

Table of Contents

1.0 Introduction.....	1-1
1.1 Plan Purpose.....	1-1
1.2 Former Bennett Freeze Area (FBFA) History	1-1
1.3 Location Map	1-3
1.4 Scope of Work	1-4
1.5 Chapter Description	1-4
1.6 Public Participation Process and Planning Process	1-7
1.6.1 Public Participation.....	1-7
1.6.2 Planning Process	1-7
2.0 Existing Conditions – Community Assessment	2-1
2.1 Demographics and Community Profile	2-1
2.1.1 Population	2-1
2.1.2 Income.....	2-7
2.1.3 Poverty Status	2-8
2.1.4 Housing.....	2-8
2.1.5 Employment and Unemployment	2-13
2.1.6 Education	2-13
2.1.7 Health and Public Safety.....	2-14
2.1.8 Community Facilities, Parks, and Recreation.....	2-14
2.2 Local Economy	2-15
2.2.1 Jobs by Sector	2-16
2.2.2 Major Employers	2-16
2.2.3 Class of Workers.....	2-17
2.2.4 Commute Time	2-17
2.2.5 Local Businesses.....	2-17
2.2.6 Household purchases	2-18
2.2.7 Tourism	2-20
2.3 Land and Water Resources	2-28
2.3.1 Land Status.....	2-28
2.3.2 Preliminary Environmental Assessments	2-32
2.3.3 Land Suitability and Chapter Resources.....	2-40
2.4 Infrastructure and Utilities	2-46
2.4.1 Water Systems	2-46
2.4.2 Wastewater.....	2-51
2.4.3 Electric Utilities	2-53
2.5 Transportation, Roads, and Accessibility	2-57
2.5.1 Roads.....	2-57
2.5.2 Air Transportation.....	2-60
3.0 The Development Plan	3-1
3.1 Vision.....	3-1
3.2 Development Issues	3-3
3.2.1 Generation Gap	3-3
3.2.2 Legal Restrictions	3-3
3.2.3 Educated Resources Scarce.....	3-3

3.2.4 Lack of Funding.....	3-4
3.2.5 Remote Resources.....	3-4
3.3 Strategic Directions.....	3-4
3.3.1 Using Resourcefulness & Initiative.....	3-4
3.3.2 Improving Accessibility and Amenities in Remote Areas.....	3-4
3.3.3 Closing the Gap.....	3-5
3.3.4 Forming Proactive Political Involvement.....	3-5
3.3.5 Building Positive Community Teamwork.....	3-5
3.3.6 Pursuing Community Service and Training.....	3-5
3.4 Development Principles.....	3-6
3.5 Community Needs Assessment.....	3-7
3.5.1 Infrastructure and Utility Needs.....	3-7
3.5.2 Transportation Needs.....	3-8
3.5.3 Housing Needs.....	3-8
3.5.4 Health and Public Safety Needs.....	3-9
3.5.5 Community Facilities, Parks, and Recreation Needs.....	3-10
3.5.6 Economic Development Needs.....	3-11
3.5.7 Education Needs.....	3-11
3.5.8 Open Space, “Areas of Avoidance,” and Grazing Needs.....	3-12
3.6 Actions.....	3-13
3.6.1 Priority Capital Improvement Projects.....	3-13
3.6.2 Proposed Infrastructure Projects to Support the Community Vision.....	3-13
3.6.3 Priority Implementation.....	3-14
3.7 Preferred Development Sites.....	3-18
3.7.1 Community Land-Use Map.....	3-19
3.7.2 Preliminary Site Sketches.....	3-20
4.0 Priority Capital Improvements Summary	4-1
4.1 Chapter Infrastructure and Capital Improvement Plan.....	4-1
4.1.1 Housing.....	4-3
4.1.2 Education.....	4-7
4.1.3 Health and Public Safety Facilities.....	4-9
4.1.4 Community Facilities, Parks, and Recreation.....	4-11
4.1.5 Infrastructure & Utilities.....	4-14
4.1.6 Transportation.....	4-16
4.2 Economic Development.....	4-17
4.2.1 Business Centers.....	4-21
4.2.2 Rural Development.....	4-21
4.2.3 Tourism Development.....	4-22
4.3 Priority Implementation.....	4-22
4.3.1 Chapter Projects.....	4-26
4.3.2 Regional Projects.....	4-27

Appendix

5.0 Appendices

- 5.1 Criteria for Field Team Assessments
- 5.2 Community Participation Details
- 5.3 Methodology for Calculating Retail Expenditure Potential
- 5.4 Soil Type Descriptions
- 5.5 Capital Improvements Details
- 5.6 Resources

**Appendices are located on the enclosed CD. Each appendix can be found in the Appendix folder on the disk within a folder with the corresponding Appendix name and number.*

Table of Figures

Figure 1: Bodaway-Gap Chapter Location	1-3
Figure 2: Chapter Boundary Conflicts	1-6
Figure 3: Bodaway-Gap Chapter Population Growth Projections.....	2-1
Figure 4: Bodaway-Gap Chapter Population by Age and Gender 2000	2-2
Figure 5: Bodaway-Gap Chapter Population by Age and Gender 2010	2-2
Figure 6: Bodaway-Gap Chapter Population by Age and Gender 2020	2-3
Figure 7: Bodaway-Gap Chapter Population Growth by Percentage	2-4
Figure 8: Navajo Nation Population Growth by Percentage	2-4
Figure 9: Bodaway-Gap Chapter Race and Ethnicity	2-6
Figure 10: Race and Ethnicity by Percentage	2-6
Figure 11: Housing Conditions	2-12
Figure 12: Former Bennett Freeze Area Regional Tourism	2-24
Figure 13: Grazing Districts.....	2-30
Figure 14: Grazing, Agriculture, and Areas of Avoidance	2-31
Figure 15: Topography	2-33
Figure 16: Wildlife Areas	2-38
Figure 17: Water Resources Map	2-41
Figure 18: Water Infrastructure	2-48
Figure 19: Water Source for Homes	2-49
Figure 20: Home Water Facilities.....	2-50
Figure 21: Wastewater Utilities	2-52
Figure 22: Electrical Utilities.....	2-54
Figure 23: Infrastructure and Utilities.....	2-56
Figure 24: Road Conditions	2-58
Figure 25: Road Surface Type	2-59
Figure 26: Community Facilities	2-61
Figure 27: Preferred Development Sites.....	3-19
Figure 28: Bitter Springs Planned Future Development.....	3-20
Figure 29: Cedar Ridge Planned Future Development	3-21
Figure 30: Hidden Springs Planned Future Development	3-22
Figure 31: Navajo Springs Planned Future Development	3-23

Figure 24: Houses Surveyed	4-4
Figure 33: Potential Development Sites	4-20
Figure 34: Strategic Implementation	4-24

List of Tables

Table 1: Median Age	2-5
Table 2: Types of Households	2-5
Table 3: Income	2-7
Table 4: Poverty Status	2-8
Table 5: Housing Occupancy.....	2-9
Table 6: Types of Units.....	2-9
Table 7: Year Structure Built.....	2-10
Table 8: House Heating Fuel	2-10
Table 9: Telephone Service	2-11
Table 10: Plumbing Facilities	2-11
Table 11: Housing Conditions	2-11
Table 12: Employment Status.....	2-13
Table 13: Educational Attainment	2-13
Table 14: Summary of Educational Attainment	2-13
Table 15: Enrollment by Type of School.....	2-14
Table 16: Employment by Industry	2-16
Table 17: Major Employers	2-16
Table 18: Class of Workers.....	2-17
Table 19: Commute Time	2-17
Table 20: Average Annual Expenditures in the Western U.S, 1999-2000	2-18
Table 21: Expenditure Potential.....	2-20
Table 22: Trip Activities.....	2-21
Table 23: Average Visitor Expenditures.....	2-21
Table 24: Length of Stay.....	2-21
Table 25: 2007 AADT on Highway 89.....	2-25
Table 26: Time and Distance to Tourist Destinations	2-25
Table 27: Infrastructure Needs.....	3-8
Table 28: Housing Needs.....	3-9
Table 29: Health and Public Safety Needs	3-10
Table 30: Community Facility Needs	3-10
Table 31: Education Needs	3-11
Table 32: Approximate Cost Element Percentages	4-1
Table 33: Approximate Cost Element Percent of Construction Cost by Project Type.....	4-2
Table 34: Housing Cost Estimates.....	4-7
Table 35: Education Cost Estimates	4-9
Table 36: Health Facility Cost Estimates.....	4-10
Table 37: FBFA Regional Health Projects	4-10
Table 38: Public Safety Facility Cost Estimates.....	4-11
Table 39: Regional Funding for 911 Addressing.....	4-11
Table 40: Community Facility Cost Estimates	4-12

Table 41: Recreational Facility Cost Estimates	4-13
Table 42: Funding for Historic and Archaeological Preservation	4-14
Table 43: Vegetation and Wildlife Study	4-14
Table 44: Uranium Contamination Remediation.....	4-14
Table 45: Water and Wastewater Projects	4-15
Table 46: Communications Improvement Study	4-15
Table 47: Funding for Regional Solid Waste Plan	4-16
Table 48: Regional Road Transportation Projects	4-17
Table 49: Project Locations	4-19
Table 50: Regional Agriculture Projects.....	4-22
Table 51: Regional Rural Economic Development	4-22

1.0 Introduction

1.1 Plan Purpose

The purpose of this Comprehensive Land Use Plan (CLUP) is to present interconnecting issues that are facing the Bodaway-Gap Chapter (hereafter referred to as “the Chapter”). The CLUP gathers information that will help guide future development and policies on tribal land. With this information, the Chapter can make better future decisions concerning budgeting, capital improvements, and land use in order to reach the community’s goals and achieve its vision.

The CLUP is a collection of information from the Chapter, federal, state, and local governments that has been compiled into one document. The focus of the CLUP is providing for housing, coordinating infrastructure development, protecting open space, designating commercial areas, and prioritizing needed community facility improvements. This plan includes an emphasis on projects needed for a recovery from the former Bennett Freeze.

The CLUP uses a consensus-building process to facilitate present and future land use decisions. This process establishes a unified set of policies to guide future land use decisions regarding residential subdivision plans, capital improvement projects, recreation and infrastructure plans, zoning districts, and variance appeals.

1.2 Former Bennett Freeze Area (FBFA) History

Approximately 466,725 acres (83 percent) of the Chapter are located within an area that was prohibited from any development or building repairs without express approval from both the Navajo and Hopi tribes following a long-standing land dispute that resulted in the former so-called Bennett Freeze.

The Bennett Freeze, or section 10(f) of Public Law 93-531, arose from a decades-long land dispute between the Navajo Nation and the Hopi Tribe. The dispute began after the United States delineated the boundaries of the Hopi Reservation in 1882, which excluded some Hopi villages, farmlands, and sacred places. In 1934, the United States defined the boundaries of the Navajo Reservation on its western side, and a portion of the Hopi Tribe’s 1882 Reservation, known as District 6, was reserved exclusively for use by the Hopi Tribe.

In 1966, Bureau of Indian Affairs Commissioner Robert L. Bennett issued a series of administrative orders that restricted development in the western portion of the Navajo Reservation (as defined in 1934). This became known as the Bennett Freeze and was intended to be a temporary measure to prevent one tribe from taking advantage of the other until the land dispute was settled. The Bennett Freeze restricted property development without joint consent of the Hopi Tribe and Navajo Nation, which had a devastating impact on the area and resulted in substandard housing and infrastructure. Grazing permits were invalidated, new homesite leases could not be issued, and community facilities and utilities could not be constructed.

In 1992, a U.S. District Court judge ordered the Bennett Freeze lifted. The Arizona District Court ruled that the Hopi Tribe had legal title to 64,000 acres in the Freeze area and awarded the balance to the Navajo Nation. Navajo and Hopi residents finding themselves on the “wrong

side” of the dividing line were forced to relocate, which affected mostly Navajo residents. In 1995, the Freeze was reinstated when the Ninth Circuit Court of Appeals reversed the Arizona District Court’s decision on the question of whether Hopi religious practices gave rise to rights of occupancy.

In 1997, a Federal District Court approved an agreement between the parties lifting half of the Bennett Freeze Area. Litigation continued regarding the status of the remaining area.

In 2006, Navajo and Hopi leaders signed an Intergovernmental Compact, which was approved by a federal court in 2007, lifting the Bennett Freeze. The compact clarifies the boundaries of the Navajo and Hopi reservations in Arizona and ensures that access to sacred sites of both tribes is protected.

For over forty years, the Bennett Freeze has resulted in very limited improvements and severe social and economic problems. People have been living in sub-standard conditions in dilapidated homes because restrictions prohibited new housing construction and repairs. Due to these poor living conditions, many young people, families, and elderly have relocated to nearby towns for better health services, education, convenient modern-day necessities, better homes, and job opportunities.

Rehabilitation of the former Bennett Freeze area (FBFA) will continue to be a priority for many years to come. The FBFA requires significant projects for improvement, including the following priorities: infrastructure development, housing construction and repairs, development of water resources, and development of businesses and community facilities to support economic activities. These projects make up the capital improvements that are part of the Former Bennett Freeze Area Recovery Plan, a document prepared for the Navajo Nation’s Design and Engineering Services in 2008.

1.3 Location Map

The Chapter is located in northern Arizona and is part of the western boundary of the Navajo Nation (Figure 1). The size of the Chapter is approximately 589,991 acres. The Chapter includes the communities of Navajo Springs, Bitter Springs, Cedar Ridge, the Gap, Hidden Springs, and the Junction. It is bordered by Cameron Chapter to the south, Coalmine Canyon Chapter to the southeast, and Tuba City and Coppermine Chapters to the east.

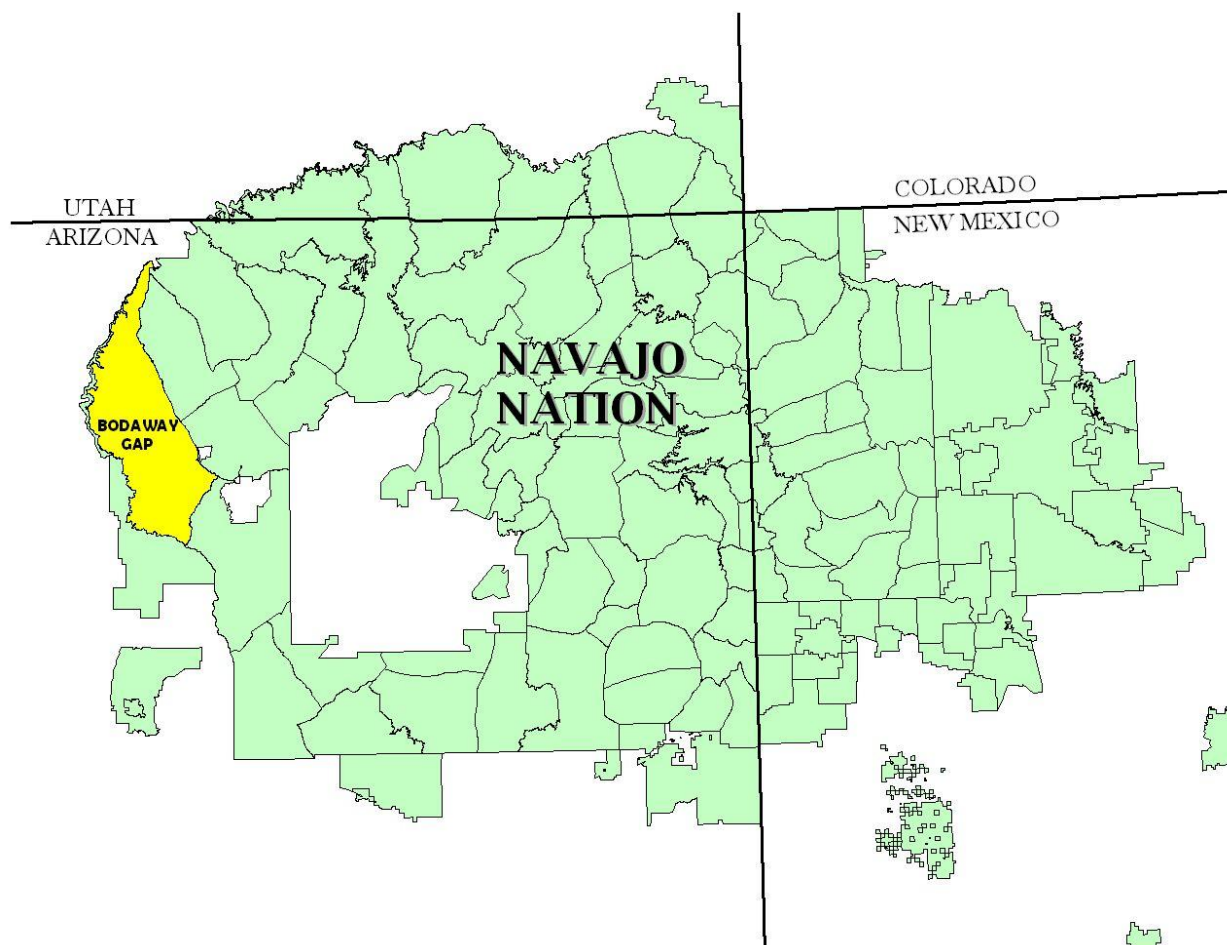


Figure 1: Bodaway-Gap Chapter Location

1.4 Scope of Work

The Navajo Nation contracted with WHPacific, Inc. to provide planning services between May and September of 2008 to develop a Regional Recovery Plan for the former Bennett Freeze area (FBFA). This effort included information-gathering within the FBFA and also throughout the rest of the nine chapters affected by the freeze, for purposes of comparison in terms of the impact and resulting needs of residents. WHPacific, Inc. offered to provide information and services for the nine chapters so that they could update their Comprehensive Land Use Plans (CLUPs) and continue their efforts toward certification.

The successful recovery process from more than 40 years of the Bennett Freeze will require strong leadership, clear community vision, and the dogged determination of all involved to implement the projects needed in impacted areas. The chapter certification process is one way to build capacity at the local level for governance, project management, and ongoing operations and maintenance.

In order to update the CLUPs, WHPacific, Inc. combined each chapter's most recent CLUP document; information gathered from residents, officials, and chapter staff at two community workshops; research from existing plans and ongoing project efforts at tribal and federal agencies and departments; and new information gathered by field teams using a Global Positioning System (GPS) to take data points at houses, roads, and other man-made features, and assess each feature's condition, whether very good, good, fair, poor, or very poor based on particular criteria that are included in the Appendix.

Due to the short planning timeframe and emphasis on the FBFA Recovery Plan, the chapters, after reviewing the document, will most likely need to further update these plans to reflect current efforts, priorities, and future plans. All files and information have been submitted electronically in order to facilitate that process. The Navajo Nation's Division of Community Development, particularly Design and Engineering Services, which managed the FBFA Recovery Plan effort, will continue to provide support for the chapters as they move forward with their community plans.

The backbone of this plan and much of its technical information and graphics were compiled by the consultant PAIKI for the Bodaway-Gap Chapter in 2008. Where WHPacific, Inc. did not gather information affecting this information, it was not changed. This document should be seen as an update and fortification of the current Land Use Plan based on information and efforts used to produce the FBFA Recovery Plan.

1.5 Chapter Description

The Bodaway-Gap Chapter is located in northern Arizona and is part of the western boundary of the Navajo Nation. Prominent land features include Echo Cliffs, Shinumo Altar, Limestone Ridge, Bodaway Mesa, and Tooth Rock. The Navajo name for Bodaway-Gap is Tsinaabaas Hibitiin, which means "inclined trail for wagons."

The Chapter consists of six main communities, which are as follows; Navajo Springs, Bitter Springs, Cedar Ridge, the Gap, Hidden Springs, and the Junction. The majority of communities consist of housing developments, houses of worship, airstrip, basketball courts, and abandoned buildings. The community of the Gap has the most Chapter public facilities and services. Public facilities include the Chapter House, which is also used as the Senior Center, the Gap Preschool

and Head Start, the Chapter Administrative offices, a solid waste transfer station, the Gap Trading Post, a gas station and service center, and Tsinaabaas Hibitiin Grade School. A small cemetery is also located in the Gap.

Physical Setting

The Chapter terrain is composed of deep canyons, open desert, and towering red rock cliffs. Elevations in the Chapter vary between 3,000 feet at the Colorado River to 7,000 feet atop the Echo Cliffs. The Chapter is surrounded by several tourist attractions: Lake Powell, Grand Canyon National Park, and Wupatki-Sunset Crater National Monument. The area is characterized by high elevation desert scrub and juniper woodlands. Ephemeral washes cross the Chapter, the three largest being Tanner Wash, Moenkopi Wash, and Hamblin Wash.

The Chapter is located within Land Management District 3 and is part of the Western Navajo Agency. The Chapter is composed of approximately 561,586 acres, 466,725 acres of which were part of the former Bennett Freeze, which is almost 83 percent of the Chapter land base. The following communities within the Chapter were affected by the former Bennett Freeze: Cedar Ridge, the Gap, Hidden Springs, the Junction (U.S. Highway 89 and U.S. Highway 160), a section of the Little Colorado River Valley Gorge, and the residents along the Colorado River.

Chapter Boundaries

The Chapter boundaries from the 2000 U.S. Census were used in this planning document. The official location of the Chapter boundaries have not been agreed upon; therefore causing disagreements upon service areas between different Chapters. Figure 2 on the following page displays the discrepancies between the Chapter Boundaries used by the 2000 U.S. Census and the boundaries that represent the grazing districts.

Chapter boundaries will affect where to direct funding, so the stakes are high. Even after funding arrives, unresolved issues with overlapping service areas complicates the implementation of projects. Even if chapters continue to agree to disagree about their boundaries, neighboring chapters should work out a system to process, approve, and implement projects in order not to cause any development delays.

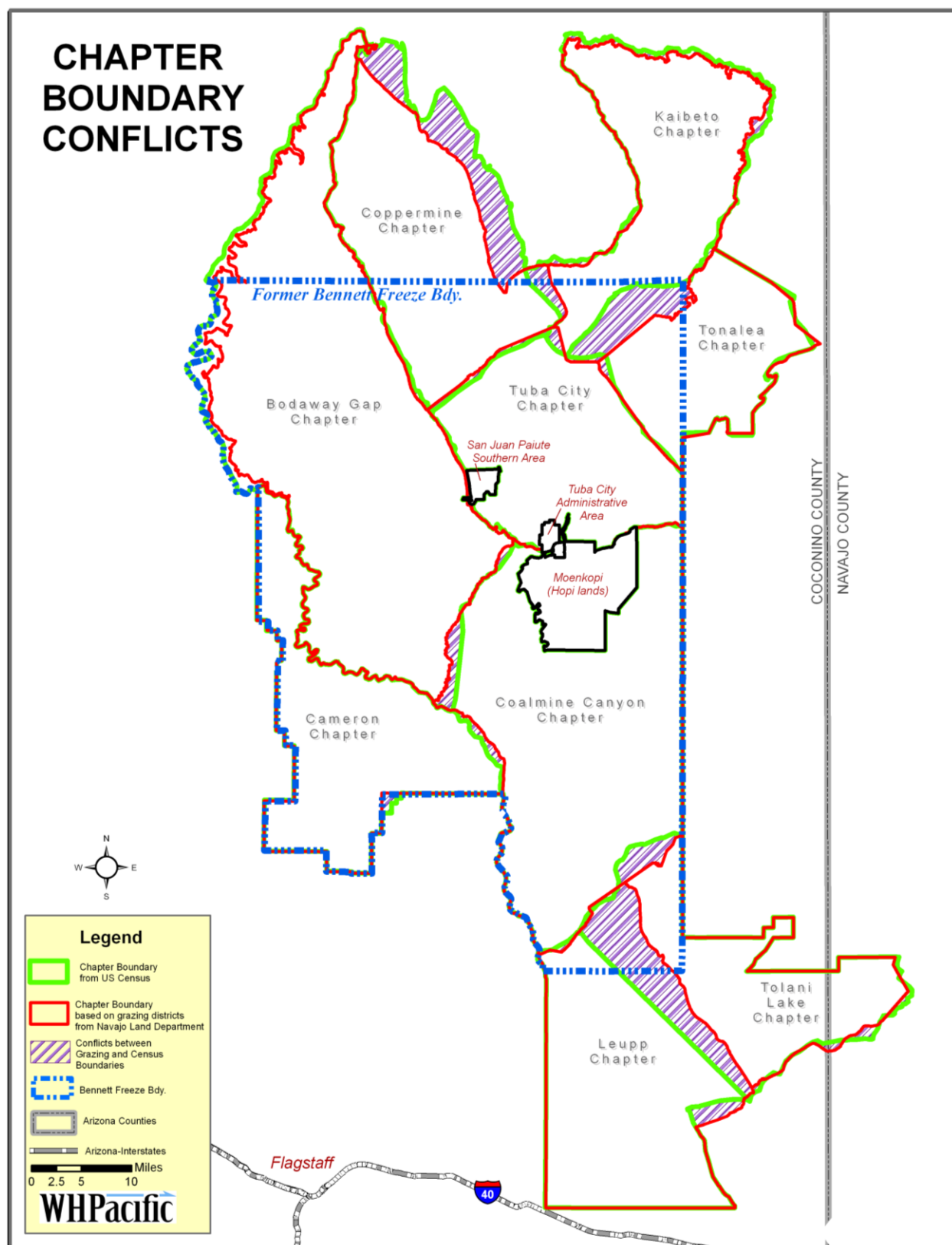


Figure 2: Chapter Boundary Conflicts

1.6 Public Participation Process and Planning Process

1.6.1 Public Participation

As part of the process to develop the FBFA Recovery Plan, WHPacific, Inc. met with each of nine affected chapters – Bodaway-Gap, Cameron, Coalmine Canyon, Coppermine, Kaibeto, Tolani Lake, Tonalea, and Tuba City – to conduct two community workshops at each chapter house.

These workshops were part of a regional comprehensive planning effort for the FBFA that continued through September 2008. The first workshop was a two-day participatory strategic planning session, and the second workshop was a one-day follow-up land use mapping session with officials, staff, and community members at each chapter. The first community workshop focused on generating a practical vision, understanding the challenges to achieving the vision, creating strategic directions to address these challenges, and prioritizing projects for future action. The second community workshop focused on confirming the priority of capital projects; producing principles to guide future development; deciding the phasing for development; and planning the location, relationship, and infrastructure needs to support projects on chapter land.

The workshops were coordinated by the chapter services coordinator and chapter officials, who determined the invitation list with guidance from the facilitation team and planned the logistics of the meeting locations, dates, and times.

The previous effort to create the chapter land use plan, performed by the consultant PAIKI in 2008, consisted of educating tribal members about the uses and benefits of land use planning, how the plan would be developed, and the importance of having participation in the planning process.

1.6.2 Planning Process

The community workshops described above were the starting point for producing the information needed to update the CLUP. Workshops were designed to serve the purpose of efficiently producing a community needs assessment and initial land use map.

WHPacific, Inc. added this information to the most recent CLUP and researched other existing plans and ongoing project efforts at tribal and federal agencies and departments. New information was gathered by field teams using a Global Positioning System (GPS) to take data points at houses, roads, and other man-made features, and assess each feature's condition, whether very good, good, fair, poor, or very poor based on particular criteria, that are included in the Appendix.

The planning team then compared the community needs assessment with the professional assessments performed by the field teams, using information from other agencies and departments about current planning and project efforts, to produce final recommendations for action. In the case where projects identified by the community matched the needs assessed by the field teams, the planning team looked to see whether the project was identified on a previous land use map or mapped at the community land use planning workshop. If not, the project was recommended as a feasibility study to decide the project's scope and location, and funds for this study were added to the infrastructure and capital improvements plan (ICIP). If a location was

identified, the chapter was asked to provide information about its current planning efforts and overall project status, whether the project had been planned, land withdrawn, surveys completed, and any design or construction work completed. Projects with identified locations were added to the chapter's ICIP, based on the project's status toward completion.

Many of the ideas from the community workshops were for programs, policies, or efforts that are not considered capital projects, such as additional staff, education programs, or land preservation. These were included in the CLUP as recommendations for the chapter to pursue as part of its operating budget or from outside or private funding sources as needed.

The overall goal of this planning effort was to demonstrate the method by which the chapter can update its own plan as needed. In particular, the community workshops were a successful, interactive, and efficient way to quickly generate information that could be incorporated into the plan and translated into action by the chapter in the future.



2.0 Existing Conditions – Community Assessment

The purpose of this section of the Comprehensive Plan is to present the current needs and conditions of the Cameron Chapter. The plan gathers information that affects, thwarts, or places pressure on the Chapter's development strategy. With this information, the Chapter can make better future decisions concerning budgeting, capital improvements, and land use. As part of the Chapter Plan, this report should be treated as a living document and updated as needed.

This section is based on census information, information gathered from the Chapter, field assessments, and other sources. The community assessment provides the vision for land use, presents and assesses social characteristics and economic conditions, and collects an inventory of existing and proposed development for selected areas within the Chapter. It also identifies and describes issues that affect land use patterns and may impact future development.

2.1 Demographics and Community Profile

2.1.1 Population

The 2000 U.S. Census states that the population for the Chapter is 1,837 individuals. Using information from the 2000 Census, baseline population projections to the year 2020 were prepared. A cohort-survival technique was used as a projection formula to calculate the annual numerical population. This population projection technique takes into account the age-sex distribution of the population as well as the influence of mortality, fertility, and birthrates. Population projections do not include in- or out-migration of Chapter members. The projections are presented in Figure 3: Bodaway-Gap Chapter Population Growth Projections, Figure 4, Figure 5, and Figure 6: Bodaway-Gap Chapter Population by Age and Gender 2020.

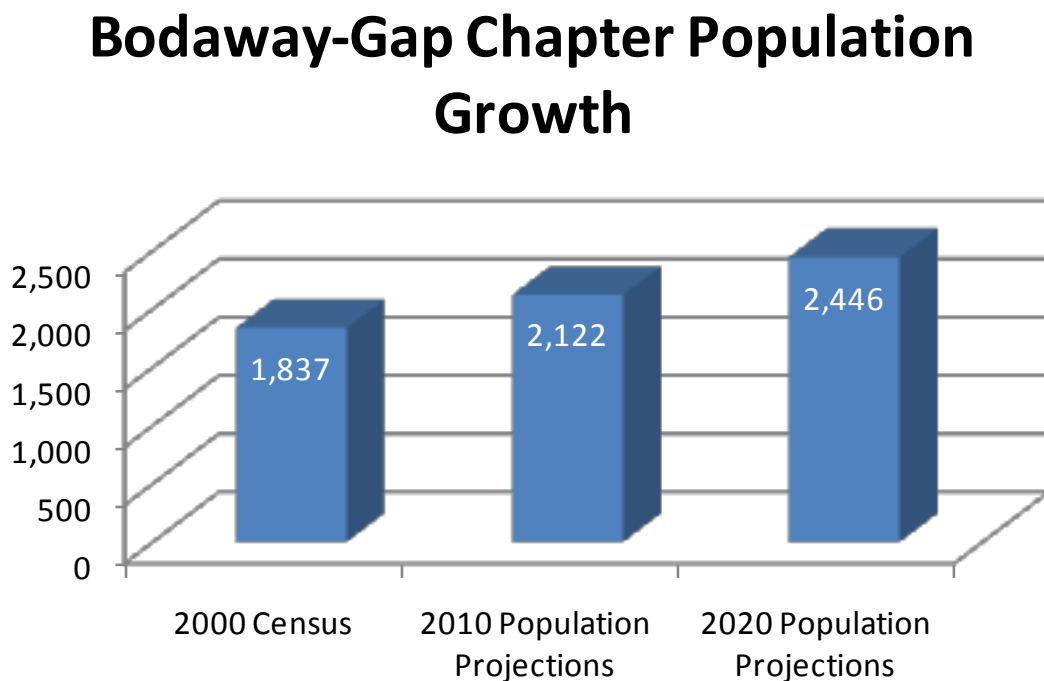


Figure 3: Bodaway-Gap Chapter Population Growth Projections

Source: U.S. Census

Bodaway Chapter - Population by Age and Gender 2000

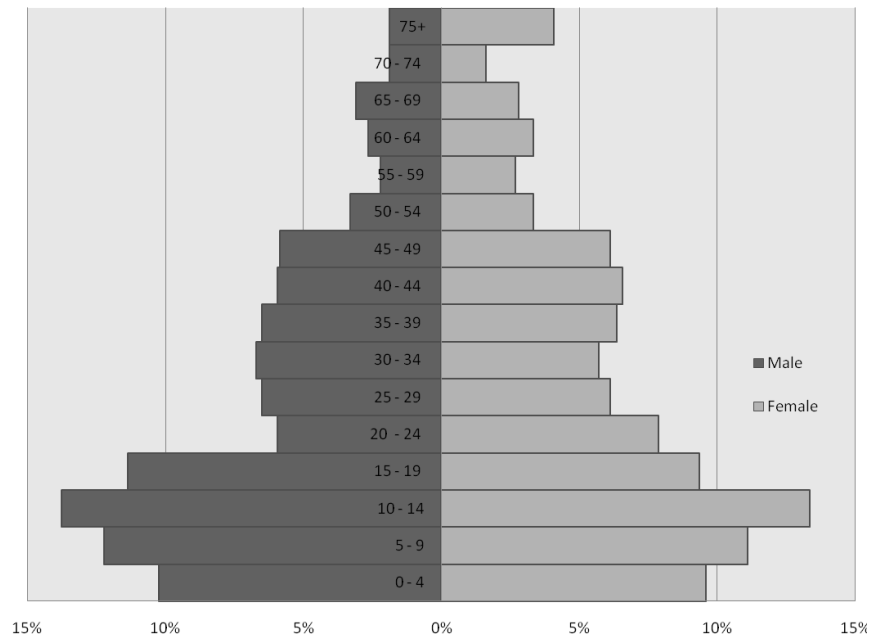


Figure 4: Bodaway-Gap Chapter Population by Age and Gender 2000

Source: U.S. Census

Bodaway Chapter - Population by Age and Gender 2010

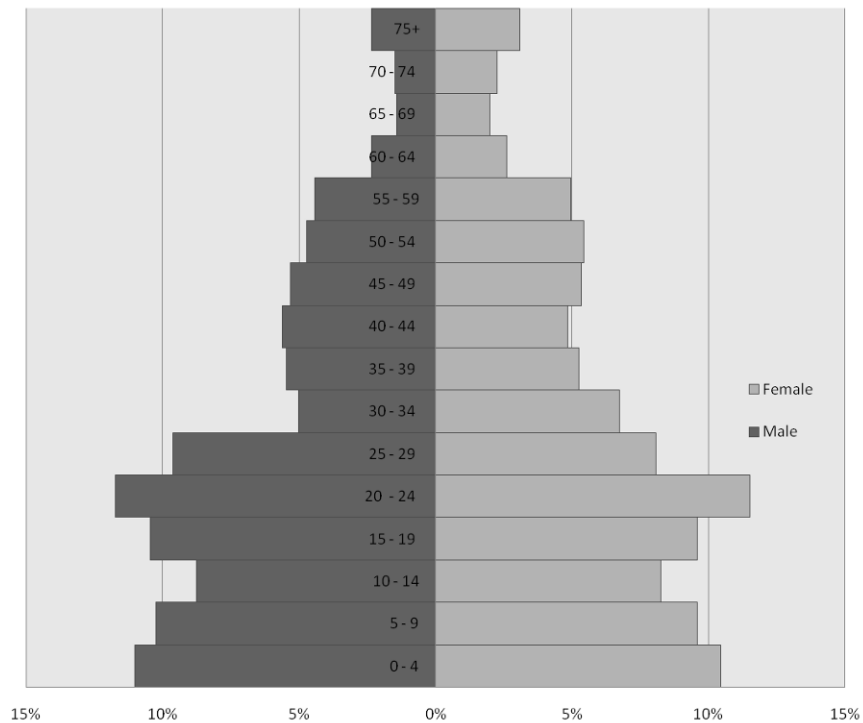


Figure 5: Bodaway-Gap Chapter Population by Age and Gender 2010

Source: U.S. Census

Bodaway Chapter - Population by Age and Gender 2020

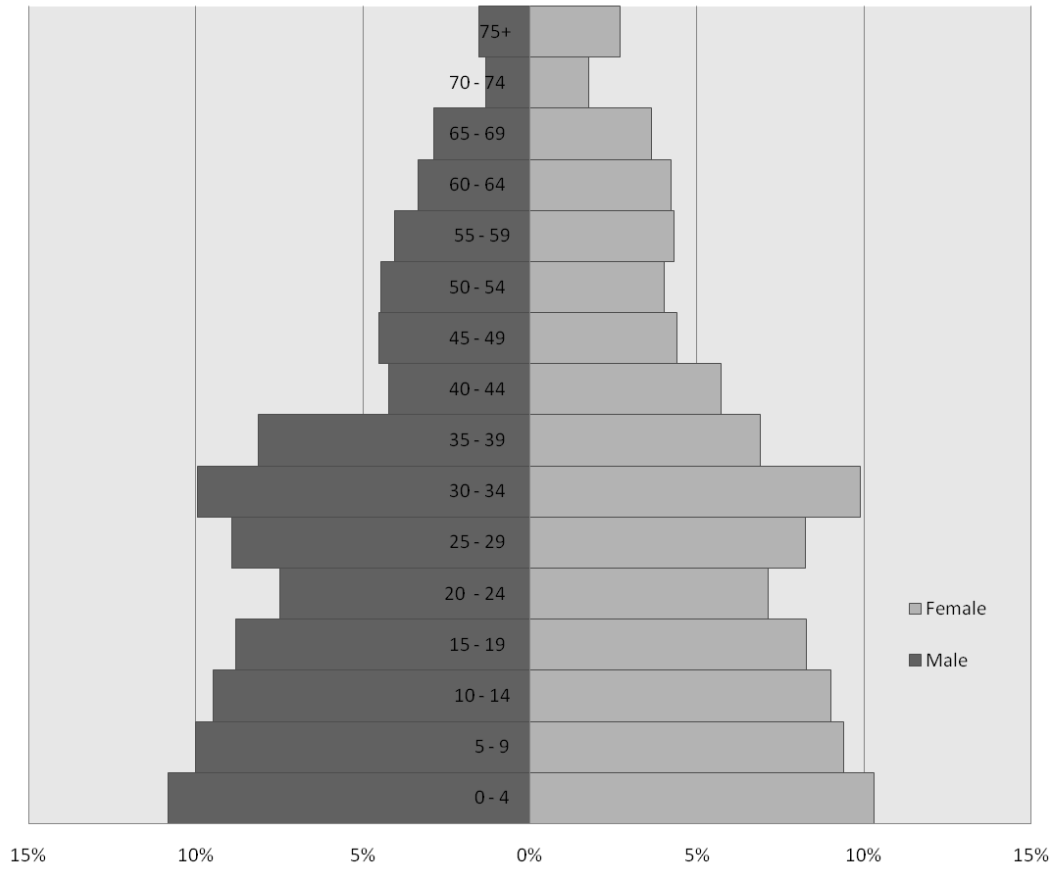


Figure 6: Bodaway-Gap Chapter Population by Age and Gender 2020

Source: U.S. Census

The population projections predict that the Chapter will experience population growth in the future. The Chapter can expect a 16 percent population increase from the year 2000 to the year 2010. Overall, the Chapter is expected to grow by 33 percent by 2020 (Figure 7).

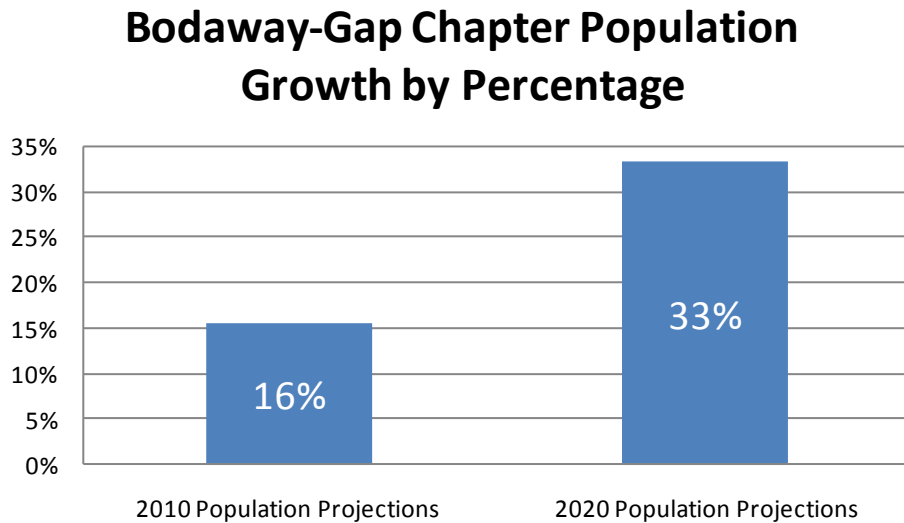


Figure 7: Bodaway-Gap Chapter Population Growth by Percentage

Source: U.S. Census

The Navajo Nation will also experience population growth in the future. The Navajo Nation can expect a 14 percent population increase from the year 2000 to the year 2010. Overall, the Navajo Nation is expected to grow by 31 percent by 2020 (Figure 8).

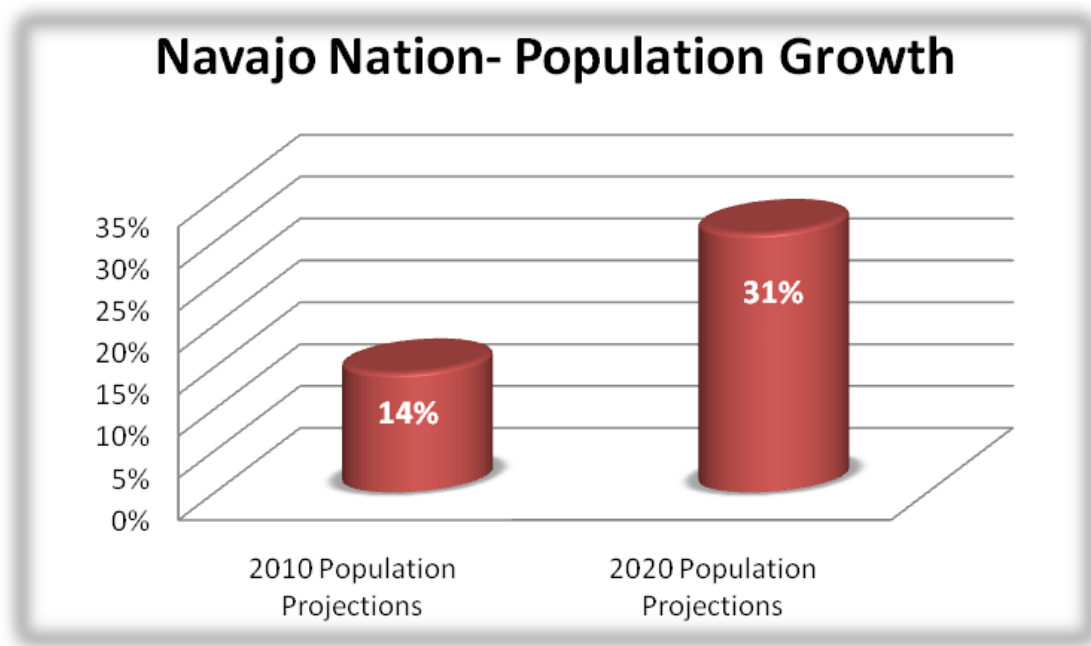


Figure 8: Navajo Nation Population Growth by Percentage

Source: U.S. Census

According to the 2000 U.S. Census, 52 percent of the Chapter's population is composed of individuals 24 years or younger. This indicates that the Chapter is and will continue to experience a surge of young individuals and families in the future.

The Chapter's median age for both sexes is 23 years. The Chapter's median age is younger than the Navajo Nation's, which is 24, and Arizona's, which is 34 (Table 1).

Table 1: Median Age

Median age	Bodaway-Gap Chapter	Navajo Nation	Arizona
Both sexes	23	24	34
Male	22	23	33
Female	24	26	36

Source: 2000 U.S. Census

The majority of households in the Chapter consist of family households, mostly married couples with their own children. The Chapter's average household and family sizes, 3.9 and 4.5, respectively, are larger than the Navajo Nation's and Arizona's, both at 2.6, with the family size of each at 4.4 and 3.2, respectively.

Table 2: Types of Households

	Bodaway-Gap Chapter		Navajo Nation		Arizona	
	Number	% Total	Number	% Total	Number	% Total
2000 Estimated Households	469	100%	47,761	100%	1,901,625	100%
Family Households	371	79%	38,162	80%	1,296,593	68%
Married-Couple Family, own children	124	26%	14,810	31%	445,990	34%
Married-Couple Family, no own children	86	18%	8,033	17%	559,911	43%
Male Householder, own children	68	14%	1,890	4%	50,020	4%
Male Householder, no own children	11	2%	1,373	3%	38,897	3%
Female Householder, own children	54	12%	6,566	14%	124,158	10%
Female Householder, no own children	28	6%	5,490	11%	77,617	6%
Nonfamily Households	98	21%	9,599	20%	605,032	32%
Single Male Householder	25	5%	4,831	10%	211,154	35%
Single Female Householder	61	13%	3,991	8%	259,997	43%
Nonfamily, Male Householder	4	1%	366	1%	80,042	13%
Nonfamily, Female Householder	8	2%	411	1%	53,839	9%
Average Household Size	3.9		2.6		2.6	
Average Family Size	4.5		4.4		3.2	

Source: 2000 U.S. Census

According to the 2000 U.S. Census, the majority of Chapter members are American Indian (Figure 9). The Chapter's race and ethnicity demographic is comparable to the Navajo Nation's, but not the state of Arizona's (Figure 10).

Bodaway-Gap Chapter Race and Ethnicity

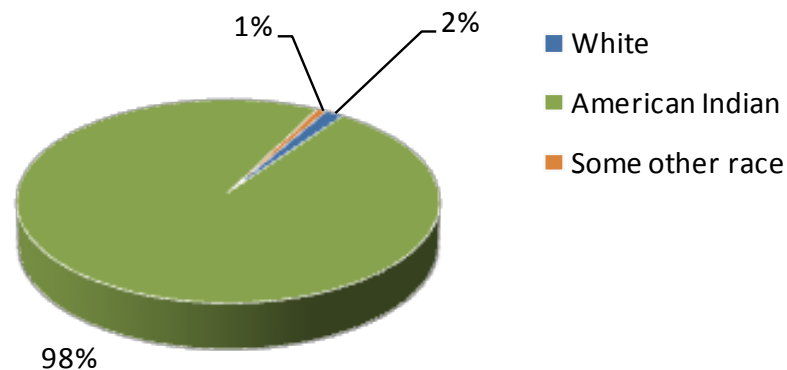


Figure 9: Bodaway-Gap Chapter Race and Ethnicity

Source: U.S. Census

Race and Ethnicity by Percentage

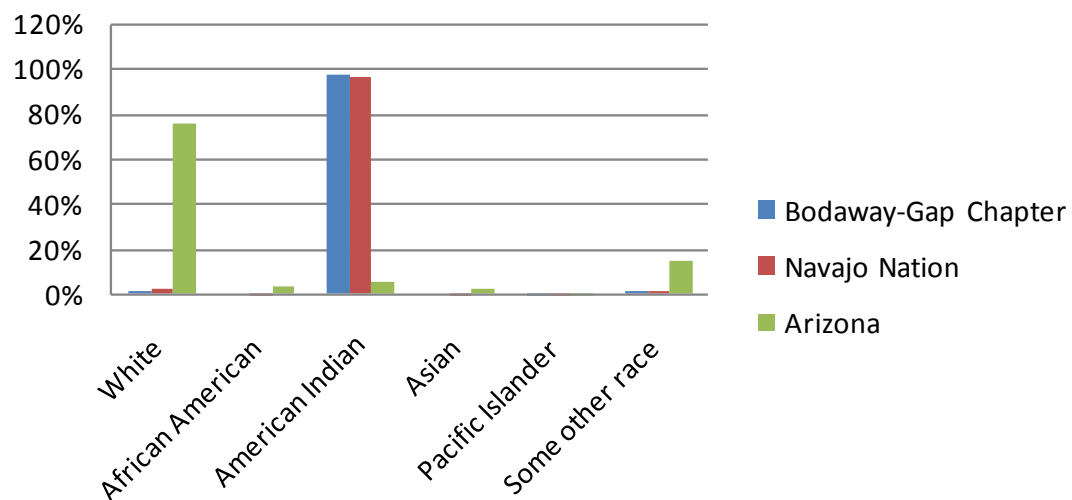


Figure 10: Race and Ethnicity by Percentage

Source: U.S. Census

2.1.2 Income

Household and per capita income in the Chapter are comparable to that of the Navajo Nation and low compared to that of Arizona; however, income statistics must be viewed in the local context, where a large number of Chapter members earn income in the informal economy. Lower income levels can thus be attributed to the large number of families and individuals who earn income from ranching and arts/crafts.

The per capita income for Chapter residents is \$6,740, which is slightly lower than that of the Navajo Nation at \$7,269 but significantly lower than that of Arizona at \$20,275.

Similarly, household income levels in Bodaway-Gap are lower than in the Navajo Nation, state, and county. Almost 60 percent of households live on an annual income of less than \$25,000, and 37 percent live on less than \$15,000. The median annual household income for Chapter residents is \$19,063, compared to the Navajo Nation at \$20,005, and the State of Arizona at \$40,558. It is interesting to note that the median household income for Bitter Springs residents, at \$24,886, is 31 percent higher than the rest of the Chapter (Table 3).

Table 3: Income

	Bodaway-Gap		Navajo Nation		Arizona	
	Number	% Total	Number	% of Total	Number	% Total
2000 Households	469	100.0%	47,761	100.0%	1,901,625	100.0%
Income						
Less than \$15,000	174	37.1%	19,825	41.5%	283,991	14.9%
\$15,000 to \$24,999	98	20.9%	7,762	16.3%	264,392	13.9%
\$25,000 to \$34,999	62	13.2%	6,215	13.0%	265,645	14.0%
\$35,000 to \$44,999	66	14.1%	4,656	9.7%	233,959	12.3%
\$45,000 to \$59,999	21	4.5%	4,240	8.9%	271,492	14.3%
\$60,000 to \$74,999	25	5.3%	2,543	5.3%	192,430	10.1%
\$75,000 to \$99,999	12	2.6%	1,695	3.5%	184,026	9.7%
\$100,000 or more	11	2.3%	825	1.7%	205,690	10.8%
Median Household Income	\$19,063		\$20,005		\$40,558	
Per Capita Income	\$6,740		\$7,269		\$20,275	

Source: 2000 U.S. Census

2.1.3 Poverty Status

Forty-five percent of the Chapter households are below the poverty level, which is only slightly higher than the Navajo Nation (43.8 percent), but significantly higher than the state of Arizona (11.8 percent), as shown in Table 4.

Table 4: Poverty Status

	Bodaway-Gap		Navajo Nation		Arizona	
	Number	% Total	Number	% of Total	Number	% Total
2000 Households by Poverty Status	469	100.0	47,761	100.0	1,901,625	100
Income At or Above Poverty Level:	258	55.0	26,824	56.2	1,677,517	88.2
Family	240	93.0	22,868	85.3	1,168,275	69.6
Married-Couple Family	150	62.5	15,576	68.1	943,550	80.8
Male Householder	47	19.6	1,632	7.1	74,967	6.4
Female Householder	43	17.9	5,660	24.8	149,758	12.8
Non-family	18	7.0	3,956	14.7	509,242	30.4
Male Householder	13	72.2	2,148	54.3	248,283	48.8
Female Householder	5	27.8	1,808	45.7	260,959	51.2
Income Below Poverty Level:	211	45.0	20,937	43.8	224,108	11.8
Family	131	62.1	15,294	73.0	128,318	57.3
Married-Couple Family	60	45.8	7,267	47.5	62,351	48.6
Male Householder	32	24.4	1,631	10.7	13,950	10.9
Female Householder	39	29.8	6,396	41.8	52,017	40.5
Non-family	80	37.9	5,643	27.0	95,790	42.7
Male Householder	16	20.0	3,049	54.0	42,913	44.8
Female Householder	64	80.0	2,594	46.0	52,877	55.2

Source: 2000 U.S. Census

2.1.4 Housing

The Chapter has five residential communities, where most tribal members reside. Other tribal members live in scattered homesites or clustered housing throughout the Chapter. Those communities are as follows, from largest to smallest:

- Bitter Springs
- Cedar Ridge
- the Gap
- Hidden Springs
- Navajo Springs

According to 2000 U.S. census, there are 711 housing units found in the Chapter. The majority of homes are owner-occupied, but there are a considerable number of vacant homes. The Chapter's owner-occupancy rate is lower than the Navajo Nation's and Arizona's.

One reason for the high rate of vacant homes is that approximately 70 percent of homes are used for seasonal, recreational, or occasional use by tribal members who are cattle and sheep ranchers but maintain a separate summer and winter residence (Table 5).

Table 5: Housing Occupancy

Housing Units	Bodaway-Gap Chapter	Navajo Nation	Arizona
Total	711	68,744	2,189,189
Occupancy			
Occupied	66%	69%	87%
Vacant	34%	31%	13%
Owner/Renter			
Owner occupied	87%	76%	68%
Renter occupied	13%	24%	32%

Source: 2000 U.S. Census

The majority of homes (81 percent) in the Chapter are single detached homes. The Chapter has a higher rate of detached homes than the Navajo Nation and Arizona (68 and 60 percent respectively), as shown in Table 6.

Table 6: Types of Units

	Bodaway-Gap Chapter		Navajo Nation		Arizona	
	Number	% Total	Number	% of Total	Number	% of Total
2000 Tenure by Units in Structure	491	100%	47,824	100%	1,901,327	100%
Owner Occupied	438	89%	36,292	76%	1,293,637	68%
1, detached	353	72%	24,742	52%	993,841	52%
1, attached	41	8%	1,962	4%	79,254	4%
2 or more units attached	6	1%	386	1%	32,790	2%
Mobile home	29	6%	9,133	19%	177,206	9%
Boat, RV, van, etc.	9	2%	69	0%	10,546	1%
Renter Occupied	53	11%	11,532	24%	607,690	32%
1, detached	45	9%	7,427	16%	143,431	8%
1, attached	0	0%	1,241	3%	33,682	2%
2 or more units attached	0	0%	1,734	4%	387,192	20%
Mobile home	8	2%	1,114	2%	42,144	2%
Boat, RV, van, etc.	0	0%	16	0%	1,241	0%

Source: 2000 U.S. Census

The majority of homes were built between 1960 and 1989, which is similar to the Navajo Nation and Arizona. Home construction in the Chapter has decreased since 1989, which follows the same trend for the Navajo Nation and Arizona. The median year for a structure built in the Chapter is 1978, which is slightly older than in the Navajo Nation and Arizona.

Of the homes built in the Chapter, 55 percent of them were built before 1980. In the Navajo Nation 48 percent were built before 1980, and 46 percent of homes were built before 1980 in Arizona (Table 7).

Table 7: Year Structure Built

	Bodaway-Gap Chapter		Navajo Nation		Arizona	
	Number	% Total	Number	% of Total	Number	% of Total
2000 Year Structure Built	755	100%	69,154	100%	2,189,189	100%
1999 to 2000	18	2%	2,237	3%	111,389	5%
1995 to 1998	32	4%	9,204	13%	299,679	14%
1990 to 1994	67	9%	8,772	13%	230,230	11%
1980 to 1989	226	30%	16,351	24%	540,122	25%
1970 to 1979	224	30%	16,512	24%	517,059	24%
1960 to 1969	151	20%	10,736	16%	231,071	11%
1950 to 1959	25	3%	3,199	5%	159,653	7%
1940 to 1949	4	1%	1,106	2%	51,192	2%
1939 or earlier	8	1%	1,037	1%	48,794	2%
Median Year Structure Built	1978		1981		1982	

Source: 2000 U.S. Census

The major fuel source for heating homes in the Chapter is wood (88 percent), whereas the Navajo Nation is dependent on wood (52 percent) and bottled, tank, or liquid petroleum gas (23 percent), and Arizona is dependent on electricity (54 percent) and utility gas (37 percent), as shown in (Table 8).

Most of the residences are located along Highway 89, where water and electrical lines provide service. Residences located outside the residential communities or away from Highway 89 are not served by utilities.

Table 8: House Heating Fuel

	Bodaway-Gap Chapter		Navajo Nation		Arizona	
	Number	% Total	Number	% of Total	Number	% of Total
2000 House Heating Fuel	491	100%	47,824	100%	1,901,327	100%
Utility gas	0	0%	6,316	13%	712,868	37%
Bottled, tank, or LP gas	49	10%	11,052	23%	98,536	5%
Electricity	0	0%	3,648	8%	1,033,095	54%
Fuel oil, kerosene, etc.	0	0%	136	0%	1,813	0%
Coal or coke	0	0%	1,005	2%	993	0%
Wood	430	88%	24,942	52%	39,842	2%
Solar energy	0	0%	23	0%	1,226	0%
Other fuel	0	0%	551	1%	2,642	0%
No fuel used	12	2%	151	0%	10,312	1%

Source: 2000 U.S. Census

Most Chapter households do not have telephone service available (98 percent). Similarly, most households in the Navajo Nation do not have telephone service (60 percent), whereas most households in Arizona (96 percent) do have telephone service (Table 9).

Table 9: Telephone Service

	Bodaway-Gap		Navajo Nation		Arizona	
	Number	% Total	Number	% of Total	Number	% of Total
2000 Telephone Service	491	100%	47,824	40%	1,901,327	96%
With telephone service available	11	2%	19,084	40%	1,831,006	96%
No telephone service available	480	98%	28,740	60%	70,321	4%

Source: 2000 U.S. Census

Most of the Chapter members do not have plumbing facilities (62 percent). Similarly, only 54 percent of the Navajo Nation has plumbing facilities, compared with 98 percent in Arizona (Table 10).

Table 10: Plumbing Facilities

	Bodaway-Gap Chapter		Navajo Nation		Arizona	
	Number	% Total	Number	% of Total	Number	% of Total
2000 Plumbing Facilities						
Total	755	100%	69,154	100%	2,189,189	100%
Complete plumbing facilities	287	38%	37,460	54%	2,149,557	98%
Lacking complete plumbing facilities	468	62%	31,694	46%	39,632	2%

Source: 2000 U.S. Census

According to field data conducted by WHPacific, Inc. in 2008, 73 percent of homes in the Chapter are in poor to very poor condition, and 6 percent are in good to very good condition (Table 11). Figure 11 illustrates homes in good and very good condition and homes in poor-to-fair condition.

Table 11: Housing Conditions

House Conditions	Bodaway-Gap	
	Number	% of Total
	332	100
Very Good	5	2%
Good	13	4%
Fair	71	21%
Poor	156	47%
Very Poor	87	26%

Source: WHPacific, Inc.

Most of the residences are located along Highway 89, where water and electrical lines provide service. Residences located outside the residential communities or away from Highway 89 are not served by utilities.

According to the previous plan completed by PAIKI in 2008, there are 755 housing units with an average household size of 3.91 within the Chapter. Of these houses, 264 are vacant (34.9 percent). Of these vacant homes, approximately 70 percent are used primarily for seasonal,

recreational, or occasional use. This is because many Chapter residents are cattle or sheep ranchers who maintain separate residences for summer and winter.

Of the 127 housing units in Bitter Springs, 23 are vacant. The average household size is 5.17, which is significantly higher than the Arizona portion of the Navajo Nation at 3.8.

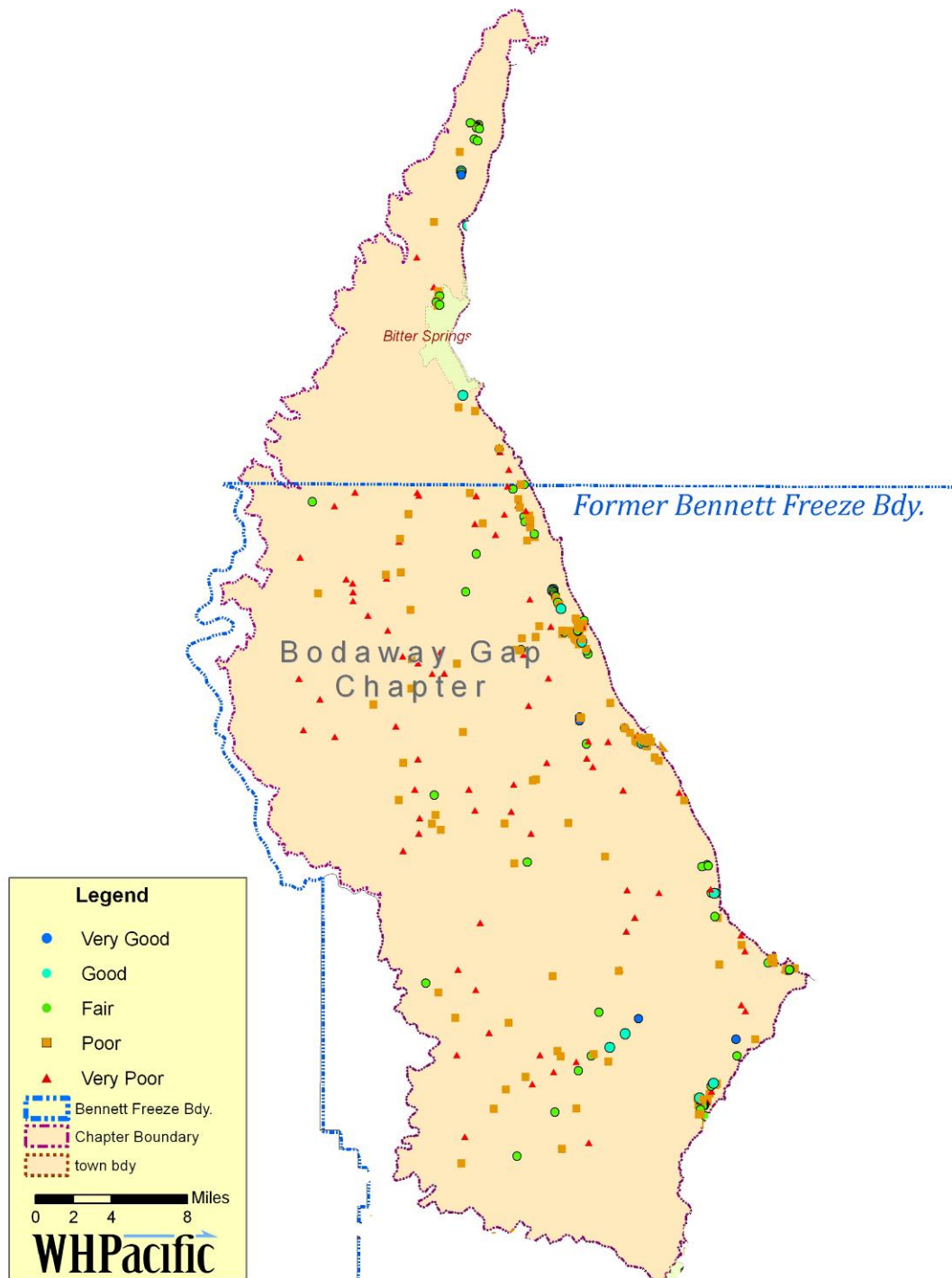


Figure 11: Housing Conditions

2.1.5 Employment and Unemployment

The unemployment rate in the Chapter is 14.4 percent, which is higher than that of the Navajo Nation (11.2 percent) and the state of Arizona (3.4 percent). Only 33 percent of the population over 16 years old participates in the labor force. This low labor force participation rate is attributable to the scarcity of employment opportunities in the Chapter. There are also a number of vendors who sell arts and crafts. These individuals are not counted as officially employed and participating in the labor force, and their income is not counted in the personal income for the Navajo Nation (Table 12).

Table 12: Employment Status

2000 Population Age 16+ by Employment Status	Bodaway-Gap		Navajo Nation		Arizona	
	Number	% of Total	Number	% of Total	Number	% of Total
	1,227		114,966		3,907,229	
In Labor Force	405	33.0%	51,363	44.7%	2,387,139	61.1%
Employed	228	18.6%	38,465	33.5%	2,233,004	57.2%
Unemployed	177	14.4%	12,865	11.2%	133,368	3.4%

Source: 2000 U.S. Census

2.1.6 Education

Compared to the Navajo Nation and Arizona, residents of the Chapter have a lower educational attainment. The Navajo Nation has a population that has little or no schooling. In fact, only 29.3 percent of Chapter members have attained a high school diploma, and no Chapter members have received a bachelor's degree or higher (Table 13).

Table 13: Educational Attainment

2000 Population Age 25+ by Educational Attainment*	Bodaway-Gap		Navajo Nation		Arizona	
	Number	% of Total	Number	% of Total	Number	% of Total
	948	100	88,662	100	3,256,184	100
Less than 9th grade	364	38.4	21,612	24.4	254,696	7.8
Some High School, no diploma	307	32.4	17,457	19.7	364,851	11.2
High School Graduate (or GED)	203	21.4	23,333	26.3	791,904	24.3
Some College, no degree	64	6.8	15,048	17.0	859,165	26.4
Associate Degree	10	1.1	4,748	5.4	219,356	6.7
Bachelor's Degree	0	0.0	4,135	4.7	493,419	15.2
Graduate or Professional Degree	0	0.0	2,329	2.6	272,793	8.4

Source: 2000 U.S. Census

About 70 percent of Chapter members do not have a high school diploma, which is significantly higher than in the Navajo Nation (44.1 percent) and Arizona (19 percent). No members in the Chapter have a bachelor's degree or higher (Table 14).

Table 14: Summary of Educational Attainment

2000 Population Age 25+	Bodaway-Gap	Navajo Nation	Arizona
Percent without high school diploma	70.8	44.1	19.0
Percent high school graduate or higher	29.2	48.6	57.4
Percent bachelor's degree or higher	0.0	7.3	23.5

Source: 2000 U.S. Census

Presently, there are only three schools within the Chapter: the Gap Head Start, the Gap Preschool, and Tsinaabaas Hibitiin Grade School. Additionally, Bitter Springs has approved a land withdrawal for a Head Start immediately north of the Bitter Springs subdivision. School enrollment by type of school is presented in Table 15.

The lack of local schools means that Chapter residents are educated away from the Chapter in Tuba City or Page; however, the number of enrolled students is high enough to justify developing schools within the Chapter, thereby lowering commuting times and the overall cost of education.

Table 15: Enrollment by Type of School

Type of School	Number Enrolled
Nursery or Preschool	89
Kindergarten	35
Grades 1 to 8	375
Grades 9 to 12	172
College	21
TOTAL	692

2.1.7 Health and Public Safety

The closest police station and emergency medical service to the Bitter Springs townsite is in Page, 26 miles away.

Most homes in the rural areas of the Chapter do not have physical addresses. As of 2008 the Navajo Nation has been working on a rural addressing system that will tie phone numbers to a physical address in order to provide 911 emergency response. This project will require that all homes in the Chapter be mapped and assigned an address.

According to the Chapter, most residents go to Tuba City Indian Medical Center, Page Medical Center, or Flagstaff Medical Center for medical attention.

2.1.8 Community Facilities, Parks, and Recreation

A senior citizens center and the Chapter House are the main community facilities within the Chapter. The Chapter also has a park, a baseball field, outside basketball courts, and a rodeo arena.

The Chapter reports that it has not had enough funding to provide a support staff or enough personnel to coordinate community functions. The Chapter has been working on planning efforts, but it has had to hire consultants because it feels the local government does not have adequately qualified personnel to produce plans. In addition, the lack of office space and modern office equipment inhibits the ability to add needed employees.

2.2 Local Economy

The Bodaway-Gap Chapter has 469 households, with a median household income of \$19,063. The per capita income is \$6,740. Both the median household income and the per capita income in the Bodaway-Gap Chapter are slightly lower than in the Navajo Nation. The Chapter has a significant number of members who earn income in the informal economy, which is not represented in the census data. Residents of Bitter Springs earn a higher median household income, \$24,886, than the rest of the Chapter and the Navajo Nation.

Unemployment in the Chapter is 14.4 percent, with 33 percent of the population over 16 years old participating in the labor force. This low labor force participation rate is due to the scarcity of employment opportunities in the Chapter and the large number of Chapter members who earn income as vendors in the informal economy.

Compared to the Navajo Nation, the workforce in the Bodaway-Gap Chapter has a lower level of educational attainment. Seventy-one percent of residents over 25 years old do not have a high school diploma, and none have a bachelor's degree or higher. Employment opportunities in the Chapter are limited, and most of the workforce is employed by private companies in Page, Flagstaff, Tuba City, and Cameron. Over a third of the workforce is employed in the services industry, primarily in the educational, health, and social services.

There are a few local businesses in the Bodaway-Gap Chapter, including a gas station, convenience store, and trading post. While residents can meet their basic needs with goods purchased at the convenience store, they must travel to Page, Flagstaff and Tuba City for shopping. Residents of the Chapter would like to see more retail development, including a grocery store and car wash. The Chapter has withdrawn 100 acres for commercial development near the junction of Highways 89 and 160. The environmental and archaeological clearances have been completed, and the Chapter plans to develop a truck stop and shopping center at the site. The annual expenditure potential of the Chapter for convenience goods, which include food, drugs, gasoline, and tobacco, is \$1,989,738.

The Bodaway-Gap Chapter is well positioned near several regional tourist attractions, notably, the Grand Canyon National Park and Glen Canyon National Recreation Area, which received 4.4 million and 1.9 million annual visitors, respectively, in 2007. Highway 89 runs north from Flagstaff towards Cameron, along the eastern border of the Bodaway-Gap Chapter, and on to Page, connecting the access point for the eastern entrance to the Grand Canyon National Park and the Glen Canyon National Recreation Area. Significant commercial activity takes place along the highway, particularly during the summer months when tourist traffic is high. Members of the Bodaway-Gap Chapter have organized into the Antelope Trails Vendor Association, which has approximately 150 members, to sell arts and crafts at various points along Highway 89.

2.2.1 Jobs by Sector

A significant percentage of the Chapter workforce is employed in the services industry (37.7 percent), primarily in the educational, health, and social services. Transportation and utilities is the second largest industry (13.8 percent). Other notable industries include manufacturing (12.9 percent), agriculture and mining (12 percent), construction (9.3 percent), and retail trade (9 percent), as shown in Table 16.

Table 16: Employment by Industry

2000 Population Age 16+ Employment by Industry	Bodaway-Gap		Navajo Nation		Arizona	
	Number	% of Total	Number	% of Total	Number	% of Total
	334	100	61,119	100	3,409,149	100
Agriculture & Mining	40	12.0	3,002	4.9	65,352	1.9
Construction	31	9.3	4,759	7.8	193,464	5.7
Manufacturing	43	12.9	1,702	2.8	228,590	6.7
Wholesale Trade	11	3.3	448	0.7	73,441	2.2
Retail Trade	30	9.0	3,201	5.2	273,864	8.0
Transportation & Utilities	46	13.8	4,624	7.6	222,372	6.5
Information	0	0.0	321	0.5	62,577	1.8
Finance, Insurance, & Real Estate	0	0.0	1,570	2.6	350,622	10.3
Services	126	37.7	37,425	61.2	1,817,249	53.3
Public Administration	7	2.1	4,067	6.7	121,618	3.6

Source: 2000 U.S. Census

2.2.2 Major Employers

Employment opportunities in the Chapter are in short supply. The major employers in the Chapter employ a total of 21 employees. The rest of the workforce in the Chapter must commute long distances to the surrounding communities of Tuba City, Page, Cameron, or Flagstaff (Table 17).

Table 17: Major Employers

	# of Employees
Gap Trading Post	9
Chapter Administration	5
Gap Navajo Head Start	4
Senior Citizens Center	3

Source: Bodaway-Gap Chapter, 2004

2.2.3 Class of Workers

The majority of workers in the Bodaway-Gap Chapter are employed by private companies (66.2 percent) outside the Chapter in Page and Flagstaff. A significant percentage of workers are also self-employed (18.9 percent), with the remainder working for the government (Table 18).

Table 18: Class of Workers

	Bodaway-Gap		Navajo Nation		Arizona	
	Number	% of Total	Number	% of Total	Number	% of Total
2000 Class of Workers Age 16+	228	100	38,465	100	2,233,004	100
Employee of Private Company	151	66.2	17,171	44.6	1,546,865	69.3
Employee of Non-profit Company	0	0.0	2,470	6.4	119,598	5.4
Government Workers	34	14.9	17,042	44.3	339,554	15.2
Self-Employed Workers	43	18.9	1,716	4.5	220,878	9.9
Unpaid Family Workers	0	0.0	66	0.2	6,109	0.3

Source: 2000 U.S. Census

2.2.4 Commute Time

Because the employment opportunities within the Chapter are so limited, almost all of the workforce must travel a significant distance to surrounding communities. This is typical in rural areas where people often commute up to 60 minutes to work. About 72 percent of workers in the Bodaway-Gap Chapter commute less than 60 minutes. About a quarter of workers commute between 60 and 89 minutes, and another 5.1 percent commute over 90 minutes. The average commute time to work for residents of Bitter Springs is 48.4 minutes. Workers commuting to jobs outside of the Chapter travel to the surrounding communities of Tuba City, Page, Cameron or Flagstaff (Table 19).

Table 19: Commute Time

	Bodaway-Gap Chapter		Navajo Nation		Arizona	
	Number	% of Total	Number	% of Total	Number	% of Total
2000 Commute Time for Workers 16+	214	100.0%	37,008	100.0%	2,210,395	100.0%
9 minutes or less	0	0.0%	8,020	21.7%	289,937	13.1%
10 to 19 minutes	51	23.8%	8,591	23.2%	642,566	29.1%
20 to 29 minutes	23	10.7%	3,222	8.7%	453,395	20.5%
30 to 39 minutes	66	30.8%	6,289	17.0%	377,273	17.1%
40 to 59 minutes	15	7.0%	3,863	10.4%	237,317	10.7%
60 to 89 minutes	48	22.4%	2,644	7.1%	85,177	3.9%
90 minutes or more	11	5.1%	3,602	9.7%	43,572	2.0%
Work at home	0	0.0%	777	2.1%	81,158	3.7%

Source: 2000 U.S. Census

2.2.5 Local Businesses

Local services in the Chapter are limited and include a gas station, convenience store, and trading post. The small convenience store and gas station in the Gap provides Chapter members with basic necessities, but residents must shop in the bordering communities of Page, Tuba City, and Flagstaff. Developing local retail enterprises such as a grocery store, convenience store, car wash, and other small businesses will create employment opportunities, generate tax revenue for public programs, and minimize the financial leakage to bordering communities.

Significant commercial activity takes place along Highway 89, primarily during the summer months when tourist traffic is high. The Antelope Trails Vendors Association is a group of vendors that sells art and crafts at many locations adjacent to the highway. The association has about 150 members who pay fees for vending space. The vendors sell jewelry, silver, and crafts.

The Gap is a potential location for additional retail development. Several attractive stone structures in the community have the potential to be renovated and used for commercial enterprises; however, structural and environmental assessments of these structures have not been performed.

2.2.6 Household purchases

Table 20 shows the distribution of average annual expenditures of households in the Western United States by income level for food, housing, apparel and services, transportation, health care, and entertainment.

Table 20: Average Annual Expenditures in the Western U.S, 1999-2000

1999 Household Income	Food	Housing	Apparel and Services	Transportation	Health Care	Entertainment
Less than \$5,000	\$2,781	\$7,560	\$1,017	\$2,772	\$822	\$1,358
\$5,000 to \$9,999	\$2,805	\$6,264	\$933	\$2,741	\$1,202	\$809
\$10,000 to \$14,999	\$3,182	\$8,119	\$895	\$3,983	\$1,652	\$1,114
\$15,000 to \$19,999	\$4,267	\$9,081	\$1,507	\$5,333	\$1,955	\$1,070
\$20,000 to \$29,999	\$4,642	\$10,216	\$1,698	\$5,956	\$1,772	\$1,514
\$30,000 to \$39,999	\$5,002	\$12,394	\$1,881	\$7,240	\$1,798	\$1,699
\$40,000 to \$49,999	\$5,929	\$14,764	\$2,009	\$9,211	\$2,043	\$2,202
\$50,000 to \$69,000	\$6,530	\$16,750	\$2,164	\$8,870	\$2,362	\$2,697
\$70,000 and over	\$9,171	\$25,482	\$4,054	\$14,997	\$2,805	\$4,402

Source: 2000 U.S. Census, U.S. Department of Labor Consumer Expenditure Survey

Table 21 estimates the expenditure potential – local buying power – for convenience goods, shopper’s goods, and entertainment of households within the Bodaway-Gap Chapter. Households in the Chapter are estimated to spend about \$5 million per year at the major store types listed in the table below.

These figures were derived from 1999 household income data for the Chapter and regional data on typical household expenditure patterns by income level. The analysis considers the number of households by income range and typical expenditures for households at each income level. The total purchasing potential of the Chapter is the collective potential of all households. The methodology used to derive these estimates is explained further in Appendix 5.3.

Table 21: Expenditure Potential

Expenditure Potential	
Convenience Goods	\$1,989,738
Food	\$1,254,894
Drugs	\$150,815
Gasoline and Motor Oil	\$476,026
Tobacco Products and Services	\$108,003
Shopper's Goods	\$1,735,400
Apparel and Services	\$734,641
Personal Care Products and Services	\$220,745
Household Supplies	\$192,728
Furniture and Equipment	\$587,286
Entertainment	\$1,523,571
Restaurants	\$783,849
Entertainment	\$739,723
Total	\$5,248,709

Source: 2000 U.S. Census, U.S. Department of Labor Expenditure Survey

2.2.7 Tourism

Tourism is a major contributor to the economy of the region surrounding the FBFA. Visitors to the region's spectacular cultural and natural attractions provide economic development opportunities for Bodaway-Gap Chapter and the other chapters affected by the former Bennett Freeze. This section includes a description of regional tourism, describing the general characteristics of visitors to and attractions on the Navajo Nation and regional destinations surrounding the Chapter, followed by a description of specific opportunities for the Bodaway-Gap Chapter.

Navajo Nation Tourism

According to the 2002 Navajo Nation Visitation and Economic Impact Study, the tourism industry on the Navajo Nation has an economic impact of \$100 million and supports 3,507 jobs.

The primary reasons that visitors come to the Navajo Nation are for its scenic attractions and beauty and to engage in outdoor recreation. The seclusion of the Navajo Nation is ideal for visitors to get away for sightseeing, hiking, and boating, as well to shop for arts and crafts. The number one activity for visitors is general sightseeing, followed by visiting Tribal/National Parks and visiting historic sites. See Table 22 for more information.

In the following tables, 1st quarter includes the months from January through March, 2nd quarter from April through June, 3rd quarter from July to September, and 4th quarter from October through December.

Table 22: Trip Activities

Trip Activities	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
General Sightseeing	90.0%	87.1%	88.0%	89.0%
Visit Tribal/National Parks	56.6%	55.5%	53.1%	60.4%
Visit Historic Sites	51.1%	50.9%	47.3%	52.8%
Visit Museums	24.7%	24.9%	23.0%	24.5%
Hiking/Walking	35.3%	34.5%	32.7%	39.3%
Camping	9.5%	15.5%	15.4%	13.3%
Wildlife/Bird-watching	9.3%	11.5%	11.2%	11.8%
Shopping	39.8%	35.8%	40.4%	42.0%
Looking/Buying Arts & Crafts	37.1%	38.1%	39.8%	48.0%

Source: Navajo Nation Visitation and Economic Impact Study, 2002

The highest expenditure for visitors to the Navajo Nation is on lodging and camping. While tourists are vacationing on the Navajo Nation and spending a great deal of time outdoors, 79 percent of lodging is taken in hotels (Table 23).

Table 23: Average Visitor Expenditures

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Lodging/Camping	\$200	\$233	\$214	\$201
Restaurant/Grocery	\$125	\$151	\$142	\$133
Recreation/Entertainment/Sports/Entry Fees	\$136	\$101	\$102	\$87
Shopping	\$156	\$170	\$175	\$209
Transportation/Gasoline	\$141	\$134	\$161	\$171
Other Expenditures	\$164	\$130	\$262	\$190

Source: Navajo Nation Visitation and Economic Impact Study, 2002

The average length of stay for visitors ranges from 4.3 days to 6.5 days, depending on the time of year. Tourists who visit the Navajo Nation between July and December tend to stay up to two days longer than those who visit from January to June (Table 24).

Table 24: Length of Stay

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Average Length of Stay	4.3 days	4.6 days	5.2 days	6.5 days
Day Visitors, Average Stay	3.3 hours	3.9 hours	6.6 hours	6.4 hours

Source: Navajo Nation Visitation and Economic Impact Study, 2002

The study also revealed that domestic visitation to the reservation consisted of 80 percent of the Navajo Nation's visitors. Visitors from Arizona accounted for 15.1 percent of that number, followed by California with 14.5 percent and Colorado with 6.8 percent. Secondary domestic markets include Massachusetts, New York, and Texas. International visitation represents the other 20 percent. Primary international markets include Britain, Germany, and France.

Regional Tourist Destinations

Coconino National Forest

Coconino National Forest is one of six National Forests in Arizona and covers more than 1.8 million acres. The Peaks District of the Coconino Forest is located north of Flagstaff between I-40 and the Navajo Reservation. The Peaks District includes the 12,643-foot San Francisco Peaks, the highest mountain in Arizona. Visitors come to the Forest for hiking, sightseeing, wildlife watching, and skiing. The Forest provides extensive hiking trails, including backcountry opportunities, scenic drives, camping facilities, cabin rentals, and picnic areas.

Sunset Crater National Monument

Sunset Crater Volcano was born in a series of eruptions sometime between 1040 and 1100. Powerful explosions profoundly affected the lives of local people and forever changed the landscape and ecology of the area. Lava flows and cinders still look as fresh and rugged as the day they formed. The National Monument has hiking trails and nearby camping facilities in the National Forest. The visitor center offers interpretive exhibits, and the staff provides guided hikes and interpretive talks. In 2007, 231,855 people visited the National Monument. Sunset Crater National Monument is located about 14 miles north of Flagstaff off of Highway 89.

Wupatki National Monument

Wupatki was a major trading center, and less than 800 years ago, it was the tallest, largest, and perhaps the richest and most influential pueblo. It was home to 85 to 100 people, and several thousand more lived within a day's walk. The pueblo was built in one of the lowest, warmest, and driest places on the Colorado Plateau.

The park features a visitor's center, interactive museum exhibits, bookstore, and picnic areas; and guided discovery hikes and ranger talks take place throughout the year. Self-guided trails and backcountry hiking are available. There are no camping facilities at the park. In 2007, 239,603 people visited the National Monument. Wupatki National Monument is located off of Highway 89, about 33 miles from Flagstaff.

Kaibab National Forest

The Kaibab National Forest is part of the largest contiguous pine forest in the U.S. Bordering both the north and south rims of the Grand Canyon, the 1.6 million acres of the Kaibab offer breathtaking views, outstanding forest scenery, and unusual geologic formations. The Tusayan Ranger District of the Kaibab National Forest is located south of Grand Canyon National Park and is accessible from Highway 64. Recreation activities in the Forest include hiking, trail rides, mountain biking, sightseeing, cross-country skiing, wildlife viewing, and camping. The Tusayan Ranger District also features archeological sites from the KayentaAnasazi culture.

Navajo National Monument

Navajo National Monument preserves three of the most intact cliff dwellings of the ancestral Puebloan people (Hisatsinom). The Navajo people who live here today call these ancient ones Anasazi. The monument is high on the Shonto Plateau, overlooking the Tsegi Canyon system. The monument features a visitor's center, three short self-guided mesa top trails, two small campgrounds, a picnic area, and backcountry hiking. In the summer, rangers guide visitors on tours of the KeetSeel and Betatakin cliff dwellings. Tours are usually available during the spring and fall months as well.

In 2007, 69,445 people visited the Navajo National Monument. The National Monument is located at the end of State Highway 564 off of Highway 160. The Navajo Arts and Crafts Enterprise operate a gift shop in the visitor's center, specializing in Navajo silverwork.

Monument Valley Tribal Park

Monument Valley is one of the most iconic and photographed images of the American Southwest. The valley contains sandstone formations that tower at heights of 400 to 1,000 feet. The fragile pinnacles of rock are surrounded by miles of mesas and buttes, shrubs, trees, and windblown sand, all comprising the colors of the valley.

The Monument Valley Navajo Tribal Park Visitor's Center provides a panorama of the Mitten Buttes and Merrick Butte. The Visitor's Center provides a venue for tourists to purchase guided tours from Navajo tour operators. During the summer months, the Visitor's Center also features Haskenneini Restaurant and a souvenir shop. Near the center, numerous Navajo vendors sell arts, crafts, souvenirs, and food at roadside stands. The Visitor's Center is open 7:00 a.m. to 7:00 p.m. in the spring (March – April) and 6:00 a.m. to 8:00 p.m. in the summer (May – September). The Monument Valley Navajo Tribal Park Scenic Drive is open year-round.

The first hotel ever built inside the Monument Valley Navajo Tribal Park, The VIEW Hotel, is scheduled to open in late summer 2008. The VIEW Hotel is situated adjacent to the park visitor center. Every guest at The VIEW will have an unobstructed view of the famous Mitten formations.

The VIEW Restaurant and Store are open as of 2008. The store offers Indian arts and crafts, which are certified and licensed as authentically handmade by Native Americans. The store showcases one of the largest Navajo rug collections, bought directly from the weavers who made them. Visitors will find arts and jewelry along with memorabilia of Monument Valley, from one-of-a-kind artifacts to souvenirs of Hollywood movies shot on location within view of the hotel. The VIEW will offer park tours ranging from partial-day to full-day tours guided by certified Navajo guides.

Figure 12 shows tourist destinations in the region.

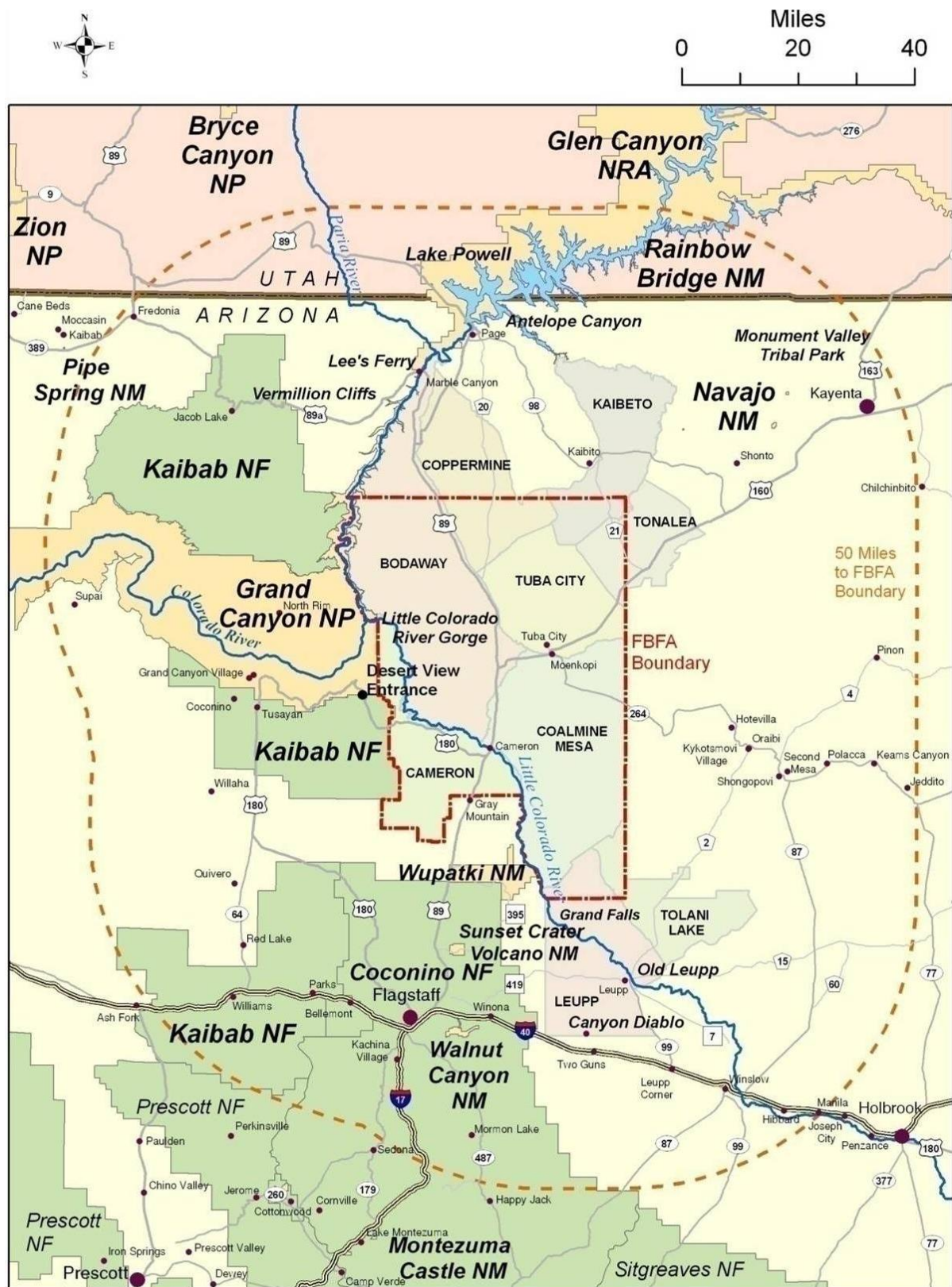


Figure 12: Former Bennett Freeze Area Regional Tourism

Source: Sites Southwest LLC.

Tourist Opportunities for Bodaway-Gap Chapter

At least two issues will impact the potential of tourism development in the Chapter. First, the Federal Aviation Administration (FAA) mandates that air traffic over the Navajo Reservation must avoid the Grand Canyon, which creates a nuisance for residents and livestock owners as flights are diverted over the Bodaway-Gap Chapter. The Chapter will have to work with the FAA to minimize the impact of this diverted air traffic to prevent its eroding the peacefulness of the area. Second, the border dispute between the Navajo Nation and the Glen Canyon National Recreation Area has the potential to limit access to the Colorado River by tourists visiting the Chapter.

Highway 89 runs north from Flagstaff, through Cameron and toward Page along the eastern boundary of the Bodaway-Gap Chapter. Highway 89 is a vital component of the transportation infrastructure in the region. It connects visitors with several of the regional tourist destinations and is an important corridor for trucking traffic. Additionally, the topography of the Chapter provides many roadside locations that can be developed as scenic viewpoints and rest areas. These locations can be developed as picnic facilities, sites of cultural or environmental significance, and visitor's centers for tourists. These locations can also serve as vendor space from which local entrepreneurs can display and sell their arts and crafts products to tourists.

The 2007 annual average daily traffic (AADT) counts (the total volume of vehicle traffic on a road for a year divided by 365 days) on Highway 89 between Cameron and Page range from 3,000 to 7,900 vehicles. The highest AADT count is between the turn-off for State Road 64, south of Cameron, and the turn-off for U.S. 160 East. This section of Highway 89 has an annual average of 7,900 vehicles (Table 25).

Table 25: 2007 AADT on Highway 89

Location	Beginning Mile Post	Ending Mile Post	2007 AADT
SR 64 to U.S. 160 East	465	481	7,900
US 160 to Bitter Springs	481	524	4,000
Bitter Springs to SR 98 - Page	524	546	3,500

Source: Arizona Department of Transportation

The following is a list of tourist destinations that are connected by and accessible from Highway 89 in the vicinity of the Bodaway-Gap Chapter (Table 26).

Table 26: Time and Distance to Tourist Destinations

Tourist Destinations Closest to Bodaway-Gap		
Name	Distance	Driving Time
Little Colorado River Gorge	31 Miles	30 Minutes
Grand Canyon National Park (Desert View Entrance)	65 Miles	65 Minutes
Vermillion Cliffs	46 Miles	50 Minutes
Antelope Canyon	58 Miles	70 Minutes
Lee's Ferry	41 Miles	45 Minutes
Glen Canyon	47 Miles	55 Minutes

Little Colorado River Gorge and Scenic Drive to Grand Canyon

Visitors to the South Rim of the Grand Canyon can take a scenic drive from Cameron to Grand Canyon Village along U.S. Highway 64. This 57-mile paved drive climbs from Cameron up the eastern flank of the Kaibab Plateau to the Desert View Entrance of Grand Canyon National Park, where it continues along the canyon's South Rim to the Grand Canyon Village.

The scenic drive follows the Little Colorado River Gorge, passing through the Little Colorado River Tribal Park, which is run by the Navajo Parks and Recreation Department. At Cameron, the Little Colorado River no longer meanders and is confined within the canyon. Here it begins a rapid 2,000 feet descent to the Colorado River, 30 miles away. Two overlook areas along the scenic road from Cameron to the Grand Canyon provide amenities such as rest areas, ramadas, fireplaces, and tables. Numerous Native vendors sell their handmade crafts at each overlook.

The Little Colorado River Gorge also offers difficult hiking trails for experienced hikers. The most popular trails are the Hopi Salt Trail and the Blue Springs Trail. Other routes are infrequently used. To reach the trails in the area, long drives on rough dirt roads are required, and roads can become impassable in wet weather.

Grand Canyon National Park

Located in northwestern Arizona, the Grand Canyon is one of the most famous natural sites in the USA and is a World Heritage Site. Most visitors to the Grand Canyon National Park visit the South Rim, which is easily accessible from Flagstaff.

The South Rim of the Canyon provides extensive services for visitors, including a visitor's center, scenic overlooks, free shuttle service, ranger programs, bookstore, museum, and educational programs. Hiking trails at the South Rim range from paved, easy walks to steep, strenuous hikes. There are several lodging options at the South Rim, including six hotels and three campgrounds, including sites with hookups. Other services at the South Rim include a bank, laundry, kennels, garage services, child daycare, and a community library. Dining options at the South Rim are also extensive and include several restaurants and two grocery stores.

The South Rim has two entrances. Most visitors enter through the South Entrance, which is located on Highway 180, 75 miles from Flagstaff. The Desert View Entrance (East Entrance) is located on Highway 64, 30 miles from Cameron.

In 2007, a total of 4,413,668 people visited the Grand Canyon, and almost all of them visited the South Rim (94 percent). Of these visitors to the South Rim, 82 percent used the South Entrance and 18 percent used the Desert View Entrance.

Vermillion Cliffs National Monument

The 3,000-foot escarpment of the Vermillion Cliffs reveals seven major geologic formations in layer-cake fashion. This remote, unspoiled 294,000-acre national monument is a geologic treasure of towering cliffs, deep canyons, and spectacular sandstone formations, containing the Paria Plateau, Vermillion Cliffs, Coyote Buttes, and Paria Canyon. Elevations range from 3,100 to 6,500 feet. Activities at the National Monument include scenic driving, geologic sightseeing, hiking, backpacking, bird-watching, photography, and wildlife and plant viewing.

Permits, which are available on the Internet, are required for hikes in Paria Canyon and the Coyote Buttes area. Visits to the area require special planning and awareness of potential hazards

such as rugged and unmarked roads, venomous reptiles and invertebrates, extreme heat, deep sand, and flash floods. Vermillion Cliffs National Monument is located approximately 30 miles southwest of Page, Arizona

Antelope Canyon – Lake Powell Navajo Tribal Park

Located in the Lechee Chapter, Antelope Canyon is a breathtaking slot canyon with majestic and narrow passages with just enough space for a small group to walk the sandy floor. The canyon is dry most of the year, but it sometimes floods after rains, draining into Lake Powell and slowly wearing away the sandstone grain by grain.

Visitors must have an authorized guide to the Upper and Lower areas of Antelope Canyon. The entrance station is located along Highway 98 near Page, Arizona. The entrance station is open during the summer (March – October) from 8:00 a.m. to 5:00 p.m. The entrance station is closed for the winter season, but the canyon is still open. The entry fee is \$6.00 for general admission. Visitors must hire a guided tour to enter the canyon, and tour fees are not included in admission.

Lee's Ferry, Marble Canyon, Navajo Bridge

Lee's Ferry is a small settlement on the Colorado River about five miles southwest of Page, Arizona and the Glen Canyon Dam. It is the former site of a ferry established by John D. Lee, a Mormon settler. Today, the site is used for fishing and is the principal launching point for rafting and float trips through the Grand Canyon. In 2007, 63,897 visitors entered the Glen Canyon National Recreation Area at Lee's Ferry. The National Park Service runs a campground at Lee's Ferry with modern bathrooms and potable water.

Lee's Ferry is officially the beginning of the Grand Canyon as the land slopes gently down to the west side of the river. There are several buildings at the site that were built beginning in 1874 along with a steamboat abandoned in 1913 by a mining company.

A short distance downstream from Lee's Ferry, there are cliffs on both sides that become steadily higher as the Colorado River flows south. This initial section is known as Marble Canyon, named for its colorful rocks.

Lee's Ferry is located near the Navajo Bridge, the only bridge to cross the Colorado River for a stretch of 600 miles. The original bridge was built in 1929 and remains a pedestrian bridge today. The National Park Service runs an interpretive center at the bridge with a bookstore, outdoor exhibits, and a self-guided walk across the bridge.

Glen Canyon National Recreation Area and Lake Powell

Encompassing over 1.2 million acres, Glen Canyon National Recreation Area offers for water-based and backcountry recreation. The recreation area stretches for hundreds of miles from Lee's Ferry in Arizona to the Orange Cliffs of southern Utah, encompassing scenic vistas, unusual geographic features, and a panorama of human history.

Rainbow Bridge National Monument, the world's largest natural bridge, is accessible from Lake Powell in the Glen Canyon National Recreation Area. Rainbow Bridge can be visited by boat from Lake Powell or by foot through rough canyon country for experienced hikers.

The National Recreation Area has three visitor centers, five designated campgrounds and primitive camping along the shore of Lake Powell, and hotel rooms at Wahweap and Bullfrog.

In 2007, 1,894,114 people visited the National Recreation Area, which is a major recreation and tourist destination for the surrounding states.

Roadside Vending

Significant commercial activity takes place along Highway 89, primarily during the summer months when tourist traffic is high. The Antelope Trails Vendors Organization (ATVO) is a group of vendors that sells art and crafts at many locations adjacent to the highway.

The area has several potential locations for additional retail development. For instance, at the Gap, several attractive stone structures in the community have the potential to be renovated and used for commercial enterprises; however, structural and environmental assessments of these structures have not been performed.

2.3 Land and Water Resources

The Chapter land mass consists of the six main communities, rangeland, and open space. The majority of communities consist of housing developments, houses of worship, airstrip, basketball courts, and abandoned buildings. The community of the Gap has the most Chapter public facilities and services. Public facilities include the Chapter House, which is also used as the Senior Center, the Gap Preschool and Head Start, the Chapter administrative offices, a solid waste transfer station, the Gap Trading Post, a gas station and service center, and Tsinaabaas Hibitiin Grade School. A small cemetery is also located in the Gap. The majority of roads are dirt/gravel and in need of upgrading.

The remainder of the Chapter land is rangeland and open space. Approximately 95 percent of the Chapter's land is used for grazing cattle and sheep. Some homes are located in the rangeland and tend to be owned by cattle or sheep ranchers. In most cases, utilities have not been extended to these scattered homesites, unless those homes are located along major roads with utilities.

2.3.1 Land Status

The Chapter is comprised of trust land with no private holdings. A portion of the San Juan Paiute Reservation is located within the Chapter boundary. Almost 83 percent of the Bodaway-Gap Chapter is located in the former statutory Bennett Freeze Area, which involves parts of the 1934 extension of the Navajo Nation. Because these lands were in dispute between the Navajo and Hopi Tribes, Interior Secretary Bennett placed a hold on construction, development, and the rehabilitation of structures in 1966.

In 1980 the Hopi Tribe succeeded in getting an amendment to the Relocation Act (P.L. 93-531), which enacted the Bennett Freeze into law. The law required the approval of both tribes for any construction in the 1.4 million acres located west of the Hopi Reservation. As a result of the freeze, over 50 percent of the population was deprived of housing improvements, waterlines, and power line development for over 30 years. In 1992, the court ordered the Bennett Freeze to be lifted, but a subsequent appeal by the Hopi Tribe resulted in only portions of the freeze being lifted.

In 2006, Navajo and Hopi leaders signed an Intergovernmental Compact, which was approved by a federal court in 2007, lifting the Bennett Freeze. The compact clarifies the boundaries of the Navajo and Hopi reservations in Arizona and ensures that access to sacred sites of both tribes is protected.

The Chapter is experiencing land disputes within and at its border. According to the Navajo Nation Land Department, the Grand Canyon Enlargement Act identifies the eastern rim of the Grand Canyon as the eastern-most border of the national park. This constitutes the western border of both the Navajo Nation and the Chapter.

The Chapter boundaries overlap with the Cameron Chapter near the Little Colorado River. The process for addressing inter-chapter land overlap is handled by the Natural Resources Committee of the Navajo Nation. Appeals are heard in the Navajo Nation's District Court and Supreme Court. According to the Navajo Nation Land Department, the Navajo Nation established a 12-member commission to resolve overlap issues and to survey Chapter borders, but the commission is not operational at this time.

Grazing

The majority of the Chapter's land mass is open space used for grazing. Ranger stations to patrol grazing land within the Chapter are located far away, in either Chinle or Shiprock. The lack of ranger stations within the Chapter has resulted in insufficient range enforcement. Many people with grazing permits fear that their livestock will be stolen due to these deficiencies, and others fear that lack of enforcement will lead to overgrazing, as people exceed their limit on livestock.

There is a lack of range preservation programs and public education in the former Bennett Freeze area (FBFA) in particular and throughout the Chapter in general. The lack of an adopted range management plan has resulted in deteriorating conditions. Overgrazing has caused increased soil erosion and inadequate vegetation for livestock. Most grazing areas are not clearly identified or fenced. This can result in loose cattle that damage cultural sites, invade homesites, and cause irreversible damage to environmentally sensitive areas such as steep slopes and riparian corridors.

The current grazing regulation system, developed in 1944, divided the Navajo Nation into 19 Range Management Districts. Regulations governing grazing use are contained in the Navajo Grazing Regulations (CFR 25, Part 167). The purpose of these regulations is to preserve land and water resources on the Navajo Nation and rebuild deteriorating resources. These regulations also have the following objectives:

- Adjust the number of livestock to the carrying capacity of the range to preserve the health and sustainability of livestock on the Navajo Nation
- Secure increasing responsibility and participation of the Navajo people, including tribal participation in all basic policy decisions, in the sound management of grazing lands
- Improve livestock through proper breeding practices and the maintenance of a sound culling policy
- Establish range units to promote conservation, manage development, and guide effective use of range resources

The Chapter lies in Grazing District 3, Range Management Unit 3 (Figure 13). The grazing information presented in this assessment was taken from the *Western Agency Grazing Compliance Report 1999*, which was prepared by the BIA Navajo Western Agency, Branch of Natural Resources.

GRAZING DISTRICTS

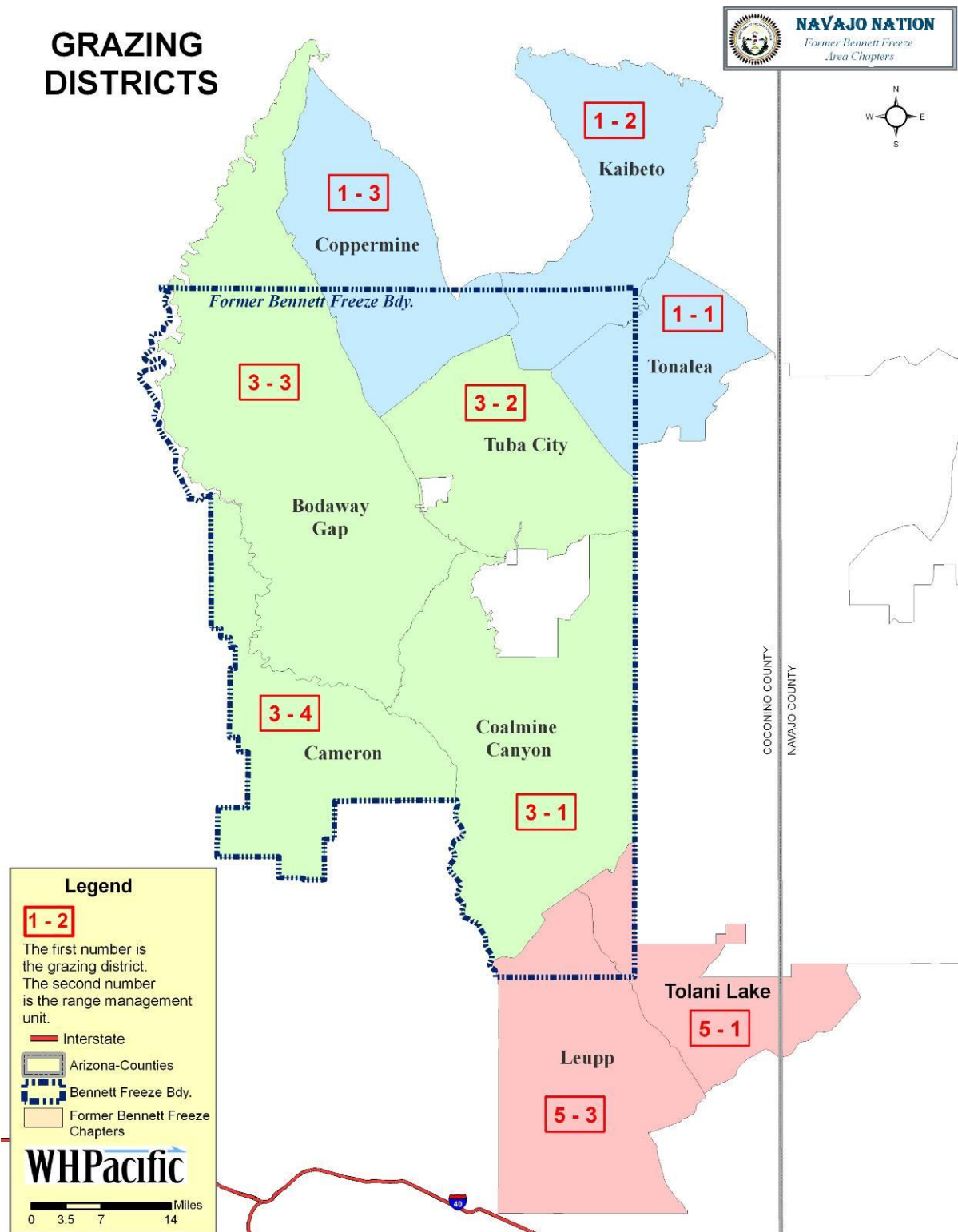


Figure 13: Grazing Districts

GRAZING, AGRICULTURE AND AREAS OF AVOIDANCE

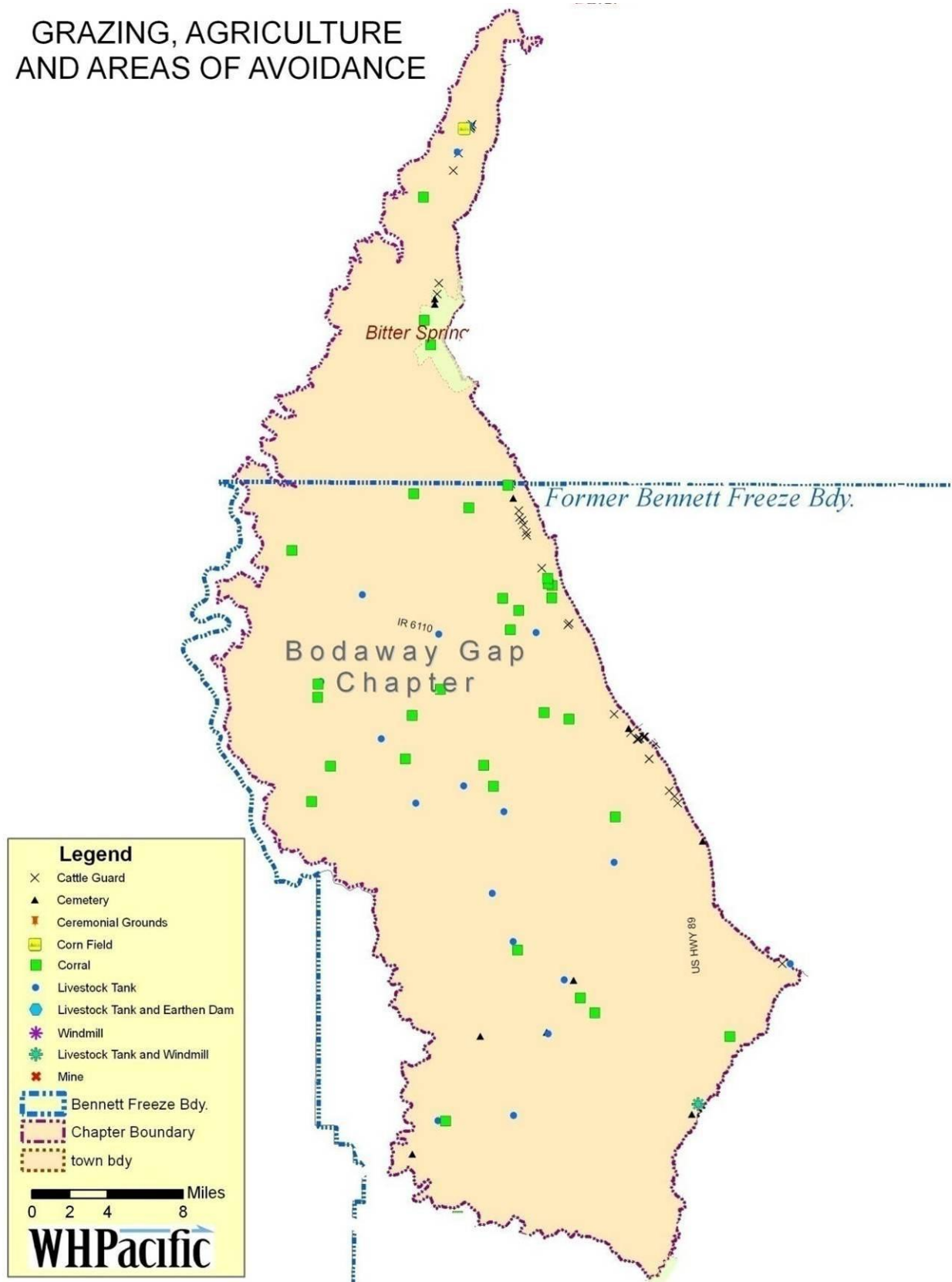


Figure 14: Grazing, Agriculture, and Areas of Avoidance

Uranium Mines

The aftereffects of previous mining activities have threatened the environmental quality of several areas within the Chapter. There are 24 abandoned uranium mines located throughout the southern portions of the Chapter. Heavy metals and radiation have been detected at five locations. Areas with higher than normal radiation are located at Highway 89 between the Junction and Hidden Springs. Seven areas have been identified as posing a health risk to tribal members.

Burial Sites

Burial sites are located throughout the Chapter. These sites need to be considered when sites are being reviewed for their development potential. The Chapter should consider selecting a location as a community cemetery.

Water Resources

The drought has severely impacted the quality of grazing land within the Chapter. Many Chapter members earn their income from ranching, and the drought has negatively affected them.

The lack of groundwater prohibits windmill development, and existing earthen stock tanks have dried up due to the drought. Tribal members have had to haul water for both personal use and livestock. Tribal members have adapted to the shortage of water by traveling to the Gap to collect water at a community well.

Water rights from the Colorado River have been tied up in litigation for many years. Tribal members feel they should have access to the Colorado River, based on historical use.

The Chapter wants to develop a water conservation educational program and build a waterline that delivers water to the Chapter from above Echo Cliffs. The Soil and Water Conservation Service, the Chapter's Grazing Official, and the Water Development Office have initiated a community educational program to address these needs.

2.3.2 Preliminary Environmental Assessments

In this region, areas that are considered environmentally sensitive include one or more of the following environmental characteristics: steep slopes, flood plains, stream corridors, fault areas, soils classified as having high water tables or high erodibility, habitats of endangered species, and scenic and cultural areas.

Topography and Drainage

Elevations in the Chapter vary between 3,000 feet at the Colorado River to 7,000 feet atop the Echo Cliffs. The topography within the Chapter provides many roadside locations that can be developed as scenic viewpoints and rest areas.

Ephemeral water channels cross the communities and drain surface runoff from Echo Cliffs in the east into the Colorado River and Tanner Wash, or Hamblin Wash to the west. Slopes are mild to steep, and generally angle downwards gently from east to west. The terrain between Echo Cliffs and the Colorado River is primarily flat and interspersed with small mesas and ephemeral drainages. A USGS topographic map shows the topography (Figure 15).

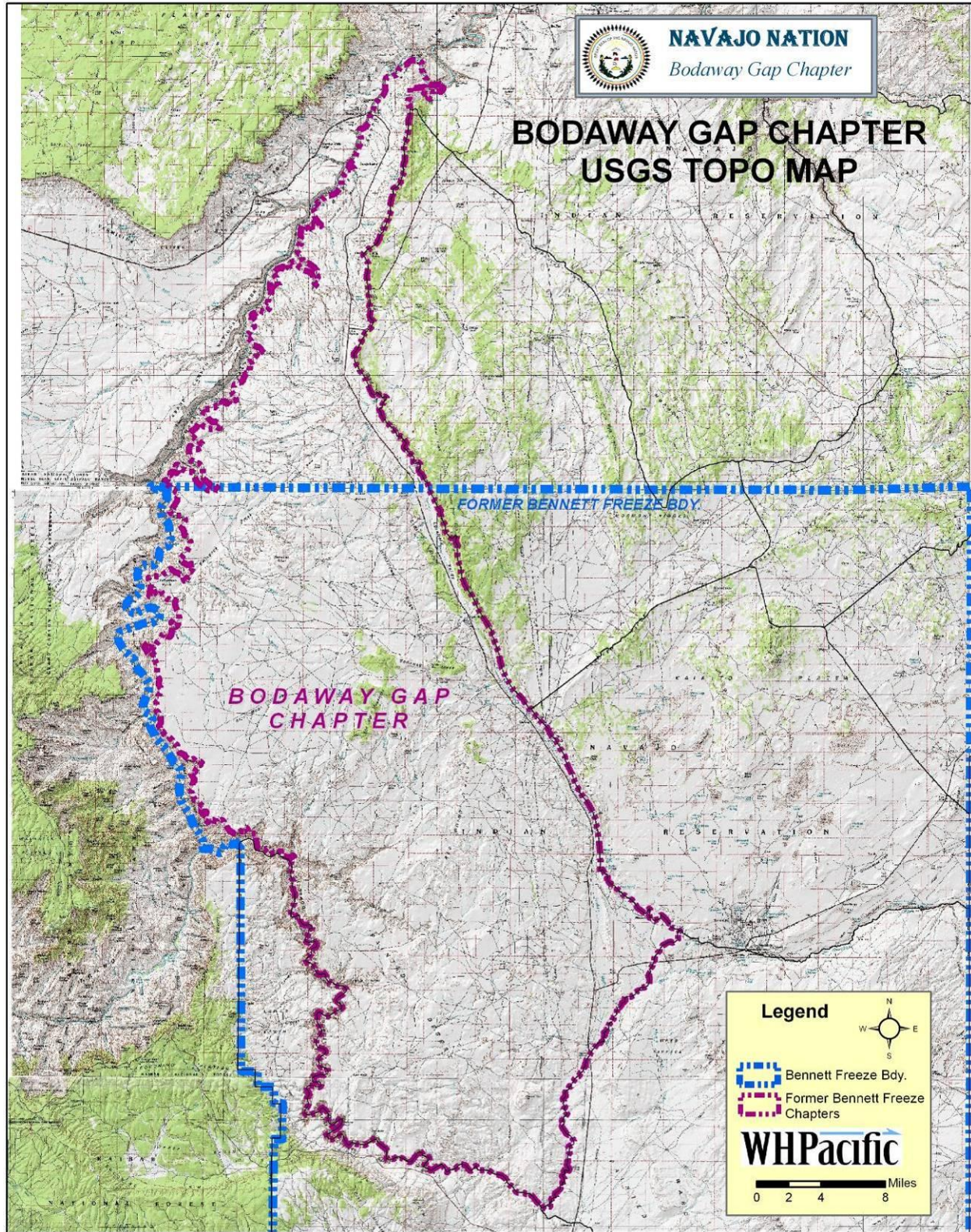


Figure 15: Topography

Surface Water

All water resources within the Navajo Nation are under the jurisdiction of the Navajo Nation Water Code and are subject to the water management practices of the Navajo Nation. The Navajo Nation has enacted the Navajo Nation Clean Water Act, Water Quality Standards, and the Discharge Elimination System to protect the quality of water resources on the reservation. The Navajo Water Code prohibits any development within a half-mile of a well or windmill.

Surface water sources within the Chapter consist of the Colorado River, Little Colorado River, Tanner Wash, Hamblin Wash, Moenkopi Wash, several reservoirs, ephemeral washes, and several springs located along Echo Cliffs.

Bodaway-Gap is located in the Colorado River Basin. The Colorado River is the largest source of surface water in Arizona. The Arizona Department of Water Resources estimates that 14 million acre-feet of water flow through the river every year. Navajo Nation water rights to the main stream of the Colorado River remain unresolved. Furthermore, access to Colorado River water is complicated by legal, physiographic, and environmental factors.

An estimated median annual flow of the Little Colorado River at the reservation border is 162,900 acre-feet with a median flow of 222,450 acre-feet. The erratic flow and high sediment load of the Little Colorado River create challenges to water development. Ongoing water rights negotiations may result in funding for critical tribal water development in this basin.

Water resources within the Chapter are largely inaccessible due to the arid climate, low average annual rainfall, legal and political disputes, environmental issues, and the severe drought affecting the Chapter and the rest of the Navajo Nation.

Soils

One of the most impressive soil features in the Chapter is the Painted Desert. It is located in the southern portion of the Chapter and is generally found west of Highway 89, east of the Grand Canyon, and south of Big Canyon.

The Natural Resource Conservation Service (NRCS) is in the process of conducting a soils inventory of the Chapter. Each soil unit identified has characteristics that can be used to determine the development potential of the Chapter. While several soil unit maps have been created as part of the inventory, they are incomplete and the data is subject to revision. The soils that have been identified are as follows:

- Tsaya-Typic Haplocalcids – Typic Calciargids Complex
- Haplocalcids – Rock Outcrop Complex
- Typic Calciargids – Lithic Torriorthents Complex
- Moffat and Spooky Family Soils
- Rochpah Family Complex
- Ioka-Exfo Families Rock Outcrop Complex
- Farb-Hoskinnini Families Complex
- Mellenthin Family Soils – Placitas Family Complex
- Progresso Family – Skos Soils Complex
- Meriwhitica Soils – Rock Outcrop Complex
- Reef-Progresso Family – Skos Complex

Descriptions of each of these soil types are located in Appendix 5.4.

Locations of these soil units can be seen in the Preliminary Site Sketches section (Section 3.7.2) of this document. Several soil units illustrated in the Land Suitability Maps have not been characterized. These units are 137, 155, 251, 253, and 552. The Chapter should contact the U.S. Natural Resources Conservation Service (NRCS) once the soil inventory is complete to determine the name and characteristics of these units and how their characteristics impact the development potential of each site.

Faults

Faults are generally caused by earthquakes. The Colorado Plateau, which includes the Navajo Nation, lacks recent faulting or volcanic activity. The Plateau interior is defined by a thick crust and a general lack of seismic activities. According to a Bausch and Brumbaugh report from 1994, the projected maximum earthquake ground accelerations are far below a level that would warrant earthquake designs. Since this region is not considered a fault-prone area, the chances for earthquakes are minimal.

Flood Plains

Historical surface water flow data is not available for most of these areas, nor are flood plain maps. There is no evidence of wetland conditions. Flood plain boundaries have not been determined by federal, state, or tribal entities. An inquiry with the Federal Emergency Management Agency revealed that the Flood Insurance Rate Map (FIRM) for the unincorporated areas of Coconino County, Arizona, dated June 5, 1997, showed that all areas of the Navajo Indian Reservation have not been mapped for flood plain hazards.

As of 2008, the Navajo Nation Department of Water Resources was working with the U.S. Corps of Engineers to develop a work plan to address numerous flood control issues on the Navajo Reservation. The first phase is expected to identify the Probable Flood Prone Areas on the reservation, delineate the 100-year flood plain maps for seven growth areas, and prepare a flood design manual. The Chapter should continue to follow this plan development and incorporate its findings in the CLUP as they become available.

Federally funded projects, such as housing projects undertaken by the Navajo Housing Authority (NHA), usually require flood plain boundary delineation by a certified engineer. Such an evaluation should consider historical precipitation data, size and characteristics of the watershed, and a cross-sectional profile of the stream near the point of interest.

Vegetation and Wildlife

Several federal laws are designed to protect vegetation and wildlife resources within the Navajo Reservation. These laws include the National Environmental Policy Act, the Endangered Species Act, the Eagle Protection Act, and the Migratory Bird Treaty Act.

The federal government mandates the protection of endangered species found in the Colorado River. These species include the humpback chub, razorback sucker, Colorado pikeminnow (formerly known as the Colorado squawfish), and the bonytail chub.

Vegetation and wildlife resources are also protected by the Navajo Nation Department of Fish and Wildlife, which is within the Division of Natural Resources. The Resources Committee has oversight responsibility of the Department. Accordingly, the Resources Committee developed Biological Resources Land Clearance Policies and Procedures. The purpose of these Policies and Procedures is to ensure compliance with federal and Navajo Nation laws that protect plant and animal species and their habitat. The Policies and Procedures include maps that designate six Wildlife Areas across the Navajo Reservation. Various restrictions apply to each area with regard to development activity and the protection of biological resources. The Wildlife Area Map (Figure 16) presents the Wildlife Areas within the Bodaway-Gap Chapter.

The Policies and Procedures also determine whether a development project will require a Biological Evaluation. According to the Policies and Procedures, a Biological Evaluation

- Documents impacts that a proposed project may have on biological resources
- Must consider direct, indirect, short-term, long-term, and cumulative impacts from actions that are dependent on, or are clearly related to, the proposed development
- Must have Department concurrence that the evaluation of the impacts to wildlife resources is accurate
- Contains accurate information about the location of development, including but not limited to legal description, distance to landmark, and a 7.5' USGS topographic quadrangle map

Additional information regarding a Biological Evaluation is available from the Navajo Nation Department of Fish and Wildlife and should be consulted prior to any development.

Each of the six Wildlife Areas is outlined and described below. Development criteria for each area are available in the Policies and Procedures and can be obtained at the Department of Fish and Wildlife.

Area 1: Highly Sensitive Area

This area contains habitat for endangered and rare plant, animal, and game species, and contains the highest concentration of these species on the reservation. The purpose of this Area is to protect these valuable and sensitive biological resources to the maximum extent possible.

Little or no development is recommended. A Biological Evaluation must be performed for any proposed development in this Area.

Area 2: Moderately Sensitive Area

Buffering and location restrictions are placed on development in this Area due to the high concentration of rare, endangered, sensitive, and game species. A Biological Evaluation must be performed for any proposed development in this Area.

Area 3: Low Sensitivity Area

The fewest restrictions are placed on development due to the low and fragmented concentration of species. Small-scale development to serve the private needs of individuals, such as homesite development and utility lines, can proceed without a Biological Evaluation. All other development requires a Biological Evaluation.

Area 4: Community Development

This Area refers to developed communities that do not support sensitive habitat. A Biological Evaluation is required only if the proposed development could have significant impacts outside of the community or if a certain species is known to exist in the community.

Area 5: Biological Preserve

These Areas contain excellent, or potentially excellent, wildlife habitat and are recommended by the Department for protection from most human-related activities, and in some cases recommended for enhancement. The Department may designate additional Biological Preserve Areas in the future; however, only a few currently exist. Any development within this Area must be compatible with the purpose of the management plan for the Area, if available.

Area 6: Recreational

These Areas are used for recreation and include fishing lakes, camping and picnicking areas, and hiking trails.

Wildlife Area Map

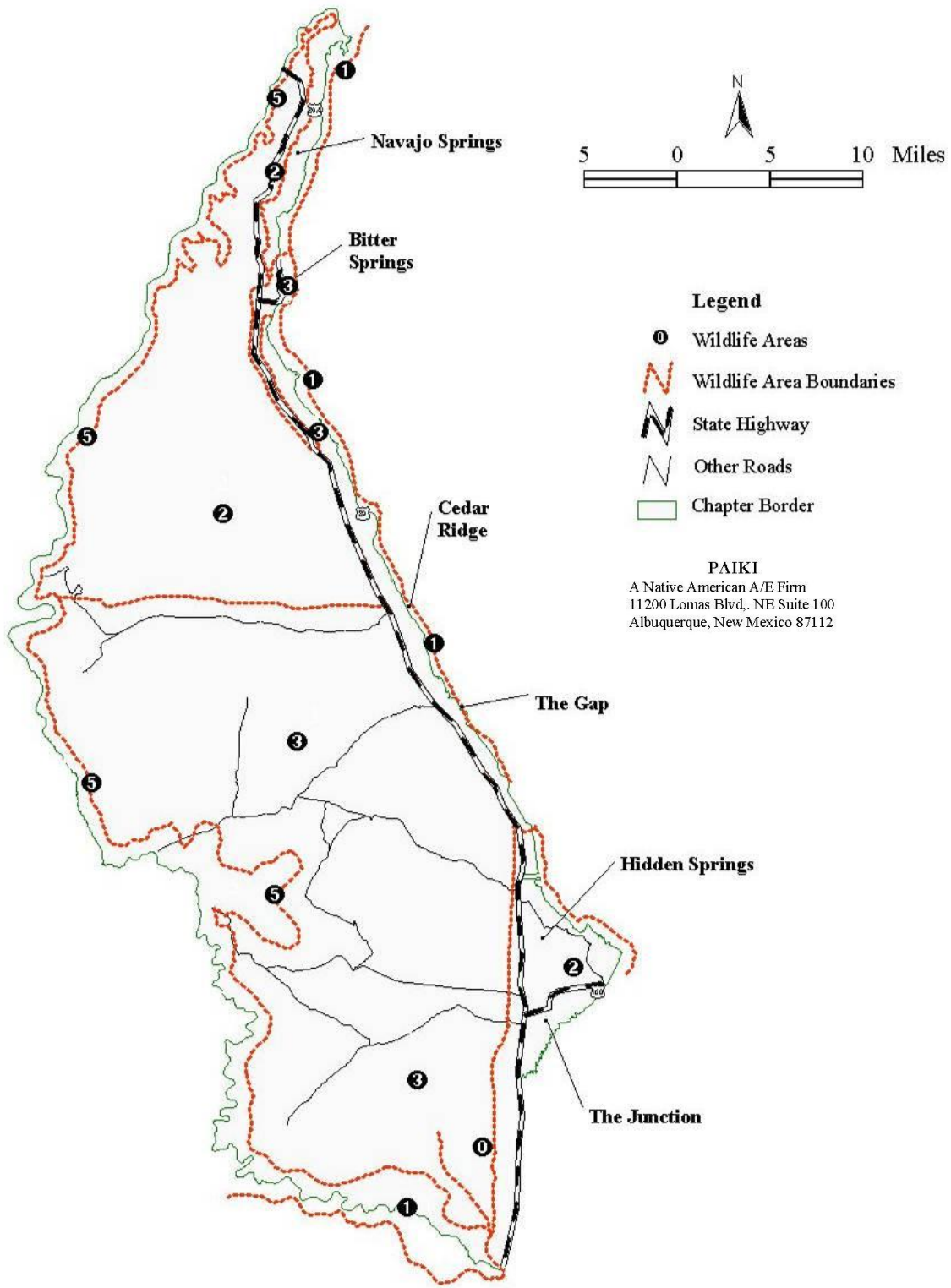


Figure 16: Wildlife Areas

Scenic Areas

The Bodaway-Gap Chapter is surrounded by natural beauty and scenic vistas; however, the Chapter has not specifically identified such areas on the land use map. On June 28, 1996, State Highway 89A between mileposts 525 and 607 was designated a Scenic Highway because of the unique scenic value of Vermillion Cliffs. This designation provides for establishing rest areas, scenic area pull-offs, and interpretive centers. This designation does not prohibit other types of development along the highway.

Cultural Resources and “Areas of Avoidance”

The Navajo’s traditional subsistence lifestyle expresses resourcefulness, ingenuity, and strong connection and understanding of the land. The major means of subsistence consists of grazing sheep and cattle and farming crops such as corn, squash, and beans. The Navajos also use the land to gather a variety of plants/herbs for medicinal and ceremonial purposes and materials for arts and crafts. The areas that provide these resources are considered “areas of avoidance” – traditionally and culturally sensitive areas to be protected from development in perpetuity to preserve their historic significance or ongoing ceremonial use.

Representatives of the Bodaway-Gap Chapter identified numerous sites where traditional cultural properties are found. In particular, the Colorado River, Marble Canyon, Echo Cliffs, Salt Canyon, Tanner Wash, and Shinumo Altar all have significant meaning to Navajo culture and traditions.

The Navajo Nation Historic Preservation Department has surveyed and mapped the locations of several sites, but the entire Chapter has not been surveyed. The Department does not reveal the locations of sensitive cultural sites due to the potential for vandalism, robbery, and the need to protect privacy. Hence the specific locations are not identified on maps.

2.3.3 Land Suitability and Chapter Resources

The Land Suitability Analysis identifies areas that are physically suitable for development. An analysis was done on the whole Chapter that identified six development planning areas. The analysis includes an inventory and analysis of natural and cultural resources that affect land use decisions within the Chapter: water resources, soils, slopes and topography, vegetation and wildlife, culturally significant areas, traditionally sensitive areas, environmentally sensitive areas, and accessibility.

Land Suitability Maps illustrate the overall development potential of the Chapter as well as the six development planning areas. Topographic quadrangle maps produced by the United States Geological Survey (USGS) are used to illustrate topography and slopes. It is important to note that the Bodaway-Gap CLUP Committee requested that specific sites with cultural or archeological significance not be mapped in order to protect the privacy of Navajo cultural resources. Each of the six communities in the Chapter has been designated as a development area for the Chapter.

Accessibility

State Highways 89 and 89A provide access to the six communities in the Chapter. Several roads owned and maintained by the BIA traverse the Chapter and provide additional access to the more remote houses. Road accessibility is not a limiting factor to development at any of the six sites.

Groundwater

Three main aquifers provide water for wells and springs throughout the Navajo Reservation: the Coconino (C), Navajo (N), and Dakota (D) aquifers. They are all composed of permeable sedimentary rock (mainly sandstone), and the quality of water within each aquifer varies greatly within their structures. In the deeper portions of the groundwater basins, water is generally too saline for consumption by humans or livestock. The highest quality water is generally found in the N-aquifer. According to Navajo Nation Water Resources, although groundwater storage greatly exceeds the annual demand, only a small fraction of the groundwater in storage can be readily developed.

The Bodaway-Gap Chapter is located within the Plateau Uplands Province, where groundwater is derived from aquifers. The low population density requires only about three percent of the total groundwater to be withdrawn in Arizona from aquifers located in this province. Wells within the Chapter tap into the C-aquifer. This aquifer has a total storage capacity of approximately 413 million acre-feet and recharges from outcrops on the Defiance Plateau, the Mogollon Rim, and the San Francisco Mountains.

In response to the lack of accessible groundwater resources within the Chapter, the BIA is currently planning the development of a water transmission line from the Coppermine Chapter.

Water quality issues associated with the abandoned uranium mines located within the Chapter have put the community at considerable health risk due to detectable levels of heavy metals and radiation.

Water resources for the Bodaway-Gap Chapter are presented on the Water Resources Map (Figure 17).

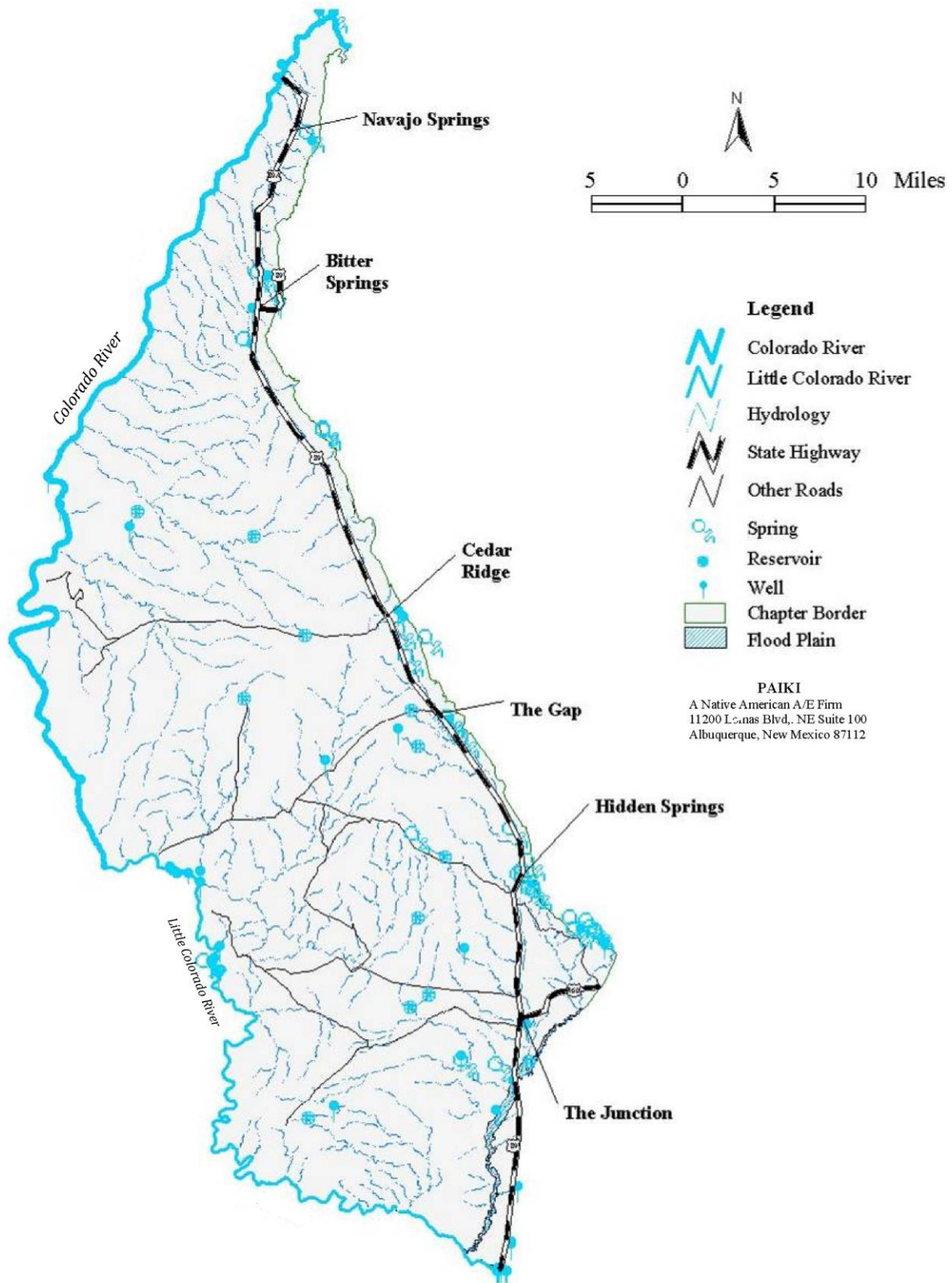


Figure 17: Water Resources Map

Development Areas

Navajo Springs

Navajo Springs is accessible via Highway 89A from the north and south. There is no access to the community from the east or west.

Small ephemeral drainages cross the community and drain surface runoff from Echo Cliffs in the east into the Colorado River to the west. Slopes are mild and slope downwards gently from east to west. Soil units, described in Appendix 5.4, include 113 on the east side of Highway 89A and 115 on the west side of the road. These soil classifications have been approved by NRCS.

Echo Cliffs are designated Wildlife Area 1, which is intended to protect rare and endangered species and their habitat. The area between the base of Echo Cliffs and the Colorado River is designated Area 2, which has a high concentration of rare and endangered species. Biological Evaluations are required for any development within these two areas. A buffer zone of Area 5 is designated along the Colorado River, which is intended to create a biological preserve.

There are no cultural resources within the community of Navajo Springs, although culturally significant sites are located within the general vicinity.

Navajo Spring is identified as having “some risk” to human health due to heavy metals and radiation. Site-specific research will be necessary to determine the extent of the risks to which individual development projects will be exposed.

There are several sites in Navajo Springs with development potential. In particular, areas adjacent to Highway 89A are the most suitable because they have immediate access to the highway, mild slopes, and a minimal potential to disrupt natural drainage patterns.

The Chapter is considering developing a destination resort in Navajo Springs because of the area’s natural beauty and its proximity to area tourist destinations; however, the Chapter can expect competition from existing and future tourism facilities in the area. In particular, the Navajo Nation is in the process of developing the Antelope Marina resort near Page. In-depth research will be necessary to determine the market and financial feasibility of a resort in Navajo Springs.

Perhaps the greatest limiting factor to any development in Navajo Springs is the lack of water resources. The depth to groundwater prohibits well development, while access to the Colorado River remains unlikely due to the political and legal environment surrounding Navajo water rights and border disputes.

Bitter Springs

Highways 89 and 89A provide excellent access to Bitter Springs. Tanner Wash runs along the western edge of the community. Small ephemeral drainages cross the community and drain surface runoff from Echo Cliffs in the east to Tanner Wash.

Slopes are mild and angle downwards gently from Echo Cliffs to Tanner Wash. The terrain between Tanner Wash and the Colorado River is primarily flat but interspersed by deep canyons that join the Colorado River canyon.

Soil units, described in Appendix 5.4, include 116 on the east side of Highways 89 and 89A, a portion of 116 on the west side of Highway 89A, and 120 between Tanner Wash and the Colorado River. These classifications have not been approved by NRCS.

Echo Cliffs is designated Wildlife Area 1, which is intended to protect rare and endangered species and their habitat. The area between the base of Echo Cliffs and Tanner Wash is designated Area 3, where plants and wildlife have a low sensitivity to development. The area between Tanner Wash and the Colorado River is Wildlife Area 2, which has a high concentration of rare and endangered species and where a Biological Evaluation is required for any development.

The Bitter Springs Bible Church and the Church of Jesus Christ of Latter-day Saints are the only cultural resources within the community of Bitter Springs, although culturally significant sites are located within the general vicinity.

Toh De Koinsh Spring and Tanner Wash windmill were identified as having “some risk” to human health due to heavy metals and radiation. Toh De Koinsh Spring is two miles north of Bitter Springs while Tanner Wash windmill is two miles south of the community. Site-specific research will be necessary to determine the extent of the health and environmental risks to which individual development projects will be exposed.

There are several sites in Bitter Springs with development potential. In particular, the area around the intersection of Highways 89 and 89A is highly suitable because it has immediate access to the highways, mild slopes, a low potential for drainage problems, and available utilities. Sites within the vicinity of the subdivision are also highly suitable for these same reasons.

Cedar Ridge

Cedar Ridge is accessible via Highway 89 from the north and south. BIA 6110 provides access from the west. Tanner Wash and Hamblin Washes run through the middle of the community, parallel to Highway 89. Small ephemeral drainages cross the eastern side of the community and drain surface runoff from Echo Cliffs into Tanner and Hamblin Washes.

Slopes within the community are mild and angle downwards gently from Echo Cliffs. The terrain between the two washes and the Colorado River is primarily flat and interspersed with small mesas and ephemeral drainages.

There are a number of soil units, described in Appendix 5.4, within the vicinity of Cedar Ridge. Units 251, 249, 253, 552, and 155 are found between Echo Cliffs and the two washes, on the east side of Highway 89. In the southern portion of the community, unit 222 lies between Highway 89 and Hamblin Wash. On the west side of Highway 89, units 222, 224, 221, and 228 are interspersed with one another. These classifications have not been approved by NRCS.

With the exception of a small buffer along Highway 89, all land east of the road is designated Wildlife Area 1, which is intended to protect rare and endangered species and their habitat. The northern portion of the community on the west side of Highway 89 is designated Wildlife Area 2, which has a high concentration of rare and endangered species. Biological Evaluations are required for development within these two areas. The remaining portion of Cedar Ridge is designated Area 3, where plants and wildlife have a low sensitivity to development.

The Cedar Ridge Bible Church and Cedar Ridge Baptist Church are the only cultural resources within the community, although culturally significant sites are located within the general vicinity.

The central location of Cedar Ridge within the Bodaway-Gap Chapter makes it an ideal location for development that serves the Chapter as a whole. In particular, the area around the intersection of Highway 89 and BIA 6110 is highly suitable because it has immediate access to good roads, flat topography, a low potential for drainage problems, and limited utilities. Sites along Highway 89 are also highly suitable for these same reasons. The greatest limiting factors to development in Cedar Ridge are political issues surrounding the former Bennett Freeze.

The Gap

The Gap is accessible via Highway 89 from the north and south, and BIA 20 provides access from the east. Hamblin Wash runs through the center of the community, parallel to Highway 89.

The Gap lies at the base of Echo Cliffs and adjacent to Hamblin Wash, and slopes are generally steep from both the east and west. The Chapter House, administrative office, and school occupy the flattest portions of the community. Terrain to the east of Echo Cliff is flatter and more suitable for development.

There are a number of soil units around the community. Echo Cliffs contain soil unit 122, the narrow strip between the base of the cliffs and Hamblin Wash is characterized by unit 552, and the strip between Hamblin Wash and Highway 89 is unit 155. The ridges on the west side of Highway 89 are unit 131, and soils further west are a mix of 221 and 228. These classifications have not been approved by NRCS.

All land between Highway 89 and the base of Echo Cliffs is designated Wildlife Area 1, which is intended to protect rare and endangered species and their habitat. Land east of Echo Cliffs is designated Wildlife Area 2, which has a high concentration of rare and endangered species. Biological Evaluations are required for development within these two areas. All land within the Gap that is west of Highway 89 is designated Area 3, where plants and wildlife have a low sensitivity to development.

There are no cultural resources within the Gap, although culturally significant sites are located within the general vicinity. The severe slopes and numerous washes in the Gap limit the development potential along State Highway 89.

The only area in which development is feasible is the current site of the Chapter House, administrative office, and the Gap preschool. There is sufficient acreage available for a significant amount of infill development. The vacant sandstone buildings located at the intersection of State Highway 89 and BIA 20 appear to provide excellent opportunities for adaptive reuse, although no structural and environmental assessments have been completed.

The flat terrain above Echo Cliffs offers suitable sites for future development. While utilities are presently limited, the infrastructure that will be developed to support Tsinaabaas Hibitiin Grade School will provide enormous development opportunity in this area.

Hidden Springs

Hidden Springs is accessible via Highway 89 from the north and south and BIA 23 from the east. Hamblin Wash runs parallel to Highway 89 on the east side of the road, and numerous small ephemeral drainages cross the ridges on the western side of the community to drain surface runoff into Hamblin Wash. The topography of the community is characterized by medium slopes from the western ridges to Highway 89, a flat plateau between the ridges and Hamblin Wash, and mild slopes into the flood plain.

All land from the base of the ridges and eastward is designated Wildlife Area 2, which has a high concentration of rare and endangered species. Biological evaluations are required for development within this area. The remaining western portion of Hidden Springs is designated Area 3, where plants and wildlife have a low sensitivity to development.

The Hidden Springs Baptist Church and the Hidden Springs Bible Church are the only cultural resources within the community, although culturally significant sites are located within the general vicinity.

The greatest limiting factors to development in Hidden Springs are the environmental impacts from uranium mining. Because it is identified as an area that has “some risk” to human health, any development should include intensive testing for radiation and other hazardous conditions.

The most suitable area for development is at the intersection of Highway 89 and BIA 23. This site has immediate access to the highway and flat topography and is not identified as an area with higher than normal radiation.

The Junction

The Junction is accessible via Highway 89 from the north and south and Highway 160 from the east. Moenkopi Wash crosses the southeastern portion of the area and Hamblin Wash runs parallel to Highway 89 on the east side of the road. Numerous small ephemeral washes drain the ridges on the western side of the area. The topography of the area is characterized by medium to steep slopes on ridges throughout the area. Small flat portions intersperse the ridges, and the area flattens to a gentle slope towards Moenkopi Wash.

There are two Wildlife Areas in the Junction. The boundary between the two runs north-south approximately one mile west of Highway 89. Area 2, which has a high concentration of rare and endangered species, is in the east. Biological Evaluations are required for development within this area. Area 3, where plants and wildlife have a low sensitivity to development, encompasses the western areas of the Junction.

There are no cultural resources within the Junction, although culturally significant sites are located within the general vicinity. Perhaps the greatest obstacle to development within the area is the high costs of site preparation and providing utilities. In particular, two potential development sites in the northern area of the Junction will require hydrological studies to contend with apparent drainage problems. The potential environmental issues associated with an abandoned uranium mine in this vicinity will also have to be determined and mitigated, if necessary.

2.4 Infrastructure and Utilities

The availability of infrastructure and utilities is very limited throughout most of the Chapter. Water, sewer, and electricity are available along parts of Highway 89. In most cases, residents not located adjacent to the highway do not have basic utilities.

Existing services are provided by a variety of programs: Navajo Tribal Utility Authority (NTUA) provides water and sewer service, and Frontier Communications, formerly Navajo Communications Company, provides limited telephone service. All Chapter members use above-ground propane tanks for their natural gas needs.

2.4.1 Water Systems

The Chapter is located within the Plateau Uplands Province, where groundwater is derived from the Coconino-aquifer (C-aquifer). The low population density requires only about three percent of the total groundwater to be withdrawn in Arizona from aquifers located in this province. Wells within the Chapter obtain water from the C-aquifer. This aquifer has a total storage capacity of approximately 413 million acre-feet and recharges from outcrops on the Defiance Plateau, the Mogollon Rim, and the San Francisco Mountains. In the deeper portions of the groundwater basins, water is generally too saline for consumption by humans or livestock.

Navajo Springs

The only known sources of water are Navajo Spring and Navajo Spring #2. Untreated water is pumped from these springs into a 20,000-gallon tank, which is used for livestock watering. Until September 2003, residents hauled drinking water from a community well located at the Gap. In 2003, IHS extended 8-inch PVC waterlines from Bitter Springs to Navajo Springs. A new 20,000-gallon tank for drinking water was also built by IHS in 2003 as part of the waterline extension.

Bitter Springs

There are three wells located within Bitter Springs. Well 03T-502 is 428 feet deep and penetrates the C-aquifer; Well 3 Test 2 is 100 feet deep and penetrates the Moenkopi Plateau; and Well 3 Test is 180 feet deep with an unknown water source.

Additional water is available through distribution lines from two wells located above Echo Cliffs in the vicinity of the Gap. This water is stored in Bitter Springs in a 100,000-gallon water tank. Distribution lines within Bitter Springs are generally 6-inch PVC pipe. Four 4-inch and 2-inch laterals service the Bitter Springs subdivision and surrounding homesites.

Cedar Ridge

There are two wells and one 100,000-gallon water storage tank located within Cedar Ridge. Well 03T-531 was drilled in 1964 to a depth of 180 feet, and Well 03T-531A was drilled in the same year to a depth of 125 feet. Water distribution lines within Cedar Ridge are generally two-inch and four-inch PVC pipe.

The Gap

NTUA operates two wells located above Echo Cliffs in the vicinity of the Gap. Well 3T-553 was drilled to 610 feet in 1983 and has a production rate of 132 gallons per minute (gpm); Well 3K-317 was drilled to 605 feet in 1979 and has a production rate of 165 gpm. These wells provide water to Bitter Springs and Navajo Springs through a series of distribution lines parallel to State Highway 89. An additional well is located in the northern area of the Gap on the west side of

Highway 89. GAP TP1 was drilled in 1955 to 100 feet deep. A community well is located at the Gap Chapter House.

A 250,000-gallon water tank is located above Echo Cliffs, and water is distributed in the community through 2-inch and 4-inch distribution lines.

Hidden Springs

Hidden Springs does not offer public water service. Residents must haul and store their own water. Hidden Springs Bible Church operates a well and water storage tank for private use.

The Junction

Well 03T-521, located approximately two miles south of the Junction, was drilled by IHS in 1963 to a depth of 166 feet. It is owned and operated by NTUA.

In response to the lack of accessible groundwater resources within the Chapter, the BIA is currently planning the development of a water transmission line from the Coppermine Chapter. Water quality issues associated with the abandoned uranium mines located within the Chapter have placed the community at considerable health risk due to detectable levels of heavy metals and radiation.

Because of the remoteness of some scattered-site housing, there is an ongoing issue of people drinking water from windmills, which are at risk for bacterial contamination and air-borne contaminants, due to the presence of livestock, and vandalism, due to their remote, unsupervised locations. This issue can be addressed through providing safe drinking water sources closer to these remote homes, a centralized drinking water truck delivery system, and/or improving the water quality testing and treatment of all water sources, including windmills and earthen dams, which will require significant coordination with the relevant existing agencies and departments to expand their role and responsibility in this area. Figure 18 below illustrates existing water infrastructure in the Chapter.

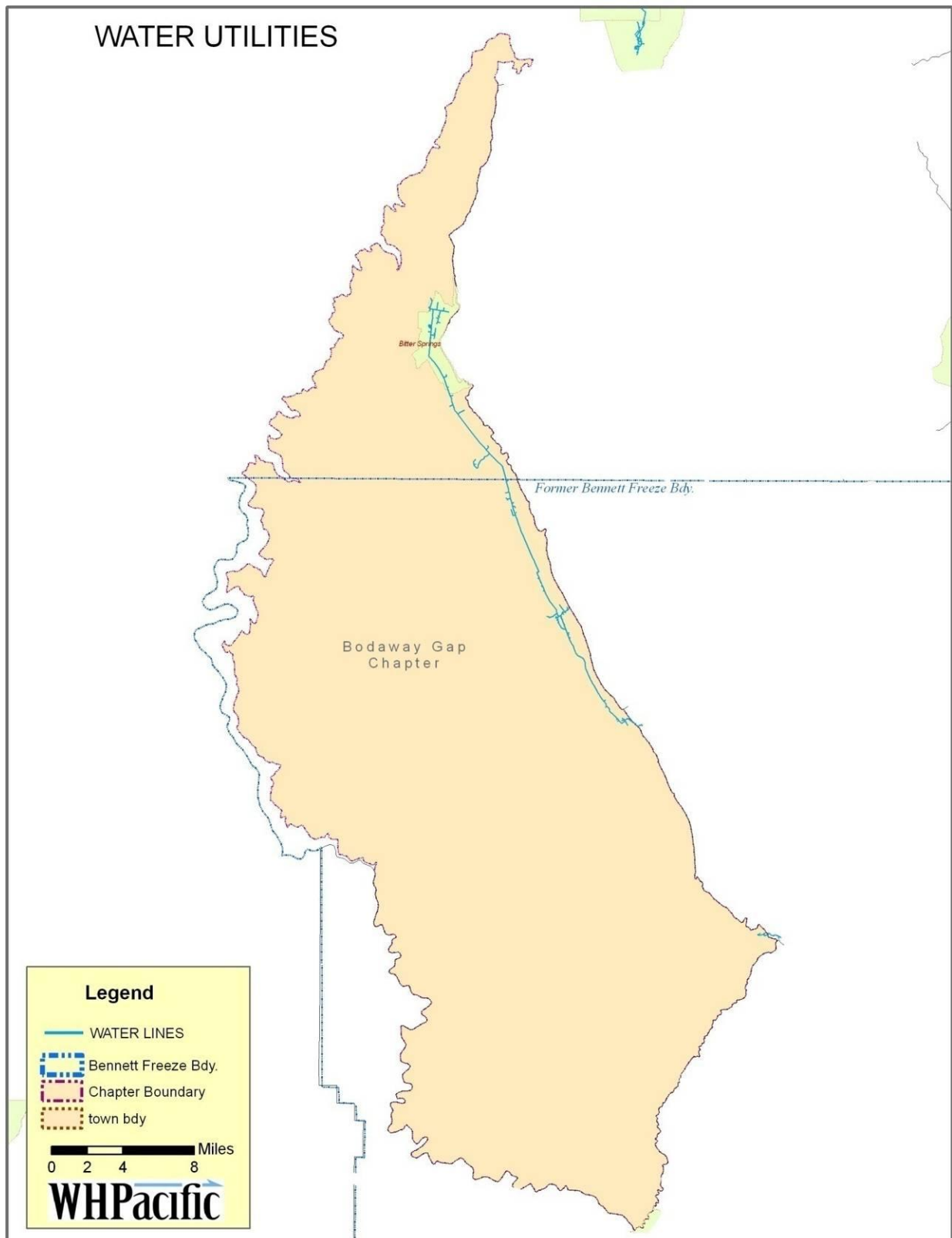


Figure 18: Water Infrastructure

Figure 19, below illustrates which homes are connected to a municipal water system, which homes use water that is stored in cisterns and tanks, and where water hauling is located.

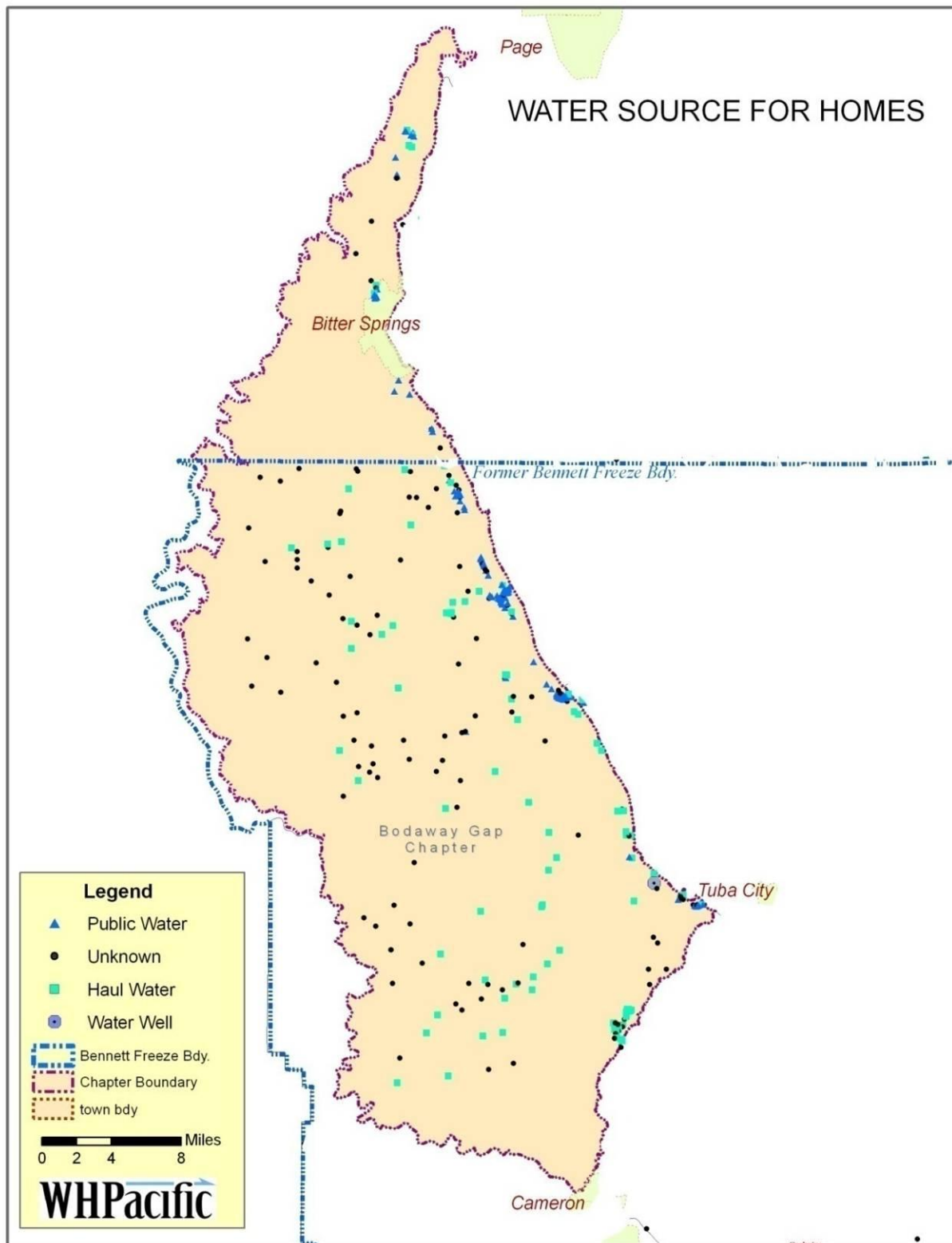


Figure 19: Water Source for Homes

Figure 20, below illustrates water sources for livestock in the Chapter's grazing areas, including windmills and earthen dams.

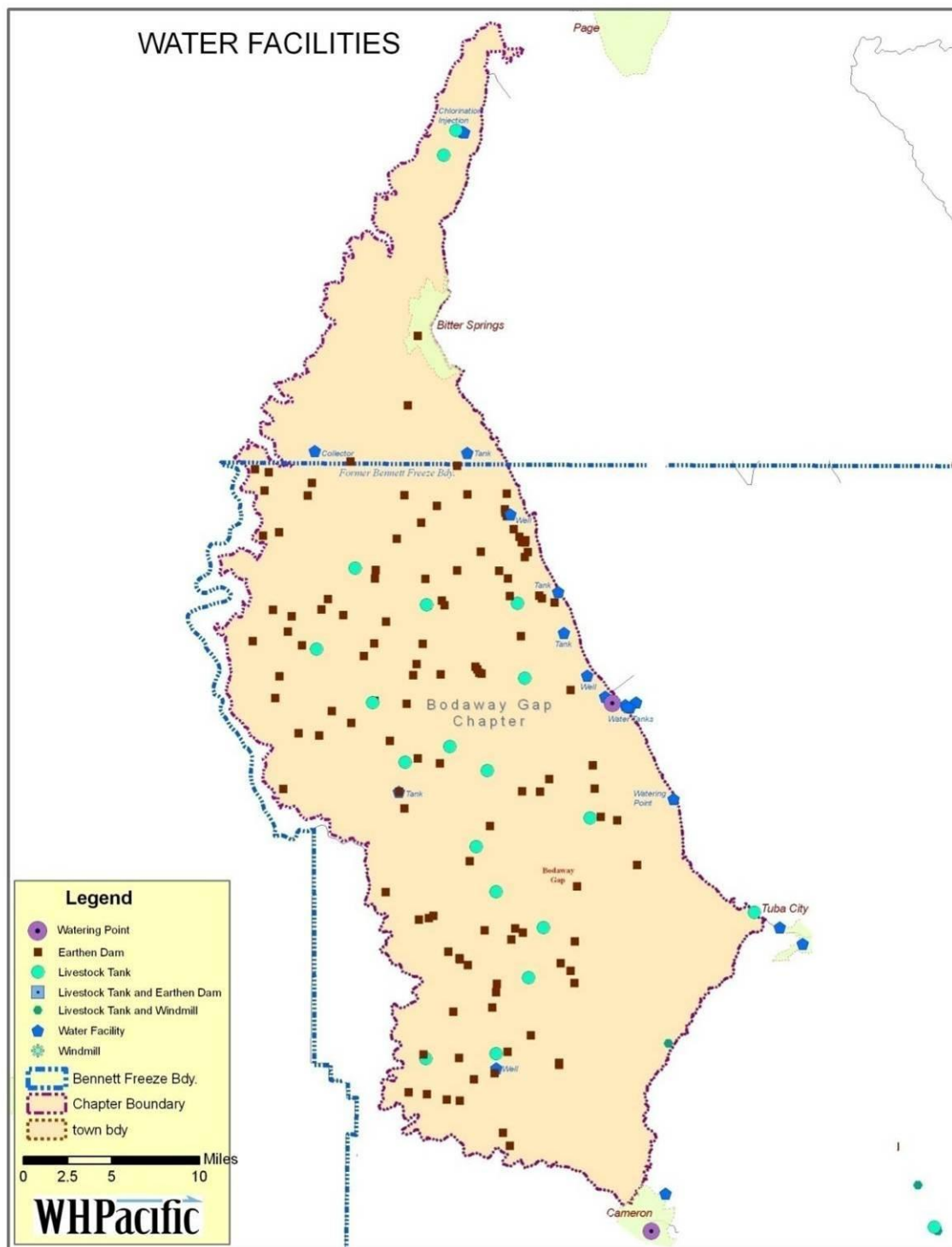


Figure 20: Home Water Facilities

2.4.2 Wastewater

All homes within Navajo Springs, Hidden Springs, and Cedar Ridge use septic systems for wastewater disposal. The Junction does not have wastewater treatment facilities.

A 5-cell sewer lagoon treats wastewater generated by the subdivision in Bitter Springs. The lagoon is located north of the Springs subdivision and is connected by an 8-inch PVC pipe. All other homes within Bitter Springs use septic systems for wastewater disposal.

Wastewater generated by the trading post, Chapter House and administration, and the school is treated by a 2-cell lagoon located south of the Gap Head Start. The lagoon is design for an assumed average daily sewage flow of 12,300 gallons per day. Other homes and facilities in the Gap rely on septic systems.

Many of the homes in the Chapter use septic systems to handle wastewater. While septic systems sometimes pose environmental risks, particularly to the water table, in higher-density residential areas and areas with a high water table, meaning groundwater is close to the surface and therefore at high risk for contamination from septic tanks.

Septic tanks require occasional servicing to empty the tanks and flush the lines. The remoteness of many scattered site homes means that these services cost more than they would to service areas easier to reach and closer to Page or Flagstaff, where private service companies are located. Many residents of these remote homes subsist on ranching and may not have the additional money to pay for septic tank servicing, no matter how much the service costs. As a result, many septic systems are abandoned once the tank is full, and residents resort to using outhouses or simply letting sewage pool and evaporate naturally, which poses a human health risk. Addressing this issue will require policy decisions and perhaps new programs to either provide financial assistance to cover the cost to service septic tanks or to provide public services to empty septic tanks, which will also necessitate constructing a facility where collected waste can be safely treated.

Figure 21 on the following page illustrates existing wastewater facilities in the Chapter.

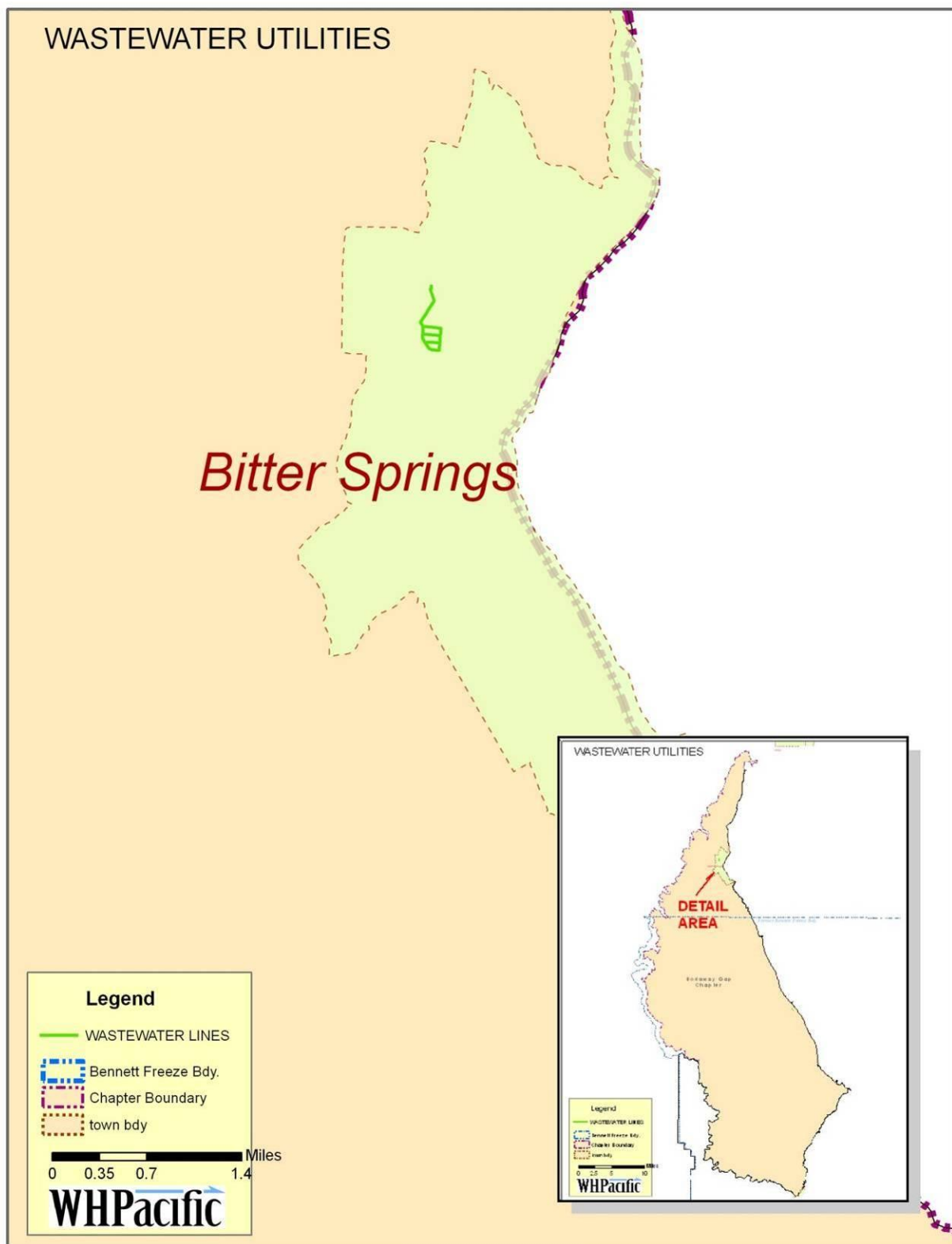


Figure 21: Wastewater Utilities

2.4.3 Electric Utilities

Electrical power is provided by Navajo Tribal Utility Authority (NTUA) and Arizona Public Service (APS).

Many Chapter members who live in remote locations are not connected to the electric grid, because it is not cost effective for APS or Chapter members to make those connections. The Rural Electrification Program of the U.S. Department of Energy provides funds for residences in pockets of poverty to use for connections to power lines or for solar power. If funds are allocated to a Chapter, APS conducts an assessment to determine what option is best – a connection to the power grid, or solar power. If solar power is determined to be ideal, a system is given to the household, and residents are responsible for only maintenance fees.

NTUA has a goal of serving the entire Navajo Nation. NTUA has begun discussions with APS concerning the potential for buying out APS service to the Chapter. NTUA is a non-profit corporation with lower electric service rates than those of the for-profit APS. Although the Chapter is not in the NTUA service area, homes may participate in NTUA's Navajo Electrification Demonstration Project. Homes must be wired in order to be eligible. Nationwide, NTUA received \$3 million to purchase solar and wind/solar systems for distribution to eligible clients. A 640-watt system costs \$95.00 per month for 15 years and is on a rent-to-own basis. The wind and solar system is \$75.00 per month and is for rent only.

Electric lines owned and operated by NTUA service all development within Bitter Springs. Four high-voltage electrical transmission lines owned by the Salt River Project cross the Gap but do not provide electricity to the community. Local electrical distribution lines owned and operated by NTUA serve development throughout the community. Electric lines owned and operated by NTUA service all development within Cedar Ridge. Electric power lines were extended to Hidden Springs from the Gap in 2006.

Electricity is available in the immediate vicinity of the airstrip at Junction from a line that runs along the south side of Highway 160 and heads south parallel to Moenkopi Wash. Navajo Springs does not have electricity service.

Figure 22 below illustrates existing electricity infrastructure in the Chapter.

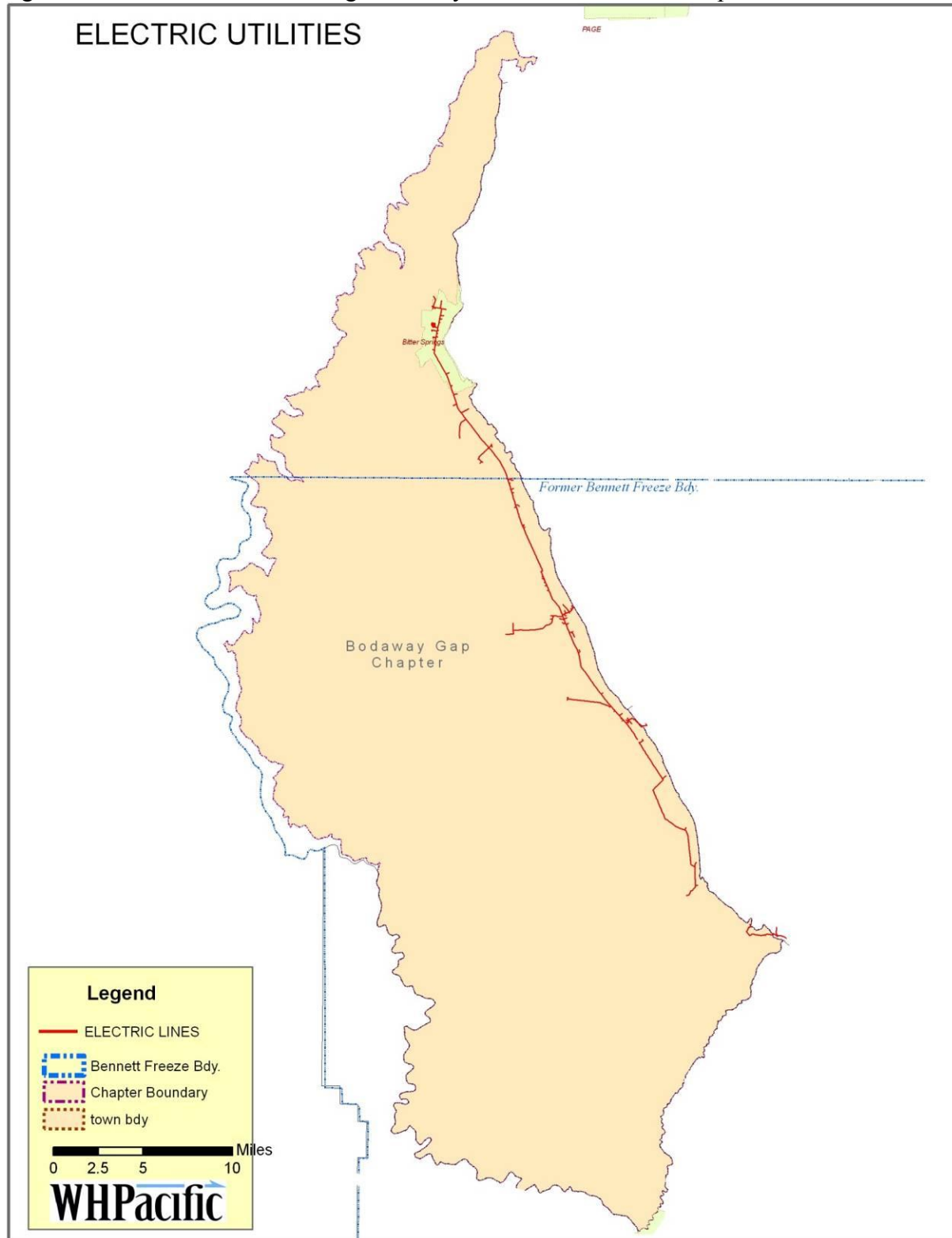


Figure 22: Electrical Utilities

2.4.4 Gas Systems

Natural gas infrastructure is not available in the Chapter; residents use above-ground propane tanks for their gas needs.

2.4.5 Communications

Limited telephone lines owned and operated by Frontier Communications, formerly Navajo Communications Company, serve Cedar Ridge. A cellular tower in the Chapter offers cellular telephone service, but coverage is spotty and the reception is unreliable.

Clearly transmitted AM radio stations include KTBA and KTNN from Tuba City and Window Rock, respectively. Clear FM radio stations that can be readily heard include KGHR from Tuba City and KMGH, KAFF, KVNA, and KOLT from Flagstaff. One television channel is received from KNAZ in Flagstaff. Some residents access satellite television.

Newspaper distributions include the *Flagstaff Daily Sun* on a daily basis and *The Navajo Times* and the *Navajo/Hopi Observer* on a weekly basis. Internet service is available via modem and satellite connections.

2.4.6 Solid Waste

The Cedar Ridge landfill is located on the northwest corner of the intersection of Highway 89 and BIA 6110. The Navajo Nation Environmental Protection Agency closed the facility due to evidence of illegal dumping. Since its closure, Chapter members have requested a new location for solid waste disposal. Currently, trash collects in various areas of the Chapter, causing health hazards for residents.

Figure 23 below illustrates all infrastructures within the Chapter.

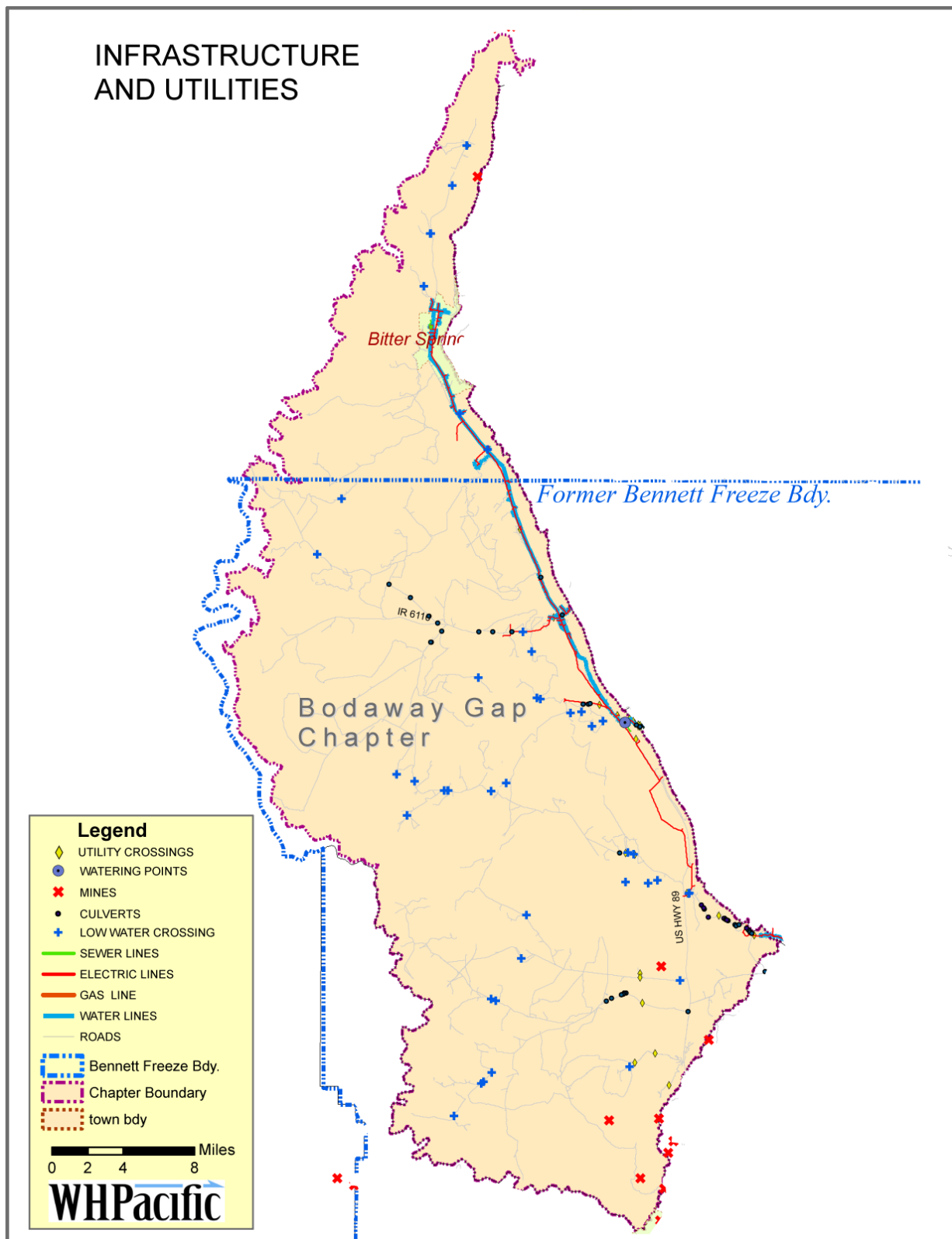


Figure 23: Infrastructure and Utilities

2.5 Transportation, Roads, and Accessibility

2.5.1 Roads

Arizona State Highways 89 and 89A provide access to the six communities in the Chapter. The BIA owns and maintains several roads that traverse the Chapter and provide access to the more remote communities. The Chapter does not consider road accessibility a hindrance to development at any of the potential development sites. State Highway 89A (between mileposts 525 and 607) was designated a Scenic Highway because of its unique view of Vermillion Cliffs.

There is a lack of transportation for the elderly, low-income residents, and families who cannot afford a car. There is no regional public transportation in the Western Agency to help people without a car travel to places within the region. Owning a car is a necessity for people who live in the most remote portions of the Chapter because water has to be hauled in by the resident.

Figure 24 below describes road conditions in the Chapter. The majority of the roads are unpaved and in poor condition. Figure 25 below describes whether the road is paved, earth, or gravel.

The following definitions are from the 2003 Navajo Long-Range Comprehensive Transportation Plan:

- Class 2, Arterial Roads. The Navajo-BIA Class 2 roads are major or minor arterials that provide an integrated network for serving traffic between population centers. They connect state highways and provide travel continuity among Navajo agencies. They collect traffic directly from Class 3 (streets) and Class 4 (local roads) roads onto state highways.
- Class 3, Streets. The Navajo-BIA Class 3 roads include street-type roads, which are located within communities serving residential and other urban-type settings. These are streets at Navajo growth centers communities, NHA housing tracts, etc.
- Class 4. The Navajo-BIA Class 4 roads are section line and/or stub-type roads collecting traffic for arterial roads and connecting with the grid of the Navajo IRR roads systems. They may serve areas around Navajo population centers areas, farming areas, schools, tourist attractions, or various small business enterprises. This class also includes roads and vehicular trails for administration of forest, grazing areas, mining, recreation, or other utilization purposes. The Navajo-BIA Class 4 encompasses roads not falling in either the Class 2 or 3 classifications.
- Class 5, Pedestrian/Bikeways. The Navajo-BIA Class 5 encompasses all non-road type paths, trails, walkways, or other designated types of routes for public use by foot traffic, bicycles, horses, or other uses to provide for general access of non-vehicular traffic. The four Navajo Routes within the Chapter are classified as Navajo-BIA Class 2 roads, which receive traffic from Class 3 and 4 streets and roads. Navajo-BIA Class 2 roads and State highways are the Navajo Nation's major and minor arterials providing an integrated network that connect Navajo population centers. Navajo-BIA Class 2 roads also provide travel continuity between Navajo agencies and off-reservation employment centers in nearby border towns. The Navajo BIA Class 2 roads, therefore, are the key to network efficiency. All of the Navajo-BIA class 2 roads are unpaved.

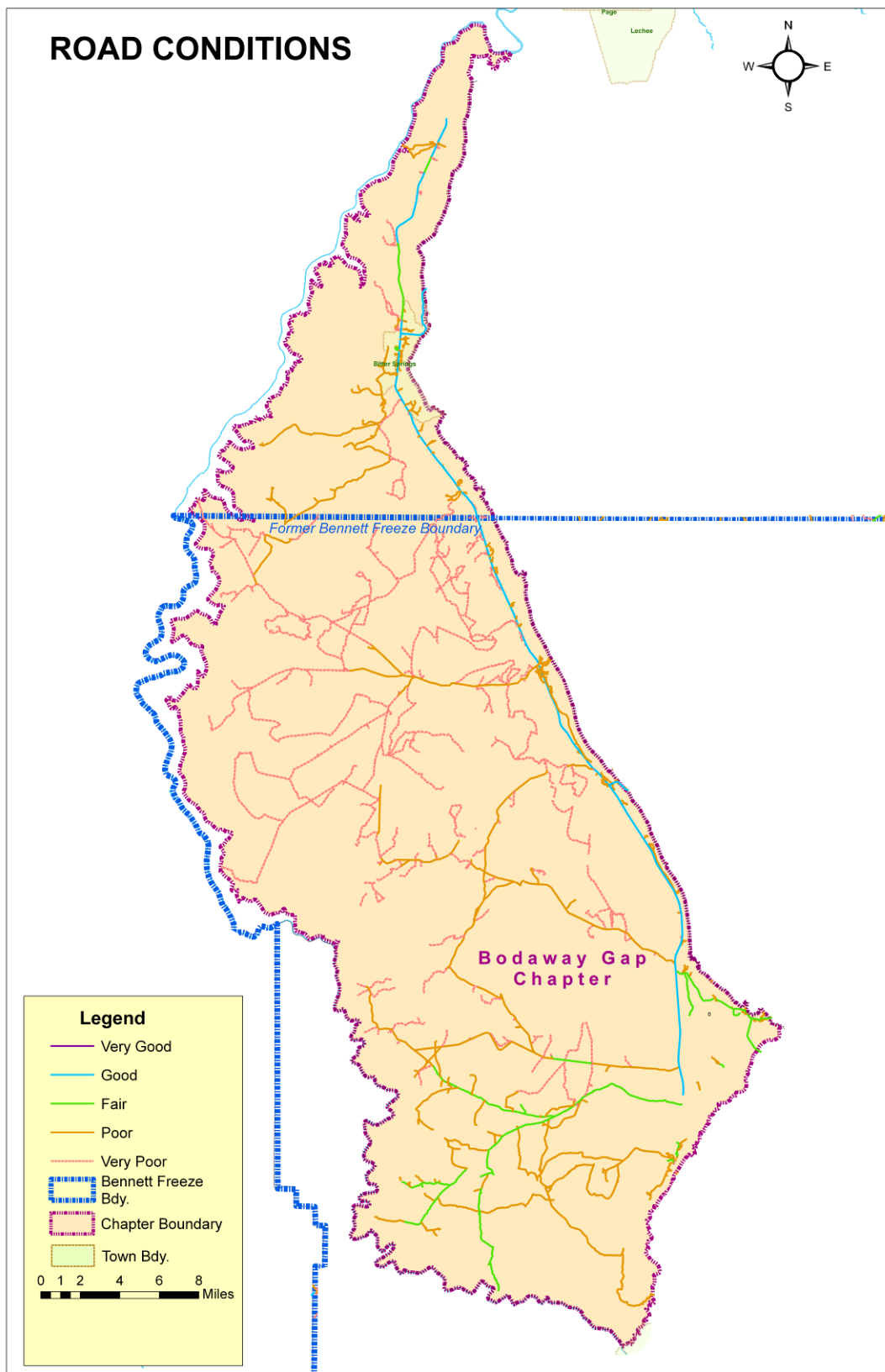


Figure 24: Road Conditions

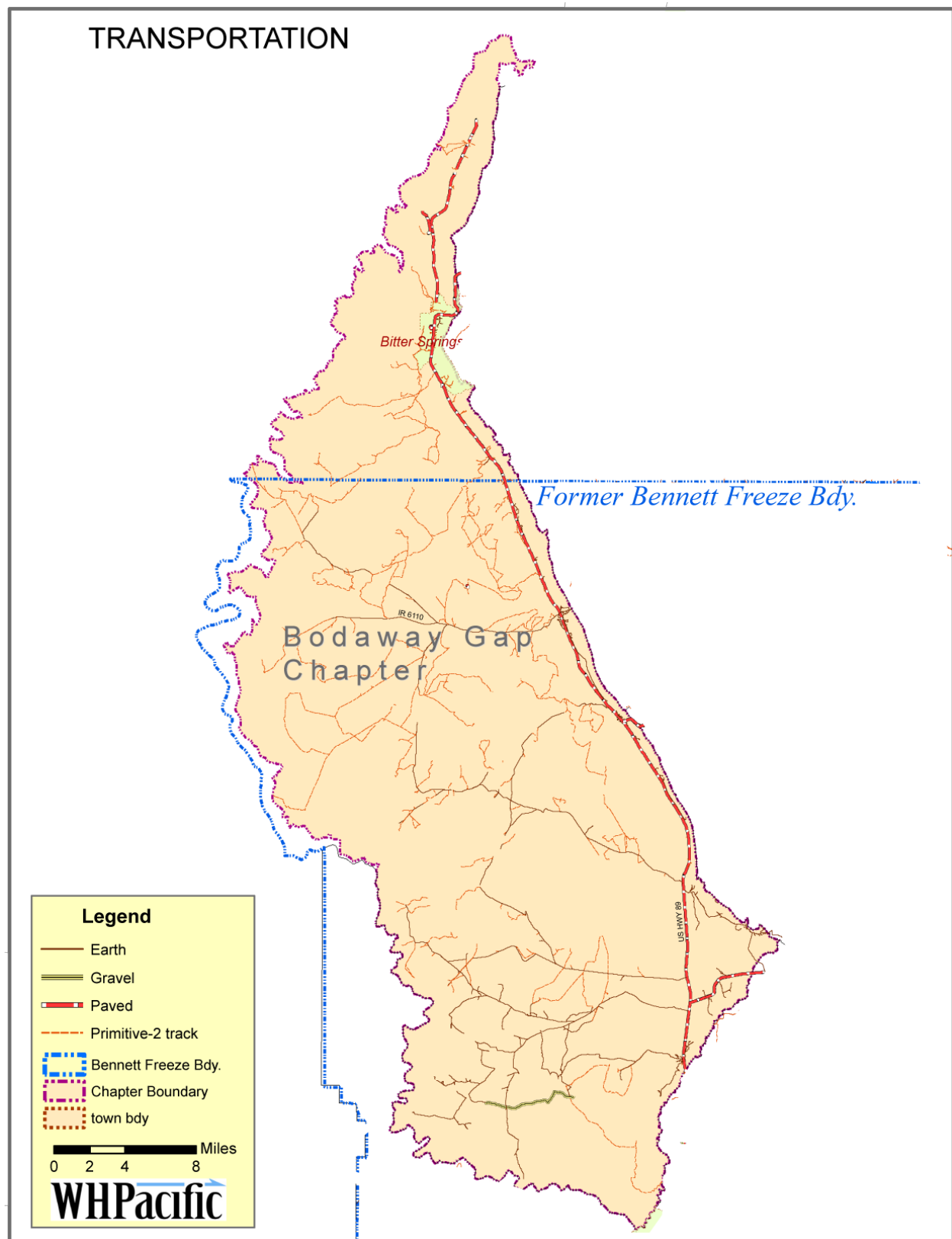


Figure 25: Road Surface Type

2.5.2 Air Transportation

The Navajo Nation currently has nine primary airports serving smaller, commercial-size planes and is currently planning to develop six additional sites as secondary airports. The Tuba City airport located near the intersection of Highways 89 and 160 is one of the nine primary airports serving Tuba City and surrounding communities. In 2005, the Navajo Nation developed a five-year capital improvement master plan for the Navajo Nation airports. This plan has been submitted to the Arizona Department of Transportation and the FAA, Western Pacific Region headquarters, for review and approval. The location of the airport strip in the community of Junction is shown in the Community Facilities map, Figure 26 below.

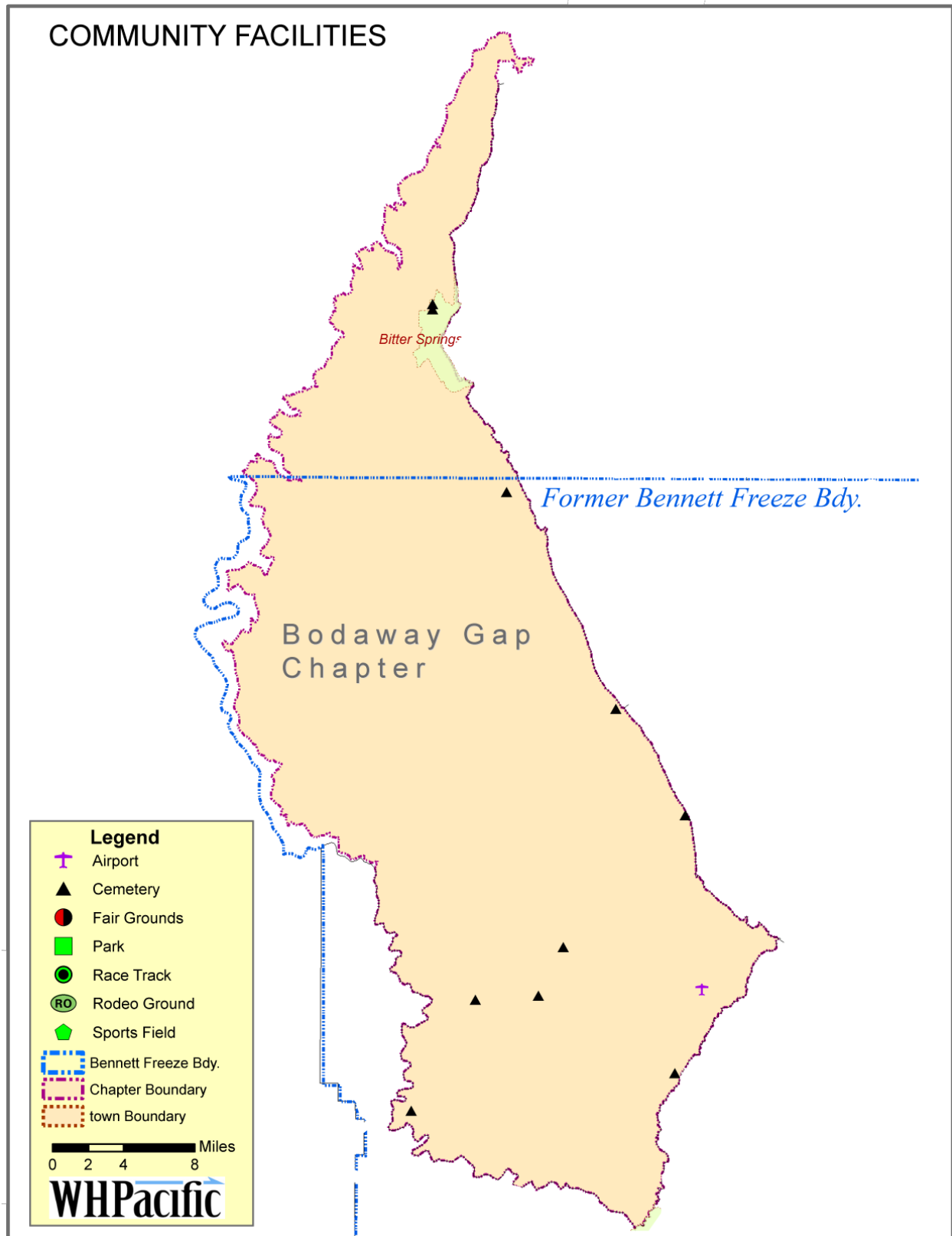


Figure 26: Community Facilities

3.0 The Development Plan

The Chapter's land use plan should serve as a roadmap to where the community wants to go. The land use map should capture the Chapter's 15-year vision, and the plan should outline the actions needed to get there. It is also important to understand the roadblocks the Chapter may encounter along the way and the strategic actions needed to remove, resolve, or avoid them.

The Development Plan is presented in the following sections:

- 1) The Chapter's 15-year vision
- 2) Development issues the Chapter may encounter
- 3) Strategic directions to take to avoid, minimize, or remove these issues,
- 4) Development principles to follow
- 5) A community needs assessment
- 6) Actions to take, including priority projects and a phasing plan

Many of the projects focus on development within the former Bennett Freeze area (FBFA) in order to address the stark needs for improvement required for recovery.

3.1 Vision

The Chapter vision captures how Chapter members would like to see their community grow over the next 15 years. In the long-term, Chapter members want to maximize the benefits of modern opportunities, but at the same time maintain the integrity of traditional Navajo culture. Chapter residents want to preserve their rural atmosphere, but bring in modern amenities such as telephones, electricity, and plumbing to all residents who desire them.

During the community workshops held during Summer 2008, community members outlined goals for the Chapter that will aid in reaching this vision. These goals include community policies, capital projects, and community service.

Community facilities and service are an important part of the community vision. The Chapter wishes to improve education, including expanding educational facilities for the Chapter's youth. A multi-purpose community center will provide a place for community members to congregate for recreational activities or community meetings. A community store will provide jobs and basic necessities for Chapter members and tourists. The Chapter wishes to hire staff to provide additional chapter services and provide ongoing planning efforts in an expanded office space with updated office equipment.

Infrastructure within the community will be improved, particularly within the FBFA, to provide water and electricity to all residents. Solid waste will be collected safely and reliably at a Chapter transfer station. Improved cellular communications infrastructure will improve quality of life and safety for all residents.

Because of the high cost of providing municipal infrastructure to remote houses in the chapter, solar power with wind-powered back-up generators will be used to provide electricity to scattered rural homes. Rural homes will also have improved access to safe drinking water sources if the cost of connecting them to municipal services is too high. The Chapter will provide

educational and training opportunities for residents and entrepreneurs to learn how to maintain these off-the-grid utilities.

Community facilities like a multipurpose center, schools, and an adult education center will provide computers and Internet access to support the curiosity, learning, and communication needs of all residents.

Economic development will improve quality of life for the Chapter and retail and recreational opportunities for tourists. Ranchers will have nearby water resources for livestock. Chapter vendors will be able to sell Navajo arts and jewelry to tourists. Affordable groceries will be available at a store within the Chapter.

Chapter residents will have a full range of education opportunities from school age through adulthood, including childcare, job training, leadership cultivation, culture and language sharing, and personal and business finance management.

The road system will be improved and maintained to be safe and efficient in all weather conditions and seasons. Pedestrian facilities such as crosswalks will be added in populated areas.

Community facilities and parks will provide places for Chapter members to congregate. The existing rodeo facility is in poor condition and is not located on a main road. An improved and accessible rodeo ground in Hidden Springs will attract tourists and bring together residents of all ages.

Nearby emergency health, fire, and police facilities and substations will provide a quick response to medical and safety emergencies. Helicopter service to Tuba City can respond to major emergencies. All homes will be addressed for emergency response and within range of reliable cell phone service.

Ranching and raising grazing animals continues to be a rich and viable way of life in this part of the Navajo Nation. A nearby ranger station will help to manage rangelands and prevent criminal activities such as theft of livestock. Range management education programs will help preserve the quality of the land and maintain this means of subsistence.

Valuable open space areas will be protected from developments. Enhanced law enforcement will prevent vandalism. Stronger grazing regulations and fencing will protect culturally and environmentally sensitive sites from potential damage done by livestock.

All residents who wish to live in the Chapter will have safe, durable, energy-efficient homes with access to electricity and safe drinking water, whether they are located near the center of the community or in remote areas. Residents will have a full range of housing options to support each stage of life and all financial circumstances. Chapter members will be able to live in scattered homesites if they are grazers who prefer to live a subsistence lifestyle, or clustered housing developments if they prefer the amenities and infrastructure of a modern community. Mobile home parks and rental houses will be available for people who may need to move from the Chapter in the future or for people who are in immediate need of a home. Elderly living facilities will allow independence while also providing assistance with preparing food, social opportunities, and medical care.

In general the people of the Bodaway-Gap Chapter value open space, starry night skies, and a subsistence lifestyle. Community members said that they want to improve and maintain successful relationships between the community and its leaders, create high-paying and secure jobs, create education opportunities for the entire community, and improve the environmental quality of the land by cleaning up environmental hazards and living sustainably.

3.2 Development Issues

In working to achieve the community's vision over time, the Chapter will experience a variety of challenges and obstacles, based on current conditions. Success in implementing projects will require that these obstacles be addressed, resolved, or avoided over time. The following obstacles represent the community wisdom from Workshop 1 about the challenges the Chapter faces in the future as it moves toward the vision. They are a snapshot in time and will need to be updated, since new obstacles invariably replace the old as they are resolved. The following section addresses potential actions to be taken to address these development issues.

3.2.1 Generation Gap

There is disagreement on how to use land within the Chapter. Many of the older Chapter residents wish to preserve the traditional way of life that includes grazing. Younger residents want to have more modern amenities such as Internet access and community facilities, and desire higher paying jobs.

Because grazing permit use takes up the majority of the land within the Chapter, there is little land available on which for the can develop community facilities or new homes. The Chapter will have to work on withdrawing land to set aside for residential and community development purposes. The land withdrawal process can be a cumbersome and lengthy process, and many grazing-permit holders may not support new development or easily agree to relinquish their use of the land. Ranchers do not want grazing land to be withdrawn because it has a negative impact on their way of life. There is a great deal of disagreement between ranchers and other land users. These disagreements have resulted in a community of people who refuse to meet, negotiate, and arrive at a consensus on land use.

The lack of change over the years due to the former Bennett Freeze and slow-moving government processes have made Chapter residents skeptical of the possibility of improvements to quality of life. Other residents have experienced ill-executed programs that have negatively impacted the Chapter, resulting in a fear of change.

3.2.2 Legal Restrictions

The Chapter and its members must follow the rule of the land. There are restrictions that limit which land can be developed, but land is needed for development. Building a home requires that a survey and archaeological clearance be obtained. The land available to build a home or development is limited, and the process of obtaining land for development is lengthy and unproductive. Incomplete direction from the Navajo Nation Council and Department makes it difficult to follow through with projects.

3.2.3 Educated Resources Scarce

The Chapter has a limited staff and lacks a qualified planner or grant writer who will help the Chapter reach its goals. The Chapter needs to secure funds to pay the salaries of such qualified personnel on staff.

3.2.4 Lack of Funding

Regulations on money and development during the former Bennett Freeze caused the conditions in the Chapter to deteriorate. Lack of improvements allowed existing buildings to become dilapidated, and prohibition of new construction prevented communities within the freeze from keeping up with communities outside of the freeze.

In recent years, the federal government has cut funding that goes to the reservation. These cuts reduce the amount of funding available to make improvements to facilities and infrastructure that have experienced nearly 40 years of neglect.

3.2.5 Remote Resources

While many Chapter residents prefer to live on scattered-housing sites, much of the existing housing is remote and highly dispersed, making it very costly to construct infrastructure. The Chapter will have to look into alternative off-the-grid approaches to supplying utilities to these residences.

3.3 Strategic Directions

The following categories represent strategic directions the Chapter can take in addressing the obstacles summarized above in order to achieve the community vision. Some are specific actions; others can form the basis of goals that may need more exploration to find the actions that will move the Chapter in those directions.

3.3.1 Using Resourcefulness & Initiative

Empowering local governance within the Chapter was identified as a priority in the community workshops. The Chapter needs to hire personnel to support local government. The Chapter desires to hire Chapter members to staff new Chapter government positions. In order to begin hiring for these positions, these chapters need to develop job descriptions for both a Community Services Coordinator and all other Chapter positions. Ongoing training in leadership, financial management, public financial management, public service, and project management will build community development and local governance at the Chapter level.

An empowered local government will provide well-written proposals and can take on looming challenges positively. A dedicated committee can be created to follow through on needed projects and plans.

3.3.2 Improving Accessibility and Amenities in Remote Areas

Because of the high cost of providing municipal infrastructure to remote houses in the Chapter, solar power with wind-powered back-up generators needs to be used to provide electricity to scattered rural homes. Rural homes also need access to safe drinking water sources if the cost of connecting them to municipal services is too high. The Chapter will provide educational and training opportunities for residents and entrepreneurs to learn how to maintain these off-the-grid utilities.

The Chapter needs to make home visits to elderly residents who live in remote areas. Many residents do not have a car or are unable to drive due to disabilities. A shuttle service could help elderly and low-income residents access medical services, shopping, and regional recreational events and opportunities.

3.3.3 Closing the Gap

A generation gap is occurring within the Chapter. Many of the younger Chapter members do not practice or are unaware of their culture. Many of the people who best know the culture and traditions are aging. Activities such as a youth/elder monthly education and dinner program and community service programs will help in the continuation of these traditions. In addition, the youth can educate the elderly population on current events and modern communication technologies.

Protecting and reviving culture is important to people in the Bodaway-Gap Chapter. Over the years language and cultural ways have been lost. Cross-cultural and cross-generational mentoring will help tribal members share their cultural experience and knowledge. The Chapter needs to promote the preservation of the Navajo language by encouraging bilingual education and conversation. The Chapter also needs to encourage Ké, Navajo common law, which is a gesture of Navajos respecting one another and placing Navajo customs and beliefs above government rules.

3.3.4 Forming Proactive Political Involvement

In order for the Chapter to continue to progress, members need to continue to vote for people who represent interests and are responsive to the needs of Chapter members. Federal money is limited and acquisition of federal money requires a lengthy, bureaucratic process. The Chapter needs to seek money elsewhere to fund improvement projects. A grant writer on the Chapter payroll can help the Chapter receive better funding.

3.3.5 Building Positive Community Teamwork

Forming community activities will help foster community involvement within the Chapter. A community garden can provide a place for community members to share experiences while raising food for the local community. A 4-H Club can help build bonds among youth who value the traditional way of life.

3.3.6 Pursuing Community Service and Training

Enhancing the qualifications of people in the workforce is an important part of economic development in the Chapter. During the workshops, members identified a need for workforce training. Satellite continuing education courses from nearby vocational schools could further provide training for the local workforce. In addition, this vocational training could be incorporated into the local high school curriculum to provide the Chapter's youth with skills necessary for quality jobs on the reservation.

Possibly the most important part of enhancing the workforce and maintaining qualified employees in the Chapter is to provide competitive salaries. It is not uncommon for Navajo Nation residents to seek higher-paying employment in nearby off-reservation communities. Seeking private grants or establishing relationships with private funders may provide the resources for recruitment efforts that include a guaranteed salary or scholarships in exchange for a commitment of particular years of service within the community.

3.4 Development Principles

Chapter members outlined principles that should be used to guide development and protect culturally and environmentally sensitive land over the next 15 years.

It is important for the Chapter to provide for people's basic needs such as power and water. The Chapter needs to plan for improving the overall health of its members. Public safety and emergency medical service need to be improved to better respond to emergency situations.

Sustainable construction should be required for all new buildings. These buildings should be energy-efficient and designed to last many generations. Structures should be designed to work with the land in order to provide passive solar energy to further reduce energy costs. These structures should provide optimal protection from the elements with high-quality insulation to better regulate indoor temperatures and raised floors to protect against flooding.

New developments should not harm the natural environment or negatively impact traditional ways of life. It is important to protect water quality and groundwater for future generations. Other natural resources such as mineral deposits should also be used wisely to ensure sustainability. Any cultural sites within the Chapter should also be preserved. New developments in the Chapter should incorporate community-supported agriculture to provide healthy local food to the community.

The Chapter needs to protect and provide scattered housing as an option for remote areas and ranchers. Fencing around homes and cornfields will help keep cattle away from property that is easily damaged. Grazing areas should be located where cattle can be easily watched. Grazing should be protected as an ongoing way of life for people in the Chapter. The Chapter must educate grazing-permit holders on better range management practices and work to enforce these practices to ensure that this way of life can remain sustainable. Water is scarce in the Chapter. Water needs to be conserved in order for people and grazing animals to continue inhabiting the area.

The Chapter needs to plan for jobs for the large and growing young population. According to Chapter members during the workshops, many members have moved to other communities in order to find employment. Creating jobs within the Chapter is essential to keeping younger population within the Chapter, or at least providing that opportunity.

New housing subdivisions should be built near necessary resources. Housing clusters should be constructed in areas where water and electricity are already available. These housing development sites should also be located within easy reach of community amenities such as emergency access.

It is important for the community to plan ahead before proceeding with growth. The Chapter needs to protect natural resources such as water, wildlife, and cultural areas. Plans need to be created to handle the hazards of new industrial opportunities before committing to new operations.

3.5 Community Needs Assessment

The community needs assessment is based on information provided from the community workshops in 2008 that were hosted by WHPacific, Inc. comments provided by the community, and professional field assessments completed by WHPacific, Inc. in the summer of 2008.

3.5.1 Infrastructure and Utility Needs

Infrastructure within the community needs improvement. Chapter lands within the former Bennett Freeze boundary are most in need of repair because funding for improvements was frozen for over 40 years. The Chapter has noted a need to improve the water and electricity infrastructure in the FBFA.

Some rural Chapter members do not have cell phone service or other telecommunications service to their homes. People have to drive to locations where cell phone service is available in order to make a phone call, a major inconvenience and huge safety issue in emergencies, as it adds time to emergency response. In addition to spotty cellular communications, Internet access is also sparse but could be provided easily in designated areas with wireless service.

Extended waterlines are needed to better serve the communities and future development areas within the Chapter. The Cedar Ridge Community needs to have municipal water service because the existing water wells are inadequate and provide poor water quality. Improved water tanks at windmills are needed to better serve the water hauling stations. If water in these tanks at the windmill will be used for human consumption, then water quality should be regularly monitored. Water storage tanks are needed for each house that is not connected to piped water.

A system with a range of power source solutions based on distance from existing power lines could provide electricity to all residences in the Chapter. Those closest to existing or planned power lines would be hooked up. Those in more remote areas could be retrofitted or built to use solar power with wind-powered backup generators. A maintenance service for this off-the-grid utility service would also need to be established.

Trash collection is limited and unreliable in the Chapter. There is not a dedicated solid waste transfer station in the Chapter. Trash collects in numerous locations in the Chapter, which creates a health hazard. During the 2008 community workshops, Chapter members designated land at the Junction development site for a future landfill and requested that the existing transfer station be expanded and a new, small transfer station be constructed at Bitter Springs.

Wastewater treatment facilities are needed in the primary development areas. There is a need for a sewer lagoon to service development around the new medical center. Lagoons are also needed in Hidden Springs and Cedar Ridge.

Navajo Road 20 to Lechee is a heavily traveled unpaved road. In inclement weather conditions, this road can quickly become impassable. This road needs to be paved to reduce required maintenance and to better serve the communities.

The lack of infrastructure within vast portions of the Bodaway-Gap Chapter severely hinders development however; providing infrastructure to scattered housing and other sparse development is expensive and difficult to maintain. Scattered development lessens the ability of utility providers to keep up with changes in technology, maintenance and repairs are more costly and take longer, and the range of services is generally limited.

Growth management policies that promote concentrated development will also serve to keep the cost of providing utilities down and thus enable utility providers to better serve their customers.

Due to the sparse development and harsh weather conditions of the Chapter, the cost of services would be significantly higher than a more urban setting. The Chapter must investigate ways of reducing costs and limiting consumption of scarce resources. Solar and wind power can provide electricity without the need for connecting homes to “the grid.” Water-saving measures such as the use of low-flow and low-flush fixtures will reduce water consumption. Composting toilets do not require water at all. A recycling program could reduce the amount of solid waste generated and therefore reduce needed landfill capacity.

There is a need for the Chapter to provide wireless Internet access. The Chapter should first focus on providing wireless access at the main communities in the Chapter. In the near future, long-range wireless Internet solutions will become available and could make Internet access throughout the Chapter feasible.

The planning team analyzed the infrastructure needs mentioned above and decided which projects will have the strongest benefits at the Chapter level. Some projects mentioned above would benefit the entire region and are best funded at the regional level. Projects funded at the regional level are explained in the ICIP section (Section 4.1). Table 27 below explains several immediate infrastructure needs that should be funded at the Chapter level over the next 15 years.

Table 27: Infrastructure Needs

Water and Wastewater		
Project	Description	Year to Start
Unfunded water, wastewater projects	401 homes (I.H.S Project)	2010
Active and inactive water and wastewater projects	134 homes (I.H.S Project)	2010

3.5.2 Transportation Needs

Poor road conditions are common throughout the Bodaway-Gap Chapter. According to Chapter members who attended the planning workshops, many roads are washed out after storms or when snow-melt crosses the road. Road N20 to Lechee is heavily traveled but unpaved. During the workshops, members declared the paving of this road to be a top priority.

A shuttle service is needed to help elderly and low-income residents access medical services, shopping, and regional recreational events and opportunities.

3.5.3 Housing Needs

At the planning workshops, participants identified the top need as housing, particularly in the FBFA. Chapter members desire new homes constructed of long-lasting materials.

A diversity of housing types is needed within the Bodaway-Gap Chapter. Many members desire new scattered-housing sites that suit their traditions and ranching lifestyle, clustered housing in the central community area near municipal utilities, and other community amenities. There is also a need for mobile home sites, which are ideal for residents who do not have time to acquire a homesite lease or may want to move elsewhere in the future. In the former Bennett Freeze area, people who wish to move back to the Chapter will need individual homesites, which will impact any grazing in the area.

The planning team analyzed the housing needs mentioned above and decided which projects will have the strongest benefits at the chapter level. Some projects mentioned above would benefit the entire region and are best funded at the regional level. Projects funded at the regional level are explained in the ICIP section (Section 4.1). Table 28 below explains several immediate housing needs that should be funded at the Chapter level over the next 15 years.

Table 28: Housing Needs

Housing	
Project	Description
Cluster Residential in FBFA	177 new houses in FBFA
Cluster Residential	10 new houses
Elder Living	New Elder Living
Group Residential	Women's Shelter, Special Needs
Multifamily in FBFA	16 new multifamily units in FBFA
Multifamily	2 new multifamily units.
Scattered Residential in FBFA	284 new houses in FBFA
Scattered Residential	16 new houses
Power & Water Upgrades in FBFA	57 existing houses in FBFA
Power & Water Upgrades	12 existing houses
Repair Residential in FBFA	148 existing houses in FBFA
Repair Residential	32 existing houses
Repair Multifamily in FBFA	8 existing multifamily units

3.5.4 Health and Public Safety Needs

Response time to emergencies throughout the Chapter is too long to assure public safety. Chapter members have expressed a need for a police substation within the FBFA of the Chapter. The nearest emergency health facilities are in Page and Tuba City. A quick-responding helicopter medical emergency response unit is needed to provide expedited response to medical emergencies. Many homes within the Chapter do not have physical addresses. These homes need to be addressed in order to help emergency personnel locate a site.

As of 2008, the Navajo Nation has been working on a rural system for 911 emergency response. This project will map and assign an address to all homes in the Chapter.

Chapter members expressed a need for a local trauma center. A hospital with a clinic is in the planning stage. A care center for the aging population is also needed.

Residents have experienced increased vandalism, drug activity, and criminal activity in recent years. The Chapter would benefit from a nearby police station, sub-stations, or some combination to support additional patrol officers, reduce response times to emergency situations, and provide a location for residents to seek assistance. A feasibility study should be performed to assess service areas, the scope of need, and locations for a station, substation(s), or some combination.

The planning team analyzed the health and public safety needs mentioned above and decided which projects will have the strongest benefits at the chapter level. Some projects mentioned above would benefit the entire region and are best funded at the regional level. Projects funded at the regional level are explained in the ICIP section (Section 4.1). Table 27 below explains

several immediate health and public safety needs that should be funded at the Chapter level over the next 15 years.

Table 29: Health and Public Safety Needs

Health	
Project	Description
New Health Care Facilities	I.H.S. Recommendations
Public Safety	
Project	Description
Fire Stations	New Fire Station
Police Station	New Police Facility

3.5.5 Community Facilities, Parks, and Recreation Needs

Community facilities and services are an important part of the community vision. An improved senior citizens center is needed for the aging population in the Chapter. The existing Chapter House is inadequate and needs renovation or reconstruction. The existing post office is too small for the current population. There is also a need for a veteran's center, an animal shelter, and additional churches within the Chapter.

Community recreation facilities will also be an important element in improving the quality of life for people in the FBFA. Community facilities provide a place for youth and adults alike to congregate. A skate park for teenagers and playground equipment for younger children are desired by the Chapter for youth. A boys and girls club would also provide activities for the Chapter youth. Chapter members also desire a recreation center, firing range, and improved and relocated rodeo ground. These facilities will provide entertainment for Chapter members of all ages.

The planning team analyzed the community facility needs mentioned above and decided which projects will have the strongest benefits at the Chapter level. Some projects mentioned above would benefit the entire region and are best funded at the regional level. Projects funded at the regional level are explained in the ICIP section (Section 4.1). Table 30 below explains several immediate community facility needs that should be funded at the Chapter level over the next 15 years.

Table 30: Community Facility Needs

Community Facilities	
Project	Description
Site Development	Church Land
Recreational Outdoor	Football field/ Track
Animal Shelter	New Animal Shelter in Bitter Spring
Animal Shelter	New Animal Shelter in Gap
Cemetery	New Cemetery / Veterans Memorial
Community Bldg	New Chapter House
Community Bldg	New Multipurpose center (includes Senior Center)
Community Bldg	New Veterans Ctr - Project ready
Recreational Bldg.	New youth/adult rec center, New Wellness Ctr
Post Office	Post Office

Recreation Facilities
Description
New Campground & R.V. Park
New Campground & R.V. Park
New Park near a recreational center
New Picnic ground
New Rodeo center and trail rides
New Skate parks

3.5.6 Economic Development Needs

The Chapter identified the need for a shopping center. The shopping center would contain a bakery, meat and deli, bank, and a restaurant and will be used by tribal members and tourists. It should be located by the hospital and Gap school. This project still needs support from tribal members, Chapter officials, and the Western Navajo Agency.

The Chapter also identified the need for a rodeo ground. The rodeo ground will be used by tribal members, different associations, and local sponsors. It should be located in Hidden Springs and near medical facilities. This project still needs support from tribal members, Chapter officials, and the Western Navajo Agency. This project will need about two to three acres and should be scheduled to be built in the next two to three years.

3.5.7 Education Needs

The Chapter wishes to improved education. Aside from the existing Gap Head Start, the Gap Primary School, and Tsinaabaas Hibitiin Grade School, there are no other educational facilities in the Chapter. Students from the Chapter area attend Page middle school to high school, Tuba City Public Schools, and Greyhills High School. There are no adult and continuing education services that service the communities in the Chapter.

The Chapter needs to secure funding for continuing education programs and preschool programs. An educational needs assessment needs to be conducted in order to justify new schools within the Chapter. Suitable sites need to be identified and withdrawn for any new facility. The Chapter will have to coordinate with other government agencies to secure funding for new educational facilities and programs.

The planning team analyzed the education needs mentioned above and decided which projects will have the strongest benefits at the Chapter level. Some projects mentioned above would benefit the entire region and are best funded at the regional level. Projects funded at the regional level are explained in the ICIP section (Section 4.1). Table 31 below explains several immediate education needs that should be funded at the Chapter level over the next 15 years.

Table 31: Education Needs

Education Project	Description
Lifelong Learning	New Adult Ed in Bodaway-Gap
Daycare	New daycare in Bitter Spring
Daycare	New daycare in Cedar Ridge
Daycare	New daycare in Gap
Headstart	New headstart in Cedar Ridge or Bitter Springs
K-12	New K-12

3.5.8 Open Space, “Areas of Avoidance,” and Grazing Needs

Raising grazing animals is a way of life for people in the Chapter. Much of the land within the Chapter is leased to grazing-permit holders. Over time, poor range management has caused problems on grazing land. Poor range management has also resulted from the lack of land conservation programs and education. Much of the grazing land is not fenced, thus allowing grazing animals near homes, agriculture sites, and environmentally sensitive areas such as steep slopes. Range management education, increased range enforcement, and fencing are needed in order to allow grazing to continue within the Chapter.

Agriculture and farming are also important to the way of life for the people of the Chapter. In order to perpetuate the type of farming traditional to the Navajo, Chapter members could cultivate small farms to produce food for Chapter members. This type of community-based agriculture would help preserve the way of life for Chapter members, stimulate commerce within the Chapter, and enhance the sustainability of the community.

The desert landscape home to the Chapter is delicate. The Chapter needs to create programs to protect water quality, wildlife, and minerals in the area. During the community workshops, participants identified several “areas of avoidance.” These areas need to be inventoried and perhaps mapped. If necessary, these sites should be fenced in order to keep grazing animals away from sites that could be damaged, and regularly patrolled to protect against vandalism and unsanctioned poaching.

During the Chapter workshops held by WHPacific, Inc. in 2008, Chapter members identified the following landscapes or environments in order of priority as needing to be protected from development and preserved for future generations: Salt Canyon, Marble Canyon, Tanner Wash, Shimuno Altar, Salt Trail, Echo Cliffs, and Salt Trail.

3.6 Actions

3.6.1 Priority Capital Improvement Projects

As part of the introduction of the second workshop, the facilitation team asked participants to re-examine the list of priority projects generated at the first community workshop and subsequently by Chapter officials. Participants were invited to add to the list and vote for their top five priority projects.

Over the course of the two workshops, participants nominated and voted on the following items as the most important capital projects from the vision:

Priority	Projects	Votes
1	Cellular One or Alltel Cellular Phone	24
2	Scattered housing	21
3	Skate parks near E.R. for Hidden Springs, Bitter Springs, and Cedar Ridge	17
4	Sub-station for Police Department in Gap	13
5	Nursing Home 100 beds to serve Coppermine, Bitter Springs & Gap	12
5	Young family housing	12
5	Health Clinic - 24 hr ER/Trauma (in planning near school)	12
6	Church - Native American or other denominations	11
7	Shopping center at the junction of Alt. 89 and 89 with tire repair, gas station, and pay phone	10
8	Senior citizens center	8
8	Daycare for Bitter Springs	8
8	Rodeo Center Hidden Springs, also Trail Rides	8
9	Money for archaeological clearances for homesite lease	7
10	Waterline Cedar Ridge	6
10	Waterline 10 miles past southwest of Tooth Rock	6
10	Power line or solar power 10 miles southwest of Tooth Rock	6
10	100-acre commercial development near Junction: Shopping center with fast food, clothes store, groceries and services, bank, Burger King	6
10	Shuttle Service 3 times a week to Page, Tuba City, and Flagstaff	6
11	Waterline for livestock/agriculture, Cedar Ridge, Twin Hill, Pillow Hill, Tooth Rock, and Sam Willie	5
11	Updated Laundromat in Gap	5
11	Higher Education distance learning	5
11	Vocational Training: welding, carpentry, pipe fitting, and nurses	5
11	N 20 road paved & improved to Lechee	5

3.6.2 Proposed Infrastructure Projects to Support the Community Vision

Whenever additional infrastructure or infrastructure improvements are being considered, a feasibility study shall be conducted. In addition to a feasibility study, the project shall be included in the current year's Capital Improvements Plan for consideration. No infrastructure projects shall be developed until they have been approved and are listed in a fiscal year within the Capital Improvements Plan. All infrastructure projects shall be coordinated with Tribal and Federal infrastructure plans. Public Facilities shall be based on approved facilities within the

Comprehensive Land Use Plan. Additional Public Facilities shall require an amendment to this Comprehensive Land Use Plan.

3.6.3 Priority Implementation

The completion of any planning project is the time for decision-making. While a plan lays out a possible course of action, it is up to the people who will be affected by its recommendations to (1) discern their wisdom, (2) assess their own level of motivation to take action, and (3) create the partnerships, policies, and environments through which the plan can succeed. Too often, the plan is the easiest step to achieve and remains the only one accomplished.

While many decisions need to be made by chapters, the Former Bennett Freeze Area Task Force, and Navajo Nation Divisions and Departments, there is a general approach that can be applied to thinking strategically about how to implement multiple projects.

The first step is to think about the projects that are project-ready and can be relatively easily and quickly accomplished. These should be prioritized first for funding and staff efforts.

Accomplishing these projects helps to show progress, which encourages others to become involved to share in the benefits and proves that it is not foolish to hope for change.

In the FBFA, repairs and upgrades to existing homes are the best candidates for the first project implementation efforts. With some analysis of data collected in the field, repairs can be assessed and completed quickly. In general, this plan recommends beginning with homes inside the FBFA for both repairs and upgrades to water and power service, followed by the same projects for homes in the rest of the chapters.

While repairs are beginning, the power and water assessment can get underway, as it will take longer than assessing repairs but not as long as other studies. Additionally, it makes sense not to upgrade houses for power and water that may not be deemed repairable. IHS has completed many of these assessments, making those homes eligible for immediate assistance with the arrival of funds.

In the meantime, project staff at the relevant departments or chapters should begin feasibility studies for other priority projects. These studies typically take anywhere from six months to two years, depending on their complexity and size. By the time they are complete and generate new capital projects, project managers and staff should be available as shorter-term projects are completed.

In general, FBFA communities identified housing, including power and water improvements, overwhelmingly as the first priority for projects and funding. Water projects and road projects were the next highest priorities and should be phased accordingly. Health and public safety, including access to medical care and emergency response, was the next most-valued project.

The next priorities varied from community to community, person to person, project to project. Individual chapters must balance community priorities carefully. There were many community facilities that residents care deeply about, including recreational facilities, parks, multipurpose centers, government buildings, and cemeteries. Many residents prioritized economic development as the way to generate funds to invest in further improvements and the means to provide adequate jobs to retain the next generations. Similarly, residents prioritized grazing and agriculture projects to ensure a sustainable, self-sufficient way of life and perpetuate traditional

culture. In the same way, other residents prioritized educational projects to sustain and promote the independence and success of the community's youth and residents of all ages.

In deciding the priorities of these other categories, chapters must work with residents, and project staff need to work with chapters to determine the order of projects that makes the best of use time and resources.

Priority Project Phasing Plan

This section outlines the phasing of the projects that received the most individual votes from participants at the second community workshop. Participants voted on phasing for each of the projects. Phase 1 would be constructed in 5 years or less, Phase 2 would be constructed in 5-10 years, and Phase 3 projects would not be complete for another 10-15 years.

Phase 1 Projects: 1-5 Years

The following represent the projects identified as part of Phase 1 Developments by the small groups. These can be considered as the items most urgently needed by participants:

- Senior citizens center
- Major Chapter House renovation or new building
- Shopping Center at the intersection of Highways 89A and 89 that includes tire repair services, a gas station, and a pay phone
- Commercial Development - Junction 89/160 (100 acres): Truck Stop & shopping center including fast food, clothes store, groceries and services, bank, fast food - water & infrastructure, engineering, master plan
- Truck stop with car wash, auto repair & parts (Jct. for Tuba City)
- Agricultural storage/warehouse storage (Cedar Ridge)
- Truck stop w/car wash (Bitter Springs)
- New grocery store and post office (Bitter Springs)
- Community livestock auction yard (Cedar Ridge)
- Feed store
- Earthen dams repair (West side ridge)
- Facility to sell wool
- Daycare (Gap)
- Health clinic - 24 hr ER/Trauma (in planning near school)
- Hospital with long-term care (in planning stage with clinic)
- Wellness center - fitness equipment, instructors & swimming pool - ties in with special diabetes program
- Facility for the Community Health Representative program combined w/special diabetes program service providers, adult home caregivers - i.e., Resource office for programs
- Dental office (in planning near school on top of hill)
- Scattered houses
- Young family housing
- Home improvement/renovations & additions
- Housing subdivision - 25 units (Hidden Springs)
- Elderly rehab for accessibility - bathrooms & ramps
- Special needs independent living housing
- Town houses

- 6" or 8" water pipeline (Colorado R. & Glen Canyon Dam to Gap – Bitter Springs, Hwy 160/Hwy 89)
- Wastewater lagoon - commercial development (Cedar Ridge - old trading post site)
- Cellular One or Alltel Cellular Phone Tower
- Waterline (Cedar Ridge)
- Waterline (Pillow Hill)
- Waterline (10 miles S.W. of Tooth Rock)
- Waterline (Tooth Rock)
- Water and power (Shimuno Mesa - aka Dzil Li chii)
- Phone Lines
- Waterline (Twin Hill)
- Power line (Pillow Hill)
- Wastewater lagoon (by new medical center)
- Internet - wireless
- Feasibility study for wastewater lagoon - houses and industrial development (Hidden Springs and Cedar Ridge)
- Power line (Twin Hill)
- Waterline (Sam Willie)
- Wastewater lagoons (Hidden Springs)
- Landfill (Jct. Tuba City)
- Expand existing waste transfer station
- New small waste transfer station (Bitter Springs)
- Veterans cemetery
- Cemetery
- Multi-purpose community center (Bitter Springs)
- Multi-purpose community center (Cedar Ridge)
- Police sub-station (Gap)
- Police & fire station (to serve all 5 communities)
- Home base for police and rangers (at ea. housing area)
- Caution lights at the Trading Post
- Fire station (in ea. Community)
- Street addressing
- Crosswalk to store/Trading Post
- School bus turnout
- Signage - school bus safety
- E.R. safety turnoff for runaway trucks (Cedar Ridge)
- Center Median/Turn Lane (curve at Cedar Ridge)
- Fire hydrants
- Detention center (Gap) - nearest = Tuba City
- New road (Cedar Ridge to Red Mesa)
- Repair and pave road (Hidden Springs to Tuba City/Moenavi)
- ADOT maintenance yard for Winter snow removal (1/2 way to Page/Cedar Ridge)
- Grade existing roads
- Pave road (Red Mesa to Bitter Springs)
- Widen Hwy 89 to 4 lanes
- New road (IR 20 to US-89 straight S.)

Phase 2 Projects: 5-10 Years

The following represent the projects that at least some of the small groups identified as part of Phase 2 Developments. These are projects that realistically will take 5-10 years to get on the ground:

- Veteran's center (Echo Cliff)
- Updated Laundromat (Gap)
- Small business and training center
- Ranch resort w/great view, horseback riding, summer jobs (W. side of Cedar Ridge overlooking Grand Canyon)
- New Community livestock corral (Gap)
- Rehabilitate Community Livestock Corral (Bodaway, Hidden Springs, Bitter Springs, and Cedar Hill)
- Daycare (Bitter Springs)
- Daycare (Cedar Ridge)
- Nursing Home - 100 beds (to serve Coppermine, Bitter Springs, and Gap)
- Repair and pave road (Hidden Springs to Tuba City/Moenavi)
- Pasture improvement
- Community hay farm
- Moveable fencing for pasturing
- Permanent fencing
- Feasibility Study - Vocational/Community Development Training Programs - G.E.D., welding, carpentry, pipe fitter, leadership, nursing, house repair, agriculture, construction management, project management, personal finance, entrepreneurship, customer service, land & livestock management
- Staff housing for nursing homes - individual. Homes - 100?
- Waterline for livestock & agriculture (Cedar Ridge, Twin Hill, Pillow Hill, Tooth Rock, and Sam Willie)
- Water pump (South side of the Colorado River)
- Youth/adult recreation center - basketball, showers, lockers
- Park near a recreational center - playground, benches, shade, grill, softball, basketball, and grass (Bitter Springs)
- Ambulance service
- N20 road paved and improved to Lechee
- Pave BIA Road Loop (Hidden Springs Rt. 6231 past Twin Hill, Pillow Hill & Sam Willie)
- Truck stop w/car wash (Gap)
- R.V. Park (Gap)
- Power line or solar power (10 mi. S.W. of Tooth Rock)
- Nearby watering point
- Irrigation project for agriculture (over the hill)
- Recycling Center
- Rodeo center and trail rides (Hidden Springs)
- Campground & R.V. Park (Lee's Ferry)
- Campground & R.V. Park (Navajo Springs)
- Trail rides - horseback riding for tourists
- Football field w/track for walking, running (near a Wellness Center)
- Shuttles for service 3x week (Page, Tuba City, and Flagstaff)
- Safe bike trail (along Hwy 89)

Phase 3 Projects: 10-15 Years

The following represent the projects that at least one of the small groups identified as part of Phase 3 Developments:

- R.V. Park (Bitter Springs or Cedar Ridge)
- Animal shelter (Gap or Bitter Springs)
- Women's shelter (Gap)
- Destination resort (Navajo Springs)
- Motel (Marble Canyon and Navajo Springs)
- Tourist/Arts & Crafts Center (Cedar Ridge)
- Casino (Cameron Jct. 64 Flagstaff)
- Wal-Mart (Coppermine)
- Computers & technology lab - higher education distance learning/satellite courses
- High School (Bitter Springs)
- Trailer park
- Power line (Tooth Rock)
- Skate parks near E.R. facility (Hidden Springs, Bitter Springs, & Cedar Ridge)
- Community livestock health care center (Gap)
- Post office expansion or relocation (top of hill)
- Build bank for a dam/bridge (Cameron over Little Colo. & Destination Resort)
- Tourist/Arts & Crafts Center (Navajo Springs)
- Adult & Youth Educational Center - Continuing Ed., Daycare, Dist. Ed., Communications Lab, Vocational/Community College (Cedar Ridge)
- Solar Power
- Wind power – (residential)
- Picnic ground (Cedar Ridge)
- K-8 Elementary & Mid School (Bitter Springs)

3.7 Preferred Development Sites

The Chapter identified its six community areas, described in Land Suitability Section 2.3.3, as ideal locations for future development:

- Navajo Springs
- Bitter Springs
- Cedar Ridge
- Gap
- Hidden Springs
- Junction

Figure 27 on the following page is a compilation of sites selected and preferred community by Chapter members during the summer 2008 community workshops.



3.7.2 Preliminary Site Sketches

The following drawing is an existing development plan proposed by the Chapter prior to summer 2008 community workshops.

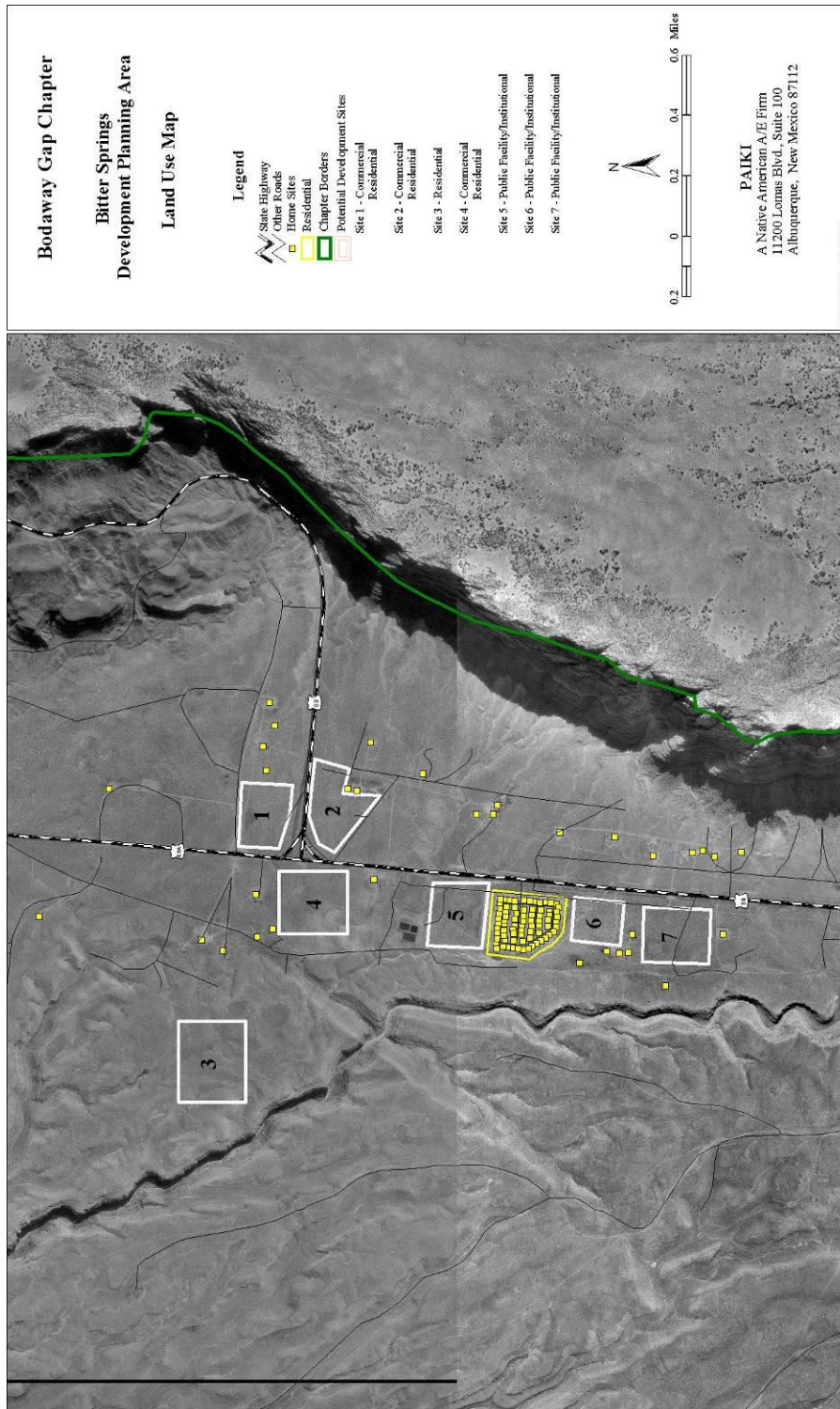


Figure 28: Bitter Springs Planned Future Development

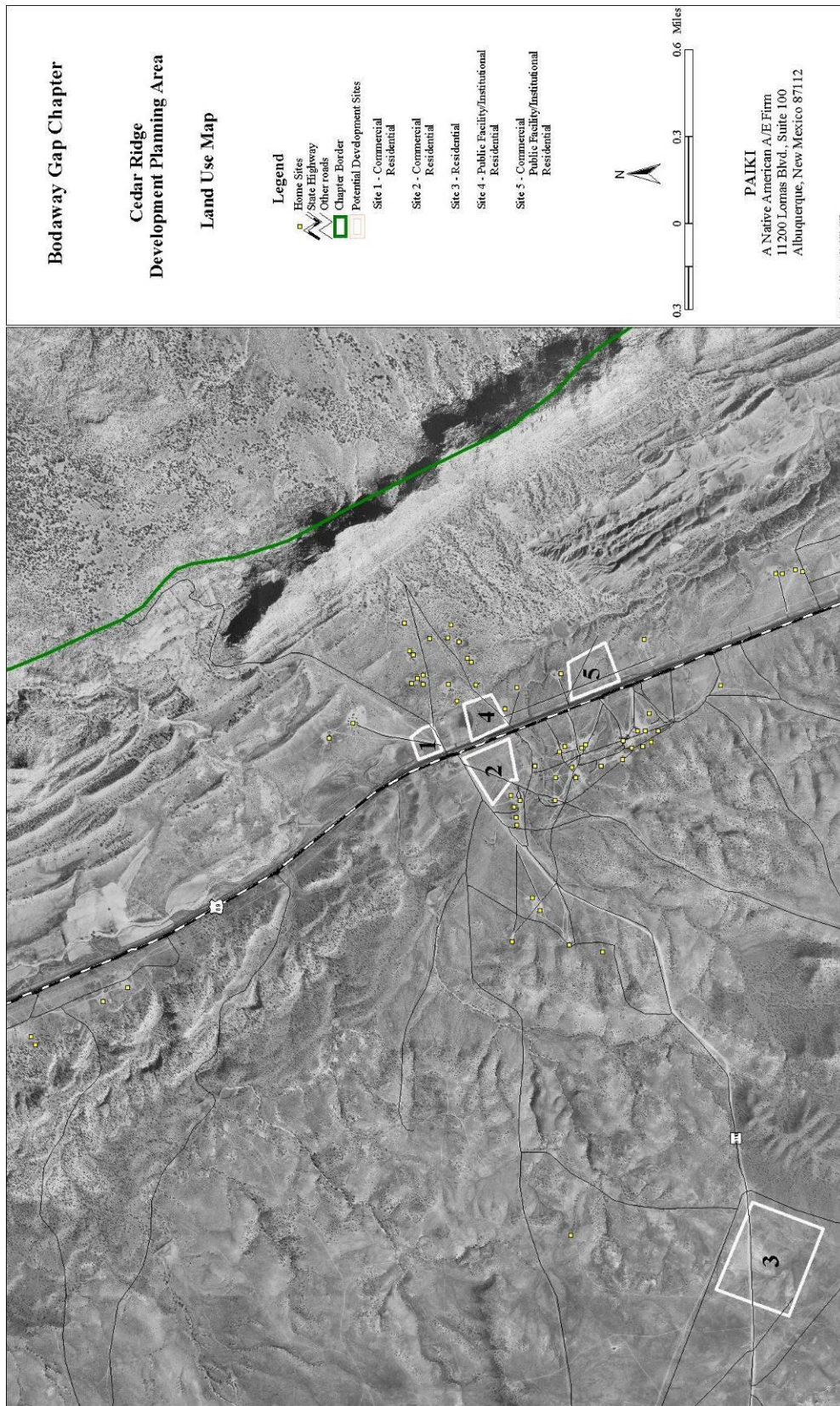


Figure 29: Cedar Ridge Planned Future Development

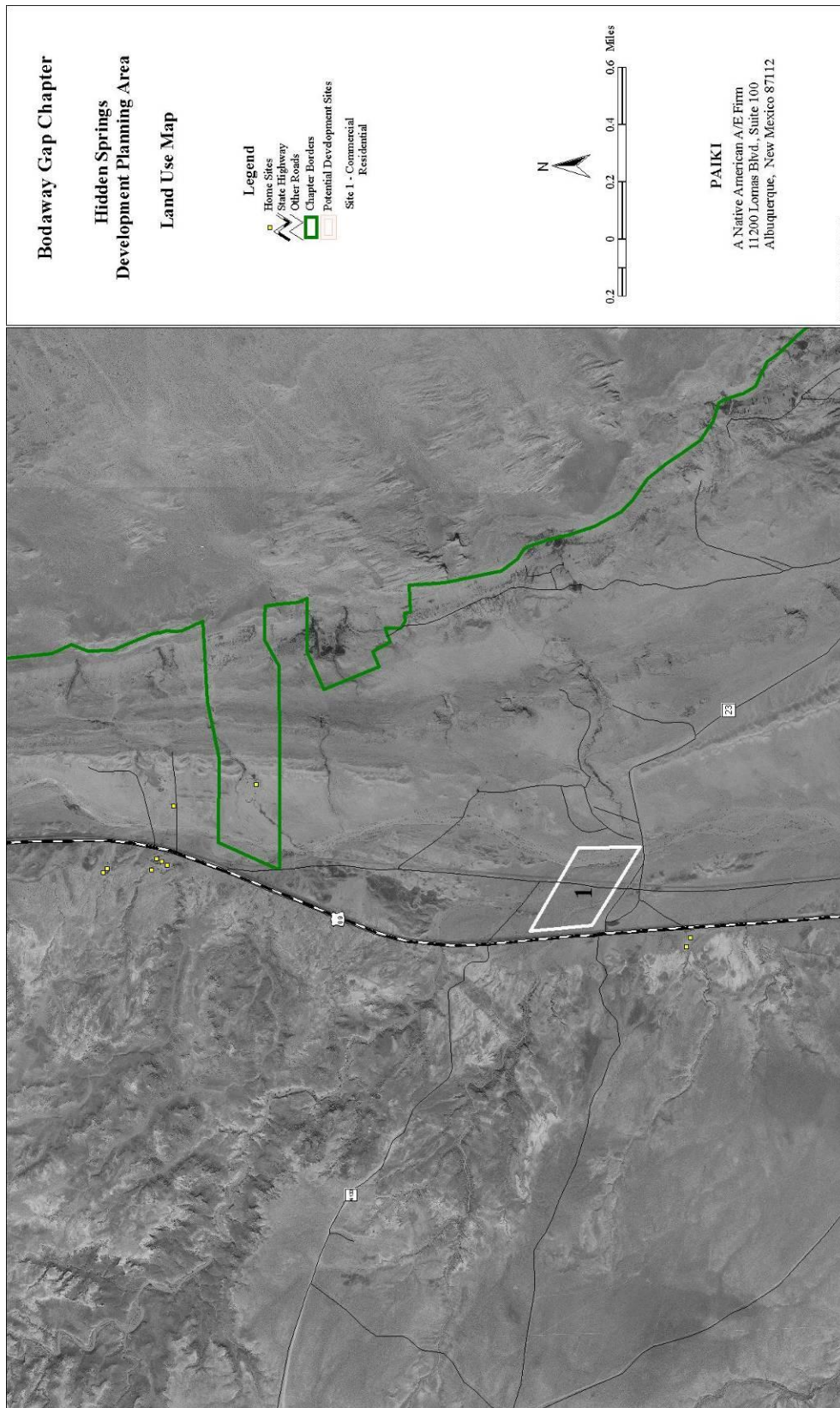


Figure 30: Hidden Springs Planned Future Development

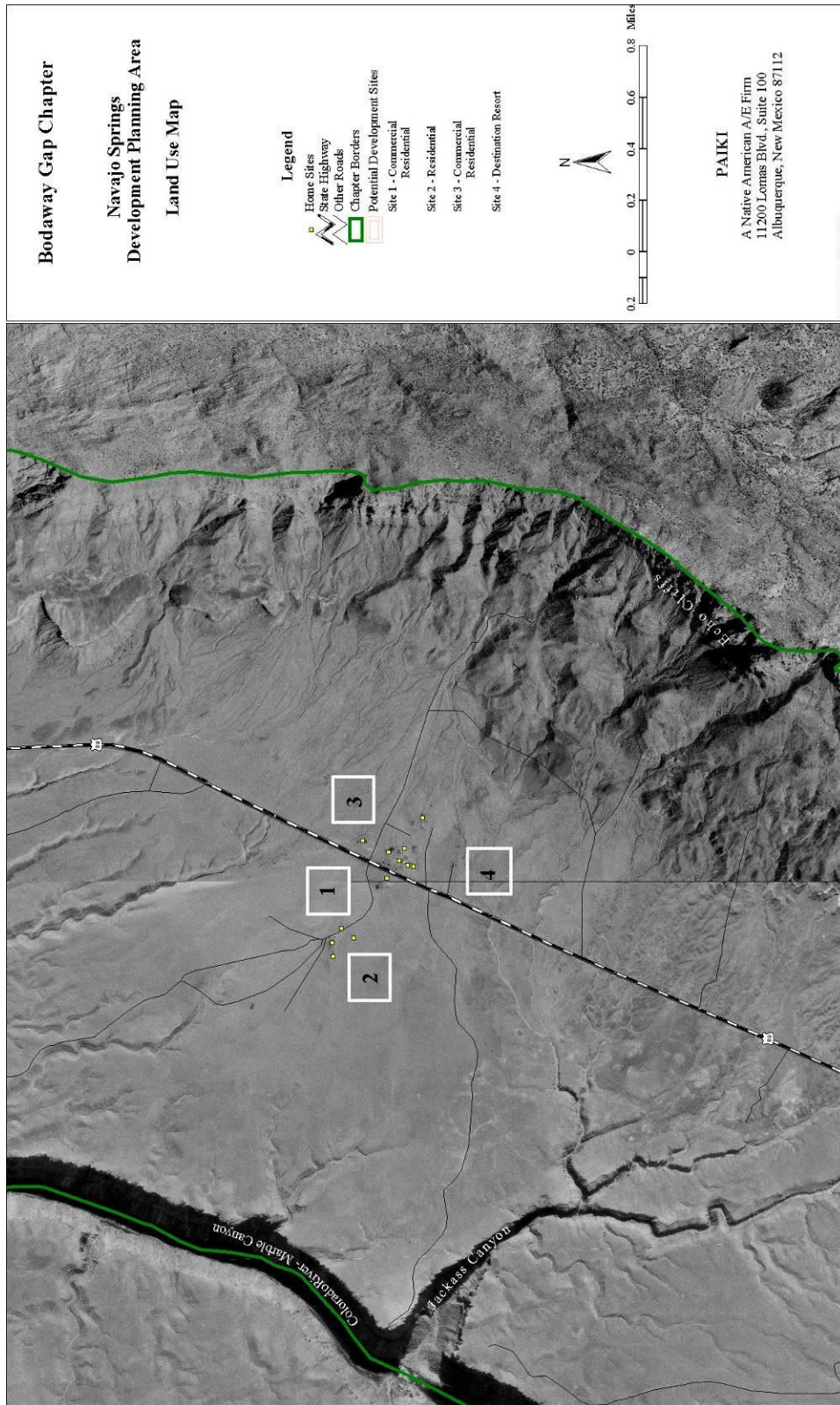


Figure 31: Navajo Springs Planned Future Development

4.0 Priority Capital Improvements Summary

4.1 Chapter Infrastructure and Capital Improvement Plan

The primary purpose of the FBFA Recovery Plan effort was to determine what is needed to restore the health, vitality, and viability of the communities in the nine impacted chapters. This includes not only the capital projects needed but also the resources and actions needed to breathe life into the vision of recovery.

In the capacity of assessment tool, the planning effort includes a first-order feasibility of the projects proposed to meet the needs of FBFA residents and other members of the nine chapters. This assessment included comparison and condition information gathered from the field; data, stories, and ongoing planning efforts expressed at community workshops; plans and data gathered from relevant departments and agencies; professional judgment and expertise; current and past Community Land-Use Plans; and other research.

In addition to determining needs for projects, the planning team also looked for signs of progress toward project-readiness. Those projects with land withdrawn, some planning completed, or design started can be prioritized for funding in order to see results on the ground and begin to show success. It is not enough to ask community members to hope for change; it must be cultivated through identifying projects that need more thought or planning and fast-tracking those that are ready to take shape.

Project cost estimates include the following elements, depending on the project category:

Table 32: Approximate Cost Element Percentages

Project Cost Elements	Cost Estimate
Planning – <i>Feasibility studies, land withdrawal, etc.</i>	5% of Construction Cost
Architectural / Engineering (A/E) – <i>Professional fees for design</i>	10% of Construction Cost
Construction	~ 60-75% of Total Project Cost
Project Management – <i>Administration funds for the agency managing the project construction</i>	20% of Construction Cost
F,F,&E – <i>Fixtures, furnishings and equipment</i>	~ 3-30% of Construction Cost

Table 33: Approximate Cost Element Percent of Construction Cost by Project Type

Project Category	Planning Cost	A/E Cost	Constr. Cost	Proj. Mgmt. Cost	F,F,&E Cost
Housing	5%	10%	100%	20%	3%
Infrastructure / Utilities	5%	10%	100%	20%	
Transportation	5%	10%	100%	20%	
Health / Public Safety					
<i>Health Facility</i>	5%	10%	100%	20%	25%
<i>Fire / Police Station or Tribal Court</i>	5%	10%	100%	20%	30%
Community Facilities, Parks, & Recreation					
<i>Indoor</i>	5%	10%	100%	20%	15%
<i>Outdoor</i>	5%	10%	100%	20%	
Education	5%	10%	100%	20%	15%

Those projects that did not include enough information to generate a cost estimate were handled in one of three ways: (1) Funds were provided for a feasibility study to determine the project scope, location, and cost, (2) Similar projects were combined into larger regional studies to be looked at comprehensively, such as environmental and cultural resources, or (3) The project was noted in the capital projects list but not allocated funds until more information can be provided.

Costs were estimated for each project based on a needs assessment for each project category, relying on the following data and sources:

- Data about existing residential buildings and roads gathered by field teams;
- Needs expressed by participants in community workshops;
- Recommendations and results of other plans, documents, and studies; and
- Professional judgment based on past experience and other research.

Field Data

Field teams traveled to each of the FBFA chapters to visit, assess, and document residential buildings in the nine Chapters over the course of nine weeks.

- Judging from the exterior appearance of homes, the conditions of these residences were rated from very poor to very good.
- The location of each home visited was recorded through a Global Positioning Satellite (GPS) system.
- The house's size in square feet and approximate age were estimated.
- Based on signs of occupancy, homes were assumed to be occupied or unoccupied.
- When available, residents were asked a series of questions about ownership and water hauling practices.
- Where possible, teams noted the presence of outbuildings, if any, other livestock structures, conditions of roads, source of water, wastewater system, and availability of power.
- A photograph of each house was taken, unless the owner did not allow it.
- Road locations, type, and condition were gathered as field teams traveled them.

While this information may be used in later assessment efforts on an individual basis, the main emphasis of this study was to determine a regional sense of housing conditions, particularly the condition of those in the FBFA versus those in the Chapter but outside the boundary. This Plan contains a statistical analysis based on the field team data and compared to the U.S. Census and a recent Water Resources study.

The following sections include the descriptions and costs for each of the capital projects by category. In addition, the sections generally describe the method by which the most common projects were assessed and estimated.

4.1.1 Housing

As part of the FBFA Recovery Plan effort, field teams traveled to each of the FBFA chapters to visit, assess, and document residential buildings in the nine Chapters. Judging from the exterior appearance of homes, the conditions of these residences were rated from very poor to very good. As much as possible, field teams noted the presence or absence of power, water, wastewater treatment, telephone service, natural gas, and access. The location of each home visited was recorded through a Global Positioning Satellite (GPS) system, and the house's size in square feet and approximate age were estimated. When available, residents were asked a series of questions about ownership and water hauling practices.

While this information may be used in later assessment and improvement efforts on an individual basis, the main emphasis of this study was to determine a regional sense of housing conditions, particularly the condition of those in the FBFA versus those in the Chapter but outside the boundary. In order to study this, a statistical analysis was conducted based on the field team data and compared to the U.S. Census and a recent Water Resources study.

Single Family Residences

The field teams visited approximately 4,400 single family residences and counted an additional 2,400 using aerial photography for a total of 6,898 single-family houses. Figure 32 illustrates the houses surveyed in the Chapter. Of those, 2,391 were located in the FBFA. Forty-five percent of all residences met an established standard for a habitable dwelling; however, only 24 percent of homes in the FBFA met the standard for habitable dwellings.

For this study, the standard required that a structure must be rated very good, good, or fair based on the field team's assessment of the exterior. The field team criteria can be found in Appendix 5.1. If the residence was only rated fair, additional criteria were added to ensure habitable conditions. In these cases, the dwelling must have public water, septic or public sewer, and be less than 25 years old. Based on this standard, only 3,110 of the 6,898 dwellings (585 of 2,391 in the FBFA) were estimated to be habitable and worth repairing.

In order to estimate the demand for housing, historic population trends and future population projections were used. Contrary to the observations of many residents, the nine FBFA chapters have shown steady growth in population since the imposition of the Bennett Freeze. There was no statistical evidence of a significant out-migration. While anecdotal evidence supports the idea that many families moved away because of the freeze, Census data show that they were replaced by others and then some.

Absent the statistical evidence to project potential in-migration, population projections based upon traditional birth and death analysis were used. Projections were calculated for each Chapter to the year 2020. According to the 2000 U.S. Census, the average number of people per household for the Navajo Nation as a whole is 3.77 and 3.99 for the nine chapters. Using the Navajo Nation average of 3.77, the 2020 housing demand for the nine Chapters is 6,995 homes (2,001 in the FBFA).

No data exists that divides Chapter population inside and outside the FBFA; however, the field survey recorded the number of occupied households and their exact location using GPS technology. While not every home may have been visited by a field team, and some houses may have been inaccurately classified as either occupied or unoccupied, a large enough sample was gathered to be able to produce a statistically meaningful ratio of residents inside and outside the FBFA.

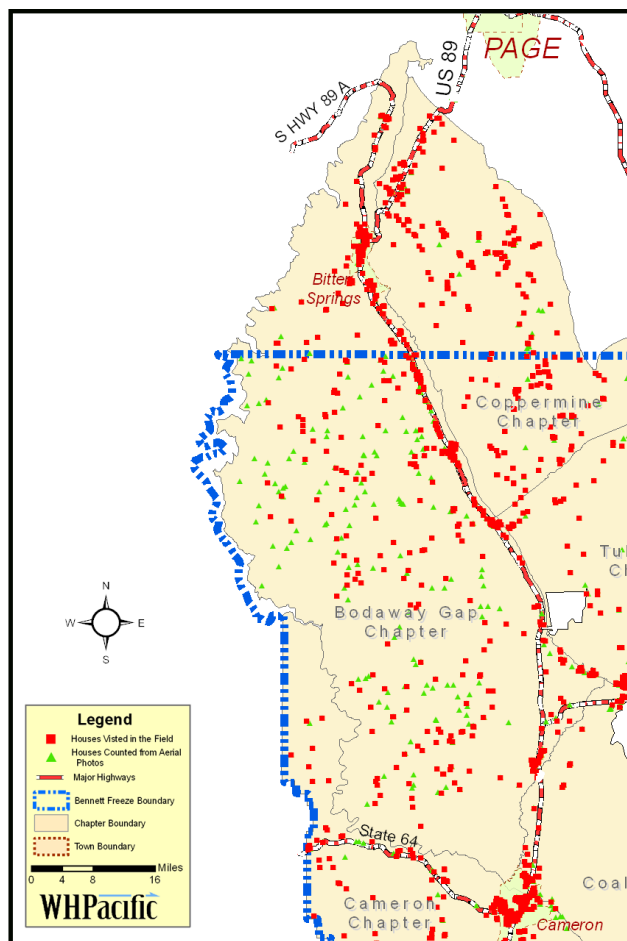


Figure 32: Houses Surveyed

Using the field team data, the analysis applied the ratio of population per household to the number of occupied homes inside and outside the FBFA boundary. This calculation produced an estimate of the percentage of population and homes in and out of the FBFA within each Chapter. These percentages were used to calculate how many homes inside and outside the FBFA boundary would be needed to meet the housing demand by 2020, in each of the housing categories described below.

Using additional statistical information from the field surveys, the 2000 US Census, and other documents, the following assumptions were developed to complete the housing analysis.

- It was estimated that 62 percent of the existing homes are scattered and that this percentage has remained relatively constant for the last few decades. It was therefore assumed that 62 percent of new homes would be scattered. Scattered housing for purposes of this Study is defined as a home without access to a public water system, power or both. The cost estimate for scattered homes contains additional funds to provide water, power, and access.
- The 3,110 homes that meet the standard for being habitable will require a repair and replacement program. A cost estimate is included to fund this program.
- Many existing scattered houses will require water, wastewater treatment, power, and road access. A cost estimate has been developed that represents an average amount per house to provide these essential services.
- Each cost estimate includes an allowance for the fixtures, furnishings, and equipment necessary to make the structure habitable.

The present and future housing inventory has been divided into the categories listed below:

- New Cluster Housing Outside the FBFA
- New Cluster Housing Inside the FBFA
- New Scattered Housing Outside the FBFA
- New Scattered Housing Inside the FBFA
- Repair and Replace Housing Outside the FBFA
- Repair and Replace Housing Inside the FBFA
- Power, Water and Access to Existing Scattered Housing Outside the FBFA
- Power, Water and Access to Existing Scattered Housing Inside the FBFA

It should be emphasized that this is a statistical analysis based upon a brief physical examination of each existing home. Individual homes were not identified for repair or replacement. The purpose of this study is limited to estimating the cost to repair the existing and construct the new houses necessary to meet the future demand. Once funding is obtained, the next step will need to build on the survey data from this planning effort and begin the process of identifying the individual homes and specific actions to make them habitable.

Multifamily Residences

The field survey data and the latest Census indicate that the nine Chapters have approximately the same ratio of multifamily units to single family units as the Navajo Nation as a whole.

However, in the nine Chapters taken together, two thirds of the multifamily units are thirty years old or more. It is understood that many of the health and education staff residences are “multifamily” housing, generally duplexes through quadra-plexes. No information was collected that would differentiate between owner-occupied and renter-occupied dwellings or staff and non-staff occupants. The shortage of staff housing claimed during community workshops and other documents may be a problem of suitability and availability. No attempt was made in this Study to analyze this specific issue.

The estimated demand for multifamily units in addition to that for single family units is based upon the Navajo Nation ratio of four percent multifamily to single family. Present and future staff housing is included in both the projections for single and multifamily housing. For the nine Chapters, the Plan recommends that 59 percent of the multifamily units be replaced over the next ten years and 77 percent replaced within the FBFA. For multifamily housing, the following assumptions were made to generate the recommended projects and cost estimates:

- The ratio of multifamily units to other housing types in the nine Chapters should equal the four percent of all housing that exists in the Navajo Nation as a whole
- This housing could be duplexes, triplexes, apartments, or townhouses, but the average size would generally be equal that of a single family residence, which is assumed to be 1,200 sq. ft. for all the categories described above.
- Multifamily in excess of 30 years old will be replaced at some time in the planning horizon of this Study.

Group Residential

Each Chapter requested emergency, temporary housing for individuals in distress. The requests included space for a woman’s shelter, temporary housing for students, a halfway house, or independent living for other individuals with special needs. While the need is very clear, the amount of space and its configuration is difficult to estimate absent specific information on the number of potential residents and their reason for needing temporary housing. It is also clear that in a small community, the reasons driving the need can change. One week the facility may shelter a woman in need and the next a student.

Despite these uncertainties, any facility would be preferable to none. The following assumptions were made to estimate the size of a reasonable group residence:

- Experience suggests that it is unlikely that more than four to six people at a time would be housed in small chapter, eight to twelve in a medium chapter or thirty-two in the large chapter. Using this general guide, the estimated size of the facilities needed for the small chapters is 2,000 square feet; the medium 4,000; and the large 16,000.
- This space could be in one building or several. It could be part of another facility or it could simply be a detached or multifamily residence used for this purpose.

Elder Living Center

The Elder Living Center provides both living quarters and day care for the elderly. The resident rooms would be equipped with showers and toilets. Most rooms would be for individual occupancy, with some big enough for double occupancy. The core of the facility houses the activity rooms – a dining room and lounges for residents and day care users. An on-site kitchen serves meals to the users. There are offices for administrator and visiting medical personnel, and a nurse's station will be centrally located.

- In the small chapters, 15 resident rooms can be constructed for the budget recommended. The medium chapters would have a center with 45 resident rooms, and the large Chapter, 150 rooms.
- The facility is intended to be used as an independent and assisted living and daycare center. It is not intended for users needing intensive physical or mental medical attention such as patients suffering from Alzheimer's.
- In some cases the Chapters requested a Senior Center. A Senior Center cannot provide the services anticipated by an Elder Living Center; however, the Elder Living Center day care and the food service can provide the services provided by a Senior Center. This will be a decision for the community during the feasibility study. For this report, a Senior Center is generally included in the space for a Community or Multipurpose Center.

Table 34 below details the costs of housing projects that should be funded in the Bodaway-Gap Chapter.

Table 34: Housing Cost Estimates

Bodaway-Gap Chapter Infrastructure Capital Improvement Plan								
Housing Project	Start Year	Housing Units*	Planning Cost	A/E Cost	Constr. Cost	Project Mgmt	F,F&E	Total
New Cluster Residential in FBFA	2010	177	\$2,771,820	\$5,543,640	\$55,436,400	\$11,087,280	\$1,663,092	\$76,502,232
New Cluster Residential	2010	10	\$156,600	\$313,200	\$3,132,000	\$626,400	\$93,960	\$4,322,160
New Elder Living	2013	45,000 SF	\$1,095,000	\$2,190,000	\$21,900,000	\$4,380,000	\$657,000	\$30,222,000
New Group Residential	2013	4,000 SF	\$63,000	\$127,000	\$1,268,000	\$254,000	\$38,000	\$1,750,000
New Multifamily in FBFA	2010	16	\$311,040	\$622,080	\$6,220,800	\$1,244,160	\$186,624	\$8,584,704
New Multifamily	2010	2,400	\$38,880	\$77,760	\$777,600	\$155,520	\$23,328	\$1,073,088
New Scattered Residential in FBFA	2011	284	\$5,520,960	\$11,041,920	\$110,419,200	\$22,083,840	\$3,312,576	\$152,378,496
New Scattered Residential	2011	16	\$311,040	\$622,080	\$6,220,800	\$1,244,160	\$186,624	\$8,584,704
Power & Water Upgrades in FBFA	2010	57	\$215,460	\$430,920	\$4,309,200	\$861,840	\$129,276	\$5,946,696
Power & Water Upgrades	2010	12	\$45,360	\$90,720	\$907,200	\$181,440	\$27,216	\$1,251,936
Repair Multifamily	2010	8	\$48,000	\$96,000	\$960,000	\$192,000	\$28,800	\$1,324,800
Repair Residential in FBFA	2010	59	\$888,000	\$1,776,000	\$17,760,000	\$3,552,000	\$532,800	\$24,508,800
Repair Residential	2010	21	\$192,000	\$384,000	\$3,840,000	\$768,000	\$115,200	\$5,299,200
*One housing unit is 1,200 square feet.								Total 321,748,816

4.1.2 Education

Most Chapters requested educational facilities for kindergarten through high school students. The population of the chapters fall into three population ranges: small, medium, and large. For each, the educational facility requirements are slightly different. The smaller Chapters have a higher per student cost than does the one large chapter – Tuba City. The medium chapters, of

course, fall in between. This difference occurs because of the fixed size of certain elements of the educational buildings.

A gymnasium, a school library, administrative area and others are basically the same size regardless of the number of students. Classrooms and cafeterias are driven by the size of the student population. In developing this estimate, a core size was assumed for all schools, and the student-driven elements were added on a square foot per student basis. This number was compared to averages from around the U.S. for comparison and verification.

Other assumptions including the following were used in this analysis:

- Typically 100 square feet is assumed for elementary students, 125 for mid-school, and 150 for high school students.
- The estimated size of the facilities needed for the small Chapters is 38,000 square feet; the medium is 96,000; and the large, 225,000.
- In determining the number of students from each chapter, a capture rate of 80 percent was used. It is assumed that the other 20 percent of eligible students will be home-schooled, attend private school, or go to a boarding school out of the Chapter.
- Normally, a high school drop-out rate of up to 50 percent is calculated into the formula. For this analysis 100 percent graduation was assumed. This conservative approach was taken because of the strong belief expressed by participants that families left the FBFA partly because of the absence of educational opportunities for the children. Many of those families are expected to return when new schools are available.
- While enough funds are being requested to construct stand-alone schools where requested, there are economic as well as educational advantages in consolidating educational facilities. Larger schools allow for more efficient operation and broader curriculum offerings. It is expected that the feasibility study phase of these projects will examine the regional opportunities for combining student populations into larger schools.

Daycare and Headstart Centers

Daycare and Headstart facilities were requested by all nine Chapters. Using traditional population methods, the number of children eligible for Headstart and potential daycare participants was estimated for the three Chapter sizes. It was assumed:

- Daycare and Headstart facilities for small chapters would require 2,000 and 1,000 square feet; medium chapters will need 4,000 and 2,000; and the large chapter, 8,000 and 4,000 square feet.

Lifelong Learning Centers

All nine Chapters requested some form of community learning center. Suggestions included computer labs, arts and crafts studios, libraries, vocational training, and many other worthwhile activities. These facilities would primarily serve the adult community and should be adaptable to the changing needs and priorities of the community. The importance of adaptability was amply evident by the number of ideas from each community on how to use this type of facility. Rather than try to meet every perceived need, it was decided to designate a budget large enough to

construct a facility that could house several of these functions and leave the specifics to the community to decide during the feasibility study. Other assumptions were:

- This type of facility is not strictly driven by population size. There are certain minimum sizes that must be maintained to have a functional building. Based on professional judgment and experience with similar buildings, it was determined that the small chapters would require a 6,000 square foot building; the medium chapters 8,000 square feet; and, the large chapter 15,000.
- This facility does not necessarily need to be a stand-alone building. It could be constructed in conjunction with a multipurpose building, a senior center or even the school facilities. It is expected that these opportunities will be explored during the feasibility study.

Table 35 below details the costs of education projects, including a lifelong learning center, new Headstart facility, and a kindergarten through high school facility, that should be funded in the Chapter.

Table 35: Education Cost Estimates

Bodaway-Gap Chapter Infrastructure Capital Improvement Plan							
Education							
Project	Year to Start	Square Footage	Planning	Architecture-Engineer	Construction	Other*	Total
Lifelong Learning	2012	8,000	152,400	304,800	3,048,000	1,066,800	4,572,000
Daycare	2013	1,300	19,435	38,870	388,700	136,045	583,050
Daycare	2013	1,300	19,435	38,870	388,700	136,045	583,050
Daycare	2010	1,300	19,435	38,870	388,700	136,045	583,050
Headstart	2010	2,000	29,900	59,800	598,000	209,300	897,000
K-12	2015	96,000	1,860,000	3,720,000	37,200,000	20,013,600	62,793,600
*Includes Furniture, Fixtures & Equipment and Project Management fees.						Total	70,011,750

4.1.3 Health and Public Safety Facilities

Health Facilities

Major medical facilities are planned by the I.H.S. for Tuba City, Bodaway, and Leupp. The proposed budgets for these facilities are included in this plan with a recommendation that they be fully funded. Together, these regional facilities are intended to serve the entire population of the nine Chapters for emergency and major health treatment. Small health clinics with urgent care capability were suggested by Chapter members to provide closer triage for emergencies and better access to preventative and maintenance healthcare. For those chapters wanting health clinics and urgent care facilities in addition to the regional medical services, funds have been included.

Table 36 below details the costs of health facility projects that should be funded in the Chapter. The health clinic will provide healthcare services closer to the homes of Chapter residents. The urgent care facility will reduce time and distance to emergency medical help.

Table 36: Health Facility Cost Estimates

Bodaway-Gap Chapter Infrastructure Capital Improvement Plan							
Health							
Project	Year to Start	Square Footage	Planning	Architecture-Engineer	Construction	Other*	Total
New Health Care Facilities	2010	43,088	1,424,056	2,848,112	28,481,123	12,816,505	45,569,797
*Includes Furniture, Fixtures & Equipment and Project Management fees.							Total 45,569,797

I.H.S.'s Health Care Facilities FY 2010 Planned Construction, or national priority list, includes new health centers for Dilkon (which includes the Leupp Service Area) and Bodaway. The primary replacement for the Dilkon project will be constructed in Dilkon, Arizona. The Planning Justification Documents for the projects have been approved by I.H.S.

I.H.S. recognizes that the Tuba City Indian Medical Center, built in 1975, faces tremendous challenges in addressing the needs of its aging facility and is in need of resources to replace major equipment and to renovate the existing structures. When the current I.H.S. facilities prioritization process was implemented in the early 1990s, the facility was about 15 years old; it is now over 30 years old.

The need throughout Indian country for new hospitals and health centers is estimated at over two billion dollars. Projects on the national priority list are funded based on their rank order on the list and are subject to Congressional appropriations.

Small health clinics with urgent care capability were suggested by Chapter members to provide closer triage for emergencies and better access to preventative and maintenance healthcare. For those chapters wanting health clinics and urgent care facilities in addition to the regional medical services, funds have been included.

Other areas that may need further discussion with the I.H.S. are staff housing, staffing, and equipment to support the proposed clinics.

Table 37 details health facilities that will be funded at the regional level. Tuba City will remain the main medical hub for the region. Emergency repairs will address the immediate deficiencies in the Tuba City Regional Hospital. Later, renovations and expansions will help the facility continue to meet the needs of the growing regional population.

Table 37: FBFA Regional Health Projects

Bodaway-Gap Chapter Infrastructure Capital Improvement Plan							
Health							
Project	Year to Start	Square Footage	Planning	Architecture-Engineer	Construction	Other*	Total
New Health Care Facilities	2010	43,088	1,424,056	2,848,112	28,481,123	12,816,505	45,569,797
*Includes Furniture, Fixtures & Equipment and Project Management fees.							Total 45,569,797

Police and Fire Stations

Fire and rescue, police, and detention were topics of considerable discussion during the community workshops. While these have been included as individual projects as requested by the Chapters, they all must be considered together as a regional plan. Location is critical both because of length of travel and population density. The size of the fire fighting facilities is

determined by equipment. The minimum size includes space for one fire and one EMS vehicle plus limited space for equipment storage, administrative functions, and a day room. Similarly, a police station with detention facilities will require a minimum number of functional elements. These will include male, female, and juvenile detention rooms, an office, storage, interview room, and others.

- It was assumed that all Chapters needing new facilities would have the same size fire and police station. All police stations are recommended at 4,000 and fire stations at 9,000 square feet.
- This space can be stand-alone, added to an existing police or fire facility, or in the case of police service, broken into smaller substations.

Table 38 below details the costs of the public safety projects that should be funded in the Chapter. Police and fire facilities in the Chapter will reduce the response time to emergencies.

Table 38: Public Safety Facility Cost Estimates

Bodaway-Gap Chapter Infrastructure Capital Improvement Plan							
Public Safety							
Project	Year to Start	Square Footage	Planning	Architecture Engineering	Construction	Other*	Total
Fire Stations	2010	9,000	250,650	501,300	5,013,000	2,506,500	8,271,450
Police Station	2010	4,000	96,400	192,800	1,928,000	964,000	3,181,200
*Includes Furniture, Fixtures, & Equipment and Project Management fees.						Total	11,452,650

Rural Addressing / 911 Emergency Response

Emergency services and other normal activities are severely hampered by the lack of a rural address system. Without a way to identify the location of an individual house, it is difficult if not impossible to find. The field survey conducted as part of this study is a first step in attaching a descriptor to a physical location. This effort should be undertaken while the field survey data is fresh. Funds to continue the rural addressing project have been included in the recommended regional projects in the ICIP. Table 39 shows funding for planning and implantation of the 911 addressing project.

Table 39: Regional Funding for 911 Addressing

Regional Projects Needs Assessment						
Public Safety						
Description	Year to Start	Planning	Architecture-Engineer	Construction	Other*	Total
Street Address and 911 Service Study	2012	500,000	0	0	0	500,000

4.1.4 Community Facilities, Parks, and Recreation

Community and recreational facilities are key not only to health but also to providing safe, good activities for youth. Clustered housing in the absence of such activities has led in the past to a rise in vandalism, drugs and alcohol abuse, and gangs.

In order to approach this problem comprehensively, communities must provide solutions to the root cause, which is a lack of opportunities for youth – in terms of employment and recreational activities. Providing skate parks, community centers, and recreational facilities near to housing

clusters and residential centers offers an alternative to negative behaviors often based on boredom, neglect, or lack of supervision. Many parents have to work; supervision falls to service organizations in order to provide guidance and structure to youth, which can happen most effectively and proactively through parks and recreation programs and facilities.

Often communities overlook recreation as one category of “non-essential” capital projects. A longer view shows communities can either provide parks and recreation facilities and programs, education, and job training now or invest significantly more resources later in order to fund detention facilities, drug treatment/rehabilitation centers, or financial assistance programs.

Community / Multipurpose Center

As the name implies, there were a multitude of uses for a Community or Multipurpose Center. These include meeting space, offices for tribal or federal services, senior and veteran activities, Post Office, museum, cultural center, Boy’s and Girl’s club, computer lab, and library. As with the Lifelong Learning Center, this is a facility that must adapt to the present and changing needs and wishes of the community and groups that use it.

- For this plan it is assumed that a 4,000 square foot building would provide sufficient space for a small chapter, 6,000 for the medium chapter, and 12,000 for the large chapter.
- This facility can be broken into different structures or combined with other functions such as the senior and veteran centers or the Chapter House.
- It is not intended that this structure will take the place of the Chapter House or the Recreation Building, although these could be combined into one building or complex of buildings.

Table 40 details the costs for community facility projects that should be funded in the Chapter.

Table 40: Community Facility Cost Estimates

Bodaway-Gap Chapter Infrastructure Capital Improvement Plan							
Community Facilities							
Project	Year to Start	Square Footage	Planning	Architecture-Engineer	Construction	Other*	Total
Football field/ Track	2014		4,650	9,300	93,000	32,550	139,500
New Animal Shelter in Bitter Spring	2012	2,500	44,500	89,000	890,000	311,500	1,335,000
New Animal Shelter in Gap	2012	2,500	44,500	89,000	890,000	311,500	1,335,000
New Cemetery / Veterans Memorial	2010		25,000	0	0	0	25,000
New Chapter House	2010	4,000	71,200	142,400	1,424,000	498,400	2,136,000
New Multipurpose center (includes Senior Center)	2012	6,000	106,800	213,600	2,136,000	747,600	3,204,000
New Veterans Ctr - Project ready	2010	2,000	35,600	71,200	712,000	249,200	1,068,000
New youth/adult rec center, New Wellness Ctr	2010	27,000	538,650	1,077,300	10,773,000	3,770,550	16,159,500
Post Office	2014	5,000	89,000	178,000	1,780,000	623,000	2,670,000
*Includes Furniture, Fixtures & Equipment and Project Management fees.							Total 28,072,000

Recreation Building

Space for exercise, recreation, youth programs, and organized sports was often mentioned as a need. This study combines the suggestions into one facility that serves both adult and youth programs.

A gymnasium with double basketball courts and bleachers will accommodate practice, play, and league sports. A large game room will provide a place for Chapter members to enjoy a variety of games ranging from board games to modern video games. An aerobics room with rubberized flooring and mirrored walls will accommodate a wide array of activities, including dancing, yoga, or spin cycle. Two staff offices, a reception area, and a copy room will be the only administrative spaces. A large arts and crafts room can hold specialize equipment such as potter's wheels, kilns, and weaving equipment. Seating just off the entrance will provide a place for food service from a warming kitchen for children involved in summer and after school programs.

- Most of the rooms in the Recreation Building are of a fixed size; therefore, the size is the same for both the small and medium chapters at 27,000 square feet. For the large chapter, it is assumed that two Recreation Buildings are needed even though they may be combined into one structure.

Table 41 describes recreation facilities that will be funded at the Chapter Level.

Table 41: Recreational Facility Cost Estimates

Bodaway-Gap Chapter Infrastructure Capital Improvement Plan						
Recreation						
Project	Year to Start	Planning	Architecture-Engineer	Construction	Other*	Total
New Campground & R.V. Park	2014	25,000	0	0	0	25,000
New Campground & R.V. Park	2014	25,000	0	0	0	25,000
New Park near a recreational center	2010	4,650	9,300	93,000	18,600	125,550
New Picnic ground	2012	4,650	9,300	93,000	18,600	125,550
New Rodeo center and trail rides	2012	50,000	0	0	0	50,000
New Skate parks	2012	50,000	0	0	0	50,000
*Includes Furniture, Fixtures & Equipment and Project Management fees.					Total	401,100

Senior and Veterans Centers

Several chapters requested separate Senior Centers and Veteran Centers. In those cases, funds were included for stand-alone buildings. During the feasibility study, careful consideration should be made to combine these spaces with other structures such as the Community / Multipurpose Center. This action could ease the burden of maintenance and security and provide the flexibility to adapt to changing needs.

Open Space

Table 42 details funding for an archeological and historic preservation plan. This plan will map and inventory historical and cultural sites, and other “areas of avoidance.” This plan will be an important element in protecting the culture and heritage of the Chapter’s people.

Table 42: Funding for Historic and Archaeological Preservation

Regional Projects Infrastructure and Capital Improvements Historic and Archaeological Preservation								
Project	FBFA (%)	Start Year	Sq. Ft.	Planning	Architecture-Engineer	Construction	Other*	Total
Historic and Archaeological Preservation Study (various locations)	n/a	2010	n/a	200,000	0	0	0	200,000

Table 43 details funding for a vegetation and wildlife study. This study will inventory vegetation and wildlife in the region. The study will identify threatened and endangered species as well as environmental hazards that should be rectified.

Table 43: Vegetation and Wildlife Study

Regional Projects Infrastructure and Capital Improvements Environmental Protection								
Project	FBFA (%)	Start Year	Sq. Ft.	Planning	Architecture-Engineer	Construction	Other*	Total
Wildlife and Plants Study (various locations)	n/a	2010	n/a	500,000	0	0	0	500,000

Table 44 describes funding for a remediation plan for contamination caused by uranium mining. This study will inventory uranium contamination sites throughout the region and develop a strategic plan to remedy environmental health hazards.

Table 44: Uranium Contamination Remediation

Regional Projects Infrastructure and Capital Improvements Environmental Remediation								
Project	FBFA (%)	Start Year	Sq. Ft.	Planning	Architecture-Engineer	Construction	Other*	Total
Uranium Contamination Remediation Plan (various locations)	n/a	2010	n/a	500,000	0	0	0	500,000

4.1.5 Infrastructure & Utilities

Water and Wastewater

To the extent possible within the limitations of this study, the cost of providing water and wastewater to the scattered houses has been included in the estimated cost of the New Scattered Houses and the Power, Water and Access to Existing Scattered Housing discussed in the housing section. Historic information and data from other studies suggest that the average cost for providing water and wastewater to a scattered house is between \$20,000 and \$30,000. A similar amount has been included for all the new and existing scattered houses in the nine chapters.

In addition, this study recommends as part of its regional projects full-funding for both the Western Navajo Pipeline and the C-aquifer Leupp to Dilcon Pipeline, which will provide a new or addition water source to approximately 60 percent of the people in the nine Chapters.

Table 45 describes water and wastewater projects funded at the Chapter level.

Table 45: Water and Wastewater Projects

Bodaway-Gap Chapter Infrastructure Capital Improvement Plan						
Water and Wastewater						
Project	Year to Start	Planning	Architecture-Engineer	Construction	Other*	Total
Unfunded water, wastewater projects	2010	0	230,600	2,306,000	461,200	2,997,800
Active and inactive water and wastewater projects	2010	0	317,800	3,178,000	635,600	4,131,400
*Includes Furniture, Fixtures & Equipment and Project Management fees.					Total	7,129,200

Power

The field survey indicated that over 40 percent of the residential structures were without electric power. This is considered one of the most critical needs for the nine Chapters. Expansion of the distribution system is the most reliable way of providing power to the underserved area but not the only one. Solar and wind generated power has become a cost effective alternative to overhead power lines in many cases.

- To address this issue it was calculated that a solar, wind and/or fuel generator system sufficient to power a residence, including refrigeration, would cost an estimated \$30,000. This figure was added to the cost of a New Scattered Residence and the cost of repairing an Existing Scattered Residence.
- It was assumed that if the cost for overhead power lines is in excess of that amount, then the alternative would be installed.

Communications

Telephone and cell phone service in the area of the FBFA is unreliable and spotty, which negatively impacts the safety and quality of life of residents. A study should be done to identify the underserved areas, devise a solution, estimate the cost, recommend a solution, and prepare an implementation plan for consideration (Table 46).

Table 46: Communications Improvement Study

Regional Projects Infrastructure and Capital Improvements								
Communications								
Project	FBFA (%)	Start Year	Sq. Ft.	Planning	Architecture-Engineer	Construction	Other*	Total
Communications Study (Telephone, cell towers, internet for various locations)	n/a	2010	n/a	200,000	0	0	0	200,000

Solid Waste

Table 47 describes funding for a plan to improve solid waste infrastructure. There is a lack of transfer stations and landfill sites throughout the former Bennett Freeze Area. This plan will help the chapters plan for centrally located landfills or transfer stations to handle solid waste disposal needs.

Table 47: Funding for Regional Solid Waste Plan

Regional Projects Infrastructure and Capital Improvements								
Waste Disposal								
Project	FBFA (%)	Start Year	Sq. Ft.	Planning	Architecture-Engineer	Construction	Other*	Total
Solid Waste Study (various locations)	n/a	2010	n/a	200,000	0	0	0	200,000

4.1.6 Transportation

Roads

The field survey conducted for this survey was not intended to provide a comprehensive evaluation of the roads in the nine Chapters; however, those roads traveled in route to an inspection of a building were documented and rated by the field teams. Many Chapter workshop participants requested specific road repairs and new roads. The Navajo Nation Department of Transportation developed a 2003 Long Range Comprehensive Transportation Plan, which along with the Status Report from the Western Navajo Agency Roads Committee, sets out the priorities for road construction in this area. Given the limited scope and time for this study, it was deemed appropriate to endorse include the recommendation of the Navajo DOT and the Roads Committee in this document. The data collected and the specific suggestions for improving the road system will be provided to these agencies for their future consideration.

Transit

Several Chapters identified transportation as an immediate need. This includes scheduled transport as well as in an emergency. The scheduled trips would include shopping, medical appointments and visiting. While the need is real and immediate, there is no evidence that a scheduled transit system would be viable. It is recommended a shuttle van be purchased for each Chapter to deal with the immediate needs and a more comprehensive solution be sought through a feasibility study.

Table 48 below shows transportation projects that will be funded at the regional level. The planning team believed that these projects should be funded at the regional level because each of these projects benefits the entire former Bennett Freeze area.

Table 48: Regional Road Transportation Projects

Regional Projects Infrastructure and Capital Improvements								
Transportation								
Project	FBFA (%)	Start Year	Sq. Ft.	Planning	Architecture-Engineer	Construction	Other*	Total
Paved Road Inventory (Map, evaluate and develop a road upgrade plan for various locations)	n/a	2012	n/a	300,000	0	0	0	300,000
Tribal Transportation Improvement Program (5.2 mile Chip Seal, Tuba City (Route N101))	In	2024	5.2 miles	26,000	52,000	520,000	104,000	702,000
Tribal Transportation Improvement Program (1 mile rehab - Main Street, Tuba City (Route N101))	In	2010	1 mile	60,000	120,000	1,200,000	240,000	1,620,000
Tribal Transportation Improvement Program (1 mile road - Main Street to N608, Tuba City (Route N101))	In	2010	1 mile	60,000	120,000	1,200,000	240,000	1,620,000
Tribal Transportation Improvement Program (1.5 mile road - Main Street Extension to N608, Birch & Fir, Tuba City (Route N101))	In	2014	1 mile	175,000	350,000	3,500,000	700,000	4,725,000
Tribal Transportation Improvement Program (1.5 mile road - Main Street Extension to N608, Birch & Fir, Tuba City (Route N101, Phase 4))	In	2009	9.3 miles	764,500	0	15,290,000	3,058,000	19,112,500
Tribal Transportation Improvement Program (9.3 mile road - Gap to Coppermine (Route N20, Phase 5))	In	2012	9.3 miles	764,500	0	15,290,000	3,058,000	19,112,500
Tribal Transportation Improvement Program (9.3 mile road - Gap to Coppermine (Route N20, Phase 6))	In	2015	9.3 miles	892,000	0	17,840,000	3,568,000	22,300,000
Tribal Transportation Improvement Program (9.3 mile road - Gap to Coppermine (Route N20, Phase 7))	In	2017	9.3 miles	892,000	0	17,840,000	3,568,000	22,300,000
Tribal Transportation Improvement Program (1.43 mile rehab, Kerly Street & Navajo Blvd (Route N609))	In	2010	1.2 miles	0	226,000	2,260,000	452,000	2,938,000
Tribal Transportation Improvement Program (Route N609/N614)	In	2024	1.43 miles	0	226,000	2,260,000	452,000	2,938,000
Tribal Transportation Improvement Program (2 mile road - Colorado Street, Tuba City (Route N619))	In	2010	2 miles	0	396,000	3,960,000	792,000	5,148,000
Tribal Transportation Improvement Program (2 mile bridge and road (Route N6331/N6330))	In	2010	2 miles	0	240,000	2,400,000	480,000	3,120,000
Identify Needed Traffic Control and Safety Improvements Study (various locations)	n/a	2012	n/a	500,000	0	0	0	500,000
Unpaved Roads Inventory (various locations)	n/a	2012	n/a	300,000	0	0	0	300,000
Shuttles (1 per chapter)	n/a	2010	n/a	0	0	400,000	80,000	480,000

4.2 Economic Development

As with community facilities, parks, and recreation, economic development is often deemed too expensive for benefits that may be far in the future. Making the investment in economic development plants the seeds for future generations, as well as improving opportunities to enhance the quality of life of all residents.

In general, economic development must generate enough activity and revenue to support itself. After an initial investment for infrastructure improvements and site development, private investors must be willing and able to invest their capital in the community. There are some additional risks to businesses operating on tribal land. Obtaining insurance and mortgage funds can sometimes be tricky.

Communities must do what they can to foster good conditions for business. In order to make these developments as successful as possible so they can continue to serve the community and offer more jobs, clustering activities along roads and population centers is key. As these

locations are often the boundaries between chapter service areas, neighboring chapters must work together to support desired development. This plan recommends clustering multiple facilities near each other and existing tourist attractions, both to improve business conditions, but also to preserve as much land for grazing as possible, versus letting development spread onto undeveloped lands.

The economic development strategy was based upon the desires expressed and projects identified during Chapter meetings, interviews with Navajo Nation and regional economic development agencies, policy documents of the Navajo Nation, and the goals of existing Land Use Plans. The ideas presented at these meetings and in the various documents were compiled into a comprehensive list of projects that will contribute to the economic health of the region. The desired locations of the economic development projects were then mapped.

Projects were assessed based on their proximity to other projects on the list, the potential for grouping economic development projects with other types of projects such as community facilities or infrastructure improvements, the potential to benefit multiple chapters, access to existing infrastructure, proximity to tourist attractions and other factors likely to contribute to the project's success.

Clustering the larger projects has four important benefits. First, it minimizes the need to withdraw sites and minimizes the impact on existing site leases and grazing land. Second, it makes the most efficient use of infrastructure investments, keeping infrastructure costs to a minimum while supporting significant facilities for the residents of the Former Bennett Freeze area. Third, the clustering of activities within the chapters creates convenient places for residents to live, work, shop, and conduct day to day business. Fourth, clustering activities in central locations enables businesses and service providers to benefit from the convenience of meeting their needs nearby.

Many residents live and work from their homes, many as ranchers and farmers. For these families, rural economic development projects are intended to support their ability to develop products at home and improve access to markets for their products. These projects include direct support for artists and craftsman, ranchers, and farmers.

In addition to agriculture and arts and crafts, rural development may include resource based business activity. For example, depending upon the desired application, wind farm locations will be selected based upon the reliability of the wind resource and access to the power grid. Agricultural facilities, such as community corrals or storage and distribution facilities, will be located at sites convenient to both farmers and buyers or distributors.

Tourist centers are located close to or on the way to tourist destinations, so they will not always be within a commercial center. Locating hotels, restaurants and other tourist oriented businesses within centers along major tourist routes increases opportunities for visitors to purchase other goods and services available in the centers. When tourist facilities are located at more remote sites near a visitor attraction, clustering lodging, meals, cultural centers, and retail in these locations will encourage visitors to visit multiple businesses, improving the potential for each to be successful. Projects were grouped into one of three categories of potential development sites:

- Business Centers: Projects that require accessibility and visibility or will benefit from being part of a cluster of activities are grouped into key centers.

- Rural Development: Projects that enhance the economy of the region's more remote areas are located where the resources to support them exist. Rural development projects are related to home businesses, agriculture and alternative energy (wind power).
- Tourism Development: Projects that support the region's tourism industry are located along routes traveled by tourists or close to visitor attractions.

Table 49 lists projects by Chapter and identifies locations for each project. The locations of potential development sites are shown in Figure 33. Projects are generally described below.

Table 49: Project Locations

Site Number	Development Name	Development Description
1	Highway 89 Business Corridor	Business Corridor
2	Vendor Booths	Tourist Oriented Retail
2a	First Overlook	Tourist Oriented Retail
2b	Vendor's Plaza	Tourist Oriented Retail
3	East Gate Grand Canyon Development	Motel and Café
4	Dzil Lichii Sheep Camp Bed and Breakfast	Motel and Café
5	Shadow Mountain Business Park; The Junction	Highway Oriented Retail
6	To Bee Hwiisgani Development	Business Park, Housing, and Community Facilities
7	Wind Farm Development	Wind Farm- Power Generation
8	Hidden springs	Rehabilitation of community corrals
9	The Gap Business Park	Commercial Development
10	Cedar Ridge Business Park	Warehouse/Arts Center/Tourist Based Commercial
11	Bitter Springs Business Park	Business/Retail/ Service
12	Navajo Springs Business Park	Business/Retail/ Service
13	Ranch Resort, W. side of Cedar Ridge	Community Retail
14	Coalmine Canyon Business Park	Community Retail
15	Goldtooth Farm	Agriculture
16	Windmill Industries	Solar and Wind Power Generation
17	Kerley Valley Business District	Business/Retail/ Service
18	Rifle Range Industrial Park Prison	Detention Facility/Landfill
19	Kaibeto Central Chapter Business Park	Business/Retail/ Service
20	Leupp Casino and Gas Station	Highway Oriented Retail
21	Leupp Business Park	Community Retail
22	Leupp Solar Farm	Solar Power Generation
23	Tolani Lake Economic Development Site	Business/Retail/ Service
24	Tolani Lake Community	Business/Retail/ Service
25	Newberry Site Business Park	Business/Retail/ Service
26	Tonalea Central Area	Business/Retail/ Service
27	White Mesa Business Park	Tourist Oriented Retail
28	Cow Springs Business Park	Business/Retail/ Service
29	Tuba City Business Park	Tourist Oriented Retail
30	Moenave/Dinosaur Tracks	Tourist Oriented Retail
31	Airport Business Site	Business/Retail/ Service
32	Coppermine Development Site	Residential, Commercial
33	Rockhead commercial development	Business/Retail/ Service

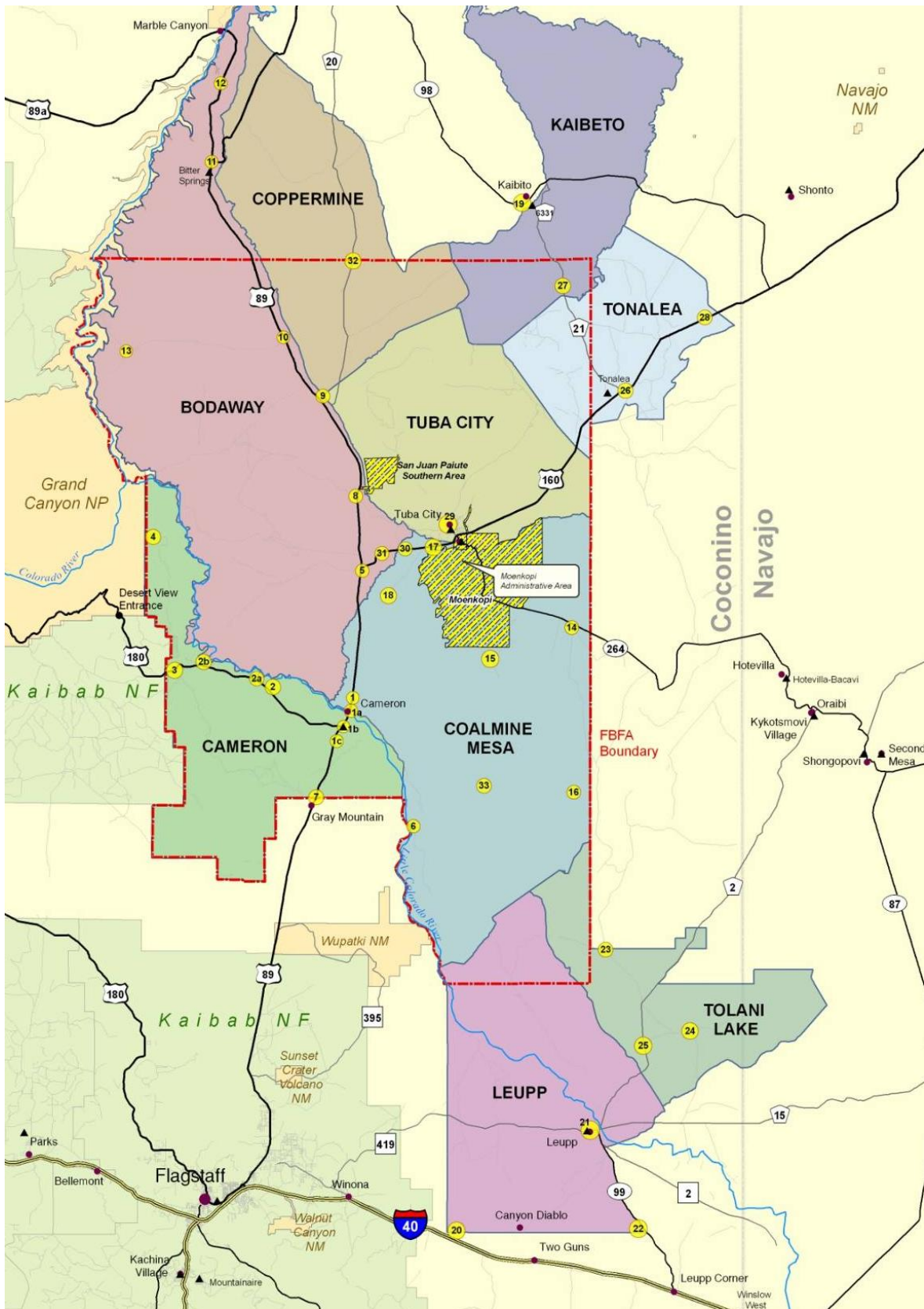


Figure 33: Potential Development Sites

4.2.1 Business Centers

Based on existing infrastructure and population distribution, there are several opportunities for business parks or business districts that enhance economic opportunities by clustering commercial sites with housing, infrastructure improvements, community facilities, and schools. As shown in Figure 33 (FBF Area Potential Development Sites), most of these potential development sites, or business centers, are located along US Highway 89 and US Highway 160. Additional centers are proposed along Arizona Route 99 and Navajo Route 2 in Leupp and Tolani Lake.

The system of highways through the Former Bennett Freeze area provides the transportation network that supports economic development. Some types of economic activity require the access and visibility provided by the roadway infrastructure. Other activities, such as agriculture, home based businesses and wind power generation, may be located based on resources rather than proximity to well traveled highways. The economic development strategy includes projects that will cluster along roads, projects in more remote areas that are located based on the location of resources, and tourism oriented projects that are located near visitor attractions.

For those projects or activities that depend upon roads, Highway 89 serves as the north/south spine through the area, connecting from I-40 and Flagstaff to Page. Much of the region's tourist traffic is along Highway 89, and access to existing business centers is via Highway 89.

In the southeastern portion of the area, which encompasses portions of Tolani Lake and Leupp, Access is directly to I-40.

4.2.2 Rural Development

Several potential development sites were identified at locations away from the business centers. These include locations suitable for wind power generation, agricultural development, and home based businesses.

Potential sites for wind farm development are in Cameron just west of Gray Mountain, in Coalmine Mesa along the escarpment of Adeii Echii Cliff. A feasibility study was requested to verify the potential for wind power generation in these locations.

Agricultural projects are geared to on-site improvements, such as earthen dams to create livestock ponds, moveable and permanent fencing, and pasture improvements. These projects are dispersed throughout the region and would benefit individual sites. The appropriate project might be designed as a program of technical and financial assistance.

Facilities that would serve a larger area include community farms, centralized warehousing and distribution for agricultural products, agricultural retail (feed store, sales outlets for agricultural products), a community livestock corrals (new and renovated), a livestock auction yard, and related services (veterinarian).

Improvements in regional communication infrastructure would enable residents to conduct business from remote sites.

Table 50 describes feasibility studies for programs and projects that will improve the long-term viability agriculture throughout the region. Land needs to be withdrawn for water infrastructure and water rights need to be secured to help ensure that the communities can prosper.

Table 50: Regional Agriculture Projects

Regional Projects Infrastructure and Capital Improvements								
Agriculture								
Project	FBFA (%)	Start Year	Sq. Ft.	Planning	Architecture-Engineer	Construction	Other*	Total
Range and Farm Management (various locations)	n/a	2012	n/a	500,000	0	0	0	500,000
Water for Agriculture Study (various locations)	n/a	2012	n/a	500,000	0	0	0	500,000

Table 51 describes a feasibility study for a solar farm in the Leupp Chapter. This project will help provide clean renewable energy to the entire region.

Table 51: Regional Rural Economic Development

Regional Projects Infrastructure and Capital Improvements								
Economic Development								
Project	FBFA (%)	Start Year	Sq. Ft.	Planning	Architecture-Engineer	Construction	Other*	Total
Leupp Solar Farm (Southeast corner of Leupp Chapter along Hwy. 99)	Out	2010	n/a	200,000	0	0	0	200,000

4.2.3 Tourism Development

The numerous natural and cultural attractions in the region bring millions of visitors to the region each year. Highway 89 serves as access from I-40 to the Grand Canyon Desert View entrance, Lake Powell and Glen Canyon National Recreation Area, national monuments and national forests, as shown in Figure 12 (FBF Area Regional Tourism map). Potential tourist oriented development sites are located close to the attractions or along roads that access the attractions.

The types of economic development projects that are proposed near visitor attractions include visitor centers; permanent vendor booths; parking, playgrounds, trails, picnic facilities, restrooms, RV parks and other tourist amenities and small-scale retail and food establishments. These projects have minimal infrastructure requirements appropriate to a remote location. Water supply may be a concern, so that water conservation and a safe water source will be important to the design of these facilities.

Projects that require water and wastewater systems and better access are shown in centers that will have infrastructure to support them. These projects include motels, casinos, and larger restaurants. Larger visitor centers and arts and crafts outlets would be part of these projects.

4.3 Priority Implementation

The completion of any planning project is the time for decision-making. While a plan lays out a possible course of action, it is up to the people who will be affected by its recommendations to (1) discern their wisdom, (2) assess their own level of motivation to take action, and (3) create the partnerships, policies, and environments through which the plan can succeed. Too often, the plan is the easiest step to achieve and remains the only one accomplished.

While many decisions need to be made by chapters, the Former Bennett Freeze Area Task Force, and Navajo Nation Divisions and Departments, there is a general approach that can be applied to thinking strategically about how to implement multiple projects.

Information was gathered from the participation process, the chapter Community Land Use Plans, and/or other planning documents. These tables will need to be updated with information not available to the planning team as of August 2008.

Strategic Implementation

The responsibility for moving toward the next step in Recovery falls largely to the chapters. Chapter officials, Community Land Use Planning Committees, and community members must work together to decide which projects included in the Plan make sense, which are truly needed, and which the Chapter will agree to sponsor toward implementation.

Agencies and departments, both tribal and federal, have a secondary responsibility to review the projects included in the Plan to determine which may already be included in current planning efforts, which could easily be incorporated into ongoing projects, and which should be included in new efforts because they fall under agency or department responsibility for implementation.

The Navajo Nation Division of Community Development, together with the Former Bennett Freeze Task Force, have responsibility for supporting the efforts of chapters, agencies, and departments to implement sponsored projects. This responsibility could include the creation of new working groups, partnerships, and roles and responsibilities for existing and new entities. These relationships will be instrumental in answering the many thorny questions that arise in the next step of implementation, which are previewed in Section 5.0 of the Recovery Plan.

After chapters prioritize projects, the next step is to identify projects to accomplish through partnerships with other chapters, departments, or agencies. Agencies and departments should eliminate projects from the Recovery Plan already included in ongoing efforts. There may also be projects to add to the Recovery Plan that were missed during data gathering in the summer of 2008.

Any projects taken on by these sponsors should be adjusted for new start years, if necessary, which will affect the six-year spread of funding needs. Adjusted costs can then be subtotaled to identify funding needs and potential funding sources.

Because they are brand-new ideas and therefore not project-ready (i.e. site selected, clearances done, and land withdrawn), many projects will require feasibility studies to determine how best to move forward. As these studies take time, the Recovery Plan recommends beginning house repairs immediately to show progress quickly. As repairs begin, assessments for power and water access for remote homes should be conducted. Feasibility studies should be conducted next for projects deemed important by chapters, agencies, and departments as funds and project managers are available.

The next step is to think about projects that are project-ready and can be relatively easily and quickly accomplished. These should be prioritized first for funding and staff efforts. Accomplishing these projects helps to show progress, which encourages others to become involved to share in the benefits and proves that it is not foolish to hope for change.

Strategic Implementation

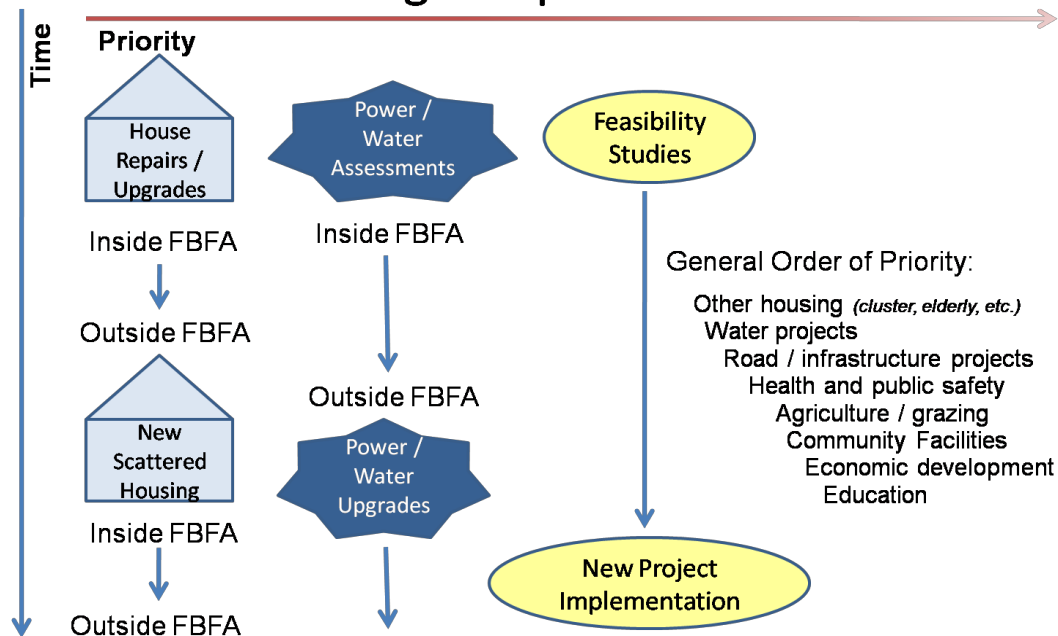


Figure 34: Strategic Implementation

In the FBFA, repairs and upgrades to existing homes are the best candidates for the first project implementation efforts. With some analysis of data collected in the field, repairs can be assessed and completed quickly. In general, this plan recommends beginning with homes inside the FBFA for both repairs and upgrades to water and power service, followed by the same projects for homes in the rest of the chapters.

While repairs are beginning, the power and water assessment can get underway, as it will take longer than assessing repairs but not as long as other studies. Additionally, it makes sense not to upgrade houses for power and water that may not be deemed repairable. IHS has completed many of these assessments, making those homes eligible for immediate assistance with the arrival of funds.

In the meantime, project staff at the relevant departments or chapters should begin feasibility studies for other priority projects. These studies typically take anywhere from six months to two years, depending on their complexity and size. By the time they are complete and generate new capital projects, project managers and staff should be available as shorter-term projects are completed.

In general, FBFA communities identified housing, including power and water improvements, overwhelmingly as the first priority for projects and funding. Water projects and road projects were the next highest priorities and should be phased accordingly. Health and public safety, including access to medical care and emergency response, was the next most-valued project.

The next priorities varied from community to community, person to person, project to project. Individual chapters must balance community priorities carefully. There were many community facilities that residents care deeply about, including recreational facilities, parks, multipurpose centers, government buildings, and cemeteries. Many residents prioritized economic

development as the way to generate funds to invest in further improvements and the means to provide adequate jobs to retain the next generations. Similarly, residents prioritized grazing and agriculture projects to ensure a sustainable, self-sufficient way of life and perpetuate traditional culture. In the same way, other residents prioritized educational projects to sustain and promote the independence and success of the community's youth and residents of all ages.

In deciding the priorities of these other categories, chapters must work with residents, and project staff need to work with chapters to determine the order of projects that makes the best of use time and resources.

There are two very important considerations to keep in mind in deciding the order of future projects.

- 1) Power, water, wastewater, and roads, must be in place before buildings can be designed and constructed. Economic development is particularly dependent on location and access to provide customers and employees to support businesses.
- 2) Economic development projects and vocational training facilities can help generate revenue and activities to fund and support other types of projects.

Priority Implementation by Year

The following sections are organized by the estimated start year of each project. Each section includes two tables that reflect priority projects (housing, then power and water, then roads) and project readiness. These can be matched to project descriptions in the previous sections for more details.

- 1) The first table for each year includes those projects that are considered “priority projects” or have some degree of project readiness.
- 2) The second table for each year includes projects not in the top 10 priorities gathered throughout this planning process that also do not have known progress toward implementation.

Start years were produced first by participants at the second community workshop in each chapter and adjusted using professional judgment based on similar project experience. These projects must be reassessed by potential project sponsors. Any change in their estimated start years will change the estimated cost, as inflation increases costs each year.

The following tables appear only as a strategic implementation planning tool for Chapters, project managers, and department and agency staff. The list must be updated as conditions change, more information is gathered, and more input is provided about this plan's ability to meet community goals for area recovery.

Because the Recovery Plan includes the biggest list of projects possible, its costs total to billions of dollars. While representing the broadest potential needs in the FBFA, implementing all these projects is not realistic or practical.

The following two sections detail how much funding will be required to implement projects over the next five years. Section 4.3.1 shows projects that are funded at the Chapter level, and Section 4.3.2 shows projects that are funded at regional level.

4.3.1 Chapter Projects

Bodaway-Gap Chapter Implementation Plan								
Community Facilities								
Project	2010	2011	2012	2013	2014	2015	Funding after	Total
Church Land	0	0	0	0	0	0	0	0
Football field/ Track	0	0	0	0	5,673	9,523	148,298	163,494
New Animal Shelter in Bitter	0	0	88,110	206,480	1,302,960	11,392	0	1,608,942
New Animal Shelter in Gap	0	0	88,110	206,480	1,302,960	11,392	0	1,608,942
New Cemetery / Veterans	25,000	0	0	0	0	0	0	25,000
New Chapter House	128,160	299,040	1,879,680	16,518	0	0	0	2,323,398
New Multipurpose center	0	0	211,464	495,552	3,127,104	27,341	0	3,861,461
New Veterans Ctr - Project	64,080	149,520	939,840	8,259	0	0	0	1,161,699
New youth/adult rec center, New Wellness Ctr	969,570	2,262,330	6,221,408	8,435,259	131,431	0	0	18,019,997
Post Office	0	0	0	0	195,444	455,680	2,935,042	3,586,166
							Sub-Total	32,359,100
Education								
Project	2010	2011	2012	2013	2014	2015	Funding after	Total
Lifelong Learning	0	0	301,752	707,136	4,462,272	39,014	0	5,510,174
Daycare	0	0	0	40,580	94,843	597,043	5,209	737,675
Daycare	0	0	0	40,580	94,843	597,043	5,209	737,675
Daycare	34,983	81,627	513,084	4,509	0	0	0	634,203
Headstart	53,820	125,580	789,360	6,937	0	0	0	975,697
K-12	0	0	0	0	0	6,075,802	86,199,654	92,275,456
							Sub-Total	100,870,880
Health								
Project	2010	2011	2012	2013	2014	2015	Funding after	Total
New Health Care Facilities	2,563,301	2,990,518	10,965,232	17,345,004	18,242,159	364,558	0	52,470,773
							Sub-Total	52,470,773
Housing								
Project	2010	2011	2012	2013	2014	2015	Funding after	Total
Cluster Residential (in FBFA)	4,989,276	11,641,644	34,453,723	33,117,705	676,324	0	0	84,878,672
Cluster Residential	281,880	657,720	3,720,816	36,331	0	0	0	4,696,747
New Elder Living	0	0	0	2,286,360	2,671,800	2,803,200	32,822,625	40,583,985
New Group Residential	0	0	0	132,379	309,392	1,752,883	16,991	2,211,645
New Multifamily (in FBFA)	559,872	7,838	547,430	0	0	0	0	1,115,140
New Multifamily	69,984	979,776	68,428	0	0	0	0	1,118,188
Scattered Res. (in FBFA)	0	10,434,614	23,077,613	49,099,738	47,598,036	49,938,924	1,480	180,150,405
Scattered Residential	0	587,866	1,368,576	4,077,112	3,908,529	79,626	0	10,021,709
Power & Water Upgrades	387,828	904,932	5,119,330	49,987	0	0	0	6,462,077
Power & Water Upgrades	81,648	190,512	1,077,754	10,524	0	0	0	1,360,438
Repair Multifamily	464,400	6,501,600	454,080	59,856	0	0	0	7,479,936
Repair Residential (in FBFA)	1,598,400	3,729,600	11,037,840	10,609,824	216,672	0	0	27,192,336
Repair Residential	345,600	806,400	4,561,920	44,544	0	0	0	5,758,464
							Sub-Total	373,029,742
Public Safety								
Project	2010	2011	2012	2013	2014	2015	Funding after 2015	Total
Fire Stations	451,170	1,052,730	7,444,305	58,151	0	0	0	9,006,356
Police Station	173,520	404,880	2,863,080	22,365	0	740,352	0	4,204,197
							Sub-Total	13,210,553
Recreation								
Project	2010	2011	2012	2013	2014	2015	Funding after 2015	Total
New Campground & R.V. Park	0	0	0	0	30,500	0	0	30,500
New Campground & R.V. Park	0	0	0	0	30,500	0	0	30,500
New Park near a recreational center	15,810	115,227	0	0	0	0	0	131,037
New Picnic ground	0	0	17,391	127,298	0	0	0	144,689
New Rodeo center and trail	0	0	55,000	0	0	0	0	55,000
New Skate parks	0	0	55,000	0	0	0	0	55,000
							Sub-Total	446,726
Water and Wastewater								
Project	2010	2011	2012	2013	2014	2015	Funding after	Total
Unfunded water, wastewater projects	230,600	2,905,560	0	0	0	0	0	3,136,160
Active and inactive water and wastewater projects	317,800	4,004,280	0	0	0	0	0	4,322,080
							Sub-Total	7,458,240
							Total	579,846,013

4.3.2 Regional Projects

Regional Projects Implementation Plan Agriculture											
Project	FBFA (%)	Start Year	Sq. Ft.	2010	2011	2012	2013	2014	2015	Funding after 2015	Total
Street Address and 911 Service Study (various locations)	n/a	2012	n/a	500,000	0	0	0	0	0	0	500,000
Range and Farm Management (various locations)	n/a	2012	n/a	500,000	0	0	0	0	0	0	500,000
Water for Agriculture Study (various locations)	n/a	2012	n/a	500,000	0	0	0	0	0	0	500,000

Regional Projects Implementation Plan Communications											
Project	FBFA (%)	Start Year	Sq. Ft.	2010	2011	2012	2013	2014	2015	Funding after 2015	Total
Communications Study (Telephone, cell towers, internet for various locations)	n/a	2010	n/a	200,000	0	0	0	0	0	0	200,000

Regional Projects Implementation Plan Economic Development											
Project	FBFA (%)	Start Year	Sq. Ft.	2010	2011	2012	2013	2014	2015	Funding after 2015	Total
Leupp Solar Farm (Southeast corner of Leupp Chapter along Hwy. 99)	Out	2010	n/a	200,000	0	0	0	0	0	0	200,000

Regional Projects Implementation Plan Environmental Protection											
Project	FBFA (%)	Start Year	Sq. Ft.	2010	2011	2012	2013	2014	2015	Funding after 2015	Total
Wildlife and Plants Study (various locations)	n/a	2010	n/a	500,000	0	0	0	0	0	0	500,000

Regional Projects Implementation Plan Environmental Remediation											
Project	FBFA (%)	Start Year	Sq. Ft.	2010	2011	2012	2013	2014	2015	Funding after 2015	Total
Uranium Contamination Remediation Plan (various locations)	n/a	2010	n/a	500,000	0	0	0	0	0	0	500,000

Regional Projects Implementation Plan Health											
Project	FBFA (%)	Start Year	Sq. Ft.	2010	2011	2012	2013	2014	2015	Funding after 2015	Total
Emergency Repairs to Tuba City Regional Hospital	22	2010	188000	1,460,250	3,236,888	10,767,992	6,650,087	6,994,057	207,680	0	29,316,953
Renovate & Expand Tuba City Regional Hospital	22	2012	347000	0	10,244,220	19,317,672	43,006,211	143,627,217	88,249,890	95,137,909	399,583,118

Regional Projects Implementation Plan Historic and Archaeological Preservation											
Project	FBFA (%)	Start Year	Sq. Ft.	2010	2011	2012	2013	2014	2015	Funding after 2015	Total
Historic and Archaeological Preservation Study (various locations)	n/a	2010	n/a	200,000	0	0	0	0	0	0	200,000

Regional Projects Implementation Plan											
Transportation											
Project	FBFA (%)	Start Year	Sq. Ft.	2010	2011	2012	2013	2014	2015	Funding after 2015	Total
Paved Road Inventory (Map, evaluate and develop a road upgrade plan for various locations)	n/a	2012	n/a	300,000	0	0	0	0	0	0	300,000
Tribal Transportation Improvement Program (5.2 mile Chip Seal, Tuba City (Route N101))	In	2024	5.2 miles	0	0	0	0	0	0	1,144,260	1,144,260
Tribal Transportation Improvement Program (1 mile rehab - Main Street, Tuba City (Route N101))	In	2010	1 mile	60,000	126,000	1,584,000	0	0	0	0	1,770,000
Tribal Transportation Improvement Program (1 mile road - Main Street to N608, Tuba City (Route N101))	In	2010	1 mile	60,000	126,000	1,584,000	0	0	0	0	1,770,000
Tribal Transportation Improvement Program (1.5 mile road - Main Street Extension to N608, Birch & Fir, Tuba City (Route N101))	In	2014	1 mile	0	0	0	0	213,500	448,000	5,628,000	6,289,500
Tribal Transportation Improvement Program (1.5 mile road - Main Street Extension to N608, Birch & Fir, Tuba City (Route N101, Phase 4))	In	2009	9.3 miles	0	0	0	0	0	0	0	0
Tribal Transportation Improvement Program (9.3 mile road - Gap to Coppermine (Route N20, Phase 5))	In	2012	9.3 miles	0	802,725	0	21,283,680	0	0	0	22,086,405
Tribal Transportation Improvement Program (9.3 mile road - Gap to Coppermine (Route N20, Phase 6))	In	2015	9.3 miles	0	936,600	0	0	0	27,402,240	0	28,338,840
Tribal Transportation Improvement Program (9.3 mile road - Gap to Coppermine (Route N20, Phase 7))	In	2017	9.3 miles	0	936,600	0	0	0	0	30,185,280	31,121,880
Tribal Transportation Improvement Program (1.43 mile rehab, Kerly Street & Navajo Blvd (Route N609))	In	2010	1.2 miles	226,000	2,847,600	0	0	0	0	0	3,073,600
Tribal Transportation Improvement Program (Route N609/N614)	In	2024	1.43 miles	0	0	0	0	0	0	4,788,940	4,788,940
Tribal Transportation Improvement Program (2 mile road - Colorado Street, Tuba City (Route N619))	In	2010	2 miles	396,000	4,989,600	0	0	0	0	0	5,385,600
Tribal Transportation Improvement Program (2 mile bridge and road (Route N6331/N6330))	In	2010	2 miles	240,000	3,024,000	0	0	0	0	0	3,264,000
Identify Needed Traffic Control and Safety Improvements Study (various locations)	n/a	2012	n/a	500,000	0	0	0	0	0	0	500,000
Unpaved Roads Inventory (various locations)	n/a	2012	n/a	300,000	0	0	0	0	0	0	300,000
Shuttles (1 per chapter)	n/a	2010	n/a	480,000	0	0	0	0	0	0	480,000
Regional Projects Implementation Plan											
Waste Disposal											
Solid Waste Study (various locations)	n/a	2010	n/a	200,000	0	0	0	0	0	0	200,000