to north-west-south-east with finish line at northerly end.	1 per 20,000	15-30 minutes travel time	Usually part of high school, or in community park complex in combination with football, soccer, etc.

Source: Lancaster, R.A. (Ed.). (1990), Recreation, Parks and Open Space Standards and Guidelines, Ashburn, VA. National Recreation and Parks Association.

Table 12
Recreation, Parks, Trails and Open Space Standards
(Continued)

ACTIVITY/ FACILITY	RECOMMENDED SPACE REQUIREMENTS	RECOMMENDED SIZE AND DIMENSIONS	RECOMMENDED ORIENTATION	NO. OF UNITS PER POPULATION	SERVICE RADIUS	LOCATION NOTES
Softball	1.5 to 2.0 A	Baselines – 60 ' Pitching distance- 46' min. 40' women. Fast pitch field Radius from Plate – 225' Between foul Lines. Slow Pitch – 275' (men) 250'(women)	Same as baseball	1 per 5,000 (if also used for youth baseball)	¼ - ½ mile	Slight differences in dimensions for 16" slow pitch. May also be used for youth baseball.
Multiple Recreation Court (basketball, volleyball, tennis)	9, 840 sq. ft.	120' x 80'	Long axis of courts with *primary* use is north-south	1 per 10,000	1-2 miles.	
Trails	N/A	Well defined head maximum 10' width, maximum average grade is 5% not to exceed 15%. Capacity rural trails – 40 hikers/day/mile. Urban trails – 90 hikers/day/mile.	N/A	1 system per region	N/A	

Source: Lancaster, R.A. (Ed.). (1990), Recreation, Parks and Open Space Standards and Guidelines, Ashburn, VA. National Recreation and Parks Association.

Table 12
Recreation, Parks, Trails and Open Space Standards
(Continued)

ACTIVITY/ FACILITY	RECOMMENDED SPACE REQUIREMENTS	RECOMMENDED SIZE AND DIMENSIONS	RECOMMENDED ORIENTATION	NO. OF UNITS PER POPULATION	SERVICE RADIUS	LOCATION NOTES
Archery Range	Minimum 0.65 A	300' Length x Minimum 10' wide between targets. Roped clear space on sides of range minimum 30', clear space behind targets minimum of 90'x45' with bunker.	Archer facing north = or – 45 degrees.	1 per 50,000	30 minutes travel time	Part of regional or metro park complex.
Golf **1. Par 3 (18 hole)** **2. 9-hole standard** **3. 18-hole standard**	50-60 A Minimum 50 A Minimum 110 A	Average length vary 600-2700 yd. Average length –2250 yards Average length 6500 yards	Majority of holes on north-south axis	– 1/25,000 1/50,000	½ to 1 hour travel time	9 hole course can accommodate 350 people/day. 18 hole course can accommodate 500-550 people/day. Course may be located in community or district park, but should not be over 20 miles from population center.

Source: Lancaster, R.A. (Ed.). (1990), Recreation, Parks and Open Space Standards and Guidelines, Ashburn, VA. National Recreation and Parks Association.

Table 12
Recreation, Parks, Trails and Open Space Standards
(Continued)

ACTIVITY/ FACILITY	RECOMMENDED SPACE REQUIREMENTS	RECOMMENDED SIZE AND DIMENSIONS	RECOMMENDED ORIENTATION	NO. OF UNITS PER POPULATION	SERVICE RADIUS	LOCATION NOTES
Swimming Pools	Varies on size of pool and amenities. Usually ½ to 2 A site.	*Teaching*- minimum of 25 yards x 45' even depth of 3 to 4 ft. *Competitive* – minimum of 25 m x 16 m. Minimum of 27 square feet of water surface per swimmer. Ratios of 2:1 deck vs. water.	None-although care must be taken in siting of lifeguard stations in relation to afternoon sun.	1 per 20,000 (Pools should accommodate 3 to 5% of total population at a time.)	15 to 30 minutes travel time	Pools for general community use should be planned for teaching, competitive and recreational purposes with enough depth (3.4m) to accommodate 1m and 3m diving boards. Located in community park or school site.

Source: Lancaster, R.A. (Ed.). (1990), Recreation, Parks and Open Space Standards and Guidelines, Ashburn, VA. National Recreation and Parks Association.

Transportation and Circulation

All the land, water, and air routes make up the transportation and circulation system of a community. Such system allows the movement of people and goods and is a key factor in the economic success of a region. A safe, efficient and convenient multimodal transportation system providing access and connectivity to a variety of transportation modes is a vital component to Kayenta's viability, livability, sustainability and long-range economic success.

The primary and often only means of transportation across the Navajo Nation is cars and trucks. These are the primary forms of mobility for families living in the different growth centers. The Navajo Nation Growth Centers are small satellite urban communities designated for development and economic activity.

Although internally, these growth centers offer better accessibility to markets, services and highways, most people still walk or drive to their destinations.

The close proximity between these growth centers and their satellite communities creates commuter, home-to-work traffic and other trips between these communities. Development along the connecting corridor cannot be planned in isolation and require regional planning. Such comprehensive regional transportation efforts, addressing corridor connections between these growth centers and their satellites must also integrate street, pedestrian and bicycle circulation systems between these communities as well as the inter-modal connection needs at each community.

Currently, convenient, safe and efficient walkways defining the public realm, creating a sense of place and providing shortcuts and connectivity to goods, services, amenities, recreation, parks, trails and open space, do not exist for community members or visitors to shop, visit, or exercise. Bicycle routes are none existent. This high dependency on automobiles, makes these growth centers highly dependant on fossil fuels. As a result, both community health and the environmental wellbeing are adversely impacted.

In Kayenta, approximately ninety-seven (97) percent of the population uses the typical means of travel. These are automobiles, pick-up trucks, motorcycles and some bicycles. The Navajo Nation Transit System (NNTS) provides transit services throughout the Navajo Reservation. NNTS provides transit services between Kayenta and Window Rock. The transit bus system departs Kayenta at 6:00 AM and arrives in Window Rock at 10:00 AM. The return trip departs Window Rock at 2:00 PM and arrives in Kayenta at 6:00 PM.

Multimodal Long Range Transportation

Concurrent to the preparation of this Comprehensive Plan, The Arizona Department of Transportation (ADOT) is seeking proposals to prepare and ADOT Planning Assistance for Rural Areas (PARA) study. This PARA study titled Chinle-Many Farms and St. Michaels-Windo Rock-Ft. Defiance Multimodal Long Range Transportation Study will be prepared for the Navajo Nation Division of Transportation (NNDT). This PARA study will address the needs of multiple jurisdictions as well as the needs of neighborhoods within such jurisdictions. The major product of this study will be two final multimodal transportation plans for: (1) Chinle-Many Farms; and (2) St. Michaels-Window Rock-Ft. Defiance.

Each plan will contain a refined plan for improvements over five, ten, and twenty year periods, incorporating both roadway system and the multimodal needs of the area. While each community possesses the potential to grow independently into larger townships, this study will consider Chinle-Many Farms as one study and St. Michaels –Window Rock-Ft. Defiance as another study.

The principal focus of the proposed study is to address the most critical transportation planning needs identified by the Navajo Nation Division of Transportation (NNDT). Development growth centers within the Nation lack the updated transportation plans to guide their development into larger urbanized centers. There are few planned and developed streets, sidewalks and walkways around schools and housing tracts. As a result, comprehensive planning is needed for strategic, controlled development and access management.

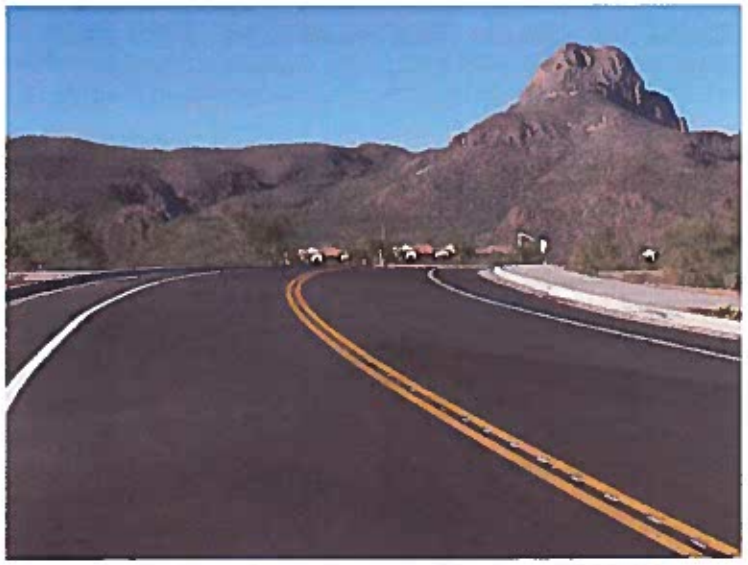
Although each community is growing and now supports economic development, employment, schools, housing and health care, they are confined to only one or two main thoroughfares (state and or BIA roads) to meet their transportation needs. With the majority of vehicular traffic confined to the main thoroughfares, traffic congestion is a problem when community members attempt to be at the same place at the same time. As a consequence, safety is compromised. This situation is exacerbated when there is competition for the same space with large diesel trucks and interstate travelers. As such, motor vehicle, pedestrian and biker safety and accessibility are compromised. These in turn pose very apparent transportation issues for the growth centers within these studies.

Effective measures for planned development have to be implemented or problems will only increase with the Navajo Nation population and proportionate needs in transportation facilities and infrastructure to meet the demand. A multimodal transportation plan for each growth center will include the following objectives:

- Develop transportation plans for rural communities of the Navajo Nation in order to promote travel safety, mobility, enhance economic vitality and improve community livability and increase community sustainability.
- Support current and long-range planning for economic and community development.
- Address transportation needs for each Navajo community in regards to multi-modal transportation needs for vehicular, pedestrian and bicycle transportation that promotes safety for community residents, commuters and visitors while enhancing the quality of life.
- Address inter-modal connections between vehicular, airport and transit systems for commuter and emergency needs.
- Recommend transportation improvements of the State and BIA and other road systems within and between these communities, including impacts to Navajo Nation's transportation network and other regional transportation systems.
- Recommend improvements of multi-modal and inter-modal transportation to address such needs within and between the communities including impacts to the Navajo Nation's total transportation network and the regional transportation system.

An extensive public participation program is included as part of this study that will allow the NNDT to actively seek input from neighbors, business owners and major stakeholders and incorporated their priorities into the plan and their program for improvements. Extensive community outreach will result in stronger community support for funding transportation improvements. A technical Advisory Committee (TAC) has been established to closely coordinate this study. The following agencies are represented on this Committee:

- Navajo Division of Transportation
- ADOT Holbrook District Engineer
- Many Farms Chapter Representative
- St. Michaels Chapter Representative
- Fort Defiance Chapter Representative
- ADOT Multimodal Planning Division
- Navajo Region Bureau of Indian Affairs
- BIA Roads Agency Engineers, Ft. Defiance and Chinle
- ADOT Environmental Planning Group
- Arizona State Land Department
- Apache County
- ADOT Communication & Community Partnership



It is anticipated that the study will be completed concurrent to the preparation of this document. Therefore, the Kayenta Comprehensive Plan Transportation Element will reflect the findings of the study.

Navajo Nation/Navajo DOT/ADOT/FHWA/Navajo County Partnership

The Navajo Nation is largely based in Arizona. The Nation also extends into Utah and New Mexico. The reservation is 27,000 square miles and is larger than 10 of the 50 states in the United States. Navajo land has a vast diversity in terrain ranging from the high desert to mountainous regions. It is well known for the majestic Red Rocks that are a breathtaking view in the Arizona sunset.

There are six scenic routes on Navajo land. One is Navajo Mountain Road that traverses 58 miles along SR98 from Page, Arizona to the intersection of US160. This route is a great way to enter the Nation for first time visitors. Second is the Kayenta-Monument Valley Scenic Byway located on US163 and is known as the "Gateway to Monument Valley." It begins in Kayenta, AZ and ends at the Utah border. Third is the Flat Mesa Rock Scenic Road that is located on US191 between milepost 467 and 510. The road weaves through northeastern Arizona. Fourth is the Fredonia-Vermilion Cliffs Scenic Road that traverses 82 miles along SR89A between mileposts 525 and 607. This is known as the gateway to the Colorado River in Marble Canyon and to the North Rim of the Grand Canyon. The fifth scenic route is Among the People Scenic Road that weaves through the high desert, mountains, valley, canyon country and lakes. It is 105 miles long from I-40 near the Arizona and New Mexico Border and north towards Canyon De Chelly National Monument on Navajo Routes 12 and 64. The last one is a road network that encompasses a web roadway in Utah and New Mexico (Navajo Scenic Roads).

2009 Navajo Nation Long-Range Transportation Plan

The 2009 Navajo Nation Long Range Transportation Plan (LRTP) is a twenty-year comprehensive plan developed and updated by the Navajo Division of Transportation (Navajo DOT) in a five-year cycle. The 2009 LRTP identifies the Nation's multi-modal transportation needs over the next 20 years and develops strategies to meet them. The plan provides long range planning policies and implementation strategies for the Navajo Indian Reservation Roads (IRR) Program improvements. It is based on a comprehensive analysis of all pertinent factors and issues affecting the Navajo Nation's existing and future transportation needs.

The 2009 LRTP followed a planning process which included examination of tribal and IRR program policies and transportation issues; socioeconomic data and development plans; all modes of transportation data (roads, bridges, airports, transit and rails (including road inventory data for future traffic volume and transportation improvement needs according to highway design guidelines and pavement management requirements); and crash data analysis for safety needs. The review process included public involvement at public hearings and final approval by the tribal transportation committees. Figure 2 illustrates the long-range transportation plan planning process.

The LRTP is an important component in obtaining Federal funding for roadway improvements through the IRR Program. The Navajo IRR Program is administered jointly by the Bureau of Indian Affairs Division of Transportation and the Federal Lands Highways Program (FLHP) of the Federal Highway Administration.
The BIA Navajo Regional Office – Division of Transportation (BIA-NRODOT) administers Navajo Region of the IRR Program construction and maintenance. To qualify for the funding, each Indian Reservation must establish an approved long range transportation plan and Tribal Transportation Improvement Program (TTIP) which is a 3- to 5-year road and bridge construction priority schedule. The Navajo Nation will use this 2009 LRTP to satisfy the long range transportation plan requirement, and will utilize the findings and recommendations of the LRTP to define a 3-5 year road and bridge construction of the Navajo Nation Transportation Improvement Program (TIP).

The purpose of this plan, as required by federal agency regulations, is to identify transportation improvement needs for funding Navajo Nation long range transportation improvements. This LRTP is also intended to be a transportation planning tool for the Transportation and Community Development Committee (TCDC) of the Navajo Nation Council and the Agency Roads Committees (ARC). It further provides recommendations for long range improvements for Navajo-BIA, State, and County roads, bridge, airport as well as transit improvements. The recommendations of the LRTP will provide guidance to the Navajo Nation, Navajo DOT, the State Departments of Transportation, Chapter communities within the Reservation, and private interests when considering future development plans.

The Navajo Nation LRTP is the Navajo Nation's vision of future transportation construction to fulfill and meet the Nation's long term transportation needs. The planning process and methodology used in this plan includes examination of tribal and IRR program goals and objectives, highway design criteria, and transportation issues to identify future needs.

Transportation Goals

The goals of the LRTP are to:

1. Provide a comprehensive transportation system that encompasses all modes of transportation, including rail, bus, and air.
2. Provide safe and efficient transportation network to and within the Navajo Reservation.
3. Improve overall road and bridge conditions to achieve a reduction in the number and severity of traffic accidents.
4. Develop the necessary multimodal transportation system to foster and support economic development and increase employment opportunities.
5. Provide a high level of connectivity between Growth Centers including Shiprock, Tuba City, Chinle, Fort Defiance, Window Rock, Crownpoint, and Kayenta.

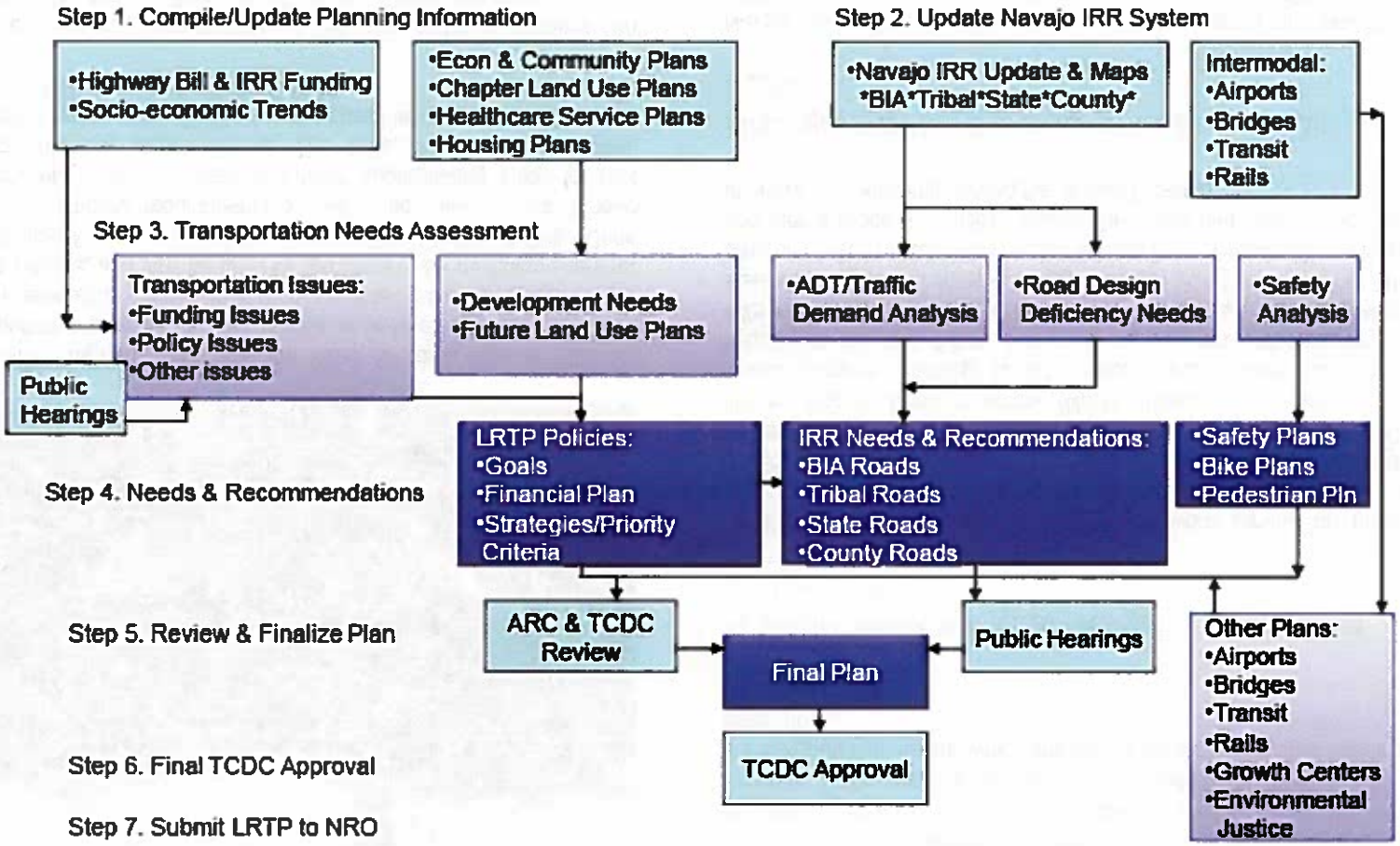
Federal Funding of Indian Reservation Road System

The IRR program was established to provide for construction of public roads and bridges under Bureau of Indian Affairs (BIA) administration. Its funding is authorized under the Federal Lands Highway Program (FLHP) and through the Bureau of Indian Affairs-Division of Transportation. The 1948 and subsequent memorandum of agreements between the BIA and Federal Highway Administration (FHWA) established their joint responsibilities for the IRR program.

The purpose of the IRR program is to provide safe and adequate transportation facilities including public road access to and within Indian reservations, Indian trust land, or Native American communities. Indian Reservation Roads by definition include BIA, state, county, and other local government public roads.

In 1998, a funding distribution formula was developed for the IRR Program under the Transportation Equity Act for the 21st Century (TEA-21). Originally, tribal allocations were distributed according to the Relative Needs Distribution Formula (RNDF). In July 2004, a new distribution formula and updated IRR regulations, referred to as the Tribal Transportation Allocation Methodology (TTAM), as documented in the IRR Program final regulation, 25 CFR Part 170. The TTAM uses an inventory of IRR facilities as the major factor in determining the funding amounts that each Tribe receives. The updated regulation removed growth limitations in the inventory and initiated significant incentives for Tribes to add all eligible tribal, State, and county routes to the inventory with somewhat negative impacts to the larger land based tribes. Using the TTAM allocation formula, the IRR funds are distributed to twelve (12) BIA regional offices.

Figure 2:
Long-range Transportation Plan Planning Process



Source: 2009 Navajo Nation Long-Range Transportation Plan.

The IRR Program funds can be used for any type of Title 23 transportation project providing access to or located within Federal or Indian reservations, Indian trust land, restricted Indian land, and Alaska native villages, and may be used for the State Local matching share for apportioned Federal-aid Highway Funds. Title 23, United State Code provides statutory requirements for IRR and other federal funded highway programs. Congress has been appropriating funds for IRR through highway appropriations. The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) authorized IRR funding for FY2005-2009.

As a condition for the continuance of IRR funds and in accordance with 23 USC 116, the BIA Regional Offices and Tribes are responsible for road maintenance of BIA and tribal roads respectively using Department of the Interior (DOI) funds appropriated annually under DOI Appropriation Acts, tribal funds, and up to 25% of IRR construction funds authorized under SAFETEA_LU.

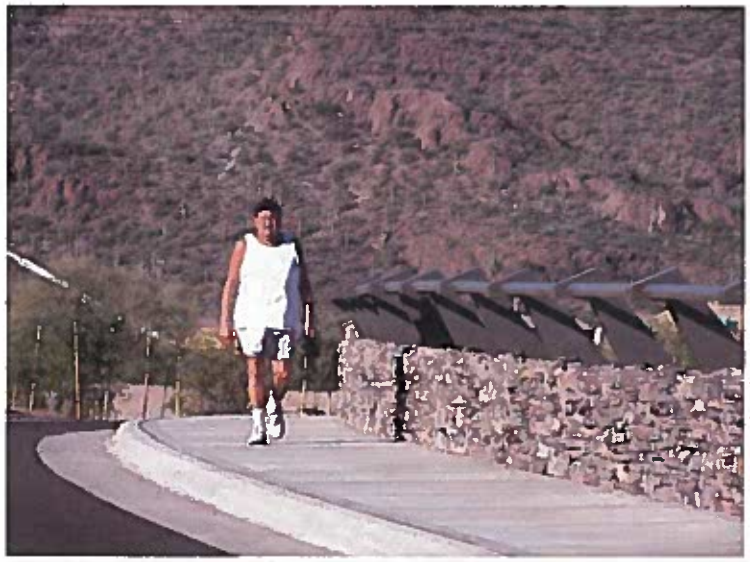
The current SAFETEA-LU highway authorization contains a statute that directs the Secretary of Transportation, in cooperation with the Secretary of the Interior, to complete a comprehensive national inventory review of transportation facilities eligible under the IRR Program. Each year, the inventory may be updated by tribes to reflect the transportation needs, which are ranked against the relative needs of other tribes.

Navajo Nation Indian Reservation Road System (IRR)

An IRR System is defined as a road network serving an Indian reservation, comprised of public road systems located within, or providing access to it. Navajo IRR roads are funded and administered by various government highway programs. According to the 2008 Navajo Region Road Inventory (NRRI) database, the Navajo IRR system consists overall of 12,631.5 miles of public roads that can be subdivided by right-of-way ownership or program administration as follows: Navajo-BIA roads (6,147.9 miles); tribal roads (2,895.7 miles); state roads (1,595.5 miles); county roads (1,907.5 miles); other BIA programs' roads (46.9 miles); other federal agency roads (37.2 miles), and others roads (0.8 miles). Navajo-BIA, state and county roads are the main road systems serving the Navajo Reservation.

Navajo Nation Bureau of Indian Affairs Roads

Navajo Nation BIA Road System consists of existing and proposed public roads within the Navajo Reservation that meet the IRR definition and for which the BIA Navajo Regional Office Division of Transportation (BIA-NRODOT) has or plans to obtain a legal right-of-way.



The Navajo-BIA road system or Navajo Routes include arterial roads, streets and other local public roads either linking to the state highway network or providing access to local Navajo communities. The Navajo-BIA road system, totaling 6,147.9 miles, is the largest component of the Navajo IRR systems. The Navajo-BIA road system is subdivided into seven agencies for administrative and inventory purposes: Shiprock/Northern, Western, Eastern, Chinle, Ft. Defiance, NIIP, and New Lands Agencies.

Existing Roadways Functional Classification

This section provides a description of the various roadway classifications, or hierarchy of roads, as defined in the DOI-BIA IRR Coding Guide, October 2004.

Class 1 - Major Arterial Roads

The Navajo-BIA Class 1 roads are major arterial roads providing an integrated network with characteristics for serving traffic between large population centers, generally without stub connections and having average daily traffic volumes of 10,000 vehicles per day or more with more that two lanes of traffic. Class 1 roads constitute 4.1 miles or only 0.07% of the total Navajo-BIA system.

Class 2 - Rural Minor Arterial Roads

The Navajo-BIA Class 2 roads are rural minor arterial roads providing an integrated network having characteristics for serving traffic between large population centers, generally without stub connections. These roads typically link smaller towns and communities to major resort areas that attract travel over long distances and generally provide for relatively high overall travel speeds with minimum interference to through traffic movement. Class 2 roads generally provide for at least inter-county or interstate service and are spaced at intervals consistent with population density. This class of road will have less than 10,000 vehicles per day. Class 2 roads constitute 816.0 miles or 13% of the entire Navajo-BIA system.

Class 3 - Streets

Street type roads are located within communities serving residential and other urban areas. These are streets at Navajo Growth Center communities, Navajo Housing Authority housing streets, etc. Class 3 streets amount to 58.1 miles or 1.0% of the total Navajo-BIA system.

Class 4 - Rural Collector Roads

The Navajo-BIA Class 4 roads are rural major collector roads that serve as a collector to rural local roads. The Navajo-BIA Class 4 roads make up most of the Navajo-BIA system, 3,827.4 miles or 62%.

Class 5 - Rural Local Roads

These roads are rural local roads that may be either section line or stub type roads, which make connections within the grid of the IRR system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. This class also includes roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes. Class 5 roads amount to 1,438.8 miles of the total Navajo-BIA system, or 24%.

Class 6 - City Minor Arterial Roads

These roads consist of minor arterial streets that are located within communities and serve as access to major arterials. Class 6 roads amount to 3.5 mile or only 0.06% of the total Navajo-BIA system.

Class 7 - City Collector Streets

These are streets located within communities and serve as collectors to the city local streets. The Navajo Nation currently has none of this road class.

Classes 8-10

These are classification for non-road and other intermodal transportation facilities. The Navajo Nation has yet to inventory these.

Class 11

This is a classification to indicate an overlapping or previously inventoried road section (s) and is used to indicate that it is not to be used for accumulating needs data. This class is used for reporting and identification only.

Navajo-BIA Roads by Surface Type

The majority of Navajo-BIA roads are unpaved. Out of 6,147.9 miles total Navajo-BIA roads, only 1,494.4 miles (24%) are paved, 105.7 miles (2%) are gravel, 4,203.0 miles (68%) are earth, 291.7 miles (5%) are primitive roads, and 8.5 miles (0.1%) are proposed roads.

State Roads

There are 1,595.5 miles of Arizona, New Mexico, and Utah state highways that provide access for the Navajo Nation and connections to the surrounding region. State routes are main arterials/thoroughfares of the Navajo Reservation linking the nation's capital, Window Rock, Arizona and the other Navajo population/growth centers.

State highway systems on the Navajo Reservation include 937.1 miles in Arizona, 590.8 miles in New Mexico, and 67.6 miles in Utah. All state highways are paved roads except for the NM57 of which its entire length of 40.1 miles is earth.

County Roads

County roads on the Navajo Reservation are primarily local collector roads extending from nearby off reservation communities. The majority of county roads are in the Navajo Eastern Agency and Checkerboard areas of that agency where they provide access to Navajo Chapter areas. Other county roads are in Chinle, Shiprock, Western, Ft. Defiance, and NIIP Agencies respectively. Of the total 1,907.5 miles of county roads, 1,511.1 miles or 79% are earth roads, 110.3 miles or 6% are gravel, 134.9 miles or 7% are paved, and 151.2 miles or 8% are primitive roads.

Other BIA Program Roads

This category describes a small group of roads, of which rights-of-way belong to various programs in the BIA (i.e., Forestry, BIA schools and facilities). Of the total 46.9 miles, 16.1 miles are earth roads and 30.8 miles are paved roads. There are no roads under this category in Eastern, NIIP, and New Lands Agencies.

Other Federal Agency Roads

These roads are under federal agencies, e.g., National Park Service (NPS), BLM that own land/properties within the boundary of the Navajo Reservation. Of the total 37.2 miles, 12.3 miles are earth roads and 24.9 miles are paved roads. There are no roads under this category in Shiprock, NIIP and New Lands Agencies.

Other Roads

This category describes other private and public roads not included to any other categories previously described, such as petroleum and mining, and utility companies. There are only 0.8 miles of other roads in the Western Navajo Agency.

Existing Traffic Volume

The Navajo-BIA road system is generally characterized as rural low volume roads. Out of a total of 6,147.9 miles of the Navajo-BIA roads, 46 percent or 2,831.4 miles have average daily traffic (ADT) volumes less than 250 vehicles per day (vpd). Approximately 2,830.3 miles of these have an ADT volume between 50-249 vpd and 1.1 miles of these have an ADT volume less than 50 vpd.

Approximately 28 percent, or 1,742.9 miles of the Navajo-BIA road system have ADT volumes between 250-9999 vpd, and 0.1 percent, or 4.9 miles have ADT volumes of 10,000 vpd and greater.

Traffic Demand Forecast

Twenty-Year Traffic Volume

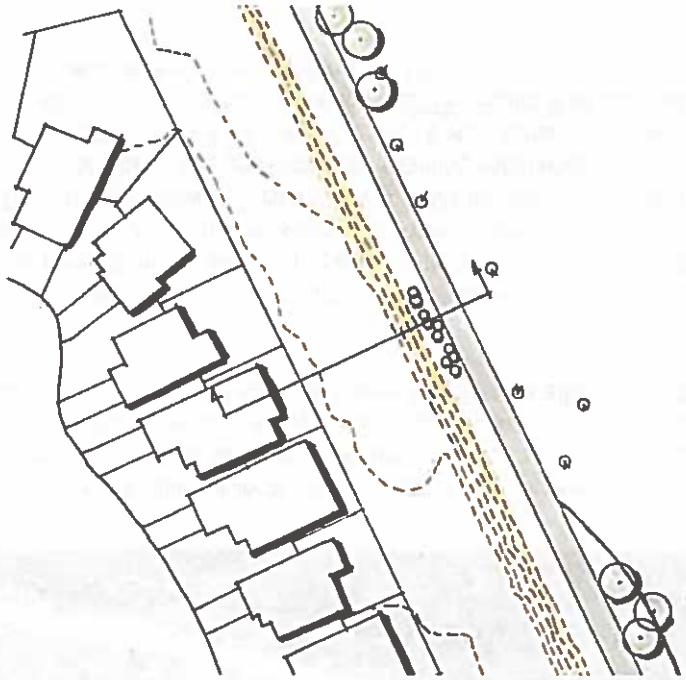
The 2008 Navajo Region Road Inventory Field Data Module (RIFDS) estimates a 2% annual traffic growth rate for all Navajo-BIA roads. Similarly the Arizona Department of Transportation (ADOT) also estimates and uses a 2% annual traffic growth rate for all state routes on the Navajo and Hopi reservations.

Based on this projected traffic growth, within the next 20 years 39 percent, or 2,420.9 miles, of Navajo-BIA roads will have ADT volumes between 250-9999 vehicles per day (vpd) and 0.2 percent, or 11.9 miles, will have ADT volumes of 10,000 vpd and greater. The majority, 60 percent or 3,715.1 miles, will have ADT volumes between 50-249 and 1 percent, or 44.7 miles, will have ADT volumes less than 50 vpd.

The 2009 LRTP shows a significant increase in the next 20 years in Navajo-BIA roads mileage with ADT volumes from less than 50, 50-250 vpd, 250-9999 vpd and those with ADT volumes of 10,000 vpd and greater.

Estimate of Daily Persons-Trips

For planning and estimating purposes, it is assumed that drivers on Navajo-BIA roads follow rural vehicle occupancy patterns, with 1.5 persons per vehicle for passenger cars and one (1) person per vehicle for trucks. ADOT uses these same figures in its planning for state highways on the Navajo Nation.



Estimate of Current and Future Modal Split

Modal split for Navajo transportation is virtually insignificant. Of the total 45,435 Navajo Nation residents commuting to work, 34,824 or 77 percent drove alone to work, 5,394 or 12 percent carpooled, 2,154 walked, and only 288 or 0.6 percent used transit to go to work (Census 2007, American Community Survey). Similar percentages are expected for the future because of the Navajo Nation's rural setting and vast distance between communities.

Travel Patterns

Based on the Transportation Planning Program's origin-destination survey conducted in 2001, a Navajo family has an average of 1.98 cars per household. On a weekday, commuter/driving to work trips generates approximately 41 percent of trips; driving children to school 31 percent; and school buses (picking up school children from bus stops to school) make up another 28 percent of total trips.

On average, a Navajo family makes approximately eight trips a year to healthcare facilities, and five trips a month to nearby border towns (usually on the weekend).

Major Transportation Issues

The Navajo Nation is the largest tribe in both land area and population, but due to inadequate funding for the Navajo IRR Program, seventy-six (76) percent of the Navajo-BIA road system is unpaved. Community transportation survey respondents identified the following important topics:

1. Safety improvements were the highest transportation goal, ranked above economic development, access to recreation, connection to transit and connection to freight;
2. Safety improvements (roadway striping, signage, traffic control, guard rail and street lights);
3. Road improvements (paving existing dirt or gravel roads);
4. Road maintenance (pothole repair and blading of dirt roads); and
5. Bridge improvements.

The poor condition of local roads, coupled with increased traffic and safety issues have become a primary concern for chapters, school administrators, health care providers, and tribal and transportation leaders. Lack of paved roads has been identified as affecting quality of life.

The Navajo Nation's transportation issues above, and road inventory and other planning data form the basis for determining transportation needs. The 2008 Navajo Region Road Inventory Field Data System (RIFDS) data, Navajo Nation Census 2000 demographic data, 1999-2007 crash data, and other pertinent planning information were used to analyze and identify the Navajo Nation's 20 year transportation needs in a systematic way as part of the 2009 LRTP. Figure 4 shows planning needs assessment process of the 2009 LRTP.

Navajo-BIA Road Issues and Needs

As provided in the 2009 LRTP, the Navajo-BIA road issues and needs are summarized in the next eleven sections, described as Needs 1 through 11. The needs were developed based on available data sources and public outreach.

NEED 1: Highway Geometric Design Deficiencies

To meet the Navajo IRR program objectives, design and construction of roads, bridges, and other transportation facilities must be done to current acceptable engineering standards for anticipated 20-year traffic volume.

Based on the highway geometric design guidelines and 20-year projected traffic volume, of the total Navajo-BIA roadway system, 97 percent of total Navajo-BIA road system or 5,955.4 miles have geometric design deficiencies including upgrades in road geometry, surfacing, and/or highway capacity.

Need 2: Network Connectivity Needs

BIA Class 1 (Major Arterial), Class 2 (Rural Minor Arterial) and Class 4 (Rural Major Collector) roads together work to provide network connectivity from Class 5 (Rural Local) roads to population centers, state road systems and regional network. However, the connectivity of Navajo-BIA roads system is hardly efficient due to the fact that much of these roads are unpaved: 11 percent of the Navajo-BIA Class 2 roads; 83 percent of Class 4 roads; and 93 percent of Class 5 road are unpaved.

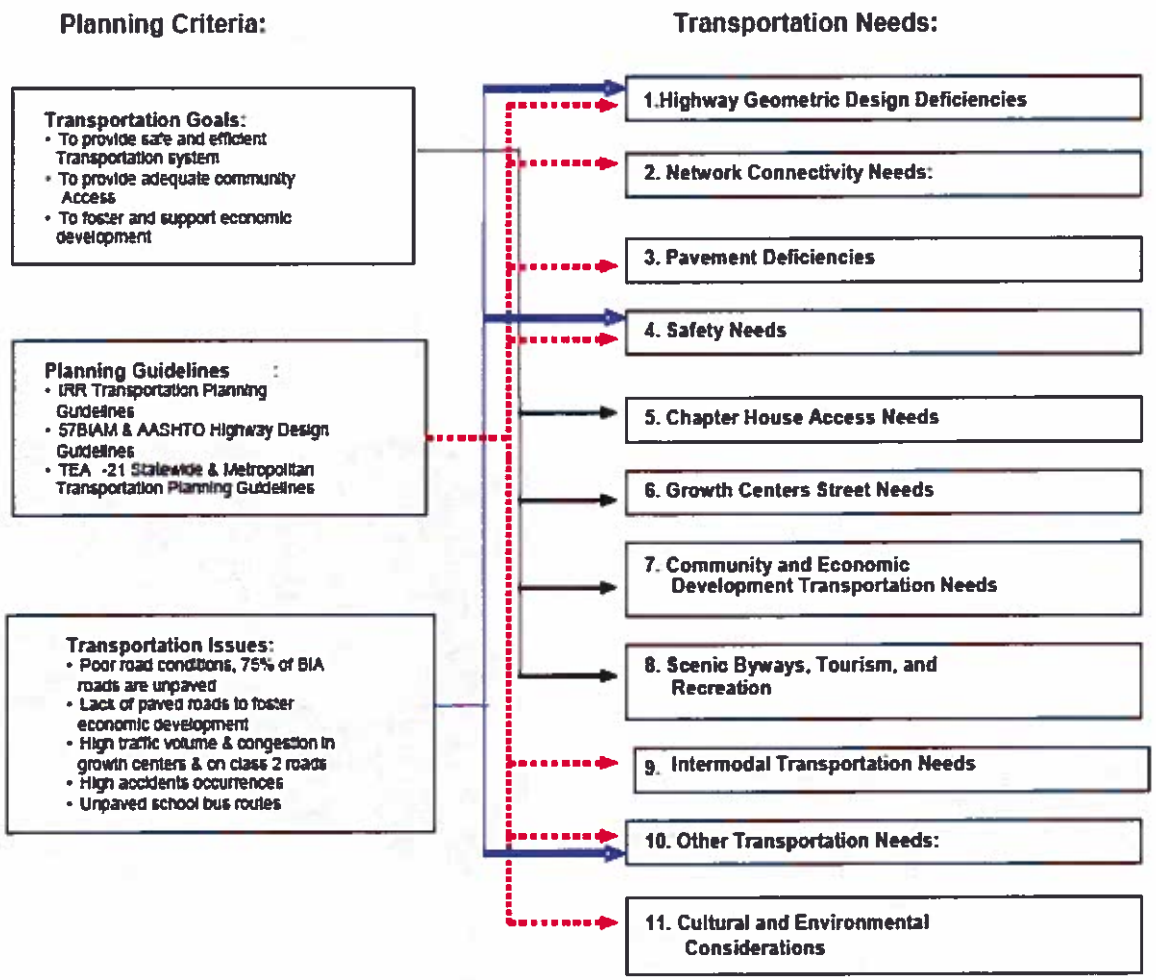
Missing roads or gaps in the transportation network clearly show that the paved segments are not continuous throughout the network thus demonstrates poor continuity or inefficiency of the network when the arterials and major collectors are not paved.

Need 3: Pavement Deficiencies

Of the total 6,147.9 miles of Navajo-BIA roadways, 24 percent or 1,494.4 miles are paved. To meet the Pavement Management System (PMS) requirement, pavement deficiencies of Navajo BIA road sections were identified based on BIADOT wearing surface or pavement rating standards.

Per the 2008 inventory, a total of 1,313.8 miles of Navajo BIA paved roads have pavement and/or design deficiencies and require reconstruction of the roadway. There are 1.3 miles of Navajo BIA paved roads that have moderate pavement deficiencies and require pavement rehabilitation, while 26.3 miles require minor rehabilitation. A total of 153.0 miles have slight deficiencies or are in good surface condition and only require routine maintenance to extend the life of their pavement.

Figure 4:
2009 LRTP Planning Needs Assessment Process



Source: 2009 Navajo Nation Long-Range Transportation Plan, Arizona Tribal Transportation.

Need 4: Safety

BIA policy requires that IRR program development include identification of sites with high crash potential so they can be brought to the attention of road design engineers. Another requirement is identification of sites with high crash occurrences so that safety projects or a highway safety program can be developed to help reduce the number of crashes.

The 2007 Motor Vehicle Crash Facts prepared by ADOT reports that Native Americans made up 15.34 percent of total crash fatalities (the third largest group after White and Hispanic), while their population was only 5.25 percent of Arizona. This indicates the seriousness of traffic crashes and safety issues on the Navajo Nation.

In the years 1999-2007, a total of 11,273 traffic crashes occurred on the Navajo Nation. The majority of the crashes happened on state and Navajo-BIA roads. Approximately 52.3 percent or 5,899 crashes occurred on state highways; 41.4 percent or 4,669 crashes on Navajo BIA roads; 3.7 percent or 414 crashes on county roads; 1.6 percent or 182 crashes on other public roads; and 0.8 percent on other tribal and government program roads.

A total of 1,200 crashes or 10.6 percent of all crashes occurred at turnoffs or access to development (stores, schools, etc). The Navajo Nation growth centers commercial strips were high among places where crashes occurred. Traffic congestion at multiple access points to convenience stores, fast food restaurants, banks, and shopping centers seemed to be a cause of crashes on main highways within the Growth Center communities. Lack of street lights and access control seemed to be a cause of crashes in these communities. Commercial strips in the growth center areas experienced high number of crashes.

Locations of Frequent Crashes at Development Access

The 2009 LRTP reported the intersection of US160/US163 in Kayenta as one having high accidents with a number of 41 accidents recorded. In addition, the 2009 LRTP reports location with frequent crashes at development access resulting from poor access management. Of the total crashes reported at development access points, 148 crashes occurred along US 163 and 34 crashes occurred within US Highway 160 in Kayenta Township.

Turns offs to schools, chapter houses, and tourist attractions were other locations where crashes occurred frequently. NHA housing access roads also produced significant numbers of crashes. This plan classifies crashes at turnoffs to NHA housing sites as intersection crashes. Lack of accelerating and decelerating lanes and poor lighting may have contributed to the cause of these crashes.

Need 5: Chapter House Access Needs

Accessibility is a federal policy guiding IRR program development.3 Accessibility to local government and services is an issue in every one of the Navajo Nation's 110 chapters. The Navajo Nation and BIANRODOT have an affirmative responsibility to provide all-weather access to chapter houses that provide community based government services and facilities.

The 1998 Navajo Nation Local Governance Act (LGA) allows the decentralizing of the Navajo Nation government's authority and functions to the chapters. When a chapter house becomes a center for government services and functions, traffic to it will be dramatically elevated. Aside from housing government programs, a Navajo chapter house is a central place in Navajo community life. A chapter house is where residents can use telephones, pick up mail, receive personal messages, have meetings and social gatherings. Other community facilities such as recreation areas, nursery, schools, housing, and business sites, are generally situated nearby.

Sixteen (16) chapters still lack paved access roads to their chapter houses. Access roads to these chapter houses are impassible during severe weather. A total of 164.8 miles of roads providing access to chapter houses are unpaved. These unpaved access roads include149.8 miles of BIA Class 4 roads and 15.0 miles of County roads.

Need 6: Growth Center Street Needs

IRR Program planning regulations require that long range transportation planning consider impacts of existing and future traffic generators and land uses. Navajo Nation policies, combined with population growth are driving development of the Navajo Primary Growth Centers. Expansion of infrastructure, including transportation systems, will be required to support this development. While many of Navajo primary growth centers qualify as small urban areas (a community with a total 5,000 population is classified as a small urban area), their transportation systems typically are comprised of only a few paved roads. A typical Navajo Primary Growth Center transportation system consists of a state highway and/or a Navajo-BIA Class 2 road, NHA housing subdivision streets, short access roads to government facilities, and miscellaneous unpaved system and non-system roads. Table V-16 shows existing signalization, miles of streets and street lights at the Primary Growth Centers.

Future Transportation Needs:

Population at Navajo Primary Growth Centers Community is estimated to increase at 2.5 percent growth rate annually. Shiprock, Tuba City, Chinle, Kayenta, Fort Defiance, and Window Rock will be among the most populated communities with populations well over 5,000. School, healthcare, and other community services will be needed as well as employment and economic development. Existing traffic congestion has already strained the main streets in Growth Centers. Traffic crashes were reported high on the primary growth centers' main streets. More streets and an efficient street network are needed for each primary growth center to provide alternate routes in order to reduce traffic congestion and accidents.

Need 7: Community Economic Development Transportation Needs

To meet program objectives, IRR must provide access to development and for land use. Health care facilities, public residential projects, schools, shopping centers, industrial development, coal mines, etc. generate considerable traffic. They are major community and economic development providing employment and are major traffic generators on the Navajo Nation. Access as well as safety improvement needs for existing and future development must be taken into consideration when preparing land use and transportation maps.

Health Care Facilities

Navajo Area Indian Health Service Existing Facilities

The Navajo Area Indian Health Service (NAIHS) is the primary health care provider on the Navajo Nation. NAIHS program administration is divided into 8 service units: Chinle, Crownpoint, Fort Defiance, Gallup, Kayenta, Shiprock, Tuba City, and Winslow Service Units. Within these service units, NAIHS facilities include 6 hospitals, 9 health centers, 12 health stations, and 18 dental clinics (2007) (see Map V-10). NAIHS also provides over 50 primary care services at schools and about 60 at Chapter.

Other health care facilities are contract facilities located within or near the Navajo Nation. These include Sage Memorial Hospital (Ganado, AZ), Presbyterian Medical Services (Cuba, NM and Farmington, NM), Winslow Memorial Hospital (Winslow, AZ), and San Juan Health Care Services (Montezuma Creek, UT). These facilities generated approximately 78,000 outpatient visits and 2,300 inpatient admissions annually. Others are private facilities, mostly small dental clinics, and one private clinic provides family care in St. Michael, AZ.

Navajo Area Indian Health Service Proposed Facilities

NAIHS has proposed replacement and new facilities to meet its short and long range goals. In its FY2011 IHS Planned Health Care facility Construction Budget, NAIHS proposes outpatient facilities for underserved areas of the Navajo Nation. Table 13 summarizes existing and proposed NAIHS facilities on the Navajo Nation.

As provided on Table 13 the new Kayenta Health Care Facility is currently under construction. This healthcare facility will include 129 staff members per quarter units and will generate considerable amount of traffic. Navajo communities depend on transportation to provide access to health care facilities for emergency and routine care. Road development priority should be given to the maintenance and improvement of roads serving health care facilities, especially roads that are major routes for emergency care and air and ambulance transport. To accomplish this, the reservation road network must be efficient, in good condition, and well maintained.

Table 13
Proposed NAIS and Contract Health Care Facilities

Estimated Opening Year	Proposed New Facility/ Staff per Quarter Units	Chapter
2012	Kayenta Health Center/129	Kayenta
2020	Dilkon Health Station/109	Dilkon
2014	Alamo Health Station/33	Alamo
2015	Pueblo Pintado Health Station	Pueblo Pintado
2014	Bodaway Gap Health Station	Gap/Coppermine

Sources: NAIHS Profile 2007, Navajo Nation Long Range Transportation Plan, 2009

Residential Development

NHA housing subdivisions are major traffic generators throughout the reservation. The Navajo Housing Authority (NHA), funded by the federal Department of Housing and Urban Development (HUD), is the major tribal agency building housing for low income families. NHA has planned and constructed less of subdivision housing and more of scattered homes recently. NHA however, cannot provide any planned NHA housing development for the 2009 LRTP update.

Schools

In 2006-2007 school year only 46 percent or 42,492 of total 92,260 Navajo Nation school children attended 140 public schools located on the Navajo Nation. Of these, 80 are public (state/county) schools and 60 are BIA schools (these figures do not include private, church schools and headstart programs).

The other 54 percent attended public schools at Border Towns such as Flagstaff, Winslow, Holbrook and Page in Arizona; Gallup, Cuba, Aztec, Bloomfields and Farmington in New Mexico; and Mexican Hat and Montezuma in Utah.

Economic Development

The Navajo Nation Division of Economic Development has three major development goals for the near future: industrial, tourism, and commercial and real estate development. Development in these areas will produce base industry growth and job creation.

Industrial Development

Economic development and manufacturing is considered to be the most important aspect of industry. There are five industrial plants in operation on the Navajo Nation:

- Raytheon at the NAPI Industrial Park.
- MechTronics of Arizona in the Fort Defiance Industrial Park.
- TDI in the Leupp Industrial Park.
- Southwest Cabinet at the Church Rock Industrial Park.
- Gallup Camper Sales.

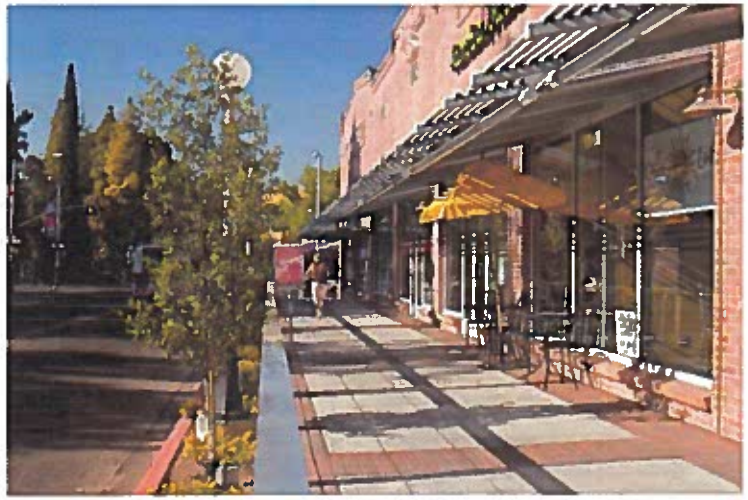
Considering the paramount importance of manufacturing, the Division is actively recruiting new industrial businesses, of which the important ones are:

- Latex Glove Manufacturing Plant
- Montezuma Creek Sewing Factory
- BCDS Manufacturing Operation
- Housing Panel Manufacturing
- Indian Tribal Economic Alliance (ITEA)

Tourism Development

Tourism has the potential of generating a substantial amount of income for the Navajo Nation. According to a recent study, the tourism industry has an economic impact of $100 million dollars and supports 3,506 jobs. To promote tourism in the Navajo Nation and to capture more of the tourist dollars, the Navajo Nation Division of Economic Development has planned a number of projects:

- Completion of Phase II and Phase III-Antelope Marina & Resort
- Shiprock RV Park
- Monument Valley Interpretive Center
- Dine Biitah Scenic Road
- Dine Tourism Corridor



Commercial and Real Estate Development

Office and retail space development has been initiated by Chuska/Sahara, utilizing private financing and using the Bureau of Indian Affairs loan guarantee program at various sites. The sites are:

- White Cone Commercial Development - Phase I development is in the bid process to prepare a acre tract of land in White Cone, AZ, a southwestern community for future business. The target business is an 8,000-10,000 square foot retail center that includes a gas station, convenience store, laundry and a small sit-down eating operation.
- Karigan Housing Development Phase II - Phase II development of housing on Karigan Estates in St. Michaels, AZ began in July, 2004. The project is a continuation of home ownership on fee lands located at Karigan Estates.
- Sawmill Retail Center - Site Development for a small retail center currently being advertised for bids. Attract business for the 3.0 acre tract of land in Sawmill, AZ includes a gas station and convenience store.
- Newlands Shopping Center - Infrastructure planning and development to accommodate a future full-scale shopping center at Sanders, AZ is in the architect and engineering stages. The project will provide for tenant recruitment and construction of a commercial facility to accommodate the Newlands community.
- Tuba City Office and Retail Complex (42,000 sq. ft.) Completion date is June, 2004
- Kayenta Office and Retail Complex
- Shiprock Office and Retail Complex
- Dilkon Office and Retail Complex
- Fort Defiance Office and Retail Complex
- Crownpoint Office and Retail Complex

In addition to the Division of Economic Development priority projects, several Chapters have also planned several more economic development projects for their chapters to be funded under Capital Improvement Programming. The Navajo Nation Gaming Enterprise has also proposed to build three more casinos.

New access roads, turnoffs, traffic signals, street lights, and accelerate/decelerate lanes are recommended for safety and accessibility for these planned economic developments. Overall transportation system connectivity is also crucial to the Navajo Nation's economic future. Without an adequate transportation system, the Nation's future economic growth will be severely constrained.

Energy Development

Energy development is now an important part to the Navajo Nation's overall economic development strategies. The Dine' Power Authority (DPA) oversees energy development for the Navajo Nation has proposed four major projects as follows:

- **Navajo Transmission Project:** The Navajo Transmission Project (NTP) is a 469-mile high voltage transmission line to supply electricity from the Four Corners region power plants to Arizona, Nevada and California substations. This project will supplant the aging existing transmission system eliminating a supply gap in the Southwest grid and providing stability and reliability in the event of outage and impacts to the power plants.
- **Desert Rock Power Plant:** Desert Rock is a coal-fired 1,500 megawatts (MW) power plant planned to start operating in 2010. The project is located in Burnham Chapter. The power plant will create 400 jobs. The project will add commuter and heavy truck traffic impacting N5082, N5, NM371 and US491. There is also a proposed road to be built by BHP Billiton Navajo Coal Company to provide access to its mining sites north of the Desert Rock plant and to Desert Rock Power Plant access road. This road will replace approximately 18.4 miles of N5082 north of N5.
- **Dine' Wind Project:** DPA has identified potential three (3) high wind resource sites in Grey Mountain/Cameron, Oljatoh/Kayenta and Black Mesa areas. These sites have strong wind that can generate electricity of 200-700 MW, 50-100 MW, and 50-100 MW respectively. Aside from Wind resource, DPA also found potential sites for solar energy development.
- **Coalbed Methane Production Plant:** The Navajo Oil and Gas Company is hoping to add revenue to the Navajo Nation's coffer by planning to tap into more than 220 billion cubic feet gas reserve in the San Juan Basin. This is a methane gas reserve underneath Upper Fruitland, Nenahnezad and San Juan Chapters. The project will be located east of the BHP Billington Mine and includes gas gathering and compression station. The product will be delivered into some of the existing major interstate pipelines that already exist on the Navajo Nation.

Community Development:

The Navajo Nation and its chapters are actively pursuing community development. The majority of the Navajo Nation Capital Improvement Program (CIP) projects are located within the chapter house tracts.
Paving the access roads to chapter houses will also provide better transportation access to these facilities. The LRTP 2009 lists Navajo Nation CIP projects with related transportation needs for each CIP project. These CIP projects include construction and access of the detention building along US Highway 163 in Kayenta.

Need 8: Scenic Byways, Tourism and Recreation Needs

Tourism is a major industry that can generate $100 million dollars and it supports 3,500 jobs on the Navajo Nation according to the Division of Economic Development. To promote tourism on the Navajo Nation, the Navajo Nation Tourism Department has developed a comprehensive Navajo Nation Scenic Byways Plan identifying scenic routes that links all of the Nation's attractions that are most scenic, culturally significant and have naturally intrinsic qualities. Among these are the:

- Canyon de Chelly National Monument,
- Lake Powell,
- Monument Valley,
- Navajo National Monument,
- Antelope Canyon,
- Four Corners Monument and
- Chaco Culture National Historical Park.

These natural and cultural resources have provided new sources of income to Navajo people and the surrounding communities. The Navajo Nation Tourism Department, Parks and Recreation, Navajo Division of Transportation, Chapters and Non-profit organizations all support scenic byways development and provide matching funds to state and federal grants in order to implement the Navajo Nation Scenic Byways plan and projects.

Scenic Byways and Projects

The Navajo Nation Scenic Byways Plan shows the Navajo Nation designated scenic byway corridors. Each corridor has been named based on its intrinsic quality whether it is natural, scenic or of Navajo cultural and historical characters. Transportation improvements that are needed to enhance and support each byway development project.

Recreation

The U.S. National Park Service operates the Canyon De Chelly National Monument, Lake Powell, Chaco Culture National Historical Park and Navajo National Monument. The Navajo Parks and Recreation Department, established in 1958, manages tribal parks, monuments, a zoo, five fairgrounds and administers fair events and youth recreational programs.

Many Navajo parks and recreation areas have poor access. Lack of reasonable access to most Navajo recreation sites, many of which are potential tourist attractions, has discouraged their use. The Navajo Parks and Recreation Department's revenue is mainly generated from entrance fees collected from Monument Valley Tribal Park and tribal fairs. Other park facilities have no entrance fee. Revenues are primarily used for facility maintenance, and are often insufficient to cover major road improvements.

Improvement of access roads to tribal parks and tourist attractions will attract more park users and tourists alike. Good roads to the tribal parks will also extend tourists' time of stay because there will be more places to explore and things to do.

Need 9: Multimodal Transportation Needs

To meet SAFETEA-LU requirements regarding multimodal transportation, transportation planning must promote the use of other modes of transportation. The multimodal needs related to sidewalks and bicycle mobility in the growth centers are included in the Growth Center Mobility Improvements section. Need 9 focuses on aviation, railroad and transit related improvements only.

Airport Access Needs

The 2009 LRTP lists Navajo Nation airport development needs and provides recommendations based on State aviation studies and Navajo DOT estimates. The recommendations include new construction of one primary airport in Oljatoh and improvement of eight (8) secondary airports in Ramah Navajo, Rock Point, Navajo Mountain, Monument Valley, Huerfano, Pinon, Dilcon, Alamo and Nahat'a Dziil (New Lands) communities. Priority will be given to the primary airports that are already recognized by the Federal Aviation Administration (FAA) in its National Plan of Integrated Airport Systems (NPIAS) and are therefore, eligible for FAA funding. However, improvement and new construction of secondary airports are also recommended to provide air transportation to health care facilities and provide emergency landing strips in remote areas. The planned airport developments will help improve air service coverage for the entire reservation including Navajo satellite communities such as Ramah. Approximately 8.5 miles of new access road construction and paving of existing roads are needed to serve the proposed airport development.

Navajo Transit Route Needs

Navajo Transit System Five Year Plan

According to the Navajo Transit System Five Year Plan dated May 2009, ridership in 2008 was approximately 70,000 trips per year; however, it is forecasted that there is an estimated demand for transit of nearly 700,000 one-way passenger trips per year. The plan addresses five key areas: Management/Administration, Operations/Service, Marketing, Coordination, and Funding.

The Navajo Transit System (NTS) provides public transportation services on the Navajo Reservation, serving 57 of 110 chapters. NTS operates intercity bus service on (13) fixed routes linking Navajo growth centers and adjacent border towns. The Tuba City-Window Rock, Toyei-Window Rock, Kayenta-Ft. Defiance, Crownpoint-Ft. Defiance, Dilkon-Window Rock and routes operate one round trip per day Monday to Friday. Window Rock and Gallup routes are core service routes operating four and two round trips each weekday, respectively. In January 2009, the Flagstaff to Tuba City Route was started; this is a one hour trip that will run four times per day. In 2009, the Kayenta to Tuba City route began to provide a one-hour, one-way trip.

NTS connects with Hopi Transit System, Greyhound Busline, Amtrak Passenger Train, Gallup Transit Express, Red Apple Transit, and Flagstaff Mountain Line. NTS has several connections with Navajo Senior Centers along the routes. Most NTS fixed routes operate along state highways. NTS fixed route ridership has increased over the years. Ridership was 65,513 in 2008 and it is expected to increase by 20 percent in FY 2009, due to the $1.00 per day ride fee that was established in November 2008 and will remain in place until November 2010. Fixed route customers are classified as 51 percent general, 22 percent elderly, 20 percent commuters and disabled, youth and students making up the rest. NTS buses pick up riders at designated stops, but no NTS stations have been constructed. NTS charters provide transportation for groups, organizations and private tours on and off the Navajo Nation twelve months a year. NTS charter service includes transportation to Arizona State University, University of New Mexico, Haskell University, and other colleges.

At the public open house meetings held for the LRTP, many people noted that there was a need for additional signage to designate the available transit routes, the stop locations, and the schedules. It is recommended that a transit signage program be pursued to encourage ridership and awareness of the transit system that is available.

Navajo Transit provides long-haul type routes between the population centers. Additional investigation should be done to identify if local circulator, call-n-ride or other short trip/demand response type system is supportable with in the growth centers.

Transit System Long Range Plan

The Navajo Transit System (NTS) Program under the Division of General Services completed the NTS Five Year Plan in 2009. The NTS plan projects transit demand to increase at 1.4 percent annually estimating approximately 700,000 passenger trips, generally for and between the primary and secondary growth centers in 2025. The plan outlines strategic goals and objectives for NTS to meet the future demand including increasing ridership and enhancing service quality, capabilities and efficiency. Implementing the NTS strategic plan will be a long-term activity.

The Navajo Transit Long Range Plan recommends construction of eight (8) Regional Transportation Hubs. These facilities will serve as the central location for feeder bus routes to neighboring chapters and secondary growth centers. Kayenta is one of the potential locations listed for a Regional Transportation Hub.

The Transit Long Range Plan also recommends adding Trunk Routes to connect a significant amount of the Reservation's population together in a network of intercity bus routes. These trunk routes include the Kayenta-Tuba City Trunk Route and the Kayenta-Page Trunk Route.

Arizona Rural Transit Needs Study

The State of Arizona Rural Transit Needs Study provides regionally-based solutions to rural public transportation in Arizona. The Study intended to serve as an objective, analytical basis for establishing Arizona's long-term strategic direction of rural transit service provision. The study found that transit demand in rural Arizona is projected to increase 34 percent from year 2007 to 2016. There are numerous unmet needs for rural transit services in Arizona. Only 18 percent of the estimated demand for rural transit services is currently being met; while only 13 percent is projected to be met by year 2016. Thus additional rural transit service is needed to meet future demand. Establishing roles and responsibilities between the State, COGs, local governments, tribal governments and transit operators will facilitate the development of public transportation service in rural Arizona.

The study noted that additional rural transit services are needed in multiple cities, town, Tribal Reservations, and intercity corridors throughout the State of Arizona. The key market segments should be elderly persons, persons with disabilities, and persons of low income. The primary purpose for rural transit trips include medical appointments, shopping, work, education, personal business and recreation. These findings are consistent with the Navajo Transit System study, discussed previously.

The study documented that expanded 5311 local program services have been identified for the Navajo Transit System, namely between the cities of Flagstaff and Tuba City, Tuba City and Page, and Tuba City and Kayenta.

Road Improvement Needs

To support the implementation of the NTS long range strategic plan, assuming all of the new truck and feeder routes are established, road improvements of these existing and future NTS routes would ensure safety of both transit riders and general public. Routine pavement preservation is needed on NTS routes to keep them in good condition and safe.

Most of the existing NTS Fixed Routes operate on State highways with three routes on N59 from Many Farms to US160; N12 from Navajo, NM to Window Rock; and N9 from US491 to Crownpoint. The NTS Long Range Plan has also proposed numerous Feeder Routes to provide additional transit services to smaller communities. These are communities with 5,000 - 10,000 transit trips per year and are appropriate for feeder transit services using smaller vehicles to operate on an ad-hoc basis.

Paving chapter house access will provide all-weather roads for most of the needed feeder routes. Improvement of IRR routes used for transit operation is necessary for safety of NTS riders and traveling public sharing the roads.

Railroad Need:

The Burlington Northern Santa Fe (BNSF) railroad runs along interstate I-40 south of the reservation, and is the only major freight and passenger railroad crossing the Navajo Nation. BNSF connects Albuquerque, NM to the west coast at Los Angeles, CA, and crosses the Navajo Reservation at Nahat'a Dziil (New Lands) Chapter, Church Rock Chapter and checkerboard area in the Eastern Navajo Agency.

Freight trains and Amtrak share the BNSF railroad, with stations/stops in Flagstaff, AZ and Gallup, NM. Rail development is complex and involves various businesses (freight and passenger rail companies), government entities, as well as economic considerations (demand versus supply).

Need 10: Other Transportation Needs

These are transportation needs related to or identified in other tribal and state plans. They include plans to implement rural addressing, to provide emergency services during snow and mud emergencies and hazardous shipment accidents, to provide road access in regions that are underdeveloped because of land disputes, to improve non-system public roads, proposed state and regional transportation plans.

Rural Addressing

The Telecommunications and Utilities Department under the Division of General Services is taking a lead in the Navajo Nation 9-1-1 and Rural Addressing. Its primary goal is to link each telephone number to a physical address in order to enhance efficiency of emergency and public safety responses to 911 calls. A pilot project is being implemented in Tohajiilee with New Mexico State funds for addressing, road naming and signage installation.

Snow and Mud Emergencies

Much of the Navajo Reservation soils have high clay content and little ground cover and a large number of the unpaved Navajo-BIA roads pass through low lying areas where snow and rain water collect. Navajo Nation residents thus encounter snow and mud emergencies almost every winter and spring. The majority of Navajos live in scattered homes raising sheep and cattle for supplemental income. Families, seniors and school children getting stranded for days or even weeks due to impassible roads has become a norm of life on the Navajo Reservation. Emergency rescue operations are often difficult or delayed until the weather permits.

The Navajo Nation needs more paved roads and maintenance funds to keep roads passable, to reduce the snow and mud emergencies. It needs to build a network of all-weather roads to serve those areas of the reservation where the people live.

Hazardous Materials Shipments

U.S. Department of Energy (DOE) programs transport approximately 5,000 shipments annually of nonclassified radioactive materials and waste for cleanup, research, and development for medical or industrial uses and national defense purposes. The DOE Waste Isolation Pilot Plant near Carlsbad, NM disposes of transuranic waste shipments from other DOE sites. US 666 and I-40 are the main DOE shipment routes going through the Navajo Nation. DOE reported 22 and 50 shipments of hazardous materials through the Navajo Nation in 1998 and 1999 respectively.

Numerous other hazardous material shipments from private and public sectors also cross the Navajo reservation. Emergencies involving hazardous material releases and transportation of such materials across the Navajo Nation have been reported (U.S. Environmental Protection Agency, Region IX). State highways on the Navajo Nation are major hazardous material shipment routes. To make hazardous material transportation on the Navajo Nation safe, all shipment routes should be paved. Approximately 10.5 miles of N4 from Pinon to the Hopi reservation needs to be paved, so all hazardous shipments can be shipped on paved routes. This will improve safety and pose less danger for the surrounding Navajo communities. Routine maintenance for these routes is also necessary to keep them safe.

Other hazardous material shipments are transported by the Burlington Northern Santa Fe (BNSF) Railroad crossing the southeast corner of the Navajo Reservation. Approximately 14,000+ shipments of hazardous materials are transported annually on the BNSF

ADOT I-40 Emergency Plan

ADOT has developed an I-40 Emergency Interstate Closure Plan (Map V-16) to detour traffic around Interstate closures in cases of emergencies. These plans would only be used in extreme situations such as earthquakes, hazardous material spills or complete roadway failures. The Navajo BIA routes that are part of the I-40 detours are: N15 from the reservation line west of Leupp to AZ264/US191 intersection in Burnside, N6 from AZ77 at the reservation line to N15 intersection 6 miles north of Bitahochee, and N12 from I-40 in Lupton to St. Michaels.

To safely accommodate heavy traffic during the I-40 emergency detours and prevent pavement deterioration due to excess load, these Navajo routes will need pavement and sub-base reconstruction, redesign of culverts, and roadway widening for N15 and N6 (N12 has been reconstructed and met standards). Estimated detour period is 48 hours with 8,000 trucks per day (ADOT, Holbrook District).

The proposed emergency detours cross 1 bridge on N6, 3 bridges on N12, and 8 bridges on N15. All 12 bridges are rated in good condition and meet standard design load and operating ratings. These IRR bridges should safely carry detour traffic without improvement. However, these bridges are not new and for safety reasons, no more than one truck should be allowed to cross a bridge at a time at a speed no greater than 35 miles per hour.

Need 11: Cultural and Environmental Considerations

IRR long-range transportation plans are required to consider the impacts of existing and proposed transportation system on the environment, and balance the needs of development and the environment (i.e., wildlife, plant life, clean air and water, etc.). This Navajo Nation's cultural and environmental resources are protected under the National Historic Preservation Act, NEPA, Endangered Species Act, Clean Water Act and Clean Air Act. They are considered as follows.

Archeological and Historical Resources

Any federally-funded action requires the identification and evaluation of historic properties in accordance with the requirements of Title 36, Code of Federal Regulations (CFR) Part 800, Section 106- the review process established in the National Historic Preservation Act. Title 49, United States Code (USC), Section 303 (originally Section 4(f) of the Department of Transportation Act of 1966) specifies that special efforts be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges and historic sites. For these reasons, listed or eligible historic properties and areas expected to have high density of historic properties have been identified as important considerations associated with the transportation planning of the Navajo Nation.

The entire Navajo Nation is rich with archeological and historical resources. Evidence of prehistoric Navajo habitation on the present day Navajo Reservation and surrounding area is recorded in various archeological investigations, studies required for development on the reservation, the Navajo and Hopi land dispute litigation and fuel resources development. These archeological investigations, including studies of Navajo migration, and other publications cite evidence of Navajo settlements throughout the region. In general, the Navajo settlement in the area ranges from one ruin per 4 square miles for highest density site to one ruin per 33-167 square miles. The concentration of ruin sites appears to be related to pinon-juniper zones where hunting, gathering and alluvial farming could be practiced.

Evidence of Hopi and Anasazi occupations is also found near the Hopi reservation and the surrounding areas making the Navajo lands bordering the Hopi Reservation particularly rich in archeological and historical sites. This greatly impacts planning of the road construction. Clearances of past road construction projects have taken longer time due to the many archeological sites.

Planning for new road construction, such as new street expansion for Growth Center communities (NEED 6) and proposed airports' access roads (NEED 9) will require longer time for archaeological clearance. Other road construction projects involving widening or realignments such as N7 from Canyon De Chelly to Sawmill (NEED 1), N4 from Pinon to Hopi Reservation (NEED 10) will also be subject to additional archeological clearance work thus, will need extra project planning time.

Wildlife

The Navajo Nation is unique for its natural resources. It is a large Indian reservation with low population and development density and a rich natural environment. The reservation has become a sanctuary for wildlife, rare animals and plant life. The Fort Defiance Plateau and Chuska Mountains have been identified one of the Arizona habitats for the endangered Mexican Spotted Owls.

The Endangered Species Act protects populations and habitat of a variety of listed species of plants and animals on federal lands. The Navajo Reservation, as trust land, is subject to all provisions of the Act. All projects on the reservation which require federal or tribal review, even commercial and home site leases, must be reviewed for possible impacts on listed species. These must be documented in the Environmental Assessment (EA), which accompanies the project documents in the review package.

Planning and design of road projects must meet the Endangered Species Act requirements when applying for right of way clearance. Project planning should provide enough lead time for a lengthy review process and required species surveys. When planning for widening of an existing roadway, environmental clearance will be required as well.

Three years should be a nominal time for project R.O.W clearance in general. Proposed road projects in Fort Defiance Plateau and Chuska Mountains such as N13 over the Buffalo Pass will require a lengthy survey and review process since it is in sensitive habitat. The road R.O.W. width should also be reduced to the minimum requirement to minimize impacts to the habitat of the endangered species.

Wetlands

Federal law on wetlands (E.O. 11990) mandates protection of all wetlands on public lands. Wetlands in an arid region are groundwater recharge areas. Wetlands house rich wildlife habitats and plant communities. Wetlands that are part of drainage channels/systems are crucial to the overall drainage system. They connect the system and maintain the existence of the ecosystem. Wetlands contribute to groundwater recharge. Alluvial deposits such as in wetlands allow water to infiltrate through underlying rock fractures, allowing the recharge of ephemeral streams. Wetlands in high altitude/headwater areas that are often found interwoven with forested areas allow water to percolate through underlying unconsolidated rocks.

The Navajo Nation wetlands are of both permanent and seasonal characteristics influenced by its climatic condition, drainage pattern and soil development. Permanent wetlands are found along washes and major drainage channels such as the Little Colorado River, San Juan River, Chaco River and Chinle Wash and their tributaries. Most seasonal wetlands are often a part of pond and lake system.
The Nation wetlands are found more in the eastern region than in the western part of the reservation. The majority of them are found around headwater areas in the Defiance Plateau, Chuska and Carizzo mountains. Others are often small sparse ephemeral wetlands created by seasonal floods or rain storms. Wetlands in the western region are found at high altitudes where precipitation concentrates, such as Navajo Mountain and Black Mesa areas. Others are perennial lakes that are part of interrupted drainage systems and ephemeral streams. There are many small ephemeral lakes, as typified in Red Lake/Tonalea Chapter along Moenkopi Wash and Tolani Lake in the Oraibi Wash drainage.

Wetlands on the Navajo Reservation are sensitive. Prolonged drought can eliminate a wetland completely. Other mechanisms that sustain wetlands include groundwater discharge, non-disruption of surface drainage system and ground cover. Destruction of wetlands may interrupt or even destroy the entire ecosystem--drainage system, plant or animal communities or drying up our water supply. Road development should avoid wetlands, especially those that are part of an overall drainage system. Road development should be carefully planned to avoid the destruction of wetlands especially at headwater recharge areas such as in the Defiance Plateau, Chuska and Carizzo Mountains and Black Mesa.

Water Quality

The federal Clean Water Act of 1972, (33 U.S.C., Sec. 1251-1376) contains provisions for regulating and maintaining ground and water surface quality. The Clean Water Act is administered by the U.S. EPA and by the Navajo Nation EPA.
The main impact of the Clean Water Act on highway development and construction is through its regulation of non-point sources of water pollution. Unimproved dirt roads erode easily, their sediments often entering surface drainage watercourses. Since a high proportion of Navajo Reservation roads are unimproved dirt, upgrading these roads could be a significant element of future Navajo Nation plans for controlling non-point source pollution of surface waters.

Future road construction projects will in all likelihood have to meet some standards for runoff control, and will require permits by Navajo EPA. Compliance with applicable Clean Water Act provisions as administered by Navajo EPA should be factored into funding and scheduling calculations for future road projects.

Air Quality

The Clean Air Act amendment of 1990 requirements applies mostly to metropolitan transportation planning. Transportation-related pollutants must be addressed in planning for an area designated nonattainment (not attained to the National Ambient Air Quality Standards) or a maintenance plan must be implemented under Clean Air Act section 175 A (i.e. ozone, carbon monoxide, nitrogen dioxide, and particles with an aerodynamic diameter of less than or equal to a nominal 10 micrometers, etc.). The Act requires incorporation of appropriate measures for air pollution control or congestion reduction to protect the public health. A program such as the implementation of high occupancy vehicle lane in some metropolitan areas is an example of a congestion reduction measure.

Most communities and areas on the Navajo Reservation are classified as attainment or unclassifiable, except for a small area in the northwest New Mexico that is classified as non-attainment area due to generation stations emission. Nonetheless, this is not a transportation-related non-attainment designation.

The Navajo Nation has approved its air quality codes (Air Pollution Prevention and Control). These codes mostly deal with industrial pollutants. The Navajo Nation Environmental Protection Agency is currently concerned about road construction projects. On the Navajo Reservation, air pollution from transportation-related activities is usually caused by road construction, since during road construction particulates may be produced beyond the acceptable level. The Navajo EPA follows State and Federal EPA criteria and procedures for determining conformity for the reservation attainment areas regarding road construction.

The Navajo Nation Growth Centers have become urbanized. Traffic congestion occurs briefly during rush hours in some communities because these communities are served by few roads. Development mainly clusters along the main roads or at intersections.

Growth Centers are the fastest growing communities, fueled by development planned by the Navajo Nation. These communities will need urban street systems soon to accommodate future traffic and provide even distribution of traffic to prevent air pollution caused by the traffic congestion.

Chinle, Kayenta, Tuba City, and Shiprock have high population as well as tourist traffic. Their needs for urban street systems have become apparent, especially during the tourist season.

Considerations and Needs

In all, a balance between development and protecting these delicate resources must be exercised to minimize the impacts of road construction and promote development without destroying the Navajo Nation's valuable cultural and natural heritages. A balance can be achieved through careful planning and engineering.

- **Future Transportation Plans:** Future planning such as street expansion and plans have been proposed for the Navajo Growth Centers to cope with growing population and development at these communities in the future. Good street system, such as those in other urban areas can prevent traffic congestion and air pollution by distributing traffic more evenly. No new roads are proposed to avoid opening up of new areas and disturbance to archeological, wildlife habitats, wetlands and drainage channels. Paving unimproved roads have been proposed and given priority to reduce erosion and sediments to water courses and particulate air pollution.
- **Project Planning:** Adequate time is recommended for surveys of archeological as well as environmental resources, and the R.O.W review process for most projects. Project planning should include three years for R.O.W assessment and clearance process prior to construction. To assure minimum disturbance to the environment, problems must be identified during these surveys and assessments and engineering solutions must be developed.

- **Engineering:** Engineering and design of road projects must identify and mitigate drainage problems, soil erosion, channel erosion, and other environmental impacts. Road improvements in sensitive areas must minimize impacts to the surrounding environment such as minimizing R.O.W. width to minimize disturbance to archeological resources, and plant and animal communities (e.g.., N7 from Canyon De Chelly to Sawmill).
- **Environmental Studies:** The R.O.W. clearance process is a crucial element in identifying and protecting cultural and environmental resources. Sound and complete archeological and environmental studies should be completed for all construction. These studies should be structured to include strong and useful alternatives for protecting cultural and environmental resources or mitigating a project's impacts on them. Based on past Navajo IRR budget, the estimated need for project environmental and archaeological assessments are $100 million for 20 years or $5 million per year.

Other Resources Issues

Aggregate and water resources costs for road construction on the Navajo Nation have become more and more expensive. Great distance between projects, availability and transportation of construction materials all contribute to the high cost.

Aggregate Resources

In 2005 the Division of Natural Resources Minerals Department completed the survey and mapping of all aggregate resources on the Navajo Nation. The findings show that the Navajo Nation has aggregate resources that make available for road construction and maintenance. These aggregate resources are scattered throughout the Navajo Nation.

Water Resources

Well water is the source of water used in road construction. In general, contractors will drill a well near the road construction site. For the most part of the Navajo Nation, groundwater is available and this is preferred practice than the costly hauling of water to the construction sites.

Groundwater is found in four major aquifers underlining the Navajo Nation: 413, 290, 50 and 1.18 million acre-feet are estimated water storage capacity for Coconino, Navajo, Dakota and San Juan Aquifers. Also available are alluvial aquifers underlining many of the washes on the Navajo Nation. Drilling depth is ranging from 200-1000 feet deep. For the most part of the Navajo Nation, contractors can drill a 200-foot deep well for road construction usage except in the farther west of the Western Navajo Agency and a certain area within the Chinle Agency.

Implementation Strategies

To address the Navajo Nation's long range transportation needs, the 2009 LRTP recommends planning and implementation strategies. These strategies should be adopted and meticulously followed by Navajo Indian Reservation Roads transportation decision-makers at all levels. Decision-makers should set long-term and short-range road improvement goals and objectives to meet these needs. Long-term and short-range road improvement planning and prioritization criteria must have the same objective of meeting the transportation needs and goals.

The 2009 LRTP also recommends seeking other sources of funds to supplement the Indian Reservation Roads. Those funding sources are listed in the Funding Strategies subsection.

Long Range Goals and Objectives

To address the Navajo Nation's long range transportation needs and issues, the long range planning and implementation of the Navajo-BIA road improvements must address and include the following long range goals and objectives as follows:

- Upgrade roads to meet design standards and management system requirements to correct deficiencies as well as to improve overall network connectivity, travel mobility and accessibility.
- Improve travel safety and reduce accidents on the Navajo-BIA roads.
- Meet existing and future transportation needs in order to promote community and economic vitality.

Funding Strategies

To meet the Navajo-BIA roads' long range transportation needs, the Navajo Nation's transportation decision-makers must explore all avenues to increase funding of Navajo-BIA road long range improvements. The 2009 LRTP recommends the following strategies:

- Seek to increase the Navajo IRR funding level through lobbying. Under the Federal Lands Highway Program, IRR Program funding needs are factored by population and development growth (through ADT) unlike other FLHP programs, (i.e., Park roads and Parkways, Public Lands Highway Discretionary, Forest Highway and Refuge Roads). These other FLHP roads do not carry the high levels of daily traffic that wear out roads at greater rate: their road miles and traffic volumes are relatively constant. Legislative formula should be established to allocate funds among FLHP programs based on actual needs, instead of each program's relative share.
- Seek funding from the IRR Nationwide Bridge Priority Program to help meet the Navajo IRR bridge improvement needs.

- Seek other funding sources such as the Indian Highway Safety Program ($1.1 million annually) federal Hazard Elimination Program ($550 million annually) which funds safety improvements on highways administered by State and the BIA.
- Seek other funding sources such as Public Land Highway Discretionary Funds for Navajo scenic byways projects and/or State Transportation Enhancement Fund for bicycle and pedestrian paths.
- Seek state/federal share of funding for improvement of Navajo-BIA routes to be used as detours during I-40 emergency closures.
- Use the Navajo Nation Fuel Excise Tax to supplement the IRR funds.
- Fund projects according to project/need priority.
- Taxing: Currently, Kayenta is the only primary growth center with a self imposed sales tax of 2.5 percent. It is recommended that the primary and secondary growth center communities work with the Division of Economic Development to identify and implement self funding mechanisms to aid in enhancing infrastructure investment, ultimately improving economic development opportunities for those that wish to invest within Navajo Nation. The funding opportunities that are identified should be integrated into the ARCs and overall strategic Implementation Program for any recommended transportation improvements within the communities. This provides an opportunity for community, Agency, and ultimately Nation buy-in for ultimate investment and community growth.

These funding strategies should be included in the transportation element policy framework of the Kayenta Comprehensive Plan.

Master Planning

The 2009 LRTP directs each Primary and Secondary Growth Center, including Kayenta Tonship, to develop a community 20-year plan that examines future land use, multi-modal transportation needs, infrastructure needs, environmental considerations and unique characteristics of the community.

The future land use map should examine the type, density, distribution and locations of land uses throughout the growth center, and be balanced with the anticipated infrastructure/transportation needs to accommodate the additional growth. The layout of each growth center has a direct correlation to the amount of infrastructure investment, economic development potential, and ultimately the community context and livability that is equated to the quality of life for the growth center residents.

The 2009 LRTP is a needs-based plan. It considers the existing transportation system and facilities and identifies current and future needs based on socioeconomic and transportation projections. The process for analyzing the transportation needs is cumbersome and highly data intensive. The analysis process is currently being undertaken every five years by the Navajo DOT to update the LRTP.

Planning for the Navajo Nation transportation system is a monumental task and requires the efforts and skills of multiple agencies and the several communities that make up the Nation. Therefore, the LRTP encompasses recommendations and considerations from a variety of planning documents prepared by other agencies. With the contribution from these various groups, these plans should provide a consistent and accurate description of the transportation needs of the Navajo Nation and the opportunities for improvement.

In an effort to streamline the long-range transportation planning process and to provide increased flexibility, it is recommended that the Navajo Nation consider producing Comprehensive Plans at an Agency level, as well as at the Growth Center level. This would allow for bottom-up transportation planning that will build upon the efforts of the prior plan. The growth center plans would feed into the agency plans, and agency plans would feed into the LRTP.

Community plans would incorporate a land use element as well as a transportation element. There is a strong relationship between land use and transportation: they are directly related. The issue of population growth and resulting transportation needs should be addressed cooperatively to effectively identify and implement improvements.

Land use planning efforts are already being undertaken at many of the primary growth centers. Kayenta is currently preparing its Comprehensive Plan. These future land use plans are serving to accommodate the future growth trends of the communities. To support these plans, each will require an associated transportation system plan. The transportation and land use plans may be developed with close coordination from the public to specifically identify the needs of the community and capture the vision of that particular growth center.

Agency level planning would allow for the comprehensive planning of an entire Agency's land area, including the primary and secondary growth centers, and the supporting transportation system. The specific transportation needs and priorities of each agency could be highlighted within its plan. This would allow each Agency to develop its own vision for future development and focus its efforts on the needs it feels are most important to serving its communities and future needs.

For example, one Agency could envision it strength is in serving future tourism needs and providing services that will promote and sustain those efforts; while another Agency will value community connectivity and wants to focus on the needs of all-weather access to its residents. Each agency would be able to develop a list of prioritized transportation projects that reflect their vision for the future.

The prioritized list of projects from each Agency plan's transportation element could then be provided to the ARC for incorporation into the nation-wide LRTP. In developing the Navajo Nation's prioritized list of transportation projects, the ARC would need to remain cognizant of the individual goals of each Agency and treat them as relatively important, based on the Agency's prioritization.

Other considerations that should be included in master planning efforts could include topics such as:

- Drainage improvements
- Energy corridors
- Freight movement
- Environmentally sensitive areas (cultural/historic/archeological, wildlife, etc.)

Title VI and Environmental Justice Implications

Transportation projects that utilize United States federal aid are required to certify non-discrimination under the requirements of Title VI of the Civil Rights Act of 1964. Also, in 1997, the U.S. Department of Transportation issued *DOT Order to Address Environmental Justice in Minority Populations and Low-Income Populations* to summarize and expand upon the requirements of *Executive Order 12898 on Environmental Justice.*

In accordance with the intent of these federal requirements, a preliminary assessment was completed for the 2009 LRTP plan to identify impacted minority and low-income populations within the Navajo Reservation area and any affects to those populations by proposed transportation improvements.

Coordination with DOT

The Navajo Nation has 10,076 miles of roadway, including approximately 1,678 miles of state routes that provide the primary routes between growth center communities and Navajo Transit System routes. The Arizona, New Mexico and Utah departments of transportation must be true partners to invest in roadway and safety improvements on the state system within Navajo Nation. Understanding that DOTs must balance the needs of the state highways within Navajo Nation with the needs outside of Navajo Nation, and with shrinking budgets, the need for additional coordination between the Navajo Division of highways within Navajo Nation is key.

Understanding the State Transportation Improvement Program cycles, each state's process for project prioritization and areas of investment are crucial for a true partnership. Each state has individual goals, just like Navajo Nation.

Based on agency and legislative direction, each state may weigh safety improvements, maintenance, freight, multi-modal or capacity improvements differently based on their programs. Because of this, common reoccurring coordination between the Navajo Division of Transportation and the state DOTs should occur, either in the form of semi-annual or quarterly meetings to ensure that the needs of the various Divisions within Navajo Nation and the state DOTs have a common understanding of needs, priorities and processes.

Additionally, state DOTs generally guide and prioritize projects that are community driven, plan and agency supported. These plan driven requests are those that are supported by Community Plans, programs such as the Safety Improvement Program mentioned above, the Long Range Transportation Plan and other planning processes that show redundancy based on broad-based adopted and accepted support.

Growth Center Mobility Improvements – Kayenta Township

Kayenta had a population of 4,922 in 2000 and is expected to grow to 10,323 by 2030. Kayenta is the only Navajo community that has become a township. Its economy is tied to Monument Valley, a national and international tourist destination. Kayenta collects its own sales tax, passes laws and enforces its land use plan and ordinances. The first Kayenta land use plan was developed and approved in 1986. The township covers approximately 5.6 square miles of land.

US160 and US163 are Kayenta's main thoroughfares. Other existing paved roads are NHA and school access. The junction of US160/US163 has experienced very high levels of crashes. US160 from US163 to N59 and US163 from N6485 to UT state line/Monument Valley also had a high number of crashes.

Kayenta Township has been progressive in establishing a township commission, administration and in planning for development. Land use regulations and development policies have been developed and enforced. With an independent revenue source from its sales tax, Kayenta is likely to be the fastest growing Navajo Nation Growth Center in economic development.

Street Plan Goals and Objectives:

The 2009 LRTP identifies the following goals and objectives for Kayenta Township: (1) Establish a multimodal network that supports the land use plan by providing managed access to different land areas/uses; and (2) Develop an efficient street system that provides a comprehensive transportation network for effective connectivity, distribution of traffic and enhances pedestrian and bicycle mobility. Exhibit ___ shows 2009 Navajo Nation LRTP mobility improvements for Kayenta Township.

Kayenta Township Current Roadway System Conditions

There are only two functionally classified roads serving Kayenta Township, State Highway 163 and State Highway 160. Local streets feed directly from the highway system, some of these being unpaved roads. In addition, there are strip mall commercial and other type of parcels providing direct access to the highway system with little or no connectivity to other modes of transportation, making Kayenta Township highly reliant on automobile. This creates a lack of connectivity and safety concerns. Currently, the Township is applying for the Safe Routes to School Planning Assistance Program. It is critical to the long range viability of the Township to provide guidelines for connectivity and walkability as well as to adopt a safe route to school plan.

Exhibit 15 shows 2009 Navajo Nation LRTP Mobility Improvements for Kayenta Township. Exhibit 16 shows functionally classified roadways serving Kayenta Township.

EXHIBIT 15: 2009 Navajo Nation LRTP Mobility Improvements for Kayenta Township

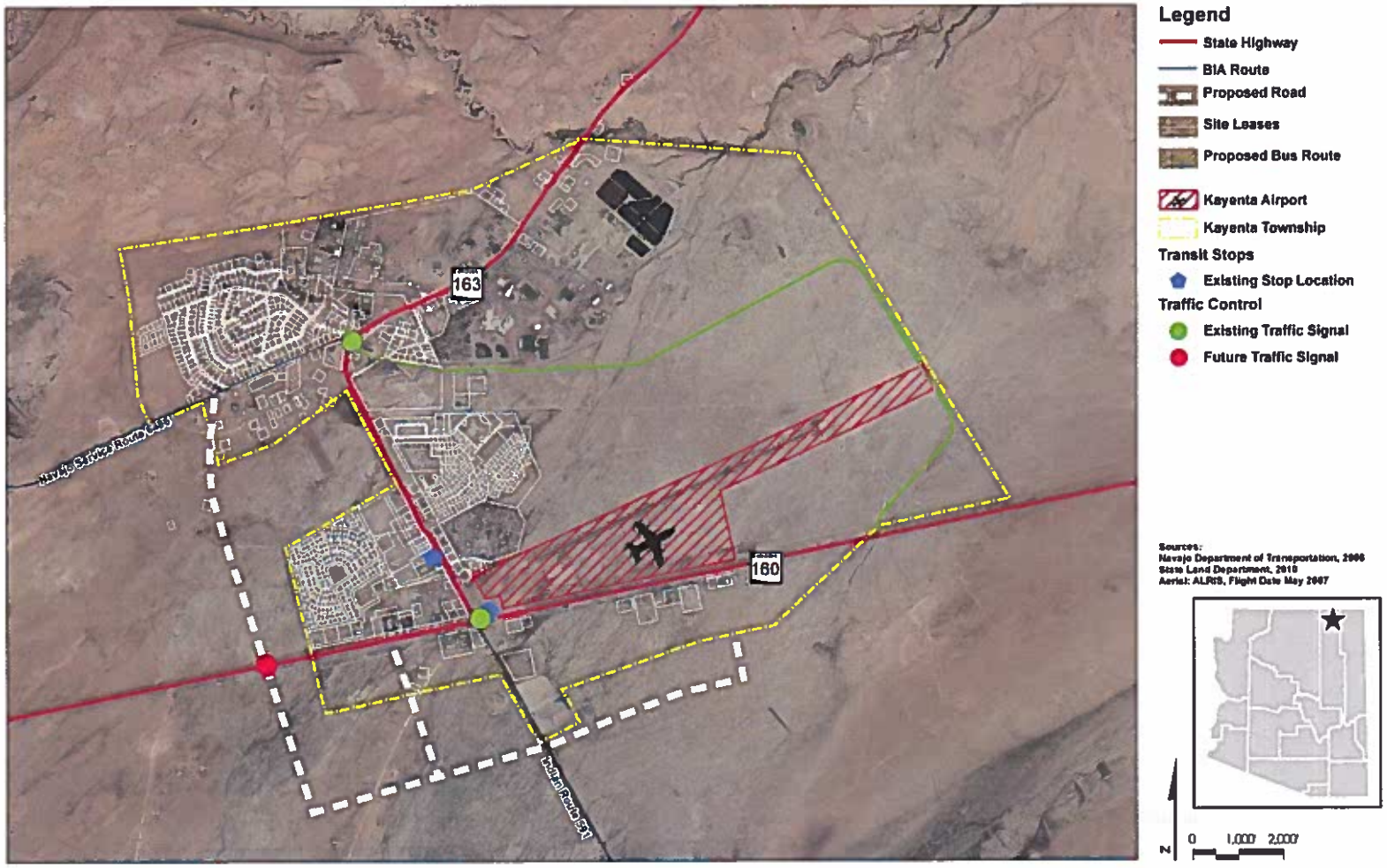


EXHIBIT 16: Existing Roadway Functional Classification

Existing Railroad and Train Services

The Burlington Northern Santa Fe (BNSF) Railroad, a transcontinental railway that connects Los Angeles to Chicago, crosses northern Arizona and New Mexico. The BNSF rail line generally runs east-west just south of the Navajo Reservation boundary except in Arizona through the Nahata Dziil (New Lands) Chapter area, and in New Mexico through the Church Rock Chapter and checkerboard area in the Eastern Navajo Agency, where the BNSF line runs on the reservation.

The Black Mesa and Lake Powell (BLKM) Railroad operates within the western potion of the Navajo Reservation for the sole purpose of transporting coal from a strip mine at Black Mesa to the Salt River Project Navajo Generating Station near Page, Arizona. The generating station provides power to three southwestern states.

Passenger Rail Service

Passenger rail service is provided by Amtrak on the BNSF Railroad line. Amtrak stations closest to the Navajo Nation are in Gallup, New Mexico and in Winslow and Flagstaff, Arizona. Flagstaff had the highest passenger stop/boardings of 39,723 in 2008, while Winslow had 4,767 and Gallup had 12,517. In comparison and based on information in the 2003 LRTP, Flagstaff had the highest passenger stop/boardings of 54,200 in 1993 of 109,700 total passengers boarding in Arizona At the time that figure was anticipated to reach 172,000 by the year 2015, a 57% increase.

Freight Rail Service

Freight service on the BNSF Railroad also stops in Gallup, Winslow and Flagstaff. In 2005, approximately 135,000,000 tons of freight moved by rail in Arizona.4 This compares to 175,000,000 tons in 1993 which at that time was estimated to increase to 275,000,000 tons by 2015. This includes material shipped in crates and containers and bulk materials such as coal, copper ore, and liquids. The 78-mile BLKM Railroad was constructed in 1972 it is isolated and not connected with any other railroad; and it and hauls 8.4 million tons of coal annually. There is a tribal plan to build rail freight access at New Lands for economic development. However, the project is only conceptual. Information on proposed railroad needs is referenced in Chapter 5, NEED 9-Railroads.

Kayenta Airport

Kayenta Airport is a public-use general aviation airport located two miles (3 km) southeast of the central business district of Kayenta, in Navajo County, Arizona. One of the airport's main objective is to serve as a medical evacuation facility.

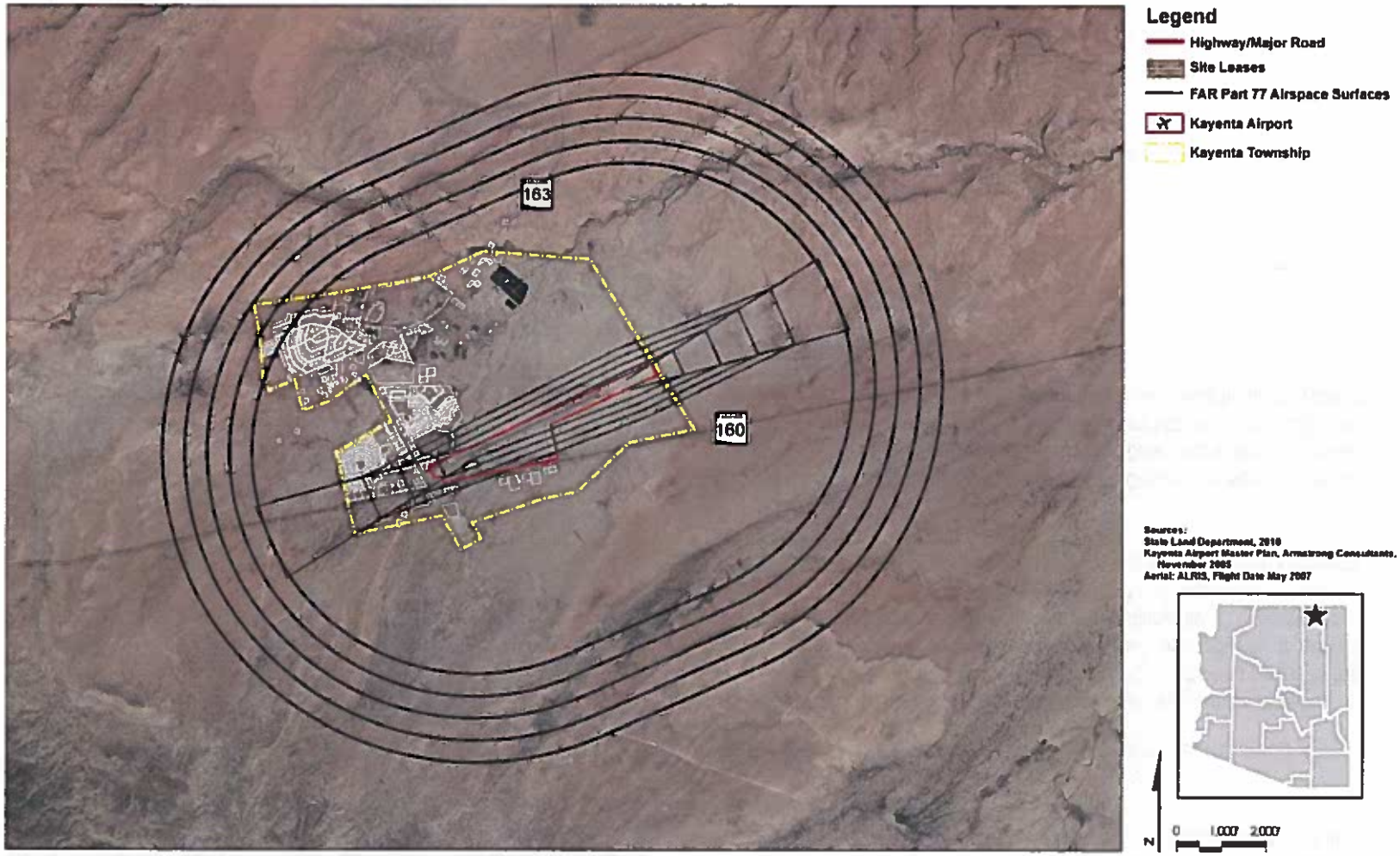
As per Federal Aviation Administration records, records, the airport had 584 passenger boardings (enplanements) in calendar year 2005 and 1,535 enplanements in 2006. According to the FAA's National Plan of Integrated Airport Systems for 2007–2011, Kayenta is a general aviation airport. The commercial service category requires at least 2,500 passenger boardings per year).

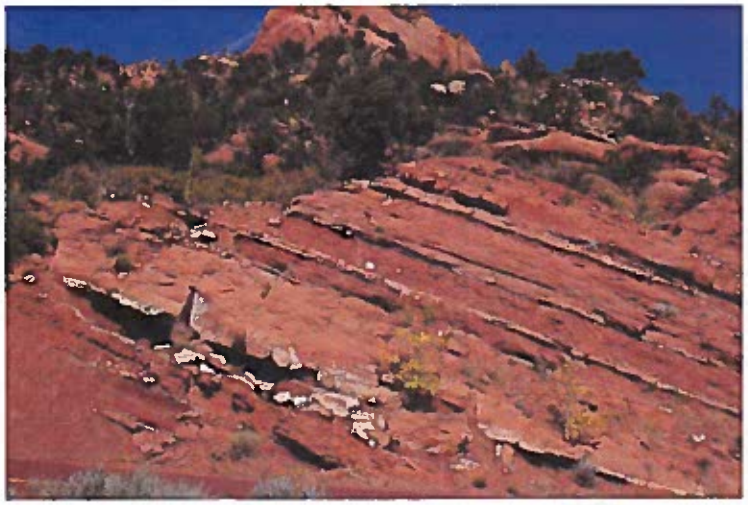
The Kayenta Airport is one of six airports owned by the Navajo Nation. The other five are Chinle Airport (E91), Tuba City Airport (T03) and Window Rock Airport (RQE) in Arizona, plus Crownpoint Airport (0E8) and Shiprock Airport (5V5) in New Mexico.

Facilities and Aircraft

Kayenta Airport covers an area of 140 acres (57 ha) and contains one asphalt paved runway designated 5/23 and measuring 7,140 x 75 ft (2,176 x 23 m). For the 12-month period ending May 4, 2007, the airport had 2,000 aircraft operations, an average of 5 per day. Of this total, 75 percent general aviation and 25 percent air taxi. Exhibit 17 shows Kayenta Airport.

EXHIBIT 17: Kayenta Airport Accident Potential Zones and FAR Air Space Surface





Kayenta Economic Base

This chapter is based on best available data available at the time of preparation of this Comprehensive Plan. Such data includes the study *Economy of the Kayenta Area*, prepared in January 2008 by the Center for Competitiveness and Prosperity Research L. William Seidman Research Institute of the W. P. Carey School of Business, Arizona State University, Tempe. The study was prepared for the Arizona Department of Commerce with funding from the Commerce and Economic Development Commission. Data from 2004 was the most recent available data available at the time of preparation of the 2008 study.

This chapter also includes data provided in the *Kayenta Community Profile* prepared by the Arizona Department of Commerce. Data from 2008 is the most recent available data at the time of preparation of the *Kayenta Community Profile*.

In addition, the U.S. Department of Commerce, Bureau of the Census County Business Patterns was consulted in the preparation of this chapter.

Principal Economic Activities in Kayenta

Services and mining comprise the principal economic activities in Kayenta. Peabody Coal Company owns and operates two mines in the area, Kayenta mine and Black Mesa Mine, as well as a central warehouse. The service sector has grown significantly. This scenic area has motels, restaurants, gasoline service stations, convenience stores, curio shops, trading posts, parks and recreational facilities for tourists' enjoyment.

The 44,700-squarefoot Kayenta Shopping Center houses numerous businesses. Table 14shows principal economic activities in Navajo County by employment sector for 2008. Figures shown on this table are organized under the North American Industrial Classification System (NAICS).

Table 14
Navajo County Principal Economic Activities by Economic Sector
2008

County Employment Sector	2008
Educational and Health Services	3,425
Government	10,800
Financial Activities	600
Information	800
Leisure and Hospitality	2,975
Manufacturing	725
Mining and Construction	2,525
Other Services	625
Professional and Business Services	1,225
Trade, Transportation, and Utilities	5,725

Sources: Arizona Department of Commerce 2011

Economy of the Kayenta Area in 2004

The *Economy of the Kayenta Area* study reports coal mining is the primary activity driving the economy of the Kayenta area. Tourism and the federal government also contribute. Government provides the most employment of any sector in the Kayenta area.

According to this study, one zip code (86033) is used as an approximation for the Kayenta area, one of seven unincorporated areas in the Navajo/Hopi region of Arizona. According to the 2000 decennial census, this unincorporated area consists of 1,549 square miles and had 8,491 residents.

Nearly two-thirds of the residents lived in one of three Census Designated Places: Chilchinbito, Kayenta (which had more than 4,900 residents), and Olijato-Monument Valley. The 2004 population of the Kayenta area, as defined by this zip code, was estimated at 9,276.

Total Employment

Total employment in the Kayenta area was estimated to have been approximately 2,300 in 2004. Total employment was only 249 per 1,000 residents. This figure was 42 to 48 percent less than the national and state averages, but considerably more than the median value of 37 Arizona unincorporated areas.

The demographics of residents of the Kayenta area contributed to this low per capita figure. According to the 2000 census, a much lower-than-average share of the residents were of working age (the proportion of children was very high), a much lower-than-average percentage of the working-age population were part of the labor force, and the unemployment rate was very high. However, the number of jobs located in the Kayenta area (in 2001) was more than the 1,775 employed residents of the Kayenta area counted in the 2000 census. Thus, residents of other communities commuted to the Kayenta area to work.

Agriculture and Government

Agriculture largely is a basic activity that includes agricultural support activities as well as farming and ranching. No agriculture employment is estimated to have been in the zip code of the Kayenta area in 2004.

The government sector represents a mix of basic and non-basic activities. Most federal government employment (both civilian and military) is basic to both the community and the state.

State government employment may be basic to the community, but is it not basic to the state. Similarly, county government and community college employment may be basic to the community (for example, a portion of the employment at the county seat is basic in that some workers serve other communities in the county), but not to the county or the state. Other local government, municipal, tribal, school district and special district, only rarely is basic to a community.

Government employment in the Kayenta area in 2004 was approximately 1,075 — by far the highest of the 20 sectors, accounting for 46 percent of all jobs. Government employment per 1,000 residents was 115 in the Kayenta area. This is 43 to 60 percent more than the national and state averages. Excess employment was around 325 relative to the national average and 400 compared to the state average.

The Navajo Nation's workforce in the Kayenta area is roughly estimated to have been between 275 and 300. This includes tribal enterprises, such as utilities. The federal government employed a similar number, with most working for the Indian Health Service or at Bureau of Indian Affairs schools. The federal and tribal employment figures were largely responsible for government's high location quotient. Federal government and the portion of tribal government funded by federal monies can be considered basic. The federal government and the tribe, along with the Kayenta Unified School District (which employed approximately 450), were among the largest employers in the community.

Table 15
Wage and Salary Employment by Sector Kayenta Area (Zip Code 86033)
2004

Sector	Number of Establishments	Employment	Relative to Nation		Relative to Arizona	
			Location Quotient	Excess Employment	Location Quotient	Excess Employment
Total	**61**	**2,310**	**0.52**	**0**	**0.58**	**0**
Agriculture	0	0	0.00	0	0.00	0
Government	6	1,070	1.43	322	1.60	399
Total, Non-agriculture Private Sector	**55**	**1,240**	**0.34**	**0**	**0.38**	**0**
Mining	2	568	38.24	553	44.54	555
Utilities	0	0	0.00	0	0.00	0
Construction	2	8	0.04	0	0.03	0
Manufacturing	0	0	0.00	0	0.00	0
Wholesale Trade	2	4	0.02	0	0.03	0
Retail Trade	11	191	0.39	0	0.41	0
Transportation and Warehousing	2	32	0.25	0	0.28	0
Information	1	14	0.13	0	0.17	0
Finance and Insurance	1	7	0.03	0	0.03	0
Real Estate and Rental and Leasing	3	15	0.22	0	0.21	0
Professional, Scientific and Technical Services	2	8	0.03	0	0.04	0
Management of Companies and Enterprises	1	72	0.80	0	0.77	0

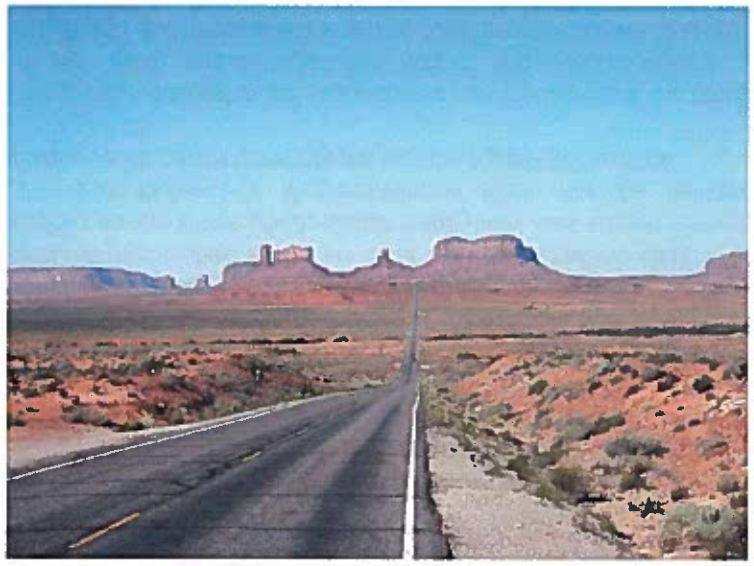
Source: Economy of the Kayenta Area (January 2008) Center for Competitiveness and Prosperity Research L. William Seidman Research Institute, W. P. Carey School of Business,, Arizona State University, Tempe.

Table 15
Wage and Salary Employment by Sector Kayenta Area (Zip Code 86033)
2004
(Continued)

Sector	Number of Establishments	Employment	Relative to Nation		Relative to Arizona	
			Location Quotient	Excess Employment	Location Quotient	Excess Employment
Total	**61**	**2,310**	**0.52**	**0**	**0.58**	**0**
Management of Companies and Enterprises	1	72	0.80	0	0.77	0
Administrative, Support, Waste Management, Remediation Services	1	2	0.01	0	0.01	0
Educational Services	1	32	0.35	0	0.56	0
Health Care and Social Assistance	5	31	0.06	0	0.08	0
Arts, Entertainment and Recreation	1	1	0.02	0	0.02	0
Accommodation and Food Services	11	219	0.64	0	0.62	0
Other Services (except public administration)	8	36	0.21	0	0.28	0
Unclassified Establishments	1	1	0.40	0	0.66	0

Source: Economy of the Kayenta Area (January 2008) Center for Competitiveness and Prosperity Research L. William Seidman Research Institute, W. P. Carey School of Business,, Arizona State University, Tempe.

Notes: Non-agriculture private sector estimated from U.S. Department of Commerce, Census Bureau, Zip Business Patterns 2004. Agricultural production employees, most government employees, railroad employees, self-employed individuals and employees of private households are not included in this data source. The agriculture and government sectors are estimated. The concept of establishment for agriculture and government differs from that used for the non-agriculture private sector.



Non-Agricultural Private-Sector Economy

Non-agriculture private-sector employment in the Kayenta area was approximately 1,250 in 2004. Employment was only 134 per 1,000 residents. This is 62 to 66 percent less than the national and state averages, but more than the median value of the unincorporated areas.

Employment estimates for 2004 for the broad sectors of the Kayenta area economy are shown in Table 15. Other than government, the mining sector provided the most employment. In addition to government, per capita employment was above the national average in the mining sector (see the "location quotient relative to nation" column of the table).

Mining employed substantially more than if the sector's per capita employment had been equal to the national per capita average (see the "excess employment relative to nation" column of the table). Mining is an important export activity.

Per capita employment was far below the national average in other largely basic sectors, including agriculture, manufacturing, wholesale trade, and transportation and warehousing. Tourism had some presence in the Kayenta area with per capita employment 26 percent higher than the U.S. average in the accommodation sub-sector. However, per capita employment was 48 percent below average in the food services sub-sector. Many lodging places have restaurants, which are classified in the accommodation sub-sector. More generally, the location quotient was less than 0.5 in 16 of the 20 sectors, and below 0.25 in 13 of these.

More sectorally detailed data show that six industries provided excess employment of at least 15 in the Kayenta area, five of which have a basic component. By far the most important was the coal mining industry, which in 2004 consisted of one establishment with between 250 and 499 employees and another with between 100 and 249 employees, according to the Census Bureau. These were the two largest private-sector establishments in the area. Local sources report that both of these are Peabody facilities. Pipeline transportation is a related industry, with one employer (Black Mesa Pipeline) of between 20 and 49 in 2004.

Tourists impact the other three industries with excess basic employment, including the hotels and motels industry. The gasoline stations and restaurants industries are partially basic since some of the customers are tourists or other nonresidents passing through the area. Thus, coal mining was the primary activity driving the economy of the Kayenta area. Tourism and the federal government also contributed.

Kayenta Area and Comparison Areas

Employment per 1,000 residents in the Kayenta area in 2004 was 16 percent more than the regional average. The area's per capita employment was the third highest in the Navajo/Hopi region, behind the Fort Defiance-St. Michaels-Window Rock and Chinle areas. In the non-agriculture private sector, employment per 1,000 residents in the Kayenta area in 2004 was 82 percent more than the regional average. This was the second-highest figure in the region, barely less than in the Fort Defiance-St. Michaels-Window Rock area.

Average nonfarm private-sector payroll per employee in the Kayenta area in 2004 was a very high $47,100. This is 30 percent more than the national average, 47 percent higher than the state average, and 69 percent above the regional average. This was the highest figure in the region and second highest in the state.

The Kayenta area's location quotients in mining, transportation, and management of companies and enterprises were the highest in the region. Kayenta ranked average in the remaining sectors, except for health care and educational services, where it ranked last.

Five nearby or otherwise similar unincorporated areas were selected as comparison areas. Per capita employment in the Kayenta area in 2004 was the third highest of the six areas in this comparison group. Per capita non-agriculture private-sector employment was second highest, after Fort Defiance-St Michaels-Window Rock. Average nonfarm private-sector payroll per employee was the highest of the group.

The location quotient in the Kayenta area was the highest of the group in the mining and transportation sectors and second highest in information and accommodations and food services (where it ranked tied with Chinle). It was among the last in manufacturing.

Changes in the Economy Between 2001 and 2004

Between 2001 and 2004, the Kayenta area's employment fell approximately 300 (12 percent), but this is based on rough estimates of the employment by the Navajo Nation. Employment per 1,000 residents dropped, as did the location quotients relative to the national and state averages.

The Kayenta area experienced a lesser decrease of 3 percent in nonfarm private-sector employment between 2001 and 2004, compared to the regional gain of 9 percent, the Arizona average of 5 percent, and the barely positive national change. The location quotient relative to the national average fell 0.02 between 2001 and 2004 in the Kayenta area, similar to the decline in the state's location quotient; the regional average advanced marginally.

The area's employment growth was accompanied by a slight increase in inflation-adjusted payroll per employee. The less than 1 percent rise was a little less than the regional average but better than the decreases in the state and national averages. Some of the sectoral location quotients changed substantially between 2001 and 2004. Large gains were registered in mining and management of companies. In contrast, the location quotient in the accommodation and food services sector fell, due to the hotels and motels industry.

Labor Force Data Kayenta Township

Table 16 shows labor force data for Kayenta Township based on Arizona Department of Commerce and U.S. Bureau of the Census.

Table 16
Navajo County Principal Economic Activities by Economic Sector
2008

Labor Force Data	1990	2000	2008
Civilian Labor Force	1,175	1,554	1,813
Unemployment	37	189	274
Unemployment Rate (percent)	3.1	12.2	15.1

Sources: Arizona Department of Commerce 2011

The U.S. Bureau of the Census Bureau's Population Estimates Program estimated a labor force for Kayenta of 1,551 for the year 2009. This figure shows a decrease in civilian labor force of 262 people from the total 1,813 reported in the 2008 estimates shown on Table 16. Since unemployment and unemployed rate estimates are not currently available for the year 2009, it is hard to make an assessment. However, such decrease in labor force from 2008 to 2009 may be attributed to the current economic climate. An update of the Economy of the Kayenta Area prepared in 2008 and based on 2004 data is recommended.

Currently, major development within the Township includes a prison and a major health care center. These two developments will generate additional employment within the Kayenta Township.

The *Chinle-Many Farms and St. Michaels-Window Rock for Defiance Multimodal Long Range Transportation Study*, which includes the Kayenta Township area, spearheaded by the Arizona Department of Transportation (ADOT) is anticipated to run concurrently with this Comprehensive Plan planning process. The scope of work of this study includes an inventory of current conditions. Such study includes an assessment of demographics and socioeconomic characteristics. The results of such assessment will feed the policy framework of this Comprehensive Plan.

Economic Development Strategy

It is anticipated that government, trade, transportation and utilities, education and health services, leisure and hospitality and mining will continue to be the primary sources of employment.

A successful place-base economic development strategy for Kayenta Township is needed in order to sustain the long-range viability of the township. Such economic development strategy must consider all the placemaking components needed to make Kayenta a destination. It must take into consideration:

- Employment diversification
- Ecotourism (available natural resources)
- Heritage tourism (available cultural resources, including Navajo-centered arts, crafts, music, performing arts, film making, story telling, festivals, healing and spiritual practices
- Emerging clean technologies (potential for solar, wind and other alternative energy)
- Contained farming (green-house based agriculture with lower land and water usage)

Destination Kayenta

Twenty-seven miles north of Kayenta is the Navajo Nation's most famous attraction, Monument Valley Tribal Park. Betatakin, Navajo for "houses in rock shelves," and Keet Seel Ruins are about 20 miles away. The Four Corners area, a junction of Arizona, Utah, Colorado and New Mexico (the only spot in the United States where four states meet) is less than 80 miles away.

Within a 150- mile radius are a variety of parks and recreational facilities: Grand Canyon National Park, Glen Canyon National Recreation Area, Lake Powell and Glen Canyon Dam on the Colorado River. The prehistoric Indian dwellings of Canyon de Chelly National Monument and the monoliths and arches of Monument Valley, Rainbow Bridge National Monument and the Navajo Scenic Area are nearby.

Leisure and hospitality is a major economic activity in the township. Taking competitive advantage of eco-tourism and heritage tourism is necessary to make Kayenta a destination.

Cultural or Heritage Tourism

Cultural heritage tourism (or just heritage tourism) is a branch of tourism oriented towards the cultural heritage of the location where tourism is taking place. The National Trust for Historic Preservation defines heritage tourism as "traveling to experience the places and activities that authentically represent the stories and people of the past." It also defines cultural heritage tourism as "traveling to experience the places and activities that authentically represent the stories and people of the past and present."

Culture has always been a major driver for travelers. Cultural attractions play an important role in tourism at all levels, from the global highlights of world culture to attractions that showcase local identities.

Culture, heritage and the arts create a sense of destination that lures tourists. In recent years 'culture' has been rediscovered as an important marketing tool to attract those travelers with special interests in heritage and arts. Cultural heritage tourism is one of the fastest growing segments of the tourism industry today.

This is correlated to an increase specialization among tourists. This trend is evident in the rise in the volume of tourists who seek adventure, culture, history, archaeology and interaction with local people.

In addition to serving as an economic engine, Cultural heritage tourism has a positive economic and social impact, it establishes and reinforces community identity, it helps preserve the community cultural heritage, and it enriches the human experience by facilitating harmony among a variety of groups.

Cultural heritage tourism has a number of objectives that must be met within the context of sustainable development. These include the conservation of cultural resources, accurate interpretation of resources, authentic visitor experience, and the stimulation of the earned revenues of cultural resources. Therefore, cultural heritage tourism is not only concerned with identification, management and protection of the heritage and cultural values but it must also be involved in understanding the impact of tourism on communities and regions, achieving economic and social benefits, providing financial resources for protection, as well as marketing and promotion.

Cultural or heritage tourism and ecotourism feed each other. Hence, it is necessary to embrace an integrative economic development strategy that markets these two complementary economic activities. Low cost programs such as art studio space, arts and crafts markets and guided horse or jeep tours can be used to lure visitors. The revenue generated by such low cost programs, may be used to generate larger projects such as RV parks for visitors, resorts, healing spas and so on.

Sustainable Ecotourism

The tourism industry defines sustainable eco-tourism as "environmentally responsible travel to relatively undisturbed areas, to enjoy and appreciate nature and accompanying cultural features and to become aware of the need for preserving natural capital and cultural capital. Ecotourism should have low visitor impact and should contribute to the well-being of local populations." Many global environmental organizations and aid agencies favor ecotourism as a vehicle to sustainable development.

Sustainable ecotourism must satisfy the following criteria:

- Conserve, protect and preserve biological diversity and cultural diversity through ecosystem protection;
- Promote sustainable use and best practices of biodiversity by providing jobs to local populations;
- Share socio-economical benefits with local communities and by having their informed consent and participation in management of ecotourism business;
- Increase awareness and knowledge of environmental and cultural resources;
- Minimize tourism's own environmental impact; and
- Promote affordability

For many communities, ecotourism is not so much seen as a marginal activity intended to finance protection of the environmental infrastructure than as a major sector of national economy and as a means of getting currencies. For example, in countries such as Kenya, Ecuador, Nepal, Costa Rica, and Madagascar, ecotourism represents a significant chunk of foreign revenue.

Critics claim that ecotourism as practiced and abused often consists in placing a hotel in a splendid landscape, to the detriment of the ecosystem. Ecotourism must above all sensitize people with the beauty and the fragility of nature. Using the label of "eco-tourism" and "green-friendly", while behaving in environmentally irresponsible ways is not conducive to sustainability. Policy direction for the establishment of sustainable best practices is necessary to ensure that the environmental infrastructure and the long-range sustainability of the township are protected.

Emerging Clean "Green" Technologies

Setting an example, Kayenta was the fourth community in the country to adopt the International Green Construction Code. As a result, the community has been asked to join a work group being facilitated by the International Code Council (ICC) to assist other communities in the nation in the adoption and enforcement of this code. Nationwide, government initiatives are creating growth in the green industry. With a projection of five million new green jobs in the next decade, embracing today's emerging technologies could be the pathway to a stable, rewarding and a sustainable economy.

The federal government is funneling funds to solar and wind generation, as well as weatherization and climate change programs. The U.S. Green Building Council, Leaders in Energy and Environmental Design (LEED) is providing a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

With increased public awareness and available government funding, more and more people are turning towards careers in today's emerging green technologies.

Several hundred cities and local governments around the world are actively planning or implementing renewable energy policies. This means that the demand for qualified professionals is going to grow even further. Sustainable building, solar PV systems and other renewable energy fields will provide the pathway to a solid, reliable, and sustainable future that makes a difference every day. It is important for the Township to embrace these new technologies to create a sustainable economy.

Solar Power

In a world where demand for energy is growing as non-renewable supplies are diminishing, many nations are rapidly developing renewable energy sources as a way to secure their future energy demand. In 2008, the world's solar photovoltaic market installations reached a record high of 5.95 Gigawatts, representing growth of 110% over the previous year.

Europe accounted for 82 percent of world demand, while Spain's growth of 28.5 percent pushed Germany into second place in the market ranking. The United States advanced to number three, and rapid growth in Korea allowed it to become the fourth largest market, closely followed by Italy and Japan.

Even with these tremendous growth increases, cumulative solar energy production accounts for less than 0.01 percent of total Global Primary Energy demand. As technology for solar energy advances and the costs are lowered, research has confirmed that the Asia Pacific, European and United States are projected to have strong growth over the next five years.

Resulting from the increasing attraction of solar energy as the world's future primary energy source, global, national, state and local organizations have launched campaigns to help bring solar energy development into the next century. These organizations advance energy efficiency, promote renewable energies, and provide research and policy analysis in solar energy technologies.

In 2010, the US Bureau of Land Management (BLM) launched an aggressive program to build large scale solar generating fields on BLM owned lands within the states of Arizona, California, New Mexico and Nevada.

The National Renewable Energy Laboratory (NREL) recently released a study showing the solar potential of states in the Southwest, and in particular, Arizona. Arizona has long been known for its sunny, dry climate, receiving a total of 296 days of sunshine annually. Although Arizona currently lags behind others in solar energy deployment, the vast natural resource offers tremendous potential in solar energy development and production.

In addition to solar energy deployment-related revenues, solar fields may incorporate research and development in association with a college or university research campus or station as well as assembly and manufacturing uses fostering technology development from the laboratory to the marketplace. As discoveries are made in research and development facilities, solar energy companies can rapidly move new technologies into the marketplace, providing consumers with up-to-the-minute market-based solutions and communities with additional revenue sources. This combined economic development strategy enhances opportunities for local employment and increases the sustainability of the community.

Utility-Scale Wind Power

Utility-scale wind power in Arizona began in 2009 with the commissioning of the first phase of the Dry Lake Wind Power Project in Navajo County. On February 11, 2010, the National Renewable Energy Laboratory released the first comprehensive update of the wind energy potential by state since 1993, showing that Arizona had potential to install up to 10.9 GW of onshore wind power nameplate capacity, generating 30.6 Terawatt per hour (TWh) annually.

For comparison, Arizona consumed 69.391 TWh of electricity in 2005; the entire U.S. wind power industry was producing at an annual rate of approximately 50 TWh at the end of 2008; Arizona's Palo Verde Nuclear Generating Station produced 26.782 TWh in 2007; and Three Gorges Dam, the world's largest electricity-generating station, produced an average of 80 TWh/yr in 2008 and 2009.

Continue to invest in utility-scale solar and wind power generation facilities will be beneficial to the township as well as to the Navajo Nation.

Land Use Determination

Prior to determining what types of future land use designations are appropriate for a site or community, an extensive analysis of site opportunities and constraints must be conducted to determine the amount of developable land available for development. Such analysis includes detail studies completed in the previous chapters of this document and encompass the following:

- Topography and Land Forms
- Soils Types
- Hydrology, Water Flows and Drainage
- Washes and Riparian Corridors
- Wildlife Corridors and Vegetative Communities
- Community Facilities Needed to Support the Current and Future Populations (Recreation, Parks, Trails, Open Space, Schools, Libraries, Police, Fire Protection, Emergency Management Services)
- Existing Transportation Network Needed to Support the Current and Future Populations
- Utilities and Infrastructure Needed to Support Current and Future (Water, Sewer, Solid Waste, Electricity, Gas, Alternative Energy Sources)
- Existing Airports' Runways, Accident Potential Zones, and Noise Contours.
- Existing Land Use Patterns
- Population projections

Once the opportunities and constraints analysis is completed and maps are generated a report is prepared summarizing all these conditions and identifying areas that can support different types of land uses. This chapter summarizes existing developable land based on an analysis of existing vacant land.

After this stage, planners engage the community in a visioning process to determine what type of development is desired by the community in question. Once the community agrees on a vision statement that summarizes the desires of the community regarding the types of land uses, planners recommend one or few scenarios based on the public input and on the analysis of opportunities and constraints.

Type of land uses varied from community to community as they are tied to site opportunities and constraints, local and regional economic trends, population being served and community desires.

Kayenta Township Existing Land Uses

The developed areas are located in the lower elevations of the watershed. The Kayenta Unified School District and Kayenta Community School complexes include school buildings and housing. U.S. Public Health Service housing, B.I.A. Kayenta Boarding School, Kayenta Chapter House, Kayenta Field house, various commercial facilities and houses located on the "hill" make up the urban development. Industrial land use is at a minimum and commercial land uses account for the majority of the business along the US Highway 163 and 160 corridors. The remaining land areas are parks, public facilities, airport, roadways, and undeveloped land. Table 17 shows acreage for all existing land use categories within the Township. Exhibit 17 shows existing land uses. Exhibit 18 shows commercial uses and retail inventory within Kayenta Township.

EXHIBIT 17: Kayenta Township Existing Land Uses

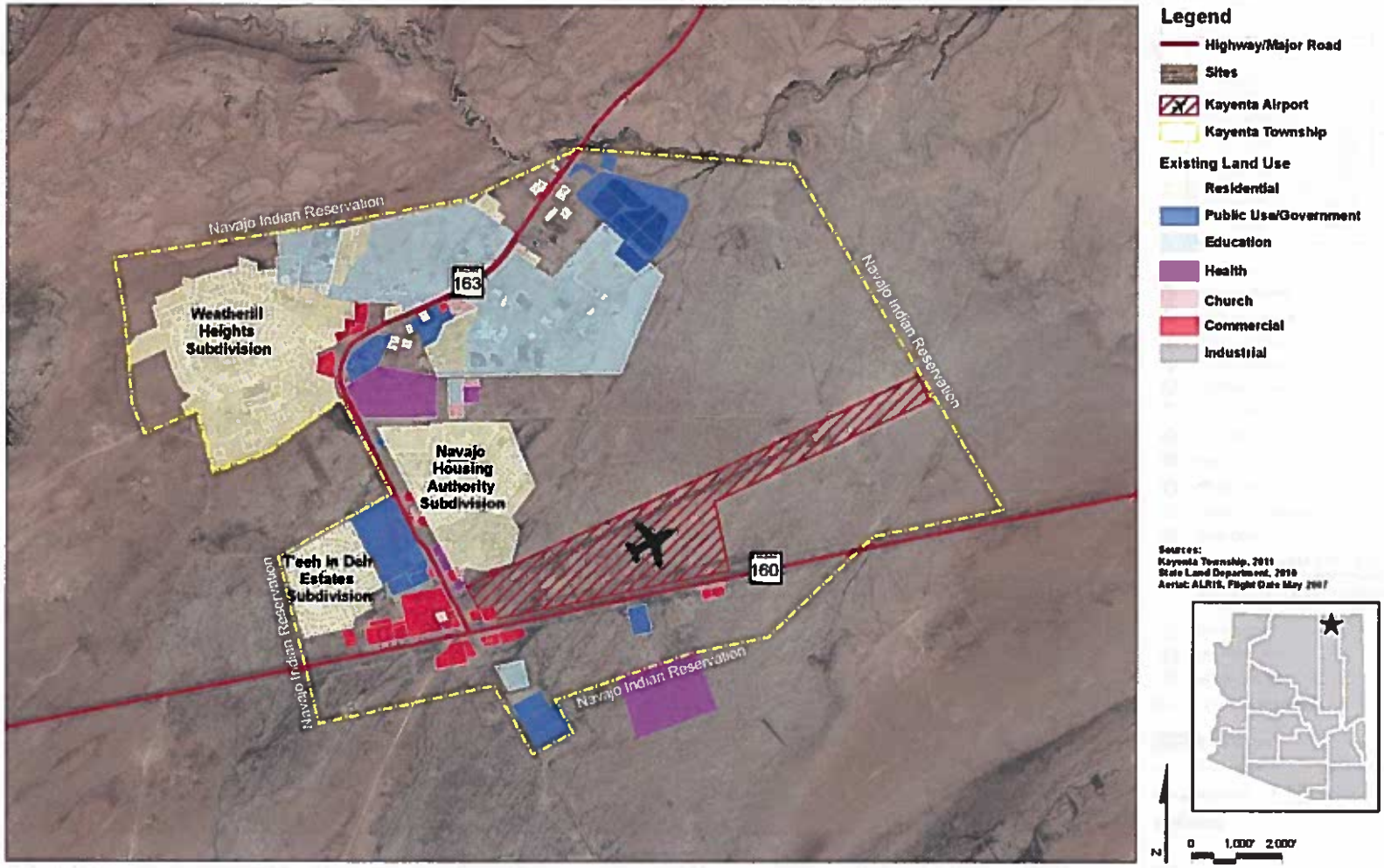


EXHIBIT 18: Kayenta Township Existing Commercial and Retail Uses (Retail Inventory)

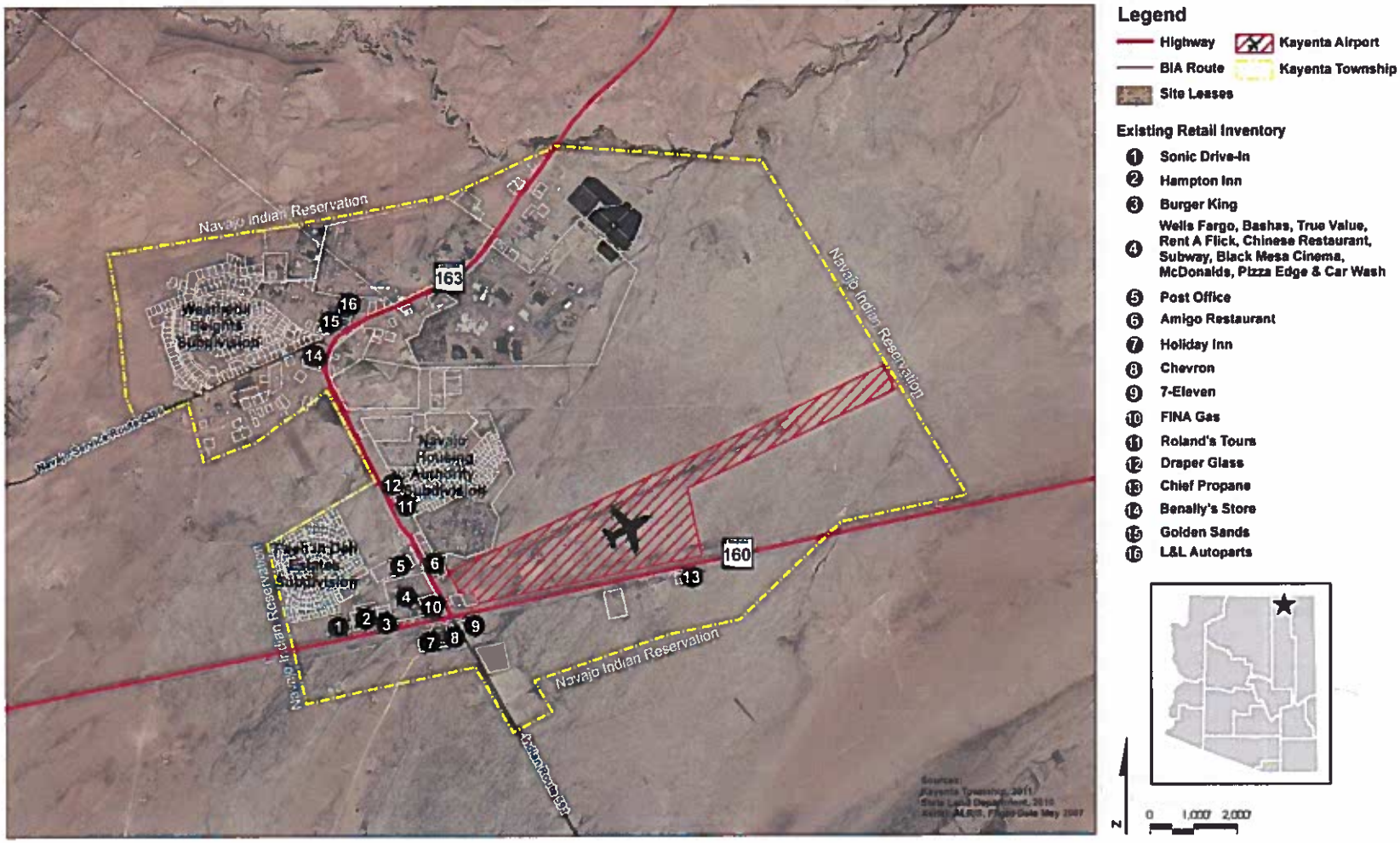


Table 17
Existing Land Uses Within Township Boundary
2011

Land Use	Acres	Percent
Residential	623	17.3
Education	414	11.5
Kayenta Airport	267	7.4
Government	172	4.7
Commercial	70	1.9
Health	50	1.4
Church	11	0.3
Industrial	2	0.1
Vacant	1,995	55.4
Total	**3,604**	**100**

Sources: Existing Land Use Inventory, The Planning Center, 2011

Note: Total does not include 59 acres located outside the Township.

Existing Land Use Analysis

As shown on Table 17, of the total 3,604 acres within the Township, approximately 2,262 acres, or 62.8 percent, are vacant lands and 1,342 acres, or 37.2 percent, are developed lands.

Of the total 3,604 acres within the Township, approximately 623 acres, or 17.3 percent, are residential land uses; approximately 414 acres, or 11.5 percent, are education land uses; approximately 267 acres, or 7.4 percent, are airport uses; approximately 172 acres, or 4.7 percent are government uses, approximately 70 acres, or 1.9 percent are commercial land uses; approximately 50 acres, or 1.4 percent are health care facility uses; approximately 11 acres or 0.3 percent, correspond to churches; approximately 2 acres, or 0.1 percent are industrial land uses; and approximately 1,995 acres, or 55.4 percent correspond to vacant or undeveloped lands.

The new health care facility located outside the Township boundary encompasses 59 acres of land. Parks and recreation are primarily within educational facilities, therefore, a separate acreage for this land use was not provided.

Commercial, Industrial and Retail Uses

In Kayenta Township, existing commercial, industrial and retail uses are primarily located along highway corridors 160 and 163 as shown on Exhibits 18 and 19. An opportunity exists for development a major activity node at the intersection of both highways. Additional opportunities for commercial and industrial development exist in proximity to the Kayenta Airport as provided in conformance with the Kayenta Airport Master Plan.

Analysis of Vacant and Developable Land

Vacant or undeveloped land includes flood prone areas shown on Exhibits 4, Watercourses, Major Washes and Floodplains, provided in the Opportunities and Constraints chapter of this document. Development within floodplain areas needs to conform to all applicable FEMA regulations for development within the floodplains, if the Township decides to pursue flood insurance FIRM status from FEMA.

Opportunities for the development of an integrated trail system along major washes exist along major washes. Table 18 shows analysis of developable lands based on opportunities and constraints analyzed in the Opportunities and Constraints chapter of this document.

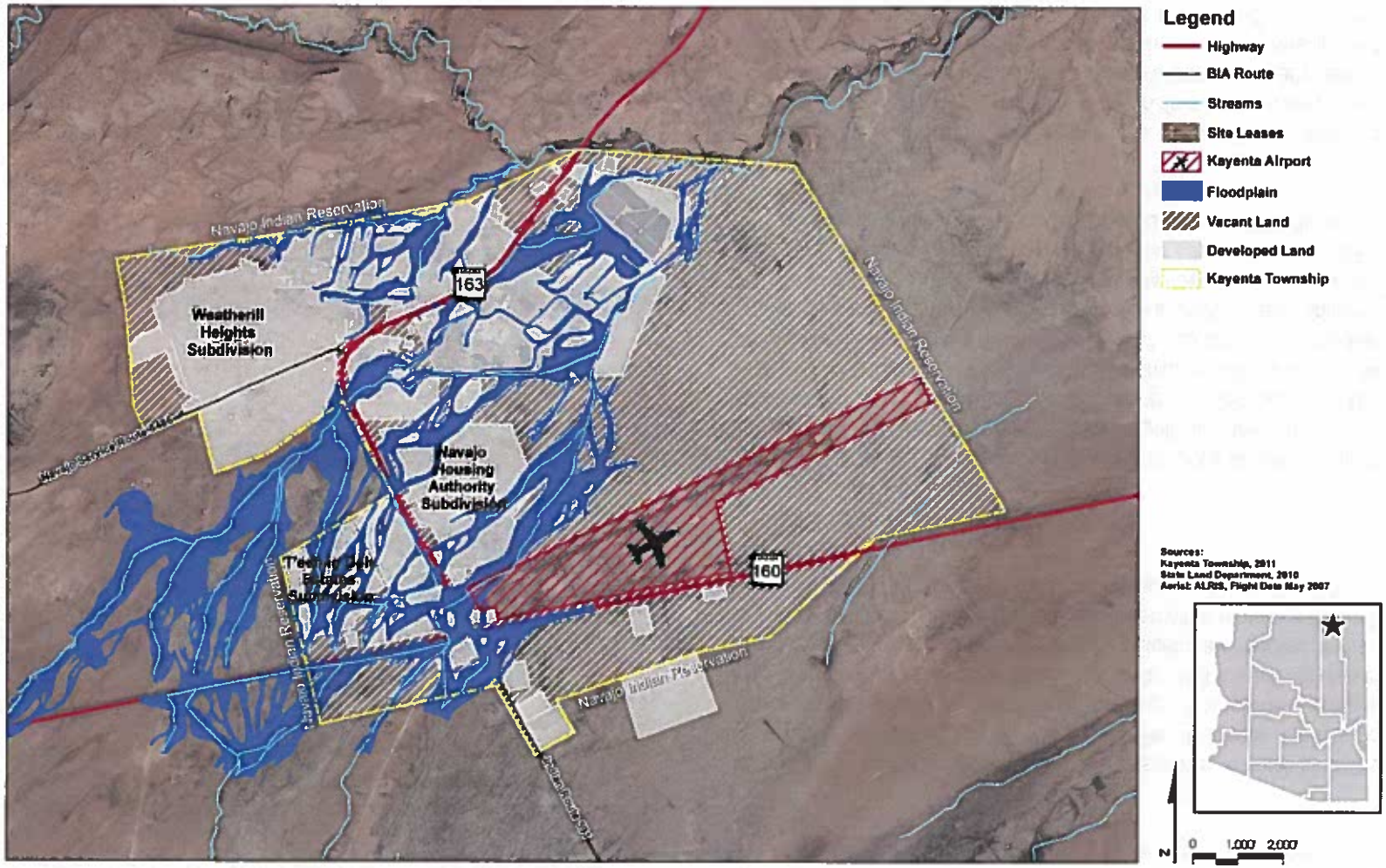
Table 18
Analysis of Vacant and Developable Lands
2011

Land Use	Acres	Percent
Vacant Land Outside Floodplain	1,727	86.6
Vacant Land Inside Floodplain	268	13.4
Total	**1,995**	**100**

Sources: Vacant Land Inventory, The Planning Center, 2011

As shown on the Table 18, of the total 1,995 acres of vacant or undeveloped land, approximately 1,727 acres, or 86.6 percent constitute vacant lands immediately available for development; and 268 acres, or 13.4 percent, includes vacant lands currently included within floodplains. Development within these lands must meet FEMA criteria, if the Township decides to pursue FIRM status with FEMA. Vacant lands within the floodplain provide opportunities for regional trail system and wildlife corridors. Exhibit 19 shows development potential based on this analysis of vacant land.

EXHIBIT 19: Development Potential



Kayenta Township Demographic Profile

Although the decennial census was completed in 2010 by the US Bureau of the Census, the most recent available data for Kayenta Township are the 2008 UA Bureau of the Census population estimates. According to such data, the 2008 population was estimated at 4,694 people. This represents a decrease of 228 persons from the 2000 census counts provided in Table 19.

Table 19
Kayenta Township, Navajo County and Arizona
Population Comparisons1990 and 2000 Counts and
2008 Estimates

Location	1990	2000	2008
Kayenta	4,372	4,922	4,694
Navajo County	77,674	97,470	114,780
Arizona	3,665,228	5,130,632	6,629,455

Sources: 1990 and 2000 Population Counts and 2008 Population Estimates, U.S Bureau of the Census; Kayenta, Community Profile, Arizona Department of Commerce, 2010.

Socio-economic Characteristics

According to the US Bureau of the Census 2005-2009 American Family Survey 5-Year Estimates Data Profile Highlights, the average household size for Kayenta during the 2005-2009 period was 3.72 persons, or 1.12 higher than the U.S. average household size of 2.60 persons.

According to the same source, the average family size in Kayenta was 4.30 persons, or 1.11 higher than the U.S. average family size of 3.19 persons.

Of the total 4,694 population living in households, a total of 2,526 persons, or 53 percent, are 25 years and older. Currently, there is no group quarter population within the Township. The civilian veterans population 18 years or older is 187 persons. Of the total population living in households, 621 persons, or 13.2 percent, are married women 15 years and older and 556 persons, or 11 percent are married men 15 years or older. A total of 3,179 speak a language other than English.

Economic Characteristics

According to the US Bureau of the Census 2005-2009 American Family Survey 5-Year Estimates Data Profile Highlights, the labor force population 16 years and older for this period is 1,551 persons. The median household income in 2009 inflation-adjusted dollars was 35,94 dollars, or 15,476 dollars lower than the 51,425 dollar U.S median household income. The median family income in 2009 inflation-adjusted dollars was 37,116 dollars, or 25,247 dollars lower than the 62,363 dollar U.S. median household income. The per capita income in 2009 inflation-adjusted dollars for the same period was 12,336 dollars, or 14,705 dollars lower than the U.S. per capita income.

Based on the same data source and time period, 26.6 percent of families within Kayenta Township lived below the poverty level compared to the 9.9 percent of families living under the poverty level in the U.S. and 27.4 percent of individuals within Kayenta Township lived under the poverty level compared to the 13.5 percent individuals living under the poverty level in the U.S.

Housing Characteristics

According to the US Bureau of the Census 2005-2009 American Family Survey 5-Year Estimates Data Profile Highlights, there were a total of 1,767 housing units within Kayenta Township. Table 20 shows housing characteristics.

Table 20
Kayenta Township Housing Characteristics
Compared to U.S. Housing Characteristics
2005-2009 Period

Housing Units	Estimate	Kayenta (Percent)	U.S. (Percent)
Occupied Units	1,261	71.4	88.2
Owner-occupied Units	639	50.7	66.9
Renter-occupied Units	622	49.3	33.1
Vacant Housing Units	506	28.6	11.8
Total Housing Units	1,767		

Source: US Bureau of the Census 2005-2009 American Family Survey 5-Year Estimates Data Profile Highlights.

According to the same source and time period, the median value of owner-occupied homes in Kayenta Township is 58,000 dollars, or 127,400 dollars lower than the 185,400 U.S. median value of owner-occupied homes.

Other Demographic Estimates

According to the US Bureau of the Census 2005-2009 American Family Survey 5-Year Estimates Data Profile Highlights, of the total 4,675 population, a total of 2,440 are female and a total of 2,254 are male. The median age in years is 27 compared to the U.S. median age in years of 36.5 years. Table 21 shows age distribution of the Kayenta population during the 2005-2009 period.

Table 21
Kayenta Township Age Distribution
2005-2009 Period

Housing Units	Estimate	Kayenta (Percent)	U.S. (Percent)
Under 5 years	371	7.9	6.9
18 Years and Over	2,947	62.8	75.4
65 Years and Over	177	3.8	12.6
Total Population	4,675		

Source: US Bureau of the Census 2005-2009 American Family Survey 5-Year Estimates Data Profile Highlights.

Table 22

Kayenta Township Race Distribution
2005-2009 Period

Housing Units	Estimate	Kayenta (Percent)	U.S. (Percent)
White	342	7.3	74.5
Black or African American	29	0.6	12.4
American Indian and Alaska Native	4,304	91.7	0.8
Asian	0	0.0	4.4
Native Hawaiian and Other Pacific Islander	0	0.0	0.1
Some other race	0	0.0	5.6
Two or more races	19	0.4	2.2
Hispanic or Latino (of any race)	119	2.5	15.1
Total Population	4,675		

Source: US Bureau of the Census 2005-2009 American Family Survey 5-Year Estimates Data Profile Highlights.

As provided in table 22 and according to the US Bureau of the Census 2005-2009 American Family Survey 5-Year Estimates Data Profile Highlights, of the total 4,675 persons living in Kayenta Township, 4,304, or 92 percent, are Navajo people. The remaining 8 percent is primarily composed of white and Hispanic/Latino or any race.


Legend
Contours (50' Intervals)
Highway/Major Road
Site Leases
Kayenta Airport
Kayenta Township
Sources:
State Land Department, 2010
Aerial: AL/RS, Flight Date May 2007
163
160
5750'
5700'
5650'
5600'
5850'
5800'
5900'
0 1,000' 2,000'
N

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Application for Participation in the National Flood Insurance Program (FEMA Form 81-64):

This one-page form asks for the following information:

- Community name
- Chief Executive Officer
- Person responsible for administering the community's floodplain management program
- Community repository for public inspection of flood maps
- Estimates of land area, population, and number of structures in and outside the floodplain

Resolution of Intent: The community must adopt a resolution of intent, which indicates an explicit desire to participate in the NFIP and commitment to recognize flood hazards and carry out the objectives of the Program.

Floodplain Management Regulations: The community must adopt and submit floodplain management regulations that meet or exceed the minimum floodplain management requirements of the NFIP. Follow this link to see FEMA's regulations: www.fema.gov.

For more information about joining the program:
Please read *Joining the National Flood Insurance Program* at http://www.fema.gov/library/viewRecord.do?id=3310

Please contact FEMA Regional Office or the NFIP State Coordinating Agency for information about joining the Program. These offices will provide an application, sample resolution, and a model floodplain management ordinance.

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