# Naat'tsis'aan

## Scenic Byway Corridor Management Plan

**DRAFT**

August 2013

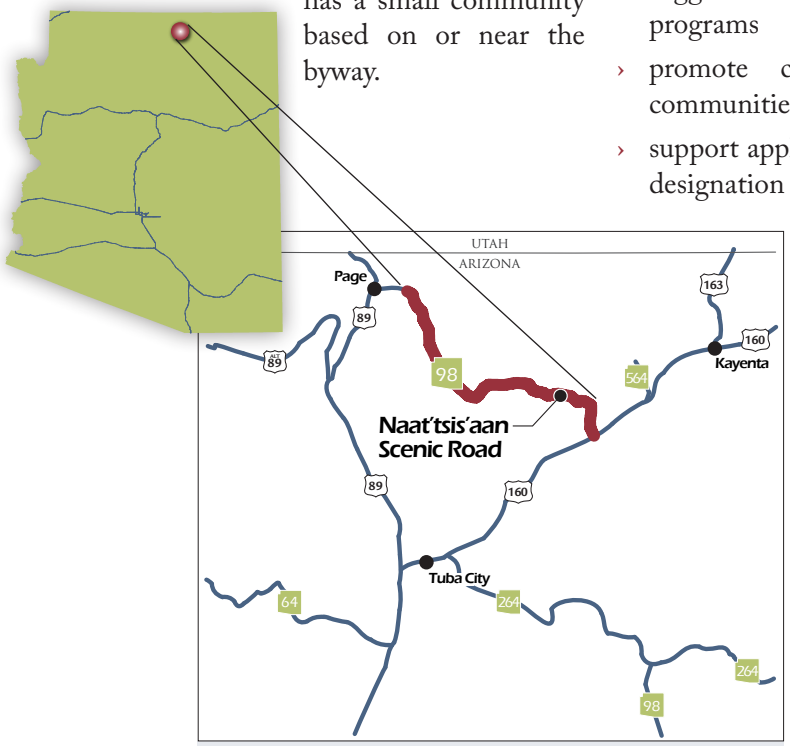
# INTRODUCTION

Naat'tsis'aan was established as an Arizona Scenic Byway in 2005 and given the name Naat'tsis'aan 'Navajo Mountain' Scenic Byway.

## Byway Description

Naat'tsis'aan Scenic Byway, Arizona State Route (SR) 98, is located in north-central Arizona. The segment begins just south of Page at Milepost (MP) 300, and extends south to the junction with U.S. Highway (US) 160, MP 361, a distance of 61 miles.

The entire scenic byway section is within the Navajo Nation and the Northern Arizona Council of Governments (NACOG) region. The majority of the route is in Coconino County, with a small segment in Navajo County. The byway crosses the Arizona Department of Transportation (ADOT) Flagstaff and Holbrook Engineering and Maintenance districts and passes through four chapters of the Navajo Nation: LeChee, Kaibeto, Inscription House, and Shonto. Chapters are the smallest political unit of the Navajo Nation government system. Each of the four chapters has a small community based on or near the byway.




Vicinity Map

The route is a two-lane, undivided paved road. Paved roads intersect the proposed byway segment at Kaibeto and the Navajo Generating Plant. This two-lane roadway serves an annual average daily traffic of 2,300 vehicles with a posted speed limit of 65 MPH.

## Purpose

The purpose of a byway corridor management plan is not to create more regulations or taxes. Rather, a corridor management plan documents the desires, strategies, and responsibilities for preserving and enhancing the byway's most valuable qualities. Promoting tourism can be one target, but so are issues of safety or preserving historic or cultural structures.

The Corridor Management Plan can:

- document community interest
- document existing conditions and history
- guide enhancement and safety improvement projects
- promote partnerships for conservation and enhancement activities
- suggest resources for project development and programs
- promote coordination between residents, communities, and agencies
- support application for National Scenic Byway designation

ADOT sponsored the preparation of the draft Naat'tsis'aan Corridor Management Plan.

## Scenic Byways and the Corridor Management Process

Scenic byways may be many things - they don't have to be pristine, naturally beautiful roads that stretch for miles. A byway may have historic or cultural significance or be a major recreation destination or a short, urban section with a rich, cultural history. What scenic byways share is being a special resource that a community wants to preserve. Arizona has 27 scenic byways - 19 roads, 4 parkways, and 4 historic roads.

Local, state, tribal, and federal agencies or the private sector can request scenic designation for their special road. However, to apply for national designation, a byway must have state or tribal designation. A byway must also have a corridor management plan. The corridor management plan is a written document. It should be a plan for balancing development, tourism, conservation, and economic development. The plan will not solve every problem or issue identified, but it will suggest methods for solving some of them.

The corridor management planning process is a grass roots effort that comes from the community. There should be a public participation process that reaches as many interested citizens as possible. Long-time residents are a valuable source of information for the planning process. A stakeholder or steering committee made up of local residents should be set up as part of the plan. This committee will see that action items in the plan are carried out and the plan is periodically updated.

## Obtaining National Scenic Byway Designation

The National Scenic Byway program was established in 1991 and reauthorized in 1998. Since 1991, 125 byways in 44 states have been designated as a Scenic Byway or All-American Road. Arizona's first national scenic byway was the Kaibab Plateau-North Rim Parkway. In 2005, Arizona received four more nationally designated roads – three byways (Historic Route 66, Coronado Trail, and Sky Island) and one All-American Road (Red Rock).


To obtain National Scenic Byway designation a route must, 1) be a state or tribal designated byway, 2) have one or more of six intrinsic qualities (as defined by the National Scenic Byways Program and described later in this document), 3) show that there is community support for designation, and 4) have a corridor management plan. To be considered for All-American designation, a byway must have multiple intrinsic qualities that are nationally significant. They must also have one-of-a-kind features that do not exist elsewhere. Additionally, the byway must be considered a "destination unto itself" - travelers will make the experience of driving along the byway a primary reason for a trip.

The national application process occurs every two years in the spring. Applications are sent to the National Scenic Byway committee for review. Those byways selected are announced in the fall. The best of the best scenic roads are selected to be All-American Roads, which is a rare designation.

The benefits of national designation can include:

- increased tourism dollars
- federal and state funding for projects identified in the Corridor Management Plan
- protection for threatened resources
- increased highway maintenance budget
- resources to help assist in managing the corridor

Some communities go through the corridor management planning process and decide they don't want to go for national designation. It may be they are not interested in promoting more tourism or there is not enough local support to continue the corridor planning process. This is also a viable outcome of preparing a corridor management plan and the community still has a guiding plan for what they would like to have happen along the corridor.

# EXISTING CONDITIONS

## Facilities and Services

Naat'tsis'aan Scenic Byway has limited visitor facilities and services located along and adjacent to the road. However, services are located in Page as noted below.

### Lodging

The closest lodging is in Page where there are 25 motels with more than 1,500 rooms. There are also several RV parks and campgrounds with complete hookups. Following is a list of some of the lodging facilities located in Page:

- Holiday Inn Express, Page; 74 rooms.
- Lake Powell Days Inn, Page; 80 rooms.
- Best Western at Lake Powell, Page; 132 rooms.
- Quality Inn at Lake Powell, Page; 129 rooms.
- Courtyard by Marriott, Page; 153 rooms.
- Super 8, Page; 101 rooms.
- America's Best Value, Page; 39 rooms.
- Rodeway Inn, Page; 69 rooms.
- Best Western Arizonian, Page; 103 rooms.
- Page Travelodge, Page; 103 rooms.

### Gas Stations and Markets

There are no gas stations directly adjacent to the byway. There is a gas station and convenience store located in Kaibeto, a half mile off the byway near MP 331. The closest stations to the north end of the corridor are in Page. The closest stations to the southern end of the corridor are on US 160 either in Tuba City, Kayenta, or at the intersection of US 160 and Indian Route 41 (40, 31, and 11 miles away respectively).

### Restaurants

There are no restaurants directly on the corridor. The closest restaurants are in Page, Tuba City, and Kayenta. Page, being a town of over 7,000 people, has several restaurants ranging from fast food to coffee houses and casual American fare to Italian cuisine.

### Public Restrooms

There are no state highway rest areas along Naat'tsis'aan Scenic Byway. Travelers must go to Page, Tuba City or Kayenta to find facilities.

### Museums and Attractions

#### Navajo Jewelry and Goods

There is a jewelry stand located at a scenic pullout area near MP 343. It is on northeast side of the roadway and is open for business predominantly in the summer tourist season.

#### Opportunities for Photography

The pullout at MP 343 is one of many opportunities for photographs. This pullout offers scenic views of Navajo Mountain, a site sacred to the Navajo, Hopi, and Paiute tribes.

## Traffic and Safety

Naat'tsis'aan Scenic Byway is a winding road with changing grades. This road is primarily a northwest to southeast route that connects US 89 in Page to US 160.

### Road Classification

Naat'tsis'aan Scenic Byway serves as a rural major collector per the Federal Highway Administration (FHWA) March 2005 Approved Federal Functional Classification map. The highway is also known as Indian Route 22 in some sections.

The roadway functions as free-flow for traffic with no traffic control and a posted speed limit of 65 mph. There are turn lanes with reduced speed (posted 55 mph) at intersections with Indian Routes connecting to adjacent communities and Navajo National Monument. These intersections have stop signs on the cross street and are located at the junction with Indian Route 21 (MP 332.5) at Kaibeto and the junction with Indian Route 16 (MP 355.5) at Shonto.

Naat'tsis'aan Scenic Byway is a two-lane, asphalt roadway from MP 302 to MP 360. The pavement is approximately 24 feet wide. The pavement has edge line and center line striping and continuous

ground-in rumble strips along the edge lines. The pavement between MP 360 and MP 340 appears to be recently resurfaced compared with the rest of the road (between MP 302 and MP 340) which has crack sealing.

## Traffic Data

In 2007, ADOT reported the average annual daily traffic (AADT) along Naat'tsis'aan Scenic Byway was 2,300. The projected average daily traffic (ADT) for 2030 was 4,500 per ADOT Arizona Statewide Travel Demand Model (September 2008, draft). According to Highway Performance Managements Systems, 2005, the highway presently has a daily truck percentage of two percent single-unit trucks and four percent multiple-unit trucks.

According to the *Navajo Transit Services Strategic Plan*, Naat'tsis'aan Scenic Byway will serve as a designated trunk route in 2025. Trunk routes are transit routes that maintain higher levels of transit service. This highway would serve to connect a significant portion of the reservation population together in a network of intercity bus routes.

The Florida DOT *Quality Level of Service (LOS) Handbook* defines LOS criteria based on ADT on highways. *Table 1* summarizes the LOS criteria from the 2002 FDOT *Quality LOS Handbook*. Based on this LOS criterion, Naat'tsis'aan experiences a LOS A for 2007 and is LOS A approaching LOS B for 2030 forecasted traffic volumes.

## Crash Data

Crash data for Naat'tsis'aan Scenic Byway was obtained from ADOT Traffic Records Section for the study period from June 2004 to March 2007. A summary of crash statistics along the byway for the study period is as follows:

- A total of 47 crashes were recorded during the study period.
- There were five (11 percent) fatal crashes, 22 (47 percent) injury crashes, 19 (40 percent) property damage only crashes, and one (2 percent) unknown crash (unknown crashes have no reported details).

*Table 2* summarizes the factors contributing to the fatal crashes.

- There were 36 single vehicle crashes and four rear-end crashes. Seven crashes were reported due to head-on collision, u-turn, non-contact, and other collision manner reported.
- There were 18 crashes due to speeding too fast for conditions, seven crashes due to driver inattention, ten crashes due to improper driving, two crashes due to driver failed to yield right-of-way, two crashes due to driver following too closely, and eight crashes were due to other/unknown driver behavior/violations.
- There were 24 crashes due to overturning, nine crashes from collision with other motor vehicle, nine crashes from collision with fixed object (like a boulder, fence, tree or other fixed objects), one crash from collision with a pedestrian, and four crashes resulted from other factors. The first hazard encountered by the initial vehicle in the crash is termed as the first harmful event.

Table 1: Level of Service for Rural Areas with Population Less Than or Equal to 5,000

| Lanes | Divided/ Undivided | A | B | C | D | E |
|---|---|---|---|---|---|---|
| 2 | Undivided | 2,600 | 5,300 | 8,600 | 13,800 | 22,300 |
| 4 | Divided | 17,500 | 28,600 | 40,800 | 52,400 | 58,300 |
| 6 | Divided | 26,200 | 42,800 | 61,200 | 78,600 | 87,400 |

Source: Quality Level of Service Handbook, FDOT, 2002

Table 2: Contributing Factors for Fatal Crashes

| Severity | Light Condition | Manner of Collision | First Harmful Event | Driver Physical Condition | Violations/Behavior |
|---|---|---|---|---|---|
| Fatal | Darkness | Single Vehicle | Overturning | Unknown | Unknown |
| Fatal | Daylight | Rear-end | Collision w/other vehicle | Had been drinking | Followed too closely |
| Fatal | Daylight | Rear-end | Collision w/other vehicle | No apparent influence | No improper driving |
| Fatal | Darkness | Single vehicle | Collision w/boulder | Unknown | Speed too fast for conditions |
| Fatal | Darkness | Single vehicle | Collision w/pedestrian | No apparent influence | Unknown |

Source: Quality Level of Service Handbook, FDOT, 2002

The roadway mainly drains as sheet flow to the adjacent land. Kaibeto Creek, Navajo Creek, and Shonto Wash intersect Naat'tsis'aan Scenic Byway. There are vehicle pullouts at several locations (MP 306.0, MP 309.5, MP 316.4, MP 339.2, and MP 343.2).

## Local and Regional Transit Systems

According to the ADOT *Arizona Rural Transit Needs Study*, only 18 percent of ridership needs are being met in rural Arizona leaving the majority of ridership needs unmet, particularly on tribal lands. ADOT has developed a strategy for implementing improved rural transit service to meet growing demand in non-urbanized areas by identifying areas with the most need for transit expansion (Northern Framework Study, 2008).

Rural transit in Northern Arizona is widely dispersed because Arizona, particularly in the north, has a high percentage of federal and Native American land holdings with land use restrictions. Other problems facing the development of rural transportation in Northern Arizona include funding, logistics/coordination, political support, and information. The majority of fixed-route transit services are available from larger cities such as Flagstaff, Prescott, and Sedona. These services provide connections to the other large cities or regional nodes of activity. The most common type of transit in the region is demand-response and/or paratransit (Northern Framework Study, 2008). *Table 3* shows the transit services available in the Naat'tsis'aan Scenic Byway area.

Table 3: Local and Regional General and Special Needs Transit Services

| Name of Transit Service | Type | Area of Service |
|---|---|---|
| Navajo Transit | Fixed Route Paratransit | Navajo Nation (and region) |
| Hopi-Senom Transit | Fixed Route Paratransit | Hopi Community |

Source: Northern Framework Study, 2008

## Existing Programs and Projects For Transportation and Traffic Safety

Currently there are many programs in place to address transportation and traffic safety for Naat'tsis'aan Scenic Byway. These existing programs, in addition to the programs proposed in this Corridor Management Plan, will form the core of an overall strategy to ensure a balance between transportation issues and traffic safety along the roadway and preservation of the Scenic Byway's intrinsic qualities.

### Current ADOT Projects

There are no current active ADOT projects along the corridor.

### ADOT Program and Project Management Section Active Project Status Report

ADOT's Program and Project Management Section puts together an Active Project Status Report that reflects all of the active projects for the entire state highway system. No active or upcoming projects for the Naat'tsis'aan Scenic

Byway are currently included in this report, which is located on the ADOT Web site:

http://www.azdot.gov/Highways/PPMS/ps1/apsrwhole.pdf.

#### Vision 21 Task Force

Vision 21 Task Force was established by Governor Jane Dee Hull in 2000 to address such issues as statewide long-range planning and programming decisions, land use planning, and financial management. The Vision 21 Task Force Final Report is located on the ADOT Web site:

http://www.azdot.gov/ADOT_and/Vision21/Reports/Final.asp.

#### ADOT Adopt-a-Highway Program

ADOT encourages volunteer groups and organizations to participate in their Adopt-a-Highway program. Groups who adopt a designated portion of the highway remove garbage and other debris within ADOT's right-of-way on a seasonal basis. The Naat'tsis'aan Scenic Byway has several volunteer groups participating in the Adopt-a-Highway program. The segments being actively maintained are in one or two mile increments, and can be identified by the sponsoring organization's name posted on the "Adopt-A-Highway" signs, generally located at full milepost locations. More information is located at:

http://www.azdot.gov/highways/adoptahwy/index.asp.

#### ADOT Bicycle and Pedestrian Program

ADOT has developed a Bicycle and Pedestrian Program to provide a wide variety of resources and information about biking and walking in Arizona, including places to bike and walk, how to integrate biking and walking into commutes, important laws and policies, safety issues, maps, and organizations. The Arizona Statewide Bicycle and Pedestrian Plan provides a long-term plan for a statewide system of interconnected bicycle facilities that provides a guide for ADOT transportation decisions relating to bicycle and pedestrian travel, planning, and facility development. Additional information is located at:

http://www.azbikeped.org.

#### ADA Accessibility

Many of the current amenities are not accessible per the Americans with Disabilities Act (ADA). The goal of any future facilities will be to make them accessible per the ADA Accessibility Guidelines.

## Utilities and Signs

### Utilities

The most apparent utility feature along Naat'tsis'aan Scenic Byway are the electric lines and electric railroad that serve the Navajo Generating Station just outside Page. The generating plant itself is visible from the byway beginning at about MP 328 when heading north. This is also the MP at which the railroad and overhead lines begin paralleling the road.

Utilities, including electricity, water, natural gas, wastewater treatment, and photovoltaic (solar power), are provided by the Navajo Tribal Utility Authority (NTUA), a non-profit enterprise established by the Navajo Nation Council. Since 1959, NTUA has supplied services to residents throughout the Navajo Nation. Telephone service is provided by Frontier Communications.

### Signs

Signs along Naat'tsis'aan Scenic Byway are limited. There are roadway signs such as milepost signs, traffic directional signs, and Arizona Scenic Byway signs at the beginning, end, and midway. There are a few scattered billboards along the byway that advertise the chapter houses that are adjacent to the road.

## Topography and Features

Naat'tsis'aan Scenic Byway is located entirely within the Navajo Nation, the largest Indian reservation in the United States covering some 27,635 square miles (NAU, 2005). The area is part of the Colorado Plateau, a physiographic "province" or region geologically and topographically distinct from other parts of the West. The Colorado Plateau is a huge basin ringed by highlands and filled with plateaus. Unlike the Basin and Range


Small signs are at entries to chapter houses, shown here with election signs in the foreground

Region to the west or the Rocky Mountains to the east, this area has remained relatively geologically stable. The land mass of the Colorado Plateau is likely more than 500 million years old (Barnes, 1978).

The elevation of the road rises steadily from approximately 4,300 feet, south of Page, to 6,100 feet, at the junction of SR 98 and US 160. East of Kaibeto, at MP 331 to MP 333, the road drops into the canyon of Kaibeto Creek.

### Land Forms

LeChee Rock, at approximately MP 304, is visible for several miles in either direction and stands approximately 900 feet high.

Navajo Mountain is visible from nearly the entire length of the Scenic Byway and appears as a dome on the horizon. This mountain has religious significance to the Navajo.

At approximately MP 342 is Square Butte. Its high profile is also visible for many miles.

Near the south end of the corridor Black Mesa comes into view. Black Mesa measures 75 miles east to west and 50 miles north to south. The sedimentary strata on Black Mesa are evidence of the incursion and retreat of a Cretaceous sea. Black Mesa contains thick beds of coal that formed in near-shore swamps. That coal is now a source of fuel for regional power plants

# Environmental

## Geology

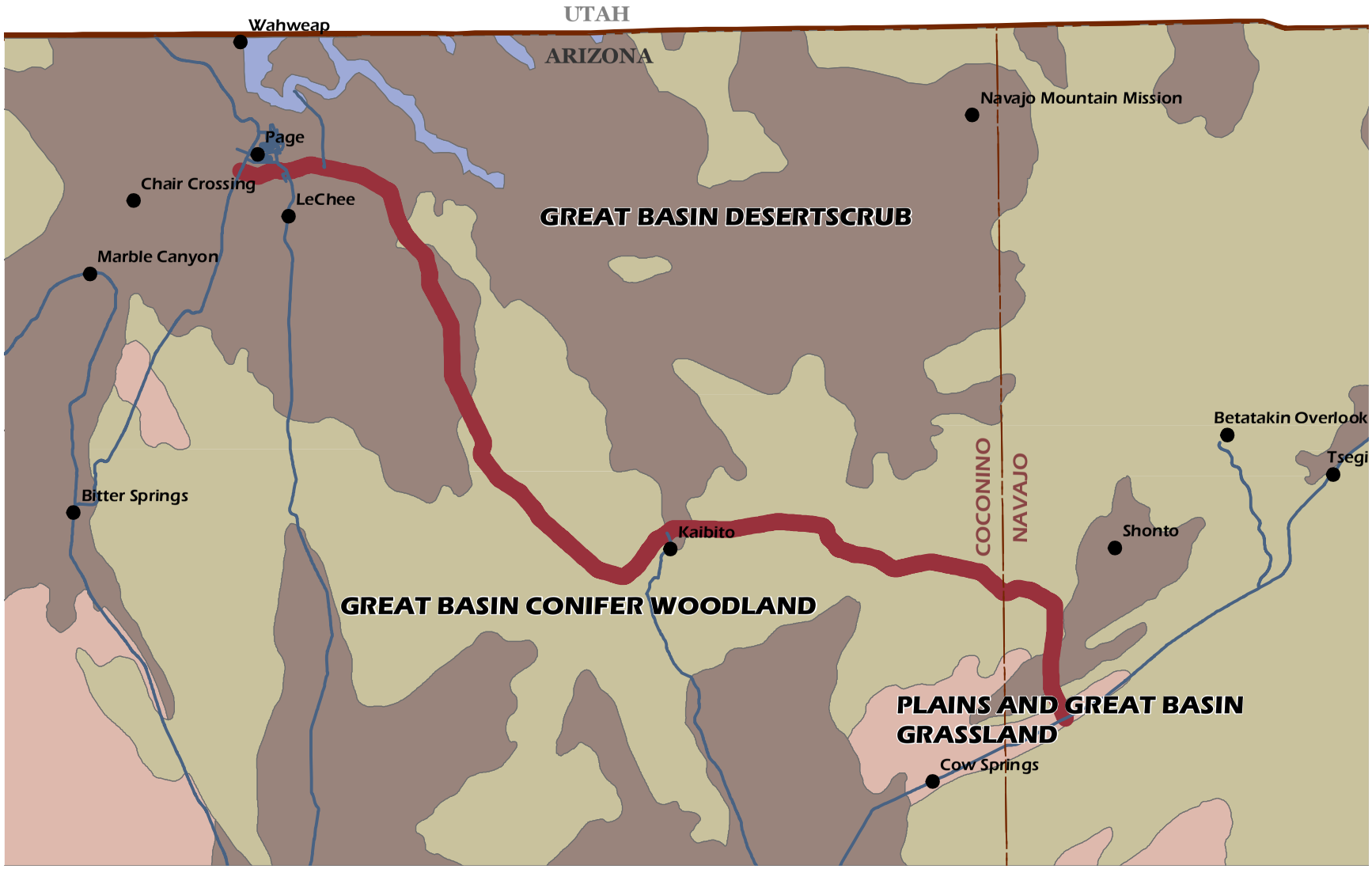
Naati'tsis'aan is located in the Colorado Plateau tectonic province. The Colorado Plateau is described as consisting of flat-lying to gently tilted Mesozoic and Paleozoic sedimentary rocks. The byway segment crosses two geologic units - the Glen Canyon Group and the San Rafael Group/ Morrison Formation.

The Glen Canyon Group, from the early Jurassic period, consists of thick, wind-deposited, buff to red Navajo Sandstone that forms cliffs, underlain by slopeforming red sandstone and siltstone of Moenave and Kayenta Formations. The San Rafael Group/Morrison Formation, a late to middle Jurassic formation, consists of red-weathering, slope-forming mudstone and sandstone at the base with an upper part consisting of cliff-forming sandstone lenses alternating with slope-forming, pink-, yellow-, or green-gray sandstone and shale.

At the north end of the byway, the road enters the Glen Canyon Group of pale pink and white sandstone until approximately MP 303. It then enters the San Rafael Group/Morrison Formation of red, pink, yellow and green-gray sandstone. From approximately MP 320 to 329 and from MP 349 to the south end of the byway, the road crosses back into the Glen Canyon Group. Visible to the south from the junction with US 160 is Black Mesa, a landscape feature where several layers of deposits are exposed including Mesa Verde Sandstone, Mancos Shale, Dakota Sandstone, and Morrison formation.

## Biology

This area is often referred to as a cold desert. Naat'tsis'aan Scenic Byway passes through three biotic communities as defined by David E. Brown in *Biotic Communities: Southwestern United States and Northwestern Mexico*. They are Plains and Great Basin Grassland, Great Basin Desertscrub, and Great Basin Conifer Woodland, shown in the Biotic Communities figure on Page 8.




Biotic Communities

## Flora

### Plains and Great Basin Grassland (MP 360 to MP 361)

This grassland community is predominantly flat and open country. The elevation ranges between 5,000 and 7,000 feet. This is an area known for strong winds and high solar radiation. Historically, this area was grasslands composed of mixed or short-grass communities. Grazing and fire suppression has altered this landscape, but it is still mostly dominated by perennial grasses. The principal species are blue grama (Bouteloua gracilis) and other gramas (Bouteloua sp.).

Other important species are buffalo grass (Buchloe dactyloides), Indian rice grass (Oryzopsis hymenoides), galleta grass (Hilaria jamesii), prairie junegrass (Koeleria cristata), plains lovegrass (Eragrostis intermedia), vine mesquite grass (Panicum obtusum), wolftail (Lycurus phleoides), and alkali sacaton (Sporobolus airoides).

### Great Basin Desertscrub (MP 300 to MP 303 and MP 354 to MP 358)

Great Basin Desertscrub usually occurs between the elevations of 4,000 and 6,000 feet. It is generally dominated by cold-adapted sagebrush and saltbush. Species diversity is low. The landscape tends to be dominated by one species, almost to the exclusion of any other. The dominant plants are sagebrush (Artemisia sp.), saltbush (Atriplex sp.), winterfat (Ceratoides lanata), rabbitbrush (Chrysothamnus sp.), blackbrush (Coleogyne sp.), hopsage (Grayia sp.), and horsebrush (Tetradymia sp.). There are a few cacti including cholla (Opuntia sp.), prickly pear (Opuntia sp.), and hedgehog (Echinocereus sp.).

Great Basin Desertscrub

### Great Basin Conifer Woodland (MP 303 to MP 354 and MP 358 to MP 360)

This woodland biome generally occurs at elevations between 4,000 and 6,000 feet. It is dominated by pinyon pine and juniper. These are both fairly short-stature conifers, growing no more than 40 feet in height. Three species of juniper (Juniperus sp.) and one species of pinyon (Pinus edulis) assume or share dominance. The understory to the conifers is a mix of shrubs and grasses such as threadleaf groundsel (Senecio longilobus), snakeweed (Gutierrezia sarothrae), and blue grama (Bouteloua gracilis). Cacti are also well represented here including cholla (Opuntia sp.) and prickly pear (Opuntia sp.).

Plains and Great Basin Grassland

Great Basin Conifer Woodland

### Fauna

The list of wildlife that might be seen in the area is extensive. The following species are the predominant species.

#### Plains and Great Basin Grassland (MP 360 to MP 361)

**Small mammals:** Prairie dog, ground squirrel, swift fox, plains pocket gopher, and plains harvest mouse.

**Birds:** Prairie chicken, upland sandpiper, mountain plover, lark bunting, grasshopper sparrow, long-billed curlew, meadowlark, prairie falcon, and burrowing owl.

**Snakes and Lizards:** Bullsnake, corn snake, western coachwip, western plains milksnake, and prairie rattlesnake. Plains spadefoot, great plains toad, earless lizard, southern prairie lizard, great plains skink, prairie-lined racerunner, western box turtle, plains hognose snake, prairie ringneck snake, great plains ground snake, and plains blackhead snake.

#### Great Basin Desertscrub (MP 300 to MP 303 and MP 354 to MP 358

**Small Mammals**: Townsend's ground squirrel, dark kangaroo mouse, sagebrush vole, pallid kangaroo mouse, chisel-toothed kangaroo rat, coyote, and black-tailed jackrabbit.

**Birds:** Sage thrasher, sage sparrow, and sage grouse.

**Snakes and Lizards:** Sagebrush lizard, great basin spadefoot toad, leopard lizard, collared lizard, northern side-blotched lizard, northern desert horned lizard, great basin and northern whiptails, great basin and northern plateau fence lizards, great basin gopher snake, western garter snake, and the great basin and Hopi rattlesnakes.

#### Great Basin Conifer Woodland (MP 303 to MP 354 and MP 358 to MP 360

**Mammals:** Pinyon mouse, bush-tailed woodrat, rocky mountain elk, and mule deer.

**Birds:** Pinyon jay, gray flycatcher, gray vireo, black-throated gray warbler, and Scott's oriole.

**Snakes and Lizards:** Plateau whiptail.

Although there are no federally listed threatened and endangered species in the Naat'tsis'aan Scenic Byway corridor, there are a number of Navajo Nation Endangered Species and some more commonly occurring animals. This is a big landscape and the animals that make there home here are highly adapted to their surroundings; therefore, it takes patience, keen powers of observation, and a little luck to catch a glimpse of these creatures.

The Navajo Nation maintains a list of Endangered Species occurring within the entire Navajo Nation. Included on this list and possibly living in the Naat'tsis'aan Scenic Byway corridor are the ferruginous hawk, the peregrine falcon, and the American pronghorn.

The ferruginous hawk is the largest hawk in North America with a wingspan of up to 54 inches. The hawk gets it name, ferruginous, from its red coloration, like rusty iron (ferrous) (United States Geological Survey, 2004). The hawk can be seen in the corridor hunting rodents such as rabbits and mice.

The peregrine falcon often nests in the high sandstone buttes of the area. The peregrine is the fastest bird on record, reaching horizontal cruising speeds of up to 68 mph. When swooping for prey, the peregrine flies at much greater speeds, varying from 99 to 273 mph (Smithsonian, No Date).

A variety of more common wildlife makes its home along the corridor, including the usual rodents, rabbits, mule deer, coyote, snakes, and insects associated with this desert region.

Ferruginous Hawk

Peregrine Falcon

## Hydrology

Naat'tsis'aan Scenic Byway lies within the Plateau Planning Area, as defined by the Arizona Department of Water Resources. The Plateau Planning Area is bounded by the Mogollon Rim on the south, Grand Wash Cliffs in the western Grand Canyon, Utah on the north, Nevada on the northwest, and New Mexico on the east.

Within the Plateau Planning Area there are seven groundwater basins, including the Little Colorado River Plateau Basin, which cover 27,300 square miles and encompass the scenic byway corridor. The main surface drainage for the basin is the Little Colorado River watershed. There are several local and three regional aquifers associated with the basin, which saturate mainly sandstones and limestones. The local aquifers are important for providing domestic water.

The regional aquifers have poor water quality, suitable only for municipal and industrial use. Three regional electrical generating stations and a pulp mill are the main users of the regional aquifer water. These aquifers have large quantities of groundwater in storage. However, excessive withdrawals of this groundwater may cause stream dry up in the perennial reaches of the system. This is due to a close connection between the groundwater and the Little Colorado River.

Surface hydrology in the area is part of the larger Colorado River watershed and supplies the Little Colorado River Plateau Basin. The majority of the surface streams that supply the Little Colorado River Plateau Basin are ephemeral or intermittent.

### Water Features

There are no visible water features along the Naat'tsis'aan Scenic Byway corridor.

## Climate

No specific climate records exist for the Scenic Byway corridor. Estimated climate information for the area was determined by averaging the climate records for the three closest cities. The cities were: Tuba City, Kayenta, and Page. The average maximum temperature is 69.2 degrees. The average minimum temperature is 41.5 degrees. The hottest month on average is July at 93.8 degrees and the coldest is January at 21.0 degrees.

Precipitation is fairly evenly distributed throughout the year with August being the wettest month at 1.0 inch. The next highest months of precipitation are July and October at 0.8 inches. June has the lowest precipitation at 0.2 inches. The other months of the year range from 0.4 to 0.7 inches. Snowfall occurs mostly in January (2.5 inches) and December (1.8 inches).

### National Natural Landmarks

National Natural Landmarks (NNL) are the best examples of biological and geological features in the country and representative of the nation's natural history. NNLs are designated by the Secretary of the Interior and administered by the National Parks Service (NPS). To date, less than 600 NNLs have been designated in the United States and less than ten in Arizona (NPS, 2004). There are no NNL's along or visible from Naat'tsis'aan Scenic Byway corridor.

## Land Use

Land use is directed by land use groups for each chapter.

The majority of the Naat'tsis'aan corridor can be characterized as vacant desert with occasional scattered residences and grazing land.

# BYWAY STORY

The study area falls within the boundaries of the Navajo reservation. This region has a long, continuous progression of human occupation and use that dates back over 10,000 years. Although regionally specific cultural chronologies vary widely across the area, particularly for the later phases of development, general trends of human adaptations can be summarized into five main periods of cultural development. The following summary is largely paraphrased from cultural resource reports completed in the area (Brodbeck 2003; Morrison 2002; Sandoval 2002; Spalding 1992).

## History

### Paleoindian Period

The Paleoindian period dates to the end of the Pleistocene and early Holocene (ca. 9500 to 7000 B.C.) and marks the earliest human occupation in northeast Arizona. Subsistence during this period appears to have been focused primarily on hunting of megafauna, such as the now-extinct herbivores, the mammoth and the bison (Bison antiquus). The proportion of subsistence from plant foods is unknown due to the fact that this early time period is known primarily from kill sites and isolated occurrences. The Paleoindian people likely lived in small bands and traveled over large distances to exploit different resource areas.

### Archaic Period

Although the Archaic period, from ca. 7000 to 1200 B.C., is the longest defined period of prehistory in the Southwest, it is the least understood. The Archaic period is characterized by a climate change in the postglacial era and a subsistence shift to a more generalized economy of processing plant foods and hunting small game. A key marker of this subsistence shift is the presence of shallow basin metates/slab metates and one-handed manos for seed processing found throughout the Southwest at 6500 to 6000 B.C. (Huckell 1996; Morrison 2002). The period is typically divided into three phases: the Early Archaic (ca. 7000 to 5000 B.C.), the Middle Archaic (ca. 5000 to 2500 B.C.), and the Late Archaic (ca. 2500 to 1200 B.C.)

### Early Agricultural Period

The term Early Agricultural was proposed by Huckell (1995) to differentiate it from the Archaic period, during which there were no cultigens. During the Early Agricultural period cultigens were present but ceramics were not yet used. On the Colorado Plateau the last pre-ceramic culture was defined as Basketmaker II in the early part of the 20th century, based on excavations in caves and rock shelters (Kidder and Guernsey 1919).

The boundary between the Archaic period and the Early Agricultural period is fluid because the chief defining principle, the presence and spread of cultigens, was a gradual, spotty process. The Early Agricultural period (ca. 1200 B.C. to ca. A.D. 500) represents an economic shift from broad-spectrum gathering and hunting to increased reliance on the cultivation of cultigens such as corn and squash (Huckell 1996). Accompanying this economic shift were social transformations such as decreased mobility, population growth, and greater population density, which in turn resulted in the construction

of relatively substantial houses, storage facilities to maximize agricultural potential, and increased use of grinding tools.

## Formative Period

The Formative period (ca. A.D. 500-1300) is characterized by a strong reliance on agriculture, permanent or semi-permanent habitations, and pottery production.

The term formative is used in the same sense as it is used in Mesoamerica, to designate this temporal era as the time during which agriculture and pottery became important and larger settled communities became more numerous. The Formative period is traditionally divided into five developmental periods: Basketmaker III and Pueblo I, II, III, and IV.

The Basketmaker III period (A.D. 500-750) is characterized by trends of increased sedentism and greater reliance on agriculture. Pithouses increase in size and sometimes are aggregated into villages occupied year round. Other developments include the introduction of bow and arrow, ceramic technologies, and the domestication of turkeys (Gumerman 1984). Ceramics consist of plain gray wares, sometimes decorated with simple black designs. Slab-lined pits are also common.

In the Pueblo I period (A.D. 750-900), the use of pithouse architecture continues but people also begin to construct above ground structures (Gumerman 1984).

Settlements were more organized, often consisting of a series of rooms facing a kiva, or ceremonial room. Population generally increased but settlements remained dispersed. Black-on-white and neck-banded gray pottery were introduced and a trend toward more standardized pottery production has been noted (Cordell 1984).

In the Pueblo II period (A.D. 900-1150) populations increased dramatically (Euler 1988; Gumerman 1984) and settlements generally consisted of homesteads of individual unit pueblos, typically with surface masonry and subterranean ceremonial structures. Ceramic types continue to become more regionally diversified as decorative elaborations are enhanced. Toward the end of the period a trend of aggregation into larger villages had begun.

The Pueblo III period (A.D. 1150 to 1275) is marked by a dramatic reorganization of social and cultural forms and the initiation of abandonment of some areas. Fewer pueblos were constructed during this period but there were larger plaza-oriented communities. Settlement patterns shifted to a more sparsely settled landscape punctuated by larger settlements.

Finally, the Pueblo IV (A.D. 1275-1400) period represents the final stage of the Formative Period's developmental sequence. This time span represents the culmination of wide scale population movements, the abandonment of many areas, and the transition to large, aggregated settlements. By the end of the 15th Century, settlements were concentrated on the Hopi Mesas and Zuni Pueblo areas.

## Historic Period

For purposes of this study, the Historic Period represents the final major developmental era for the region, which occurred from the end of the Formative Period to the present. During this time, dramatic changes in social and cultural development occurred as new groups entered and settled the area. By the end of the Formative period, Puebloan settlement had restricted with the Hopi occupation centered on the Hopi Mesas. Athabaskan groups began migrating into the area and competing with Puebloan groups. This progression culminated with the establishment of permanent Navajo settlements in northeastern Arizona and Apache settlements farther to the south.

The period between A.D. 1541 and 1821 is marked by the Spanish incursion into the region, which entailed processes of exploration followed by colonization that had devastating impacts to the traditional lifeways of Native American groups throughout the Southwest. The region was ruled by Mexico from 1821 and 1846. The American period extends from 1846 to present. The Navajo reservation was established in 1868. Although the

original 1868 boundaries were a small part of the pre-reservation homeland, the land base expanded over the years through presidential executive orders and acts of Congress to its present size (Linford 2000).

The history of the Naat'tsis'aan Scenic Byway is that of the American West. The Navajo's presence in this region extends back hundreds of years. Today their history, intertwined with the early Spanish and Mexican incursions into the area, as well as the frontier period, provide many rich stories for visitors to explore.

This history lives on with the Navajo people, for while many residents work and live "modern lives," the traditions passed down for generations are very much alive. Along Naat'tsis'aan Scenic Byway the traveler will still see local residents herding sheep, and trading posts and vendor stands continue to offer the local arts and crafts that have been handed down for generations.

The region has never been strife free for the Navajo or other inhabitants, but in the historic past there has been no darker period than the forced exile in the 1860s referred to as the "Long Walk" to Bosque Redondo. During the Civil War, Colonel Kit Carson pursued and rounded up 8,000 Navajos, and forced them to walk more than 300 miles to Bosque Redondo, a desolate tract on the Pecos River in eastern New Mexico. Many died along the way, and many more died during the four years they were held there. When the Government relented, the Navajo returned to this area.

During this period, Chief Manuelito established himself as a courageous defender of his people. Manuelito was the last of the Navajo leaders to surrender to reservation life. Manuelito was an influential leader and spokesperson for the Navajo. He signed numerous treaties on behalf of his people.

From 1868 to the 1930s, Navajos raised livestock and crops (Kelley and Francis 1994). Their lifestyle during this period was greatly influenced by the influx of merchants across the reservation. These merchants set up trading posts, many located along wagon roads or near crossroads. They supplied essential commodities oftentimes extending credit for necessary goods such as sugar, flour, coffee, and blankets in exchange for items such as wool, sheep, hides, pinons, and textiles. Although early American exploration and settlement of the region began as early as the 1700s, immigration into the area accelerated dramatically with the establishment of the Atkinson Topeka & Santa Fe Railroad's transcontinental line across the 35th Parallel in 1881 (Eddington and Makov 1995).

The Navajo Tribal Council, which the federal government set up in 1923 to sign oil leases, reorganized and grew in 1937. A shift from stock raising and farming to employment under federal and tribal governments and in oil, gas, coal, uranium, and electrical power industries occurred. Many Navajos live and work in reservation government centers and elsewhere (Kelley and Francis 1994).

There are many opportunities along the Corridor to discover the more recent past. Following the repatriation of the Navajo to their land there was still great interest in the area by "white men." In the early part of the twentieth century settlers set up trading posts to provide goods to the local people.

## Present Day

Today, the study area consists of mostly undeveloped high desert. Large power lines associated with the Peabody Western Coal Company mine and the Navajo Generating Station are visible periodically and become very apparent approaching the city of Page.

Sporadic housing, both modern varieties and traditional hogans, shade houses or ramadas, and various corrals are visible from the highway. A few isolated houses are equipped with solar panels. A small residential neighborhood, named "Mesa View," is present at the intersection of SR 98 and US 160. The only dense residential community in the study area is Kaibeto, located about one-third mile south of SR 98 at MP 331. This community, which developed around the Bureau of Indian Affairs school system, has a

general store and gas station. The existing school campus was constructed during the mid 1960s; it replaced the original school, which was located to the east in a canyon near Kaibeto Creek (personal communication with Patti Etsitty on 09/16/03). A trading post, which is not visible from the highway, is located east of the modern day community. The post was constructed in 1914 by C. D. Richardson in a canyon against White Horse Mesa.

Desert farming in the form of small family garden plots is evident throughout the area. Small earthen dams and windmills are present. In addition to farming, the land is also used for grazing. Livestock (cattle, horses, sheep) are abundant throughout the area.

## Chapters

There are 110 chapters in the Navajo Nation. Chapters serve as the local government agency for the Navajo Nation. Naat'tsis'aan Scenic Byway passes through four of these chapters: LeChee, Kaibeto, Inscription House, and Shonto. Following is a short description of each chapter.

### LeChee

Łichíí'ii (Red Plant) encompasses 6.7 square miles and the major industry is tourism. Close to 3 million tourists visit the Lake Powell area every year including Antelope Canyon within the LeChee chapter (Rogers 2004).

### Kaibeto

K'ai' Bii' Tó (Willow in the Water) encompasses 5.4 square miles. The community of Kaibeto grew up around the natural springs in the area. Runoff from White Mesa in Kaibeto Creek provided water for growing corn and squash. In 1914, the Kaibeto Trading Post was established by the Richardson family who had other posts in northern Arizona and New Mexico. In 1920 a school was built next to the post. Today, the Kaibeto Boarding School is the major employer for the area (Rogers 2004).

### Inscription House

Ts'ah Bii' Kin (House in the Sage) encompasses 4.2 square miles of rugged, isolated terrain. The name Inscription House may refer to a Navajo observation of a log structure in a sagebrush field or may be an Anglo reference to graffiti placed on canyon walls by U.S. Cavalry. Inscription House has two trading posts, one historic built in 1929 (Rogers 2004).

### Shonto

Sháá' tó (Water on Sunny Side) has an estimated 9.8 square miles. Major employers are Shonto Preparatory School and the Peabody Coal Company. Sháá' tó comes from an artesian well in the area that has been a dependable source of water over the years. This water supply attracted settlement to the area in the early 1800s. Another interpretation of Shonto is Sunshine Springs (Rogers 2004).

# PUBLIC PARTICIPATION

At the beginning of the project, the consultant worked with ADOT to identify key stakeholders for the Naat'tsis'aan Scenic Byway. The result of this work was a preliminary stakeholder list that has been maintained and developed throughout the course of the project.

## Meetings

Two public meetings were held. These meetings were used to determine what local residents desired for the future of the Scenic Byway and how to best preserve those intrinsic features that make the corridor so unique. The meetings were held in different locations for the convenience of the participants and to provide outreach to a larger segment of the community. Meetings were publicized via newspaper, radio advertisements, fliers, and mailings. Detail regarding the individual meetings follows.

### Meeting 1

The objective of the first meeting (held August 19, 2008 at the LeChee Chapter Service Center) was to introduce the project to the public and stakeholders, solicit information about the corridor, and gain support for the development of the plan.

At this meeting, attended by four people, participants discussed their wishes and worries for the Scenic Byway. A review of this list demonstrates the commitment of the group to making visitors' experience more enjoyable; safe and convenient pull-outs and rest stops with interpretative signs; increased amenities that reflect the local culture, and increased cultural events.

Numerous attractions and amenities were identified that make this Scenic Byway a unique destination. However, the group also voiced support for additional amenities/attractions such as campgrounds and tourism programming. At the conclusion of the meeting, participants were asked to indicate whether they would be interested in continuing their involvement by joining the Naat'tsis'aan Scenic Byway Steering Committee.

### Meeting 2

The second meeting was held at the Kaibeto Chapter Service Center on January 22, 2009. At this meeting, attended by five people, a discussion regarding the purpose of a corridor management plan and scenic byway designation opened the meeting. This led to discussion about the extensive culture of the Navajo, including the stories and history of the features found along the corridor. How this history might be featured to travelers along the roadway was discussed with the understanding that the Corridor Management Plan is an important tool to support this goal.

The vision statement, written with input from the first meeting, was reviewed along with the goals that had been developed to support it. Additional action items were organized among the four goals with input from the attendees. The attendees were in support of the vision and goals that had been developed prior to the meeting.

This group gave continued support for creating a safer experience for travelers by providing more pull off areas and gave more specific input as to how recreation and ecotourism could be incorporated. For instance, it was suggested that cultural aspects could be linked to rock climbing experiences, as well as guided tours of area caves.

## Questionnaires

In addition to the public meetings, an informational handout with attached questionnaire was developed. This was done in order to capture more input from the community with regard to how they would like to see the corridor in the future. The handouts were distributed to the LeChee, Inscription House, Kaibeto, and Shonto Chapter houses after the second scheduled meeting. In addition to gathering more community feedback, the handout was used to raise awareness of the project.

The questionnaire allowed for comment regarding the vision statement and action items for each of the goals. It also included a section where Navajo stories or history could be recalled in relation to one or more of the features found along the corridor. Two questionnaires were returned to the team.

## Radio

A radio spot was played on KTNN radio over a four day period in March 2009—two days in English, two days in Navajo. The intent of the radio spot was to provide information on the byways program and alert community members to the types of projects that are occurring in the Navajo Nation, including this corridor management plan.

## Steering Committee

A Steering Committee was not formally established during the planning process. A list of participants that expressed interest in the Steering Committee and/or the Corridor Management Plan is on file with the ADOT and Navajo Nation Scenic Byways coordinators.

# INTRINSIC QUALITIES INVENTORY

Today, the captivating and rich culture of the Navajo people continues to make this region a destination for travelers the world over. And as common as it is to hear the Navajo language spoken today by local people, a visitor to the area is as likely to hear German or Japanese, evidence of the far reaching appeal of the region.

While the Navajo have so respectfully preserved this environment, they have also made it available to the visitor and there is an array of activities here for those visitors.

It is because of the number of people that visit the corridor, the strong desire of the local residents to preserve the scenic beauty of the area, coupled with a desire for sensitive economic development that the Corridor Management Plan is being developed. By recognizing the intrinsic qualities of the corridor, actions can be taken to address issues raised by the local community and develop a proactive plan to ensure that these resources will be available for the enjoyment of residents and visitors today and for many years to come.

In order to preserve and enhance these resources, the Corridor Management Plan sets out to document and help define strategies for the preservation and enhancement of the intrinsic qualities. This is done not only with the visitor in mind, but the people who call this region home.

## Inventory

The Scenic Byways Program recognizes and promotes six intrinsic quality values. Each of these values influences the byway experience, but together they create a synergistic experience that is greater than the sum of the parts. A comprehensive inventory and assessment of a corridor's intrinsic qualities includes the following six categories:

**Natural Features:** features of the visual environment in a relatively undisturbed state;

**Cultural:** experiences of traditions, beliefs, folklore, and art;

**Historic:** legacies of the past distinctly associated with physical elements of the landscape which educate and inspire appreciation for the history;

**Scenic:** a dramatic and memorable landscape of strikingly distinct character;

**Recreation:** outdoor recreation activities directly dependent upon the landscape's natural and cultural elements; and,

**Archaeological:** physical, visual evidence of prehistoric life or activity that can be inventoried and interpreted.

These qualities define the byway's character, interest, and appeal to area residents and visitors.

The basis for the Naat'tsis'aan Scenic Byway's designation rests primarily in its natural, scenic, cultural, and recreation intrinsic qualities. The historic and archeological qualities, although not as significant or visible, add to the richness and diversity of the corridor.

### Natural

According to the National Scenic Byway Program, natural quality applies to those features in the visual environment that are in a relatively undisturbed state. These features predate the arrival of human populations and may include geological formations, fossils, landform, water bodies, vegetation, and wildlife. There may be evidence of human activity, but the natural features reveal minimal disturbances.

Naat'tsis'aan Scenic Byway has many natural features, predominantly views of mesas and distant mountains.

### Cultural

Cultural quality is evidence and expression of a distinct group of people. These features can include crafts, music, dance, rituals, festivals, speech, food,

special events, vernacular architecture, etc. The qualities found in the corridor could represent one or more significant communities and/or ethnic traditions.

Naat'tsis'aan Scenic Byway has several cultural opportunities to share with visitors including crafts and stories of the various mountains and rock features.

### Historic

Historic quality encompasses legacies of the past that are distinctly associated with physical elements of the landscape, whether natural or man-made, that educate the viewer through their historic significance. Historic elements may include buildings, settlement patterns, and other examples of human activity. They provide detail about design, setting, material, and workmanship of past settlements.

Naat'tsis'aan Scenic Byway has several historic features that could be shared with visitors and the local community including the Peabody railroad and trading posts.

### Scenic

Scenic quality is the visual experience ensuing from the view of natural and manmade elements within the environment. All elements of the landscape - land formations, water, vegetation, and manmade development - contribute to this quality offering a memorable experience to those along the scenic byway.

The scenic qualities of the Naat'tsis'aan Scenic Byway are synonymous with the Natural Features in this region.

### Recreation

Recreation quality involves those recreation activities directly associated and dependent with the natural and cultural elements of the corridor's landscape. These activities are often both passive or active forms of recreation and may be seasonal.

The Naat'tsis'aan Scenic Byway Corridor provides access to recreational pursuits. The high-desert environment with its scenic vistas, moderate climate, and open country afford ample opportunities for a host of activities including hiking, bicycling, fishing, rock climbing, jeep tours, and camping. Many of the natural amenities and destinations become staging points for visitors to the area. Because the Navajo Nation is a sovereign nation it is important to create these opportunities with respect to their land. Activities that allow visitors within the area would require guidance by Navajo community members.

### Archaeological

Archaeological quality includes those characteristics of the corridor that are physical evidence of historic or prehistoric human life or activity that are visible and capable of being inventoried. Archaeological evidence seen through ruins, artifacts, and other structural remains can be a great way to educate the corridor user and capture their interest.

There are archaeological features throughout the Navajo Nation but these are most often kept undisclosed to the general public for reasons of privacy and security.

## Features

The intrinsic qualities are captured by the many distinct and unique features found along the corridor or are accessible from the corridor. While these features may only be classified as one type of intrinsic quality, many can be identified as meeting the descriptions of multiple qualities.

In the following section, the features have been identified (in no particular order) followed by the set of intrinsic qualities that are represented. (N = natural, C = cultural, H = historical, S = scenic, R = recreational, and A = archaeological). *Figure 1* maps their approximate locations.

#### Navajo National Monument (H, C, R, S, A)

Navajo National Monument preserves three of the most intact cliff dwellings of the ancestral Puebloan People, whom the Navajo people who live here today call the Ancient Ones or "Anasazi."

The monument is high on the Shonto Plateau, overlooking the Tsegi Canyon system. Navajo National Monument is on US 160, east of the junction of SR 98 with US 160.

### Roadside vendor locations (C, R)

- Farmer's market site located at the intersection of SR 98 and Indian Route 16
- Arts and crafts and food vendors at MP 320

### Peabody Western Coal Company (H, C)

Peabody operates the Kayenta Mine through lease agreements with the Navajo Nation and the Hopi Tribe. The mine produces about 8 million tons of coal annually. Kayenta's coal is shipped to the Navajo Generating Station near Page.

The Black Mesa Mine, which shipped about 5 million tons of coal annually to the Mohave Generating Station near Laughlin, Nevada, suspended operations in 2005 following Mohave's decision to shut down. On Black Mesa, stewardship takes many forms. All mined land is restored to a productive condition that provides lasting benefits. Based on the tribe's wishes, the range is reclaimed for traditional use including livestock grazing, cultural plant cultivation, and wildlife habitat.

### Kaibeto Trading Post (H)

This post was constructed in 1914 at the foot of White Horse Mesa by C.D. Richardson. The Kaibeto Trading Post was an important business center for both Native Americans and traders. The spring wool season was one of the key trading events that took place at the post.

### Navajo Generating Station (MP 301) (H)

This coal-fired power plant is owned jointly by the U.S. Bureau of Reclamation, Salt River Project, the Los Angeles Department of Water and Power, Arizona Public Service Co., Nevada Power, and Tucson Electric Power. An electric train that runs between the plant and the Peabody Coal mine at Black Mesa supplied all of the coal it needed until the production at the Black Mesa Mine was suspended in 2005.

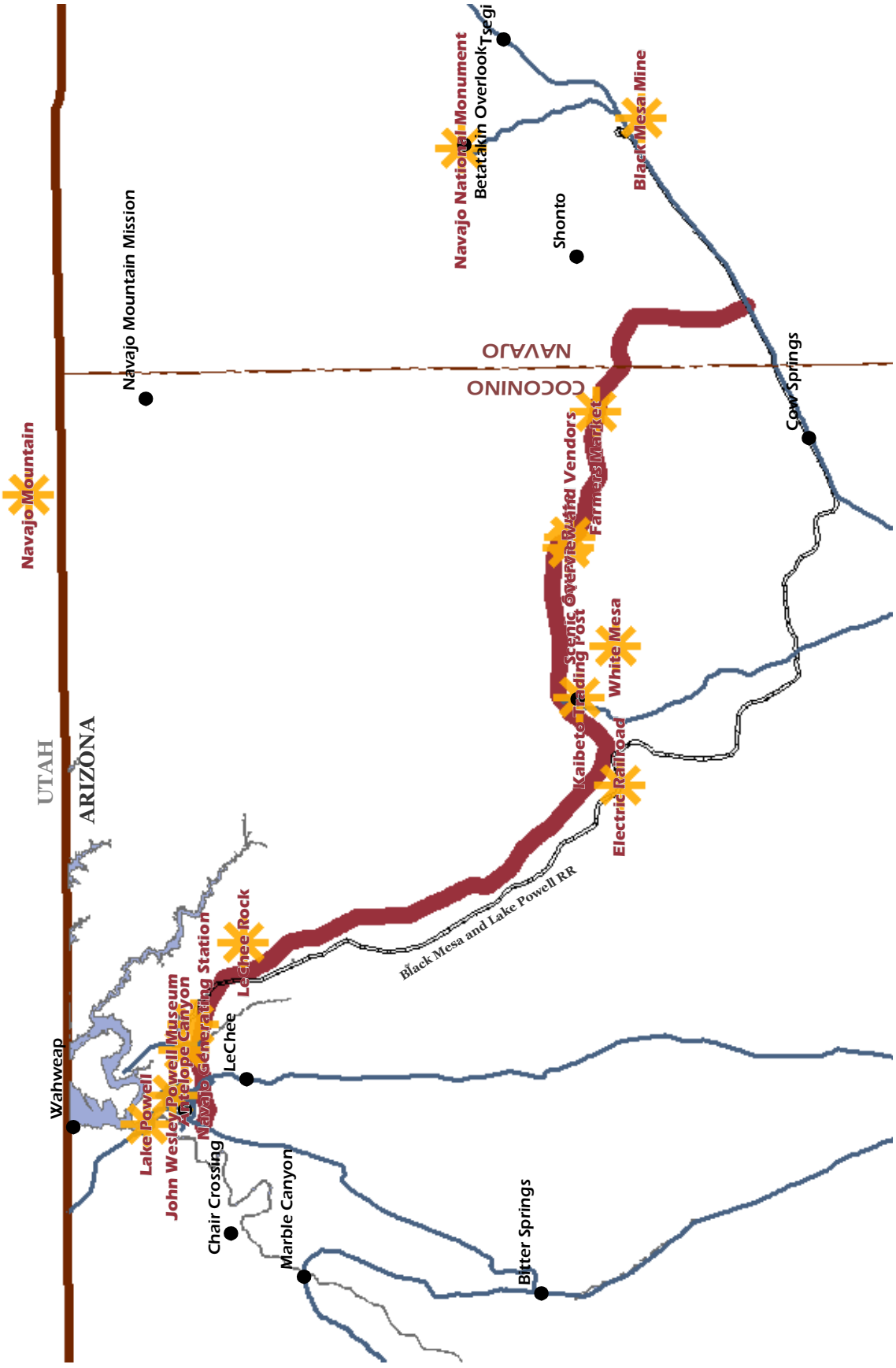
### The Dominguez - Escalante Trail (H, C, R, S)

In 1776-1777, Spanish priests Francisco Dominguez and Silvestre Escalante set out from Santa Fe, New Mexico to find a northern route to Monterey, California. Their expedition took them into Colorado and Utah at which point they decided to return to Santa Fe. Their return journey led them through parts of northern Arizona (Kosik 1996). A commemorative monument is located in the city of Page at the John Wesley Powell museum.

### Lake Powell (MP 301 to 305) (S, C, R)

The man-made lake is visible between MP 301 and 305, particularly when traveling westbound on SR 98. The lake fills the former Glen Canyon and other side canyons below the confluence of the San Juan and Colorado rivers. It is named after John Wesley Powell (Barnes 1988), the first to navigate the entire length of the Colorado River with a wooden boat in 1869 (Kosik 1996). Lake Powell is more than 180 miles long. According to Kosik (1996):

> The flooding of Glen Canyon led to the inundation of many ruins, natural coves, bridges, caves, petroglyphs, and historic sites, as well as the natural beauty of a magnificent canyon.... An interesting story about a rare petroglyph found in Navajo Canyon involves the super nova of July 4, 1054, A.D. According to Mt. Palomar Observatory researcher William Miller, a petroglyph of a crescent moon with a round circle below it is one of only four recordings of the supernova found in the world. Other recordings were found in the archives of Japanese and Chinese astronomers. The super nova was so bright in the eastern sky, lying just below the crescent moon, that the rising sun did not block its light .... Miller describes the exploding star of1054 as the "brightest object, other than the sun and moon, ever to appear in the sky




Intrinsic Qualities

during the recorded history of man" (Miller 1963).

### Antelope Canyon (MP 300) (N, S, R,)

This is a picturesque salmon-colored slot canyon that is the width of a hallway (Kosik 1996). The canyon is referred to as a slot canyon because from the surface it appears as a slash in the mesa.

### LeChee Rock (MP 301 to 312) (N, S, C)

This is a 900-foot high butte on the Kaibeto Plateau. It is located on the east side of Naat'tsis'aan Scenic Byway, about 5 miles west of the Navajo Creek and Kaibeto Creek juncture (Linford 2000) and is visible for an 11-mile stretch of Naat'tsis'aan Scenic Byway.

### White Mesa (MP 331 to 341) (N, S, C)

Colonel Jose Antonio Vizcarra's troops attacked a group of Paiute Indians in this vicinity on August 8, 1823 (Linford 2000). This formation was named after James White (Barnes 1988) who claimed to have rafted the Grand Canyon 12 years prior to J.W. Powell's expedition (Granger 1960). The mesa is approximately 8.5 miles wide and 16 miles long (Kosik 1996).

### Black Mesa and Lake Powell Electric Railroad (Visible at various MPs) (H)

This electric train traveled back and forth from the Peabody Western Coal Company mine to the coal-fired Navajo Generating Station power plant near Page, a distance of 88 miles (Kosik 1996). The railroad was built in the early 1970s. The railway is visible at various points west of Naat'tsis'aan Scenic Byway: MP 302.80 to MP 310.00, MP 318.50 to 319.50, and MP 327.00 to 329.00. The single-tracked Black Mesa & Lake Powell Railroad is a FRA Class 3 railroad that hauled coal from the Black Mesa strip mine near Kayenta, Arizona to the Navajo Generating Station near Page, Arizona. The single-purpose railroad is isolated and is not connected with any other railroad system. A 6,000-foot siding was constructed at the railroad's midway point to permit the passing of trains. The track structure can accommodate a maximum operating speed of 40 mph. The railroad maintained a fleet of six electric locomotives that were powered by electricity generated by the Navajo Generating Station. The railroad reports that it moved 8.4 million tons of coal annually, which it accomplished by running three train trips daily, seven days a week.

LeChee Rock

### Square Butte (MP 342) (S, N, C)

Square Butte is located just west of Naat'tsis'aan Scenic Byway on the Kaibeto Plateau, eight miles east of Kaibeto. It is also referred to as Segeke Butte (Linford 2000).

### Crossroads Trading Post (MP 349) (C, H)

This is a modern building located at the Navajo Mountain Road intersection. Other modern structures are nearby. This also marks the turn off to Inscription House Trading Post, which was named after Anasazi Ruins in Neetsin Canyon. The Inscription House Trading post was established in 1929 by S. I. Richardson as a hotel for travelers from Rainbow Bridge and Tuba City (Eddington and Makov 1995). The trading post is not visible from the road.

### Navajo Mountain (N, S, C, H)

Navajo Mountain is visible to the north of Naat'tsis'aan Scenic Byway for nearly the entire stretch of the corridor. The mountain is situated along the Utah border south of the junction of the San Juan River with the Colorado River (Barnes 1988). This mountain was previously named

Square Butte

Navajo Mountain

Mount Seneca Howland by John Wesley Powell and was referred to as Sierra Panoche by Antonio de Espejo in 1583. It was a stronghold for Navajos during Spanish incursions into the area and also during the Bosque Redondo years in the 1860s. Navajo myths about this mountain are numerous (Linford 2000).

# VISION

**Preserve the character of the byway setting and tell its special stories while providing for economic development and creating a safe travel route for visitors and residents.**

# GOALS AND STRATEGIES

## Goals

The goals help frame the vision of the Corridor Management Plan. Goals highlight what the plan hopes to achieve. Actions are recommended specific tasks that can be completed in order to achieve the goals.

The goals were developed from input at the public meetings and from further revision during the draft plan preparation. Listed below are the goals, followed by specific strategies for achieving them.

Table 4: Intrinsic Qualities

| Features | Natural | Cultural | Historic | Scenic | Recreation | Archaeological |
|---|---|---|---|---|---|---|
| Navajo National Monument | | X | X | X | X | X |
| Roadside Vendors | | X | | | X | |
| Peabody Western Coal Company | | X | X | | | |
| Kaibeto Trading Post | | | X | | | |
| Navajo Generating Station | | | X | | | |
| The Dominguez-Escalante Trail | | X | X | X | X | |
| Lake Powell | | X | | X | X | |
| Antelope Canyon | X | | | X | X | |
| LeChee Rock | X | X | | X | | |
| White Mesa | X | X | | X | | |
| Black Mesa and Lake Powell Electric Railroad | | | X | | | |
| Square Butte | X | X | | | | |
| Crossroads Trading Post | | X | X | | | |
| Navajo Mountain | X | X | X | X | | |

1. Promote roadway conditions that provide for safe travel for residents and visitors while maintaining the road's scenic beauty.

2. Promote development and tourism opportunities that bring economic benefit to the community but do not disrupt the unique setting of the byway.

3. Preserve the natural setting and resources for future generations to enjoy.

4. Tell the stories of the byway and educate visitors about the Nation's unique culture to increase their appreciation and understanding of the Navajo community.

### Goal #1
**Promote roadway conditions that provide for safe travel for residents and visitors while maintaining the road's scenic beauty.**

**Action Items:**

- Place an additional pullout at MP 316.
- Move the scenic view sign 3/4 of a mile back from its current location at MP 316. In it's current location, it does not allow adequate time for drivers to see and read the sign and then make the decision to stop. The sign should also be larger to allow easier viewing from a distance.
- Consider a deceleration lane along the roadway approaching the scenic view pull out at MP 316 from the east.
- At the junction of SR 98 and MP 331, street lights could be added to help alert motorists of pedestrians in or near the roadway.
- The community expressed concerns about traffic at all junctions with SR 98; these concerns should be further examined.
- The corridor lacks sufficient areas for travelers to pull over; the number of pull offs should be increased.
- The adopt-a-highway program does not seem to provide the necessary maintenance for this area; better maintenance and clean up along the roadway is needed. More funding may be needed to initiate additional means to keep the roadway clean.
- Right-of-way fences should be respected. Signs and education to promote keeping these intact should be initiated.

### Goal #2
**Promote development and tourism opportunities that bring economic benefit to the community but do not disrupt the unique setting of the byway.**

**Action Items:**

- Encourage tourist improvements at scenic pullouts including kiosks, ramadas, trash receptacles, and restrooms.
- Consider developing campgrounds. One potential campground location identified was near the community of Kaibeto.
- Explore horseback riding operations originating from the Kaibeto and Inscription House communities.
- Develop a visitor center that tells the story of the Nation and the four chapters that adjoin the byway.
- Support business development which includes hotels and restaurants at the intersection of Navajo Route (NR) 21B and SR 98.

**Goal #2 continued**

- Support and encourage arts and crafts and food vendors at MP 320.
- Make necessary paving improvements at the farmer's market site located at the intersection of SR 98 and NR 16.
- Explore ecotourism opportunities, rock climbing conventions, and other opportunities to link recreation and culture.
- Consider operating guided tours including hiking, rock climbing, camping, and jeep tours.
- Support the development of an artist center/village center at the junction of US160 and SR 98.

**Goal #3**
**Preserve the natural setting and resources for future generations to enjoy.**

**Action Items:**

- Encourage the use of native construction materials.
- Encourage the use of compatible color, form, and scale in new projects.
- Discourage construction of new billboards or similarly intrusive signs.
- Discourage light pollution along the corridor.
- Encourage roadway development setbacks to keep the scenic corridor open and natural.
- Provide signs enforcing the ethic of not disturbing archaeological features and identify the fines that will be applied if they are.

**Goal #4**
**Tell the stories of the byway and educate visitors about the Nation's unique culture to increase their appreciation and understanding of the Navajo community.**

**Action Items:**

- Design collector items to be sold along the corridor that help educate and reflect the Navajo culture.
- Develop signs for each chapter (Kaibeto, LeChee, Inscription House, and Shonto) that represent each ones unique heritage.
- Design safe pull offs where views and interpretive opportunities can occur.

# FUNDING AND FINANCING

## Funding Sources

Several possible funding sources for improvement projects are listed below. Due to the rapidly changing budgets for many of these organizations, these sources should be contacted for current information.

### Transportation Alternatives Program

#### *Eligibility Principles*

The Transportation Alternatives Program (TAP) is the new funding program for nonmotorized projects under MAP-21 (Moving Ahead for Progress in the 21st Century). Eligible projects that may be related to scenic byways include:

- construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other nonmotorized forms of transportation
- construction of turnouts, overlooks, and viewing areas
- inventory, control, or removal of outdoor advertising
- vegetation management practices in transportation rights-of-way to improve roadway safety, prevent against invasive species, and provide erosion control

There are some projects that are no longer eligible under MAP-21 such as visitor and welcome centers. Additional information is available at the Federal Highways Administration (FHWA) website: http://www.fhwa.dot.gov/map21/guidance/guidetap.cfm.

A snapshot of the selection process includes the following:

- Entities may submit project applications through their Metropolitan Planning Organization; in this case, Northern Arizona Council of Governments. Applications can be sponsored directly by the Navajo Nation.

The call for projects occurs annually.

### National Scenic Byways Grants

Under MAP-21, National Scenic Byways Program funding was eliminated. However, some items are still eligible under other programs (see the Transportation Alternatives Program).

### Other

**Adopt-A-Highway.** Trash removal and pick-up could be supplemented by the Adopt-a-Highway program. www.azdot.gov/highways/adoptahwy/index.asp

**Grants.Gov**. This program allows organizations to electronically find and apply for more than $400 billion in Federal grants. www.grants.gov

**Foundation Center** is the nation's leading authority on philanthropy and is dedicated to serving grantsseekers, grantsmakers, researchers, policy makers, the media, and the general public. www.fdncenter.org

**Just Grants! Arizona** is a one-stop source for news, tools, and resources for and about Arizona's grants community. www.azgrants.com

**Trust for Public Lands** is a national, non-profit, land conservation organization that conserves the land for the people to enjoy as parks, community gardens, historic sites, rural lands, and other natural places, ensuring livable communities for generations to come. www.tpl.org

**Highway Expansion and Extension Loan Program.** HB 2488 established a comprehensive loan and financial assistance program for eligible highway projects in Arizona. The Highway Expansion and Extension Loan Program

(HELP) provides the state and communities in Arizona with a financing mechanism to accelerate transportation construction projects. However, due to budget issues, HELP loan applications are not being accepted until further notice. http://www.azdot.gov/Inside_ADOT/FMS/HELP.asp

**Highways Users Revenue Fund.** These funds are collected from taxes on motor fuels and other fees and charges related to the registration and operation of motor vehicles on the public highways of the state. These revenues are then distributed to the cities, towns, and counties and to the State Highway Fund. They are the primary source of revenues available to the state for highway construction and improvements and other related expenses. www.azdot.gov/Inside_ADOT/FMS/Hurfund.asp

**Navajo Nation Department of Transportation (NNDOT).** The Navajo Nation Road Funds can be used for design, road construction and improvements, and road maintenance projects. The road funds are collected from fuel excise taxes for each given year. NNDOT provides administrative and technical services to the Navajo Nation and Bureau of Indian Affairs in the areas of environmental planning, engineering design, archaeological clearance, field surveys, transportation planning, road maintenance/ construction, and the road fund program. www.navajodot.org

**Bureau of Indian Affairs (BIA).** The BIA is responsible for road maintenance and construction of all BIA system-roads in the Navajo Nation. Sharing of funds under an Intergovernmental Agreement is available where system roads are involved in improvements, such as intersections.

# AGENCIES

## ADOT

ADOT is responsible for managing the roadway. The majority of the byway falls within the Flagstaff Maintenance District with a small portion at the south end being in the Holbrook District. The land the roadway is on is owned by the Navajo Nation.

## Navajo Nation

The Navajo Nation is responsible for managing what occurs outside of the road right-of-way. The tribe will make decisions as to what will or won't be built within view of the corridor.

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