

RESOLUTION OF THE
RESOURCES AND DEVELOPMENT COMMITTEE
24th Navajo Nation Council --- Third Year, 2021

AN ACTION

RELATING TO RESOURCES AND DEVELOPMENT; APPROVING THE NAVAJO
DIVISION OF TRANSPORTATION 2021 LONG RANGE TRANSPORTATION PLAN
TO BE SUBMITTED TO THE UNITED STATES DEPARTMENT OF
TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION

BE IT ENACTED:

SECTION ONE. AUTHORITY

- A. Pursuant to 2 N.N.C. § 500(C)(6), the Resources and Development Committee has oversight authority over matters including planning and coordination of roads and transportation activities of the Navajo Nation.
- B. Pursuant to 2 N.N.C. § 501(C) the Resource and Development Committee has oversight authority over the Navajo Division of Transportation.

SECTION TWO. FINDINGS

- A. The Navajo Nation Division of Transportation submits the Navajo Long Range Transportation Plan to the United States Department of Transportation, Federal Highway Administration.
- B. Pursuant to 25 C.F.R. § 170.410 (a) The purpose of long-range transportation planning is to clearly demonstrate a tribe's transportation needs and to fulfill tribal goals by developing strategies to meet these needs. These strategies should address future land use, economic development, traffic demand, public safety, and health and social needs.
- C. The 2021 Navajo Nation Long Range Transportation Plan is attached hereto as **Exhibit A**.

SECTION THREE. APPROVAL OF SUBMISSION OF THE NAVAJO LONG RANGE
TRANSPORTATION PLAN

The Resources and Development Committee of the Navajo Nation Council hereby approves the Navajo Division of Transportation 2021 Long Range Transportation Plan to be submitted to United States Department of Transportation, Federal Highway Administration., attached as **Exhibit A**.

CERTIFICATION

I, hereby, certify that the following resolution was duly considered by the Resources and Development Committee of the 24th Navajo Nation Council at a duly called meeting held by a teleconference for which a quorum was present and that same was passed by a vote of 5 in favor, and 0 opposed, on this 3rd day of November 2021.



Rickie Nez, Chairperson
Resources and Development Committee
of the 24th Navajo Nation Council

Motion: Honorable Mark A. Freeland
Second: Honorable Wilson C. Stewart, Jr.

Chairperson Rickie Nez not voting.



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EXHIBIT
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Appendix B – Pavement Maintenance Strategy

Appendix C – Bridge Summaries

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Appendix E – Functional Classification Cross Sections

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Appendix G – Proposed New Routes

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Appendix I – Washout Areas

Appendix J –Deferred Maintenance List

Appendix K – Airport Improvements

Appendix L – Strategic Highway Safety Plan (SHSP)

Appendix M – Survey Results

Appendix N – Goals

Appendix O – Navajo DOT Processes



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1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

The 2021 Navajo Nation Long Range Transportation Plan (LRTP) is a multi-year planning process to research, draft and develop a path forward for multimodal transportation investment within the Navajo Nation. The LRTP defines a set of goals to provide funding guidance in order to improve overall transportation system conditions, and direct funding towards the types of investments that are needed most. The LRTP also identifies short and long-range transportation improvement strategies that will address current and future transportation needs according to Tribal, Federal, and State government policies.

As required by the statutory requirement 25 CFR 170, the Navajo Nation LRTP is necessary because it serves as the defining vision for the region's transportation needs. The LRTP continually remains proactive as it is updated every five years. Multimodal transportation spending includes investing in infrastructure and strategies to improve mobility for those that drive, bicycle, walk, fly, use transit, and ship freight.

1.2 STUDY AREA

Encompassing over 27,000 square miles, the Navajo Nation is the largest tribal community in the United States. The Nation's territory occupies portions of three states including southeastern Utah, northeastern Arizona, and northwestern New Mexico. This geographic size is larger than 10 U.S. states and includes five regional governments and 11 counties. Figure 1-1 illustrates the Navajo Nation boundary as it overlaps into the State of Utah, Arizona, and New Mexico.

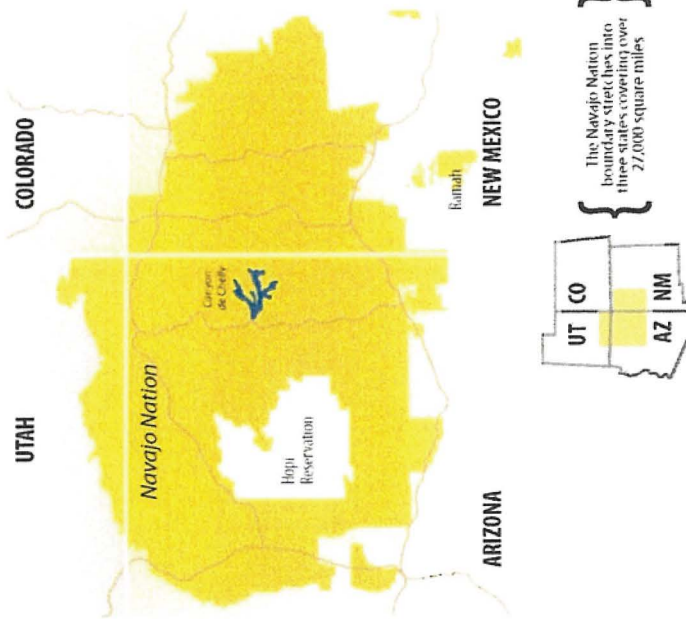
1.3 PUBLIC INVOLVEMENT PROCESS

This long-range planning process included a public involvement process that occurred during COVID, including a community survey (shown in Appendix M), public meetings and comment card feedback. The community survey further revealed transportation needs within Navajo Nation. While the majority of respondents did not know what an LRTP was, respondents did understand about the Community Land Use Plan (CLUP). This effort pivoted from the 2015 LRTP Goals and reverified the goals. Previous input included the need for improving travel safety, signage, and sidewalks ranked the highest amongst respondent's goals along with resurfacing paved roads. The survey also revealed the majority of respondents do not feel safe while driving, walking, or biking within their communities, yet indicated that improvements would encourage more walking or biking. The Navajo Division of Transportation (Navajo DOT) Planning Department conducted a presentation to the Navajo Nation Resources and Development Committee (RDC) in October 2021. The RDC is the Committee responsible for approving the LRTP and the Navajo DOT Tribal Transportation Improvement Program (TTIP).

Figure 1-1 | Navajo Nation Geographic Vicinity

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1.3.1 NAVAJO NATION GOVERNMENT STRUCTURE

The Navajo Nation's inherent right to self-govern is sacred and demonstrated through daily governmental actions. Navajo government has evolved into the largest and most sophisticated form of American Indian government. The Navajo Nation Council Chambers hosts 24 council delegates representing 110 Navajo Nation chapters. As the governing body of the Navajo Nation, the Navajo Nation Council has the authority to pass laws which govern the Navajo Nation, members of the Navajo Nation, and certain conduct of non-member Indians and non-Indians within the territorial boundaries of the Navajo Nation. The Navajo Nation central government is composed of three branches headquartered in Window Rock, Navajo Nation (Arizona):

1. Legislative Branch (Navajo Nation Council);
2. Judicial Branch (District Courts, Family Courts, Peacemaker Courts, and a Supreme Court); and
3. Executive Branch (Presidents and Navajo Nation Divisions)
4. Chapters (local government subdivisions)

All branches of the Navajo Nation government exercise varied delegated powers and governmental authority in accordance with Navajo statutory, regulatory, and common law. Within Navajo Nation, regional coordination also exists on an Agency and Service Center level.

DIVISIONS & DEPARTMENTS

Navajo Nation has a relatively large government structure when compared to other tribal governments. Navajo Nation is comprised of 12 Divisions or Departments, they include:

- Division of Community Development
- Department of Dine Education
- Division of Economic Development
- Environmental Protection Agency
- Division of Public Safety
- Division of General Services
- Division of Health

- Division of Human Resources
- Division of Natural Resources
- Division of Social Services
- Division of Finance
- Division of Transportation

AGENCIES

Agencies act as the regional government structures that are comprised of several local government division Chapters. In total, seven Agencies exist within Navajo Nation, and an Navajo DOT Planner is assigned to each Agency:

- Chinle Agency: 15 Chapters
- Eastern/Crownpoint Agency: 31 Chapters
- Fort Defiance Agency: 26 Chapters
- Northern/Shirock Agency: 20 Chapters
- Western/Tuba City Agency: 18 Chapters
- New Lands Agency
- NIIP (Navajo Indian Irrigation Project) Agency

These Agencies and the Chapters within their boundaries are illustrated in Figure 1-2.

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CHAPTERS

Local government subdivisions (known as Chapters) are one of the three branches of government. In total, 110 Chapters exist throughout Navajo Nation. Figure 1-2 illustrates the Chapter boundaries and Table 1-1 lists the Chapters. Each Chapter is charged with creating a Community-Based Land Use Plan, also known as a CLUP. A CLUP is a locally developed land use plan that emphasizes housing and related infrastructure development in accordance with the Native American Housing Assistance and Self Determination Act (NAHASDA).

1.4 LRTP ORGANIZATION

The LRTP document is organized in the following manner to provide a background on existing socioeconomic and transportation asset conditions, and to outline the steps to improve and measure system level performance, including:

- Chapter 2: LRTP Goals
- Chapter 3: Socioeconomic, Demographic & Land Use Data
- Chapter 4: Environmental Overview
- Chapter 5: Existing Transportation System
- Chapter 6: Transportation Funding
- Chapter 7: Project Partnering
- Chapter 8: Strategies and Performance Measures
- Chapter 9: Implementation Program

1.5 LRTP DEVELOPMENT

The LRTP was developed through a collaborative process that went through the following steps:

1. Establish Policy Goals and Objectives
2. Analyze Transportation System Conditions
3. Perform Needs Analysis
4. Set Priorities
5. Establish Funding Plan

6. Develop the Plan
7. Develop the Program
8. Implement and Monitor the Plan

The intent of how this plan was developed, and will be monitored for performance, was to enable Navajo DOT to use the most up to date information to facilitate change through data-driven and transparent processes so ultimately, this regional plan and local Chapter plans are consistent. This transition will also be influenced as Navajo DOT develops the processes and procedures relating to self-administrating their transportation program. This LRTP will maintain a set of appendices that outline specific transportation system deficiencies so priorities can be adjusted as updated data is collected and analyzed so system performance can improve including better roads, sound bridges, safe travel for all modes, and opportunities for economic development can occur.



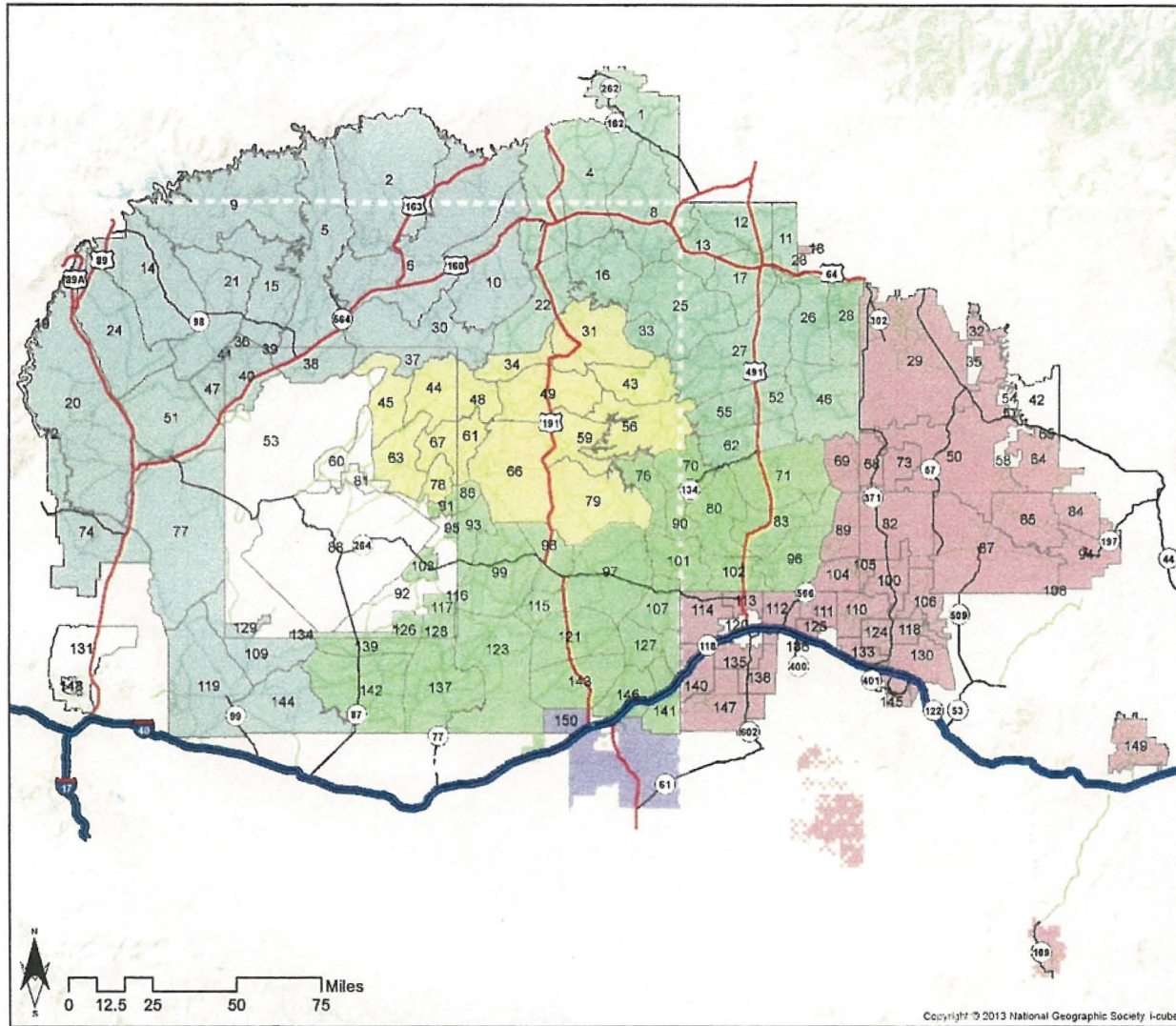
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Figure 1-2| Agency and Chapter Boundaries



Navajo Nation

Agency Boundaries

- Chapter Boundaries
- Chinle
- Crown Point
- Fort Defiance
- New Lands
- Shiprock
- Tuba City
- BIA Route

Chapter numbers correspond to chapter names. Refer to Table 1-1 for corresponding Chapter names.



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Table 1-1| Chapter Name Reference

LABEL NUMBER	CHAPTER NAME				
1	ANETH	38	SHONTO (SOUTH)	79	NAZLINI
2	OLJATO	39	INSCRIPTION HOUSE (S.)	80	MEXICAN SPRINGS
4	RED MESA	40	TONALEA (SOUTH)	82	BECENTI
5	SHONTO (NORTH)	41	KAIBETO (SOUTH)	83	TOHATCHI
6	KAYENTA	43	LUKACHUKAI	84	OJO ENCINO
7	MEXICAN WATER	44	BLACK MESA	85	PUEBLO PINTADO
8	TEEC NOS POS	45	FOREST LAKE	86	LOW MOUNTAIN (EAST)
9	NAVAJO MOUNTAIN	46	BURNHAM	87	WHITEHORSE LAKE
10	DENNEHOTSO	47	TONALEA (WEST)	89	STANDING ROCK
11	HOGBACK (WEST)	48	BLACK MESA	90	RED LAKE
12	GADIIAHI	49	MANY FARMS	91	LOW MOUNTAIN (WEST)
13	BECLAHBITO	50	NAGEEZI	93	JEDDITO, AOACGE
14	LECHEE	51	TUBA CITY	94	TORREON (NORTH)
15	INSCRIPTION HOUSE (NORTH)	52	NEWCOMB	95	JEDDITO (EAST), NAVAJO
16	SWEETWATER	55	TWO GREY HILLS	96	COYOTE CANYON
17	SHIPROCK	56	TSAILE/WHEATFIELD	97	KINLICHEE
18	HOGBACK (NORTH)	59	CHINLE	98	GANADO
20	BODAWAY	61	TACHEE (EAST)	99	STEAMBOAT (EAST)
21	KAIBETO (NORTH)	62	SHEEP SPRINGS	100	CROWNPOINT
22	ROCK POINT	63	PINON	101	FORT DEFIANCE
23	HOGBACK (SOUTH)	64	COUNSELOR	102	TWIN LAKES
24	COPPERMINE	66	TSELANI	103	JEDDITO (WEST), NAVAJO
25	RED VALLEY	67	TACHEE (WEST)	104	NAHODISHGISH (WEST)
26	NENAHNEZAD/SAN JUAN	68	WHITE ROCK (EAST)	105	NAHODISHGISH (EAST)
27	SANOSTEE	69	WHITE ROCK (WEST)	106	LITTLEWATER
28	UPPER FRUITLAND	70	CRYSTAL	107	SAINT MICHAELS
29	HUERFANO (WEST)	71	NASCHITTI	108	TORREON (SOUTH)
30	CHILCHINBITO (NORTH)	72	CAMERON (NORTH)	109	TOLANI LAKE (SOUTH)
31	ROUND ROCK	73	LAKE VALLEY	110	MARIANO LAKE
32	HUERFANO (EAST)	74	CAMERON (SOUTH)	111	PINEDALE
33	COVE	75	BBR	112	CHURCH ROCK
34	ROUGH ROCK	76	SAWMILL	113	ROCK SPRINGS
36	TONALEA (NORTH)	77	COALMINE MESA	114	TSAYATOH
37	CHILCHINBITO (SOUTH)	78	WHIPPOORWILL	115	CORNFIELDS
				116	STEAMBOAT (WEST)
				117	WHITECONE
				118	CASAMERO LAKE
				119	LEUPP
				120	CITY OF GALLUP
				121	KLAGETOH
				122	GREASEWOOD SPRINGS (WEST)
				123	GREASEWOOD SPRINGS (EAST)
				124	SMITH LAKE
				125	IYANBITO (NORTH)
				126	TEESTO (NORTH)
				127	OAK SPRINGS
				128	INDIAN WELLS (NORTH)
				129	TOLANI LAKE (NORTH)
				130	HAYSTACK
				132	IYANBITO (MID)
				133	THOREAU
				134	TOLANI LAKE (EAST)
				135	RED ROCK
				136	IYANBITO (SOUTH)
				137	INDIAN WELLS (SOUTH)
				138	BREAD SPRINGS
				139	TEESTO (SOUTH)
				140	MANUELITO
				141	LUPTON
				142	DILKON
				143	WIDE RUINS
				144	BIRD SPRINGS
				145	BACA
				146	HOUCK
				147	CHICHILTAH
				149	CANONCITO
				150	NAHATADZIL

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Source: Community Development





2.0 LRTP GOALS

Since Navajo DOT became a Division, the DOT has worked to identify how to be more efficient and effective in managing the transportation system. Navajo DOT became self-administered to better control how federal funds are spent between Navajo DOT and Bureau of Indian Affairs (BIA). After the last LRTP was completed, Navajo DOT worked with Federal Highway Administration (FHWA) to convert the previous 38-year TTIP to the current 5-year TTIP. This enables Navajo DOT to focus on planning, designing, obtaining needed environmental clearances and performing construction activities in a systematic manner. The TTIP outlines specific Navajo DOT project activities over a 5-year period and is updated every year with new projects being added in "Year 5" to maintain focus on those programmed projects, not to waste Navajo DOT funding, and does not jeopardize future FHWA project funding.

There are seven key goals of the LRTP, including:

Take Care of the System - The Nation has invested a significant amount of money on maintaining the existing transportation system which is very important. It should be maintained to a level that corresponds to the function and use of the roadways and bridges. This transportation system requires a significant amount of maintenance resources to maintain, repair and reconstruct the roads and bridges that are deficient. These activities require very important environmental clearances and permits to do any work on the roadways, which takes time and coordination with many agencies.

- The system is in great need of repair and maintenance. Focus on the greatest needs first – those with high traffic volumes, safety issues and are of the highest functional classification.
- Maintain and share data with the communities and stakeholders for informed decision making.

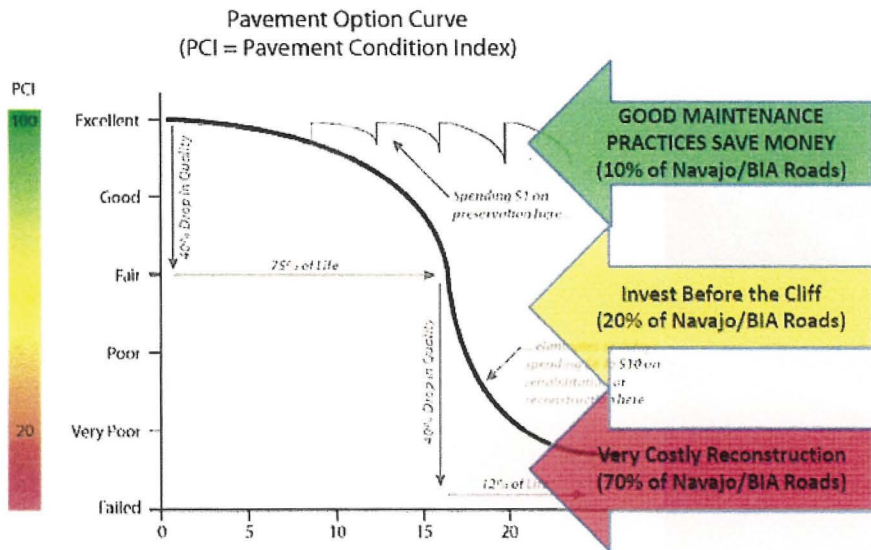
- Conducting maintenance activities on roads and bridges is a cost-effective way to save money rather than waiting until reconstruction is warranted.
- Create funding "pools" for separate bridge, safety and roadway funds.

The roadway system is made up of paved, gravel and dirt roads. Each has their purpose, and careful consideration should be made before any improvements are made. Figure 2-1 summarizes the Navajo Nation paved road system conditions based on the official 2020 National Tribal Transportation Facility Inventory (NTTFI) dataset. As shown, approximately 10% of the paved system is in good or better condition; 20% is in fair condition; and the remaining 70% is in poor or failing condition based on the inventory. This situation is caused by not enough resources being directed towards maintenance and reconstruction activities versus constructing new roads and upgrading roads to pavement without an increased budget for maintaining those roads once improved. National research has shown that properly maintaining paved roads is a cost-effective approach versus allowing the pavement quality to deteriorate to the level of need for major maintenance or reconstruction.

Figure 2-1| Paved Surface Conditions

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Both gravel and dirt roads also require ongoing maintenance activities including blading and surface treatments. There is not enough funding, equipment or staff available to maintain all of the roads that Navajo DOT and BIA are responsible for. As such, priorities must be set to maintain roads in good condition while improving fair roads, bringing them up to good condition. The priorities should be based on both quantitative data such as functional classification, average annual daily traffic (AADT), crash experiences/safety, and historic maintenance needs required to keep the roadway properly maintained. Table 2-1 depicts a strategy related to functional classification and AADT, and roadway condition for paved and gravel roads. The approach outlined in Table 2-1 uses a strategy of keeping roadways that are in good condition from deteriorating more, while bringing roads that are in fair condition up to "good" before major reconstruction activities on failed pavement surfaces takes place due to the expenses required to reconstruct a roadway. This approach also greatly reduces the attention on local roads that carry low traffic volumes. The local roads that are important to communities should be integrated into the Department of

Roads blading schedule as appropriate. Notes included in Tables 2-1 and 2-2 indicate if a maintenance strategy is a low, moderate or high priority project.

Table 2-1| Road Maintenance Strategy

	<100 AADT	100-249 AADT	250-499 AADT	500-999 AADT	1000+ AADT
Major Arterial	Low	Low	Moderate	High	High
Minor Arterial	Low	Low	Moderate	High	High
Collector	Low	Low	Moderate	High	High
Local*	Low	Low	Moderate	High	High
Pavement Condition Priority					
	Failure	Poor	Fair	Good	Excellent
Major Arterial	Low	Low	Moderate	High	High
Minor Arterial	Low	Low	Moderate	High	High
Collector	Low	Low	Moderate	High	High
Local*	Low	Low	Moderate	Moderate	Moderate

* Many local roads in housing subdivisions are operated and managed by the Navajo Housing Authority, and not Navajo DOT.



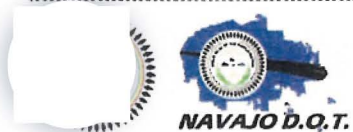
Bridges are also a critical component to transportation and mobility. Table 2-2 depicts a strategy related to roadway functional classification and the actual bridge condition surveyed in the bridge reporting to Navajo DOT.

Table 2-2| Bridge Maintenance Strategy

	Failure	Fair	Good	Excellent
Major Arterial	High	Moderate	Low	n/a
Minor Arterial	High	Moderate	Low	n/a
Collector	High	Moderate	Low	n/a
Local*	High	n/a	n/a	n/a

The approach outlined in Table 2-2 focuses attention on the bridges that are in greatest need first. To accomplish this, a dedicated funding pool specifically for bridges is recommended. A ten percent funding program could address the most critical-need bridges in a 7-year program. See Section '5.2 Bridges.'

To accomplish the goal of taking care of the system, it will require a focused attention to collecting, maintaining and sharing the road inventory data among departments and divisions, community members and administrative service center staff. This approach will lead to improved data-driven, performance-based discussions with elected and appointed officials so informed decision making is enhanced. Figure 2-2 depicts how the processes of inventorying, identifying needs and prioritizing are LRTP related functions that then influence the TTIP process of project development and construction activities. Reference Section 8.0 for respective strategies and performance measures that form the basis of performance-based planning that drive the TTIP.

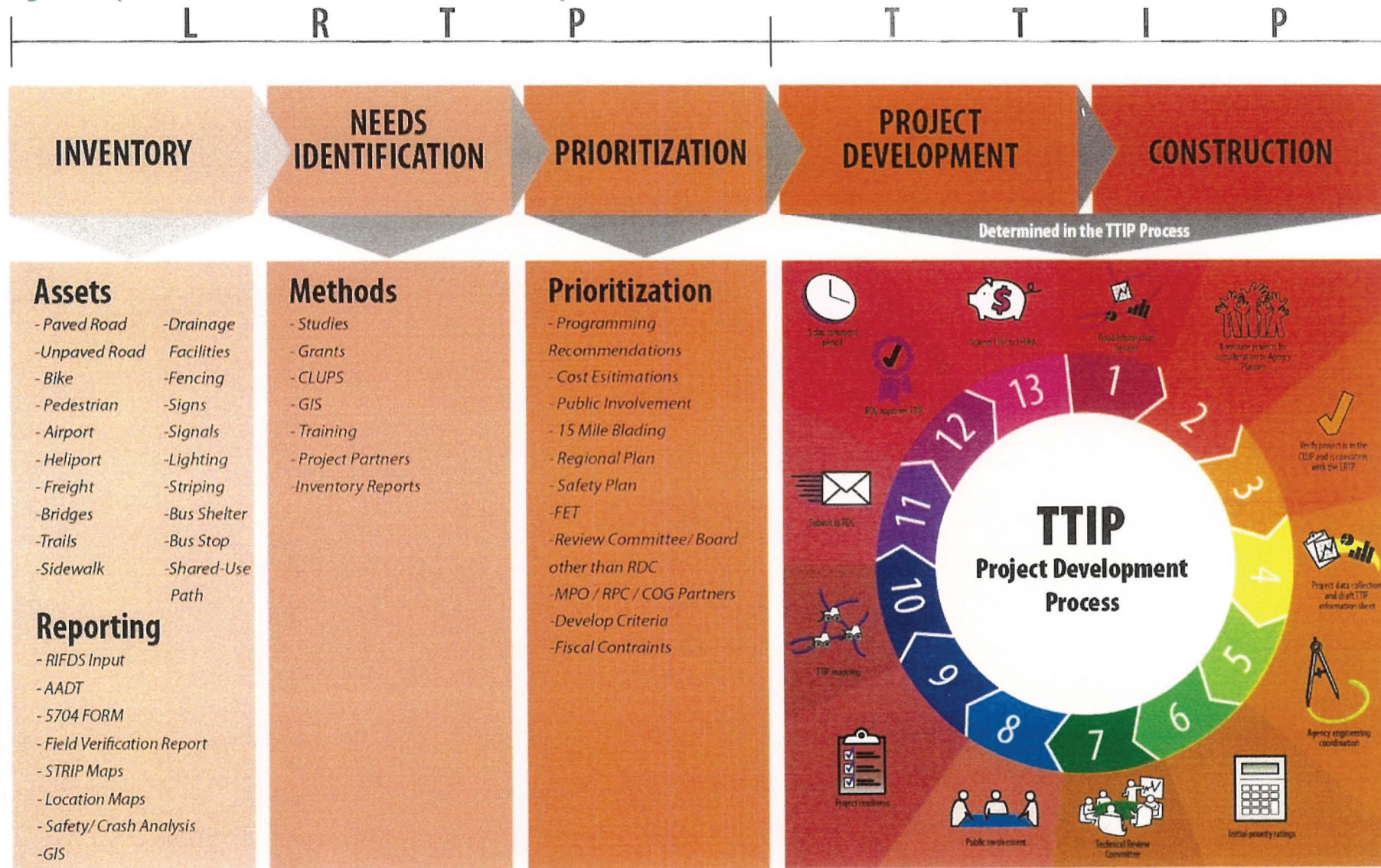


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Figure 2-2| LRTP and TTIP Processes and Relationships



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Enhance Existing Partnerships and Create New Partnerships – The relationships between Navajo Nation and the many funding partners that promote and assist in providing a safe and effective transportation system should continue to be enhanced to explore opportunities that further the goals of Navajo Nation, promote economic development and provide jobs.

Factors to consider:

- Many transportation programs are funded with money that is not Navajo Division of Transportation funds.
- Over the past few years, Navajo DOT has partnered with many Chapter, local counties, Navajo Divisions, state and federal agencies to assist with roadway maintenance, improve roadway safety, make highway improvements, and conduct planning studies. These partnerships are very important to Navajo DOT. The creation of projects that further multiple organizations' goals allows for limited funding to be stretched further.
- Available funding programs are very important to improve partnerships with other funding agencies is important to provide transportation choices, improve safety and upgrade our roads.
- Private industry is also an important partner to consider as economic development opportunities occur.



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Maximize Transportation Investment Effectiveness – Transportation investments should be broadly discussed and vetted to direct funding to those needs that have the greatest positive impact on achieving local chapter, agency, Navajo DOT, State DOT, BIA and FHWA goals as appropriate.

- Every dollar that is invested in the transportation system is a long-term investment, regardless of if it is maintaining or upgrading an existing road or building a new one. Trade-offs exist with every decision– whether to construct a new paved roadway (\$3.0 million per mile), gravel a dirt roadway (\$400,000 per mile), maintaining gravel roads (\$2,000 per mile), blade dirt roads (\$700/mile) or fix a bridge that is in need of repair.
- The funding that is available is minimal, and is not expected to increase; however, traffic demands from communities will increase. Every effort must be made to reflect that money being spent on roadways is meaningful, long lasting and the improvements will be maintained after they are constructed.
- Transportation spending should be strategic in order to have the greatest positive impact towards achieving local and regional goals.
- The little amount of available funding is so important, therefore every dollar spent is a choice and a trade-off. Making sure there is an understanding of those trade-offs is very important.

Criteria and process should be fundamental to identifying priorities for improvement, and the types of improvements needed. Since there is not enough funding to address all of the Nations' transportation needs, careful consideration should be given to each and every improvement. Every Chapter has transportation needs that are desired. These needs have to be balanced

with the available funding to determine if, how and to what extent an improvement project can address the needs. Navajo DOT has a regional and nationwide responsibility in investing in transportation. With this responsibility, safely connecting Chapters and commercial centers is a primary responsibility of Navajo DOT.



In many cases, the traffic demands may provide surface-type options. Evaluating and arriving at an improvement decisions that balance the need (demand) with the investment amount (improvement type) should be data, financial and impact driven.



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Bridges are expensive to construct and maintain. In some cases, low water crossings could be a viable option that provides a safe crossing while being financially careful.



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Enhance Safety – Transportation investments, maintenance activities, and improvements should improve the safety of all roadway users to minimize the potential for all serious injuries and fatalities.

- Transportation safety is at the forefront of the Navajo DOT transportation program. The Nation must have a safe transportation system for all roadway users and decrease the number of fatality and serious injury crashes.
- There has been a significant push at the federal level to invest in safety, and Navajo DOT has been able to obtain several grants to assist in helping with this important goal.
- Transportation spending should try to improve the safety for roadway users.
- It is important to reduce the potential for fatal and serious injury crashes.
- Safety/crash information should be shared across agencies to enhance the likelihood for more state and federal safety funding.
- Improving transportation safety can be implemented through investing in the 4-E's (engineering, education, enforcement and emergency services).

All crashes are caused by either driver behavior (education and enforcement focused), geographic/geometric issues (engineering focused), or natural events (education and engineering focused). Proactively reducing crashes through education can influence many factors such as improving seat belt use, properly restraining minor children, and reducing alcohol related crashes. Enforcing the driving laws of Navajo Nation provide the regulatory strength of a safe system. The engineering component is both reactive and proactive in nature. The reactive nature of safety is fixing "hot spots" where high crash locations exist by conducting Road Safety Audits/analyses/ studies and implementing countermeasures. The proactive aspect of safety is using

historic data to understand systemic system problems. The emergency services element of the 4-E's is critical to enhance the effectiveness and timeliness of emergency medical services in the event of a crash. For any safety effort, utilizing a collaborative, data-driven approach that incorporates transportation-safety research, analysis and documentation of the database of crash records, and other data, to identify safety Emphasis Areas and prioritize safety strategies.

The states of Arizona, New Mexico and Utah have all developed Strategic Highway Safety Plans (SHSSs) that are consistent with the national movement of **Toward Zero Deaths**. Each state has their own set of goals and objectives to address the pervasive types of crashes being experienced on their systems. Since Navajo Nation has territory in three states, the three separate SHSPs relate only to their specific, representative state. Each state also has their own set of Emphasis Areas and performance measures to address and monitor progress in mitigating specific types of crashes in the respective states. This relates directly to the available Highway Safety Improvement Program (HSIP) funding that is available through the three states. To be eligible for HSIP funding, the effort must be consistent with the appropriate state SHSP as shown in Figure 2-3. Navajo Nation can always focus funding towards other programs not included in the state SHSPs; however funding for those programs would need to be from sources other than state DOTs. This is separate from the Navajo Nation 2017 SHSP, which provides an additional level of analysis and understanding of safety on Navajo Nation roadways.

Figure 2-3| State SHSP Relationships to Other Plans

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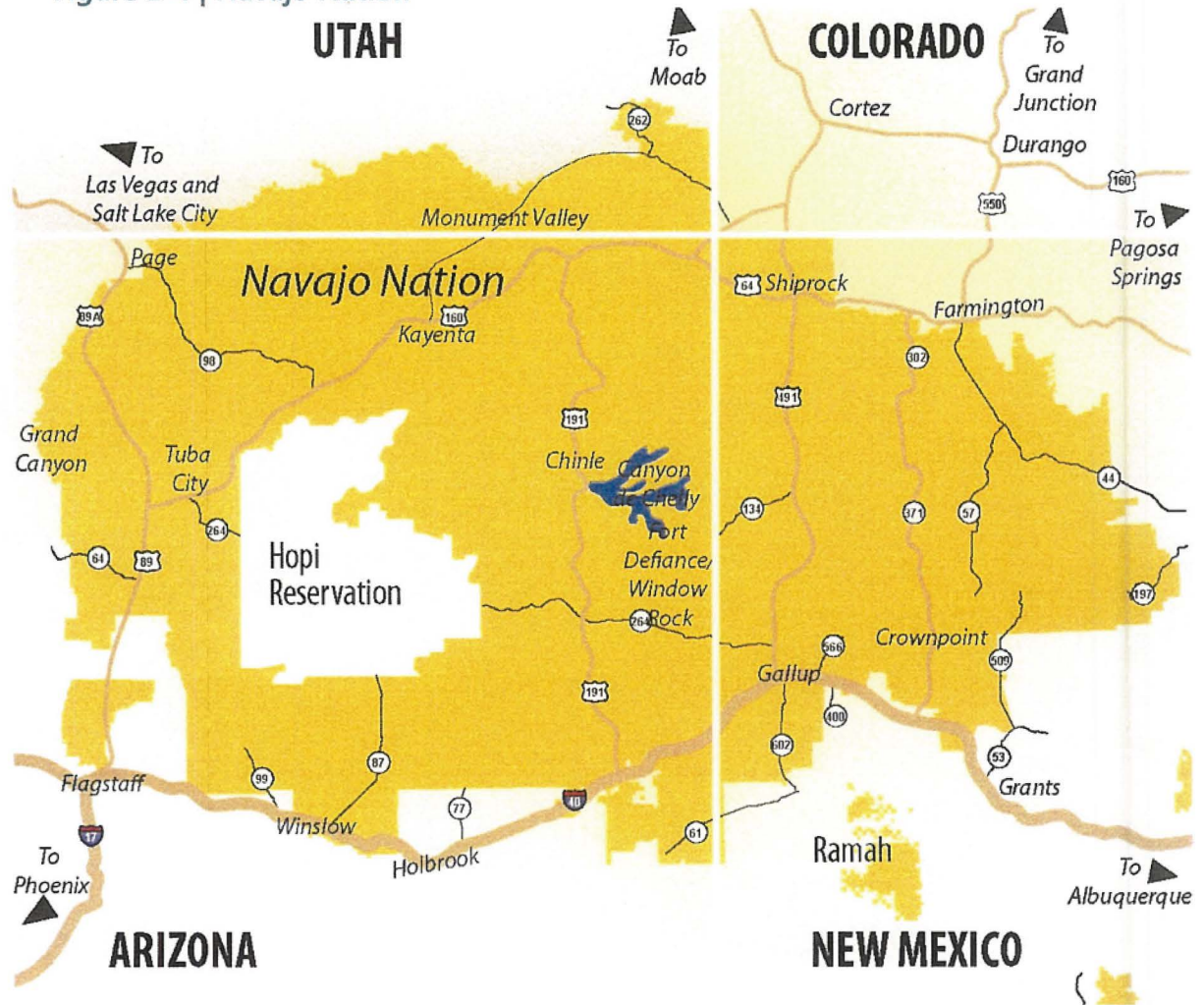
Create Connections – The transportation system should assist in providing seamless connectivity between the population centers and Chapters within Navajo Nation, public services and facilities, and the population centers and transportation systems surrounding Navajo Nation (Figure 2-4).

- It is that opportunities are provided for the citizens to travel within the communities they live in, and travel to other communities within and outside of Navajo Nation.
- All communities need connectivity to surrounding activity centers for school, government, work, shopping, groceries and commerce.
- There are connections outside of Navajo Nation that could enhance the quality of life for many. These connections are important to provide and maintain.
- The transportation systems (Greyhound bus, airports, Amtrak, etc...) are important to connect with to enable travel beyond Navajo Nation and the surrounding communities.

Currently, there is not public transportation provided or planned to Cortez, CO, Durango, CO, the Four Corners area, Holbrook, AZ, Winslow, AZ, and Page, AZ among other areas. In some cases, providing connections to these communities also provide access to their public transportation systems that service the regions around them.

From an economic development standpoint, creating connections can also improve visitation and attract “markets” of people such as bicycle riders. As an example, if there are safe routes to ride a bike that

Figure 2-4 | Navajo Nation



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connects the various attractions within Navajo Nation, bicycle riders may be more attracted to an area for group rides which positively impact the tourism aspect of the Nation.

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Provide Options – The transportation system should allow for safe travel for those that walk, bicycle, ride on public transportation, fly, and drive.

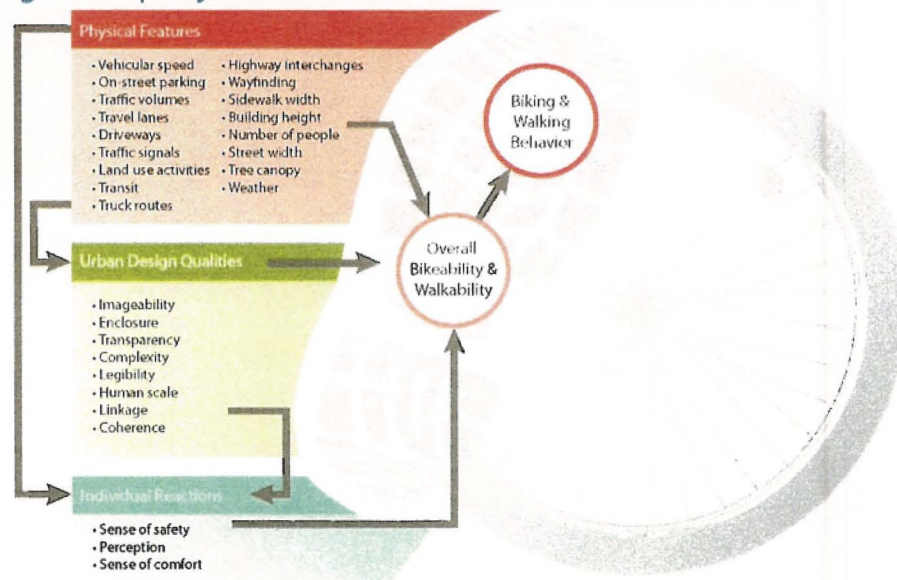
- Approximately 40% of the residents have income levels below poverty so a transportation system that provides options other than the automobile is important.
- Navajo DOT investments must provide safe options for those that cannot afford to drive their own car.
- Safe options for all that travel is critical for the success of our community.
- Navajo citizens and visitors should be able to safely walk, ride a bicycle or take transit if desired.



Figure 2-5 depicts many factors that relate to providing safe accommodation for bicyclists and pedestrians. These type of factors should be examined when planning and designing for bicycles and pedestrians.



Figure 2-5| Bicycle and Pedestrian Accommodation Factors



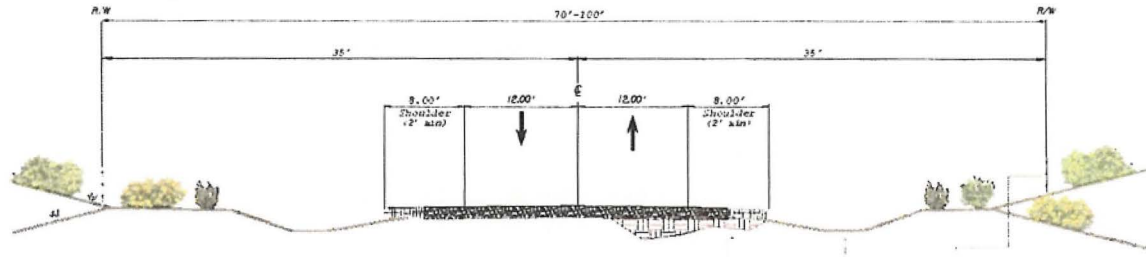
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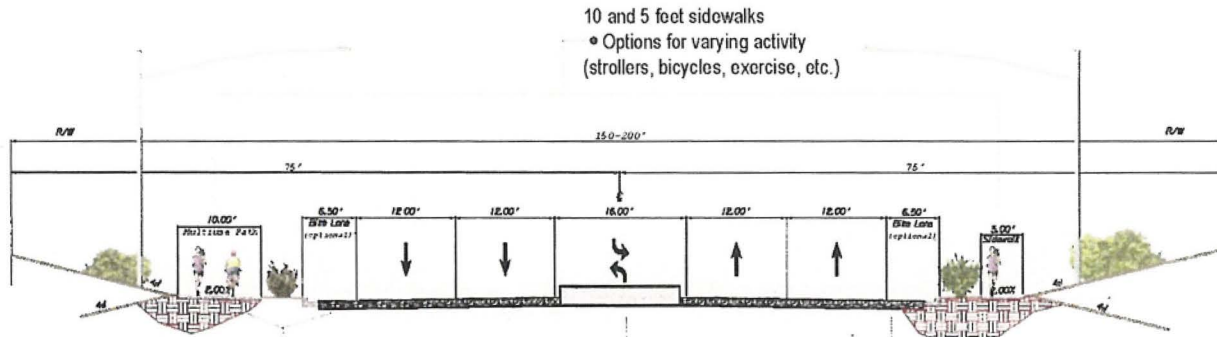


Specifically pertaining to roadways, proposed improvements can have a significant impact on how well a road can improve upon safety and provide options for bicycling and walking. Figure 2-6 depicts specific roadway components that should be discussed as improvements are made. Appendix E depicts functional classification cross sections and characteristics of each. Ultimately, design standards will need to be developed for each approved cross sections.

Figure 2-6| Roadway Cross Section Components



- Paved and/or gravel shoulder for safety improvement.
- Location for bicycles and pedestrians to use when sidewalks are not present.
- Ditch for drainage.
- Row fencing to maintain safety.
- Contain Livestock



- Separated sidewalk and road by buffer:
 - Provides safety barrier for pedestrian activity
 - Allows for break in impervious surfaces
 - Creates more inviting streetscapes
 - Provides continous pedestrian path
 - Reduces ADA accessibility issues

- Turning Lane/Median
 - Vehicle wait time diminished
 - Provides "safe area" for turning traffic
 - Manages where turns can be made

- Bicycle Lane
 - Provides safe area defined for bicycles

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Promote Economic Development – New transportation investments should correlate closely with economic development, services and new jobs.

- Transportation spending for new roads should relate to new jobs and economic development.
- New development should try to locate where existing transportation systems exist.

Efforts should be taken to have cross-Division discussions when transportation investment is required. When new facilities such as schools, event centers, agency buildings, hospitals, shopping centers, industrial parks, airports, etc... are developed, these developments typically require a supporting transportation system to provide meaningful and safe access. In many cases, improvements are necessary to facilitate the meaningful and safe access to the new development. Understanding these costs, including continued maintenance costs, will promote sustainable economic development opportunities that have positive impact to all agencies, Divisions and communities involved.

Goal fact sheets are included in Appendix N.





3.0 SOCIOECONOMIC, DEMOGRAPHIC & LAND USE DATA

3.1 SOCIOECONOMIC PROFILE

The purpose of analyzing the socioeconomic profile of Navajo Nation is to develop a better understanding of the past, present and future conditions of the community. This section includes a summary of data collected from the U.S. Census Bureau American Community Survey (ACS) detailing the most recent data sets from 2019. Areas analyzed include population, households and families, education, labor force and employment, income, age cohorts, poverty, and how people travel to work. Showcasing these ACS factors helps to provide a comprehensive planning framework for growth cities and destinations, accessibility, tourism, and an overall cohesive transportation network.

3.1.1 POPULATION

According to the 2019 Census, the "Navajo Nation Reservation and Off-Reservation Trust Land, AZ, NM, and UT" data survey showed that the total population was 175,108. In 2019, the population increased to 184,015, which is a 5.08% change since 2016.

3.1.2 HOUSEHOLDS & FAMILIES

In 2019 there were 52,105 households on the Navajo Nation Reservation and Off-Reservation Trust Land. Nearly 31% of the households contained 4 or more people according to ACS data.

3.1.3 EDUCATION

In 2019, 12.9% of the population age 25 and over had no diploma, while 35.1% of Navajo Nation were high school graduates (with a diploma). 25.8% of the population had some college experience (without a degree), and 16.5% of people had an associate degree or higher.

3.1.4 LABOR FORCE & EMPLOYMENT

In 2019, 43.4% of the people 16 years of age and over were in the labor force. The unemployment rate in Navajo Nation was 12.8%, which is higher than both the national average (3.5%) and Arizona's average (4.8)

3.1.5 INCOME

In 2019, the Navajo Nation and Off-Reservation Trust Land's median household income was \$29,226; this is less than half of the 2019 U.S. household median income of \$68,703.

3.1.6 POVERTY

In 2019, 63,239 people, or 34.5% of the population (for whom poverty status is determined) in Navajo Nation lived at or below the poverty level.

3.1.7 TRAVEL TO WORK

Of the 51,937 employed individuals over 16 years of age, 43,411 (84%) drove alone to work, 3,668 (7%) carpooled, 351 (0.7%) used public transportation, 1,404 (2.7%) walked and 22 (less than .01%) bicycled.

3.1.8 AGE COHORTS

A population pyramid is a useful way to visualize age cohorts by gender. Figure 3-1 illustrates the age cohorts in relation to sex for Navajo Nation for year 2019.

In 2019, the largest cohorts were persons considered "Generation Z" ages 6 to 24 (30.9%) with a statistically slight majority of females; of this population of youth, the largest percentage of population falls between the ages of 10 and 14 years old. As the cohort groups increase in age the representative

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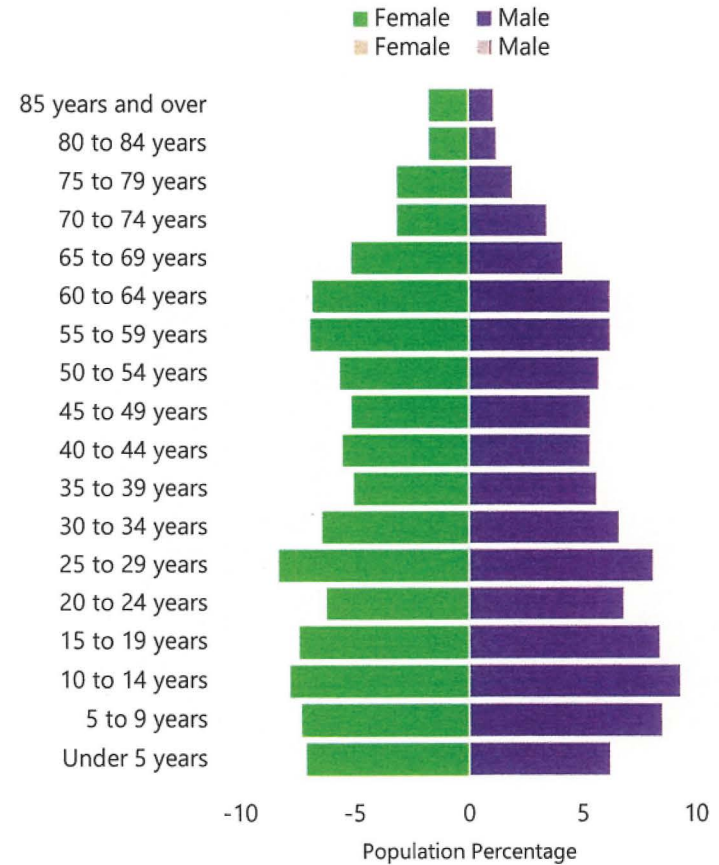
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percentage of the population decreases. As the cohort age passes 75 years old the reflective percentage decreased significantly, accounting for only 10% of the population.

Figure 3-1| Year 2019 Population Pyramid

Population Pyramid of Navajo Nation Reservation in 2019



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3.1.9 FUTURE POPULATION

In the 2009 Navajo Nation Long Range Transportation Plan, the future population was projected at an annual increase of 1.82% which would place the 2010 total population of the reservation at 216,131. According to the 2010 Census, the total population of the Navajo Nation Reservation was 173,667, which is 42,464 less than the projected population.

In working with the Navajo Nation Division of Community Development, that agency has identified that current population projections are not available due to contested issues with the 2010 Census.

3.2 LAND USE PATTERN

In order to understand the land use pattern of much of the Navajo Nation, the 2016 LRTP focused on the Primary and Secondary Growth Centers within Navajo Nation. The study of these growth centers identified the major road network, rivers or streams, and topography. Furthermore, we determined locations of landmarks within the growth centers and where civic/institutional and recreation activity nodes occur. This information is essential when planning for the future of Navajo Nation and accommodating predicted transportation needs.

Navajo Nation Chapters are each required to develop a CLUP. Historically, the CLUP has had minimal information relating to transportation related needs. Navajo DOT is now looking to use the CLUP for criteria for future project selection to make sure the applications for a project are consistent with local planning efforts. To achieve this, Navajo DOT is recommending that the following topics be included in future CLUP updates:

- Identify the highest priority dirt roads that should be bladed/graded (15-mile lists) and potentially upgraded to gravel, chip seal or pavement in the future (Take Care of the System).
- Describe any paved or gravel roads that need additional maintenance (Take Care of the System).
- Describe any sidewalks (if there are any) that need additional maintenance (Take Care of the System)

- Describe any proposed new roads or sidewalks that should be examined as part of future improvement projects (Create Connections).
 - If a new road is proposed, why does this road create a new connection? Why is it important to your community? Will this change an existing circulation pattern? Will this improve or affect safety?
 - If a new sidewalk is proposed, what facilities/activity centers are being connected?
- Describe any proposed enhancements for transit (Provide Options).
- Describe any proposed enhancements for walking and bicycling (Provide Options).
- Describe any proposed enhancements to access other transportation systems such as Greyhound and Amtrak (Provide Options).
- Describe any proposed airport / aviation enhancements (Provide Options).
- Describe how any proposed transportation enhancements will promote economic development identified in the CLUP-C Plan (Promote Economic Development).
- Describe any roads that you believe have motorist, bicycle and/or pedestrian safety issues (Enhance Safety).
- Describe how proposed developments in the CLUP-C Plan would require spending money on roads and sidewalks to connect to the new development (Maximize Transportation Investment Effectiveness).
 - Describe how proposed developments could be developed without additional spending on roads and sidewalks (is the development a smart investment for the community? Can the development go somewhere else? If the development needs a paved or graveled road for access, is the road providing access already paved or graveled?).
 - Describe if the proposed developments would increase truck traffic. Is the current road meant to carry heavy truck traffic?

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- Describe how proposed improvements would be paid for (Enhance Existing Partnerships and Create New Partnerships).
 - Did you receive a funding grant?
 - Who will have maintenance responsibility of this? Have they been involved in these discussions?
 - Does the new improvement involve a State Highway? Have the DOT been involved in these discussions?

3.2.1 GROWTH CENTERS

Primary Growth Centers include Chinle, Crownpoint, Fort Defiance, Kayenta, Shiprock, Tuba City, and Window Rock. Secondary Growth Centers include Alamo, Dilkon, Ganado, Leupp, Many Farms, Nahata Dziil, Navajo, Pinon, Shonto, Tohajiilee, Tohatchi, and Tsaile Wheatfields. Figure 3-3 illustrates the Primary and Secondary Growth Centers including identifying landmarks and activity nodes.



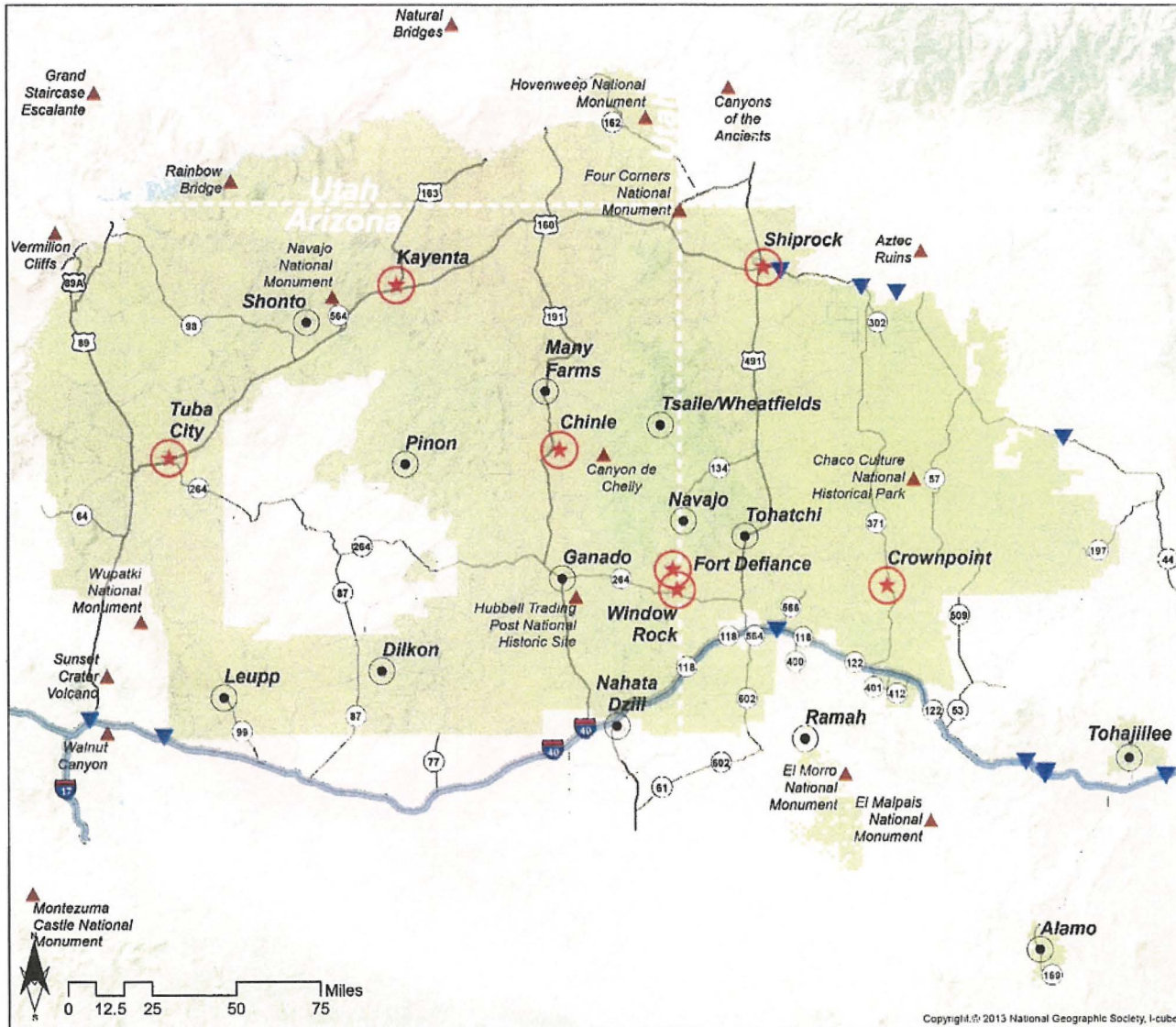
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Figure 3-1| Growth Centers and Destinations



Navajo Nation

Destinations

Growth Center

- ★ Primary
- Secondary
- ▲ National Monument
- ▼ Casino and other destinations

Road Hierarchy

- Interstate
- US Highway
- State Highway
- BIA Routes



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3.3 PARKS, OPEN SPACE, & RECREATION

3.3.1 SCENIC BYWAYS & TOURIST DESTINATIONS

Figure 3-2 maps the numerous scenic byways that exist in Arizona, New Mexico and Utah. Numerous state byways pass through Navajo Nation. Federal scenic byways and All-American Roads that pass through Navajo Nation include:

- Trail of the Ancients;
- Jemez Mountain; and
- Historic Route 66.

3.3.2 NATIONAL MONUMENTS & RECREATION AREAS

NATIONAL MONUMENTS

In total there are 18 national monuments that are located within or near Navajo Nation; however, only eight of which sit directly within the Navajo Nation boundary. These eight national monuments include:

- Navajo National Monument (AZ);
- Canyon de Chelly (AZ);
- Hubbell Trading Post National Historic Site (AZ);
- Hovenweep National Monument (UT);
- Rainbow Bridge National Monument (UT);
- Chaco Culture National Historical Park (NM);
- El Morro National Monument (NM); and
- Four Corners National Monument (NM)

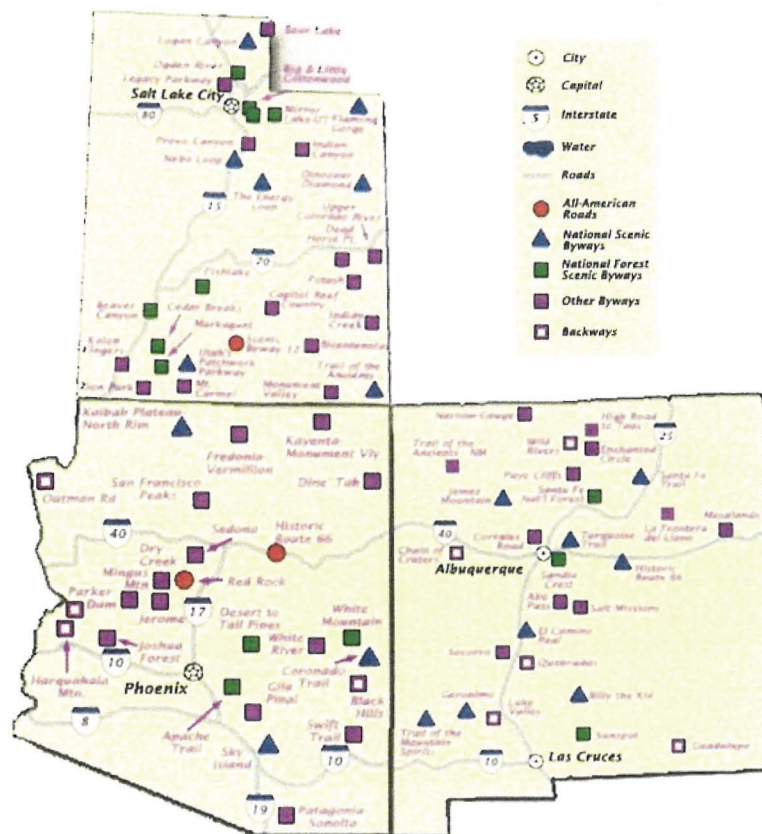
Figure 3-3 maps the locations of the National Monuments in or near Navajo Nation.

RECREATION AREAS

To determine the large recreation areas within or near Navajo Nation, surface management data was examined to identify which federal government entity oversees what pieces of land. The majority of Navajo Nation is classified

under the Bureau of Indian Affairs (BIA); however, two large pieces of land are listed under the National Park Service. These locations are the Canyon de Chelly in Arizona and the Chaco Culture National Historical Park in New Mexico. Areas outside of the Navajo Nation are managed by several entities including the Army, BIA, Bureau of Land Management (BLM), Bureau of Reclamation, U.S. Forest Service, U.S. Fish and Wildlife Service, National Park Service, state governments, local governments and private entities.

Figure 3-2| Scenic Byways



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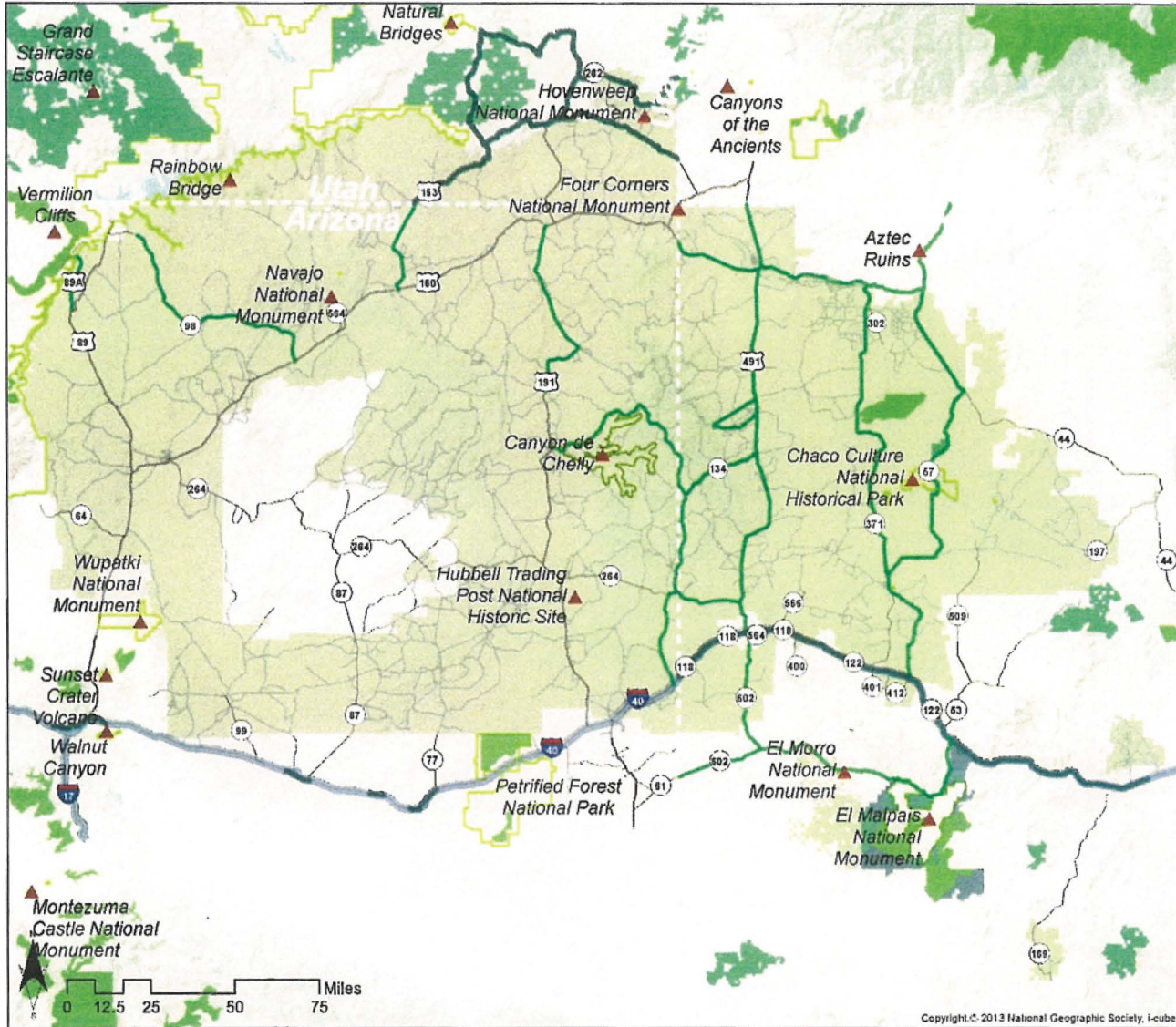
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Figure 3-3| Parks, Open Space & Recreation



Navajo Nation

Parks, Open Space, & Recreation

- National Monument
- Federal Scenic Byway
- State Scenic Byway
- National Conservation Area
- Wilderness
- Wilderness Study Area
- US Highway
- State Highway

Road Hierarchy

- Interstate

National Park Service Boundaries

- Legislated
- Legacy
- BIA Route





4.0 ENVIRONMENTAL OVERVIEW

As our transportation systems continue to grow and expand, our communities continue to experience issues of the built environment conflicting with that of the natural environment and our cultural resources. Through the various offices of State and Federal agencies, including the various DOTs, numerous studies and other efforts have helped to ensure an awareness and consideration for our environmental and cultural resources. The environmental overview section is divided into three categories as follows:

1. Physical Conditions;
2. Natural Resources;
3. Cultural Resources; and
4. Conflicts.

4.1 PHYSICAL CONDITIONS

An analysis of physical conditions provides details on the limitations of the natural environment and the potential impacts caused in development.

4.1.1 TOPOGRAPHY

Much of Navajo Nation is located in the high desert regions of Arizona, New Mexico and Utah. The terrain varies with steep canyons, high mountains and extensive natural features, therefore the Navajo Nation experiences a range of elevations. Winter weather in high elevations and dust storms during summer months can potentially affect transportation construction, maintenance schedules, materials, safety measures, and overall costs. Figure 4-1 illustrates some of the physical relief features of the region. Topography is an important consideration as transportation facilities are improved and planned.

4.2 NATURAL RESOURCES

A natural resources overview was conducted to understand the potential for wildlife, water resources, and wetlands in the potential area of impact. As

areas continue to develop, impacts to natural resources should be avoided or minimized. However, there may be instances where other alternatives may not exist; in which case, minimizing or mitigating impacts may be the necessary course of action. This natural resources analysis identifies potential impacts which can be used in refining a project development process. Navajo Nation Environmental Protection Agency has established processes for environmental review for both Navajo Nation and federal based regulations.

4.3 CONFLICTS

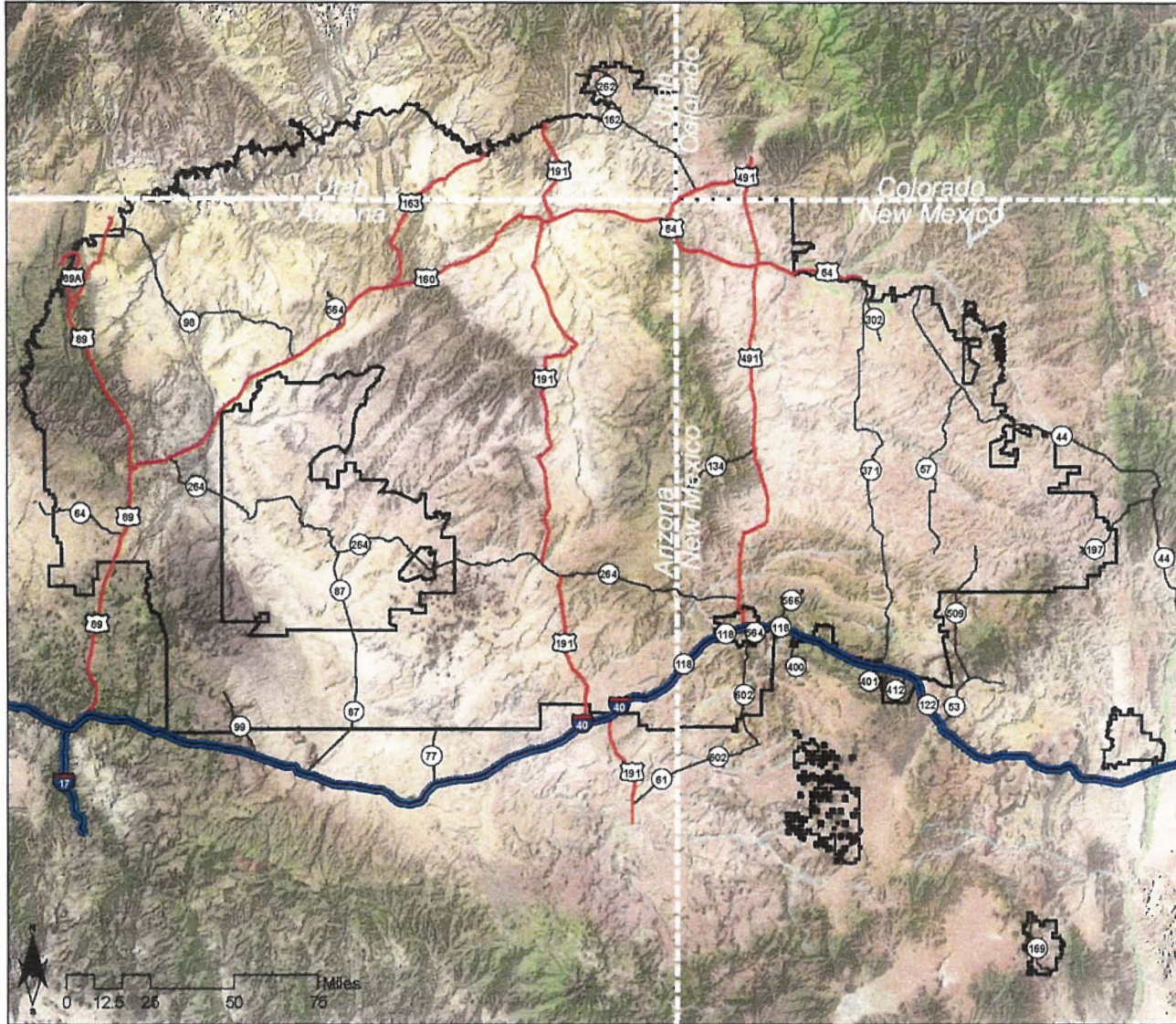
National Environmental Policy Act (NEPA), signed into law in 1970, established the environmental protection policy. NEPA requires that all Federal agencies consider the environmental consequences of their proposals, document the analysis, and make this information readily available to the public prior to implementation. Similarly, the Federal Highway Administration (FHWA) desires to avoid transportation projects with large social and natural environment impacts and has partnered with NEPA to create the FHWA NEPA project development process. This process takes into consideration the potential impacts on both the human and natural environment, as well as the public's need for safe and efficient transportation. Maintaining a balance between growth and preservation is crucial to the sustainability of Navajo Nation.

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Figure 4-1| Region Topography



Navajo Nation

Topography

Navajo Nation Boundary

Road Hierarchy

Interstate

US Highway

State Highway

Approximate Elevation (meters)

- 4100-4400
- 3800-4100
- 3500-3800
- 3200-3500
- 2900-3200
- 2600-2900
- 2300-2600
- 2000-2300
- 1700-2000
- 1400-1700
- 1100-1400
- 900-1100
- 600-900
- <600





5.0 EXISTING TRANSPORTATION SYSTEM

The Navajo roadway network consists of 16,317 miles of roads; of these, 5,194 miles are BIA roads, 881 miles are state routes, 816 miles are county routes, and 9,426 miles are Tribal routes. Only 14% of the total roadway network is paved. Table 5-1 summarizes the roadway ownership responsibilities.

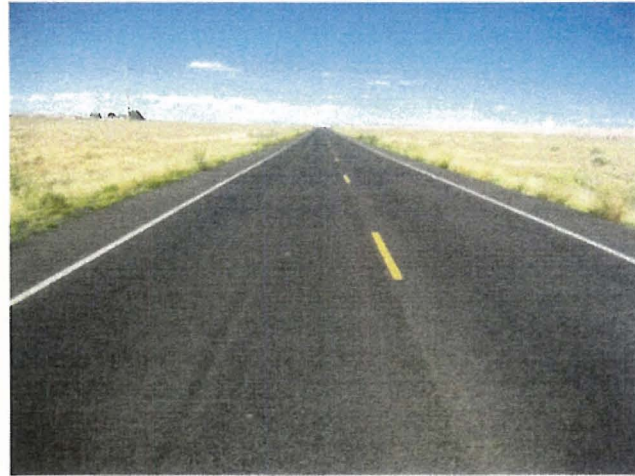
Table 5-1| Road Ownership by Mileage

Ownership Entity	Miles of Road	% of System
BIA	5,194	31.8
Tribal	9,426	57.8
State	881	5.4
County	816	5.0
TOTAL	16,317	100

Source: 2020 Official NTTFI Dataset

State DOTs, counties, BIA and Navajo DOT are the primary highway programs to fund and oversee construction and maintenance of the road network.

The roadway infrastructure maintains a hierarchy of functional classifications that relate to the level of regional or local significance the roadway plays. Principal and minor arterials serve a primary function of moving traffic and commerce. These routes should be all-weather Roadways as they have the greatest demands of the system. Major and minor collectors serve a primary function of connecting communities to the arterials for regional mobility. These routes are typically paved or gravel, and some that are lower volume are dirt. Local roads primarily serve local mobility needs and are generally dirt. Furthermore, the connection between road classifications and funding opportunities is important. Different road types are eligible for various funding opportunities (see funding opportunities table). The functional classifications are mapped in Figure 5-1, however they are revisited periodically so the coding in the National Tribal Transportation Facility Inventory (NTTFI) database is the official classification.

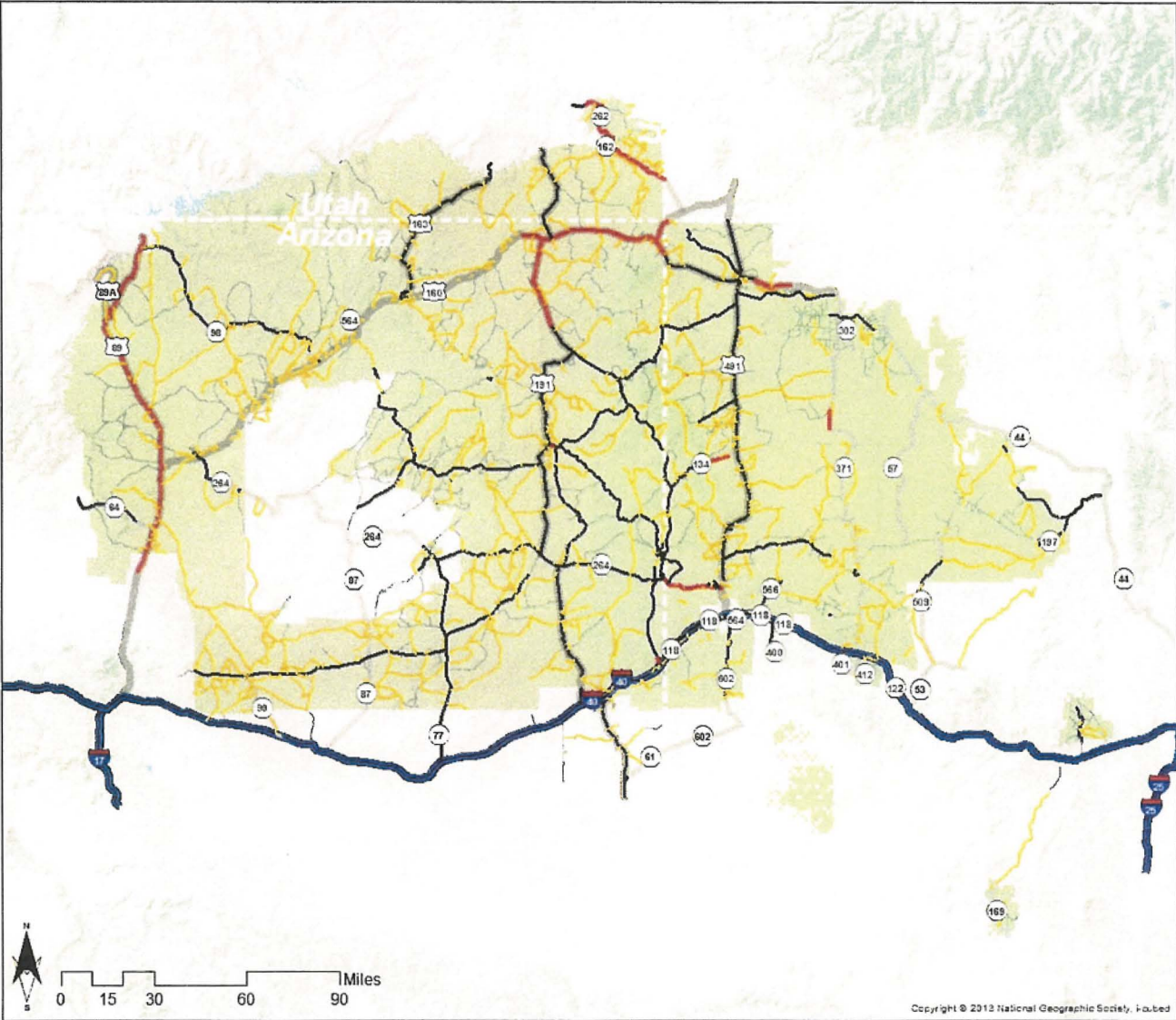


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Figure 5-1| Road Functional Classification



Navajo Nation

Road Hierarchy

- Interstate
- US Highway
- State Highway
- BIA Routes

FHWA Functional Class

- Principal Arterial
- Minor Arterial
- Minor Collector



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5.1 ROADWAY INFRASTRUCTURE

The NTTFI system were compiled using the street classification system the BIA created to identify types of roads. The classes include:

- **Class 1-** Major Arterial: Serves traffic between large population centers and maintain an average daily traffic volume of 10,000 vehicles per day or more with more than two lanes of traffic.
- **Class 2-** Rural Minor Arterial: Provide a connection to smaller towns and communities and generally allow high overall traffic speeds with minimum interference to through traffic movement. Facilitates less than 10,000 vehicles per day.
- **Class 3-** City Local: Streets serving residential areas.
- **Class 4-** Rural Major Collector: Serves as a collector to rural local roads.
- **Class 5-** Rural Local: May serve areas around villages, farming areas, schools, attractions, or various small enterprises.
- **Class 6-** City Minor Arterial: Located within communities and serve as access to major arterials.
- **Class 7-** City Collector: Located within communities and serve as collectors to the city local streets.
- **Class 8-** This class encompasses all non-road projects such as paths, trails, walkways, or other designated types of routes for public use by foot traffic, bicycles, trail bikes, snowmobiles, all terrain vehicles, or other uses to provide for the general access of non-vehicular traffic.

These eight Class Codes were used to generate an inventory of the roads within Navajo Nation. Appendix A calculates the lane mileage of each class of road. In general, there is a direct correlation between funding levels, travel demand, surface type, and functional classification. Navajo DOT is currently working through transitioning the BIA route classifications to using the FHWA Highway Performance Management System (HPMS) functional classifications; however, Navajo DOT is complying with the BIA class codes.

ROADS

Roads within Navajo Nation are owned either by the BIA, the Tribe, the County, or the State. This section summarizes the road miles owned by each entity, associated roadway classifications, and the surface type.

BIA OPERATED ROADS

Within Navajo Nation, the BIA is responsible for 5,194 miles of roads for all road classes. The total miles of BIA operated roads by Agency and by class is listed in Table 5-2 for class codes 1 through 8.

Table 5-2| BIA Operated Roads by Class Code

	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Total
Chinle	1.0	222.4	0.7	326.1	51.8	0.0	0.0	0.0	602
Crownpoint	0.0	24.2	6.5	241.2	222.5	2.4	0.0	0.0	496.8
Ft. Defiance	2.0	199.7	0.0	716.3	172.6	0.2	0.0	0.0	1090.8
Shiprock	0.0	120.0	2.8	657.1	511.2	0.0	0.0	0.0	1291.1
Tuba City	0.0	61.4	9.3	742.8	595.6	2.7	1.2	0.0	1413
NIIP	0.0	13.4	0.0	31.5	6.6	0.0	0.0	0.0	51.5
New Lands	0.0	0.0	15.6	43.2	2.1	0.0	0.0	0.0	60.9
Total	3.0	641.1	34.9	2758.2	1562.4	5.3	1.2	0.0	5006.1

NAVAJO OPERATED ROADS

Tribal operated roads account for 9,426 miles of all roads within Navajo Nation (Table 5-3). The Tribe owned roads within Navajo Nation are classified and categorized the same as the BIA owned roads. The vast majority of Tribe operated roads consist of unimproved dirt surfaces.

Table 5-3| Tribal Operated Roads by Class Code

	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Total
Chinle	0.0	0.0	2.3	179.3	926.5	2.0	2.7	0.0	1112.8



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Crownpoint	0.0	5.1	5.9	127.1	1101.4	0.4	2.4	0.0	1242.3
Ft. Defiance	0.0	0.0	10.7	98.4	2341.3	10.2	9.2	4.5	2474.3
Shiprock	0.0	0.0	10.8	56.7	2192.7	1.5	0.0	0.0	2261.7
Tuba City	0.0	0.0	3.9	505.7	1374.8	7.4	3.8	0.0	1895.6
NIIP	0.0	13.4	0.0	31.5	6.6	0.0	0.0	0.0	51.5
New Lands	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
Total	0	18.5	33.8	998.7	7943.3	21.5	18.1	4.5	9038.4

STATE OPERATED ROADS

The state facilities use the FHWA HPMS functional classifications. The majority of State operated roads fall in the principal arterial, minor arterial, major collector and minor collector functional classifications, and primarily provide connectivity between the populated areas, various attractions, and the interstate system.

COUNTY OPERATED ROADS

There are several County operated and maintained roadways servicing populations, industry and businesses within Navajo Nation. Agreements are in place relating to maintenance of those roadways. Agreements exist between the County and BIA when the county is maintaining the roadways.

5.2 BRIDGES

The Tribal Transportation Program (TTP) bridge system includes all bridges on public roads, or providing access to, Navajo Nation lands. When including bridges on state managed roads and highways there are a total of 720 bridges as part of the National Bridge Inventory bridge system within Navajo Nation. This summary is concerned with only the 182 bridges that are owned and maintained by the BIA on BIA and Tribal roadways. The other 538 bridges are County and State DOT bridges that are important to Navajo DOT, but not necessarily in the NTTFI inventory. Historically, a partnership between Navajo DOT and these organizations have taken place.

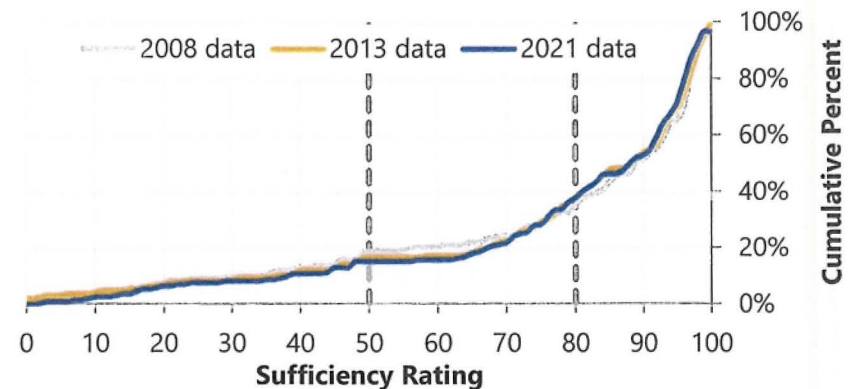
BRIDGE CONDITIONS

Bridge conditions on the tribal bridge system are inspected every two years. As part of the inspection, a condition rating between zero and 100 is calculated for each bridge. To be eligible for rehabilitation, a bridge must be deficient and have a condition sufficiency rating of 80 or less. A functionally or structurally deficient bridge is eligible for replacement when the sufficiency rating is 50 or less. Figure 5-2 illustrates the sufficiency rating for 2008, 2013, and 2021 bridges in the Navajo Nation that are owned and maintained by the BIA.

2008, 2013, AND 2021 CONDITIONS COMPARISON

Figure 5-2 shows the bridge condition sufficiency rating cumulative distribution of all BIA bridges with 2008 data, 2013 data, and 2021 data. The recent data shows nearly 39 percent of bridges are eligible for rehabilitation or replacement. This is slightly more than the number of deficient bridges from years previous, indicating that maintenance has been just short of keeping pace with bridge deterioration.

Figure 5-2| Cumulative Distribution of BIA Bridge Sufficiency Rating from 2008, 2013, and 2021 Data



SIDEWALK WIDTHS ON BRIDGES

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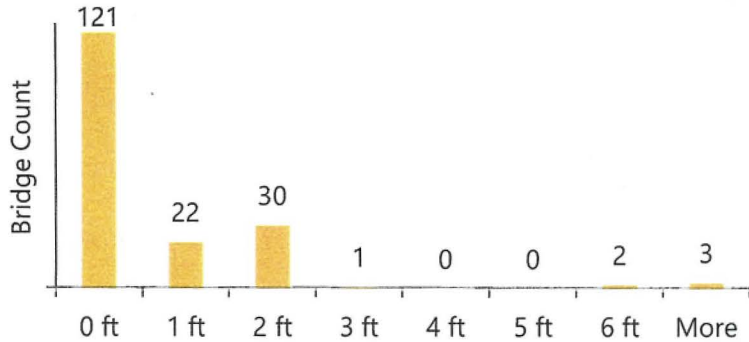
Curb or sidewalk width is an important characteristic of bridges that, though not factored in an overall bridge condition sufficiency rating, is important in affecting mobility and safety of pedestrians and other non-motorized road users. Approximately 40% of the population lives at or below poverty levels, and strongly linked to that, almost 6% of the working population either bicycle or walk to work. Figure 5-3 shows nearly all bridges with shoulders are inadequate for pedestrian and other traffic combined.

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Figure 5-3| 2013 Curb or Sidewalk Width on Either Side of Bridge



The NTS operates on weekdays between 5:00 AM and 7:00 PM (MST). Communities and Chapters located between the established origin and final destination have access to transit services. Table 5-4 lists the current NTS routes and Figure 5-4 illustrates the routes and Chapters served by transit. Table 5-4 and Table 5-5 list the current and future NTS routes as identified on the NTS website.

5.3 TRANSIT

PUBLIC TRANSIT SERVICE

Within Navajo Nation the Navajo Transit System (NTS) provides service to many of the Chapter communities. Navajo Transit is operated from funds from Administration, Operating and Capital funding under the Section 5311 Rural Public Transportation Program from Arizona, New Mexico and Utah Department of Transportation, Federal Transit Administration (FTA) and the Navajo Nation. They are operated under the direction of the Division of General Services, within Navajo Nation’s government structure. This has resulted in reduced coordination with other Divisions, such as the Division of Transportation. In 2021 (Federal Fiscal Year 2022), it is anticipated that the Navajo Transit System will be transferred under the Division of Transportation. According to the NTS website, the NTS receives Administration, Operating, and Capital funding under the Section 5311 Rural Public Transportation Program from Arizona, New Mexico and Utah Department of Transportation, the Federal Transit Administration (FTA) and the Navajo Nation.

NAVAJO TRANSIT SYSTEM

Navajo Nation operates an independent transit system (NTS), which is run under General Services.

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Table 5-4 | Current NTS Routes

Route Number	Origin & Destination
Route 01:	Tuba City, AZ to Ft.Defiance, AZ and return
Route 02:	Steamboat, AZ to Ft. Defiance, AZ and return*
Route 03:	Kayenta, AZ to Ft.Defiance, AZ and return
Route 04:	Crownpoint, NM to Ft.Defiance, AZ and return
Route 05:	Ft. Defiance, AZ to Gallup, NM and return
Route 06:	Crystal, NM to Gallup, NM and return
Route 07-A:	Newcomb, NM to Farmington, NM and Ft.Defiance, AZ and return
Route 07-B:	Newcomb, NM to Shicprock, NM and Farmington, NM and return
Route 08:	Chinle, AZ to Ganado, AZ and Tsaile, AZ and return
Route 09:	Dilkon, AZ to Ft. Defiance, AZ and return
Route 11:	Flagstaff, AZ and Tuba City, AZ and return
Route 12:	Kayenta, AZ to Tuba City, AZ and return
Route 13:	Ft.Defiance, AZ to Crownpoint, NM and Gallup, NM and return
Route 14:	Shiprock, NM to Ft.Defiance, AZ and return
Route 15:	Sanders, AZ to Window Rock, AZ and return
Route 16:	Aneth, UT to Bluff, UT and Blanding, UT and return*
Route 17:	Monument Valley, UT to Bluff, UT and Blanding, UT and return*
Route 18:	Torreon, NM to Cuba, NM and Farmington, NM and return*

*Undefinable time on when services will resume.

Table 5-5 | Future NTS Routes

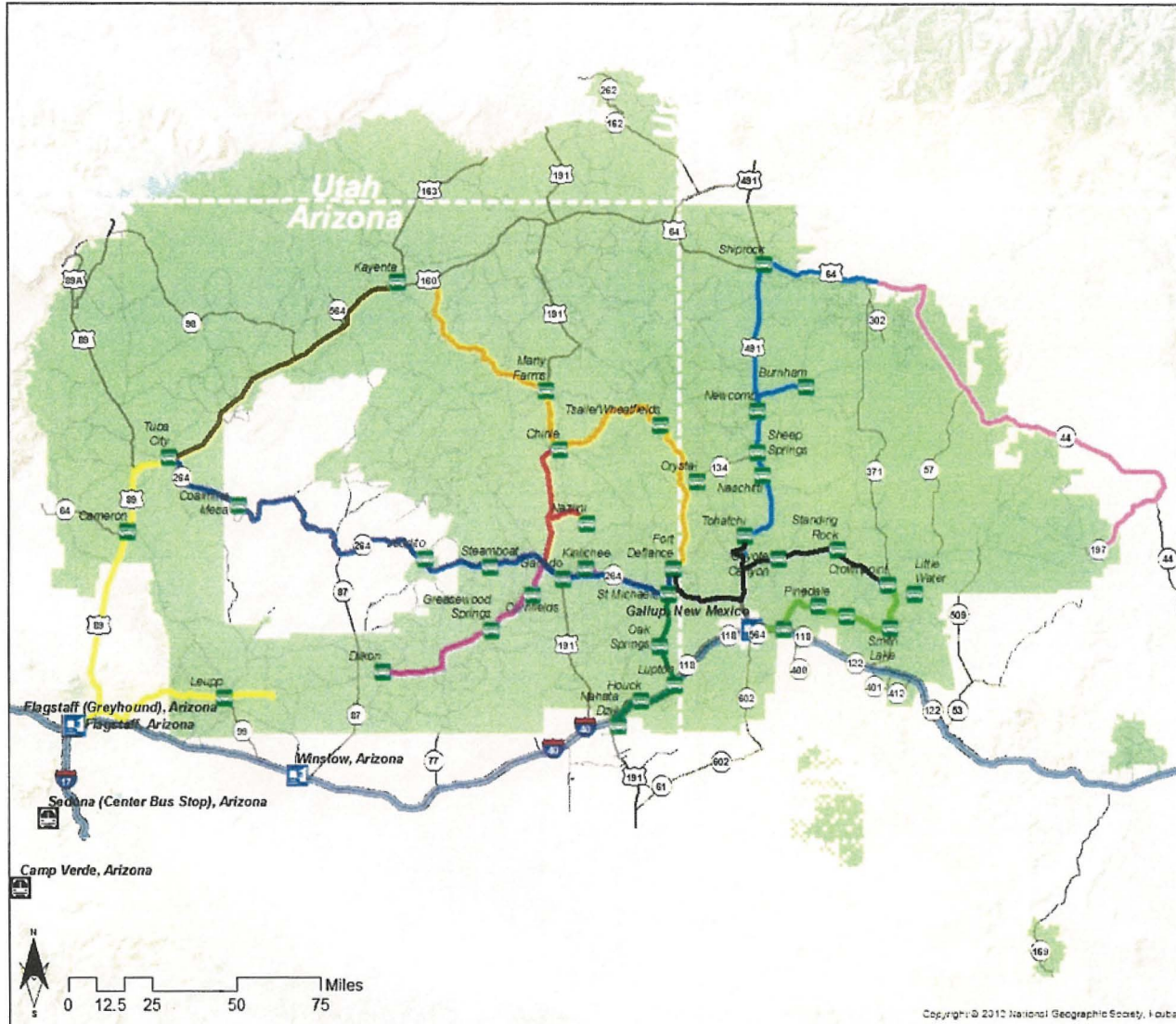
Route Number	Origin & Destination
Route 19:	Forest Lake, AZ to Pinon, AZ and Chinle, AZ and return
Route 20:	Ramah, NM to Gallup, NM and Ft.Defiance, AZ and return

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Figure 5-4| Current NTS Routes



Navajo Nation

Transit

- Chapters Served by Transit
- Greyhound/ Bus Station
- Amtrak/ Passenger Rail Station

Navajo Transit Routes

- Route 1 and 2
- Route 3
- Route 4
- Route 5 and 6
- Route 7 and 14
- Route 8
- Route 9
- Route 11
- Route 12
- Route 13
- Route 15
- Route 18
- BIA Routes



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STATE TRANSIT PLANNING

In 2008 Arizona Department of Transportation (ADOT) completed a Rural Transit Needs Study which identified a need for intercity bus service between Page, Kayenta, Tuba City and Flagstaff. This plan identified these areas as top candidates for new intercity Section 5311 program service. Figure 5-5 illustrates the potential routes identified as proposed service lines from that study. To date, the Tuba City to Page connection is the only route that does not currently have service.

Additionally, the previous 2016 LRTP identified supporting policies and practices including recommended roles, responsibilities and next steps for implementing transit service. The following were identified recommendations for local and tribal governments:

- **Support.** Generate support for rural transit among local residents;
- **Monitor demographics.** Actively monitor demographic changes in jurisdiction that may impact existing or new services;
- **Service coordination.** Identify public transportation services within city/town or Tribal Reservation that promote the efficiency of general public, elderly, and disabled service by supporting the streamlining and coordination of existing public transportation programs; and
- **Planning.** Ensure proper planning and development of operations is provided to meet the needs of the city/town or Tribal Reservation.
- **State and COGs.** The State and COGs should work closely with local and Tribal governments and social service agencies to pool funding resources by region, encourage efficiency, improve service coordination, and consolidate services, if applicable.

The 2016 LRTP also identified Navajo Nation as a top candidate for expanded Section 5311 program service. Expanded 5311 program services were identified for NTS (in Apache, Coconino, and Navajo Counties, as well as portions of New Mexico and Utah).

In 2010 New Mexico Department of Transportation (NMDOT) completed the New Mexico Statewide Public Transportation Plan. This plan provides an overview of both the existing transit system and the need for expanded or improved service.

Figure 5-5| ADOT, Top Candidates for New Intercity Section 5311 Program Service



Source | AZDOT and Cambridge Systematics, Inc.

Utah Department of Transportation's (UDOT) plans and studies do not address transit service within Navajo Nation.

5.4 BICYCLE & PEDESTRIAN FACILITIES

An assessment of proposed bicycle and pedestrian facilities in State plans is important in identifying where the State DOTs can become key partners in implementing these improvements.

BICYCLE FACILITIES

Several highways are identified as bicycle routes in State bicycle plans. In Arizona segments of US-89 and US-160 are identified as bicycle routes. In New Mexico segments of US-64 and US-491 are identified as bicycle routes. Provided in Table 5-6 are summary notes on these routes from the State

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plans. Using only BIA and Tribal Routes Figure 5-6 identifies in green all routes with roadway shoulders greater than 4', indicating a potential network of bike shoulder facilities. In the same way, Figure 5-7 illustrates the surface conditions of all roadway shoulders that are greater than 4'. Improved roadway shoulders on both state and county routes is desired, creating an opportunity for partnerships.

Table 5-6| Identified State Bicycle Routes

State	Highway	Area	From	To	Comments
Arizona	US-160	Tonalea to Tuba City	MP 329+0.76	BIA 021	Effective shoulder width is less than 4 feet. Rumble strips present in some areas.
Arizona	US-160	Tuba City to US 89	US-89	MP 321+0.68	Effective shoulder width is less than 4 feet. Rumble strips present.
Arizona	US-89	Tuba City	MP 469.5	480 (US 160)	While some sections of this segment have been improved, there are still sections without shoulders; US 89 is part of US Bicycle Route System 79.
Arizona	US-89	Tuba City	MP 491.7	494.4	
Arizona	US-89	Tuba City	MP 505.4	512.5	
Arizona	US-89	Tuba City	MP 518	MP 521.2	
New Mexico	US-64	Gallup to CO Border	I-40	Colorado Border	Proposed Bicycle Route
New Mexico	US-491	Farmington to AZ Border	BIA 371	Arizona Border	Proposed Bicycle Route

PEDESTRIAN FACILITIES

Of the State long range transportation plans, only Arizona's plan specifically identified pedestrian facility improvements. Several highways and state routes are identified as sidewalk opportunities in the Arizona plan including a short segment of US-89 and SR-98 that are identified as sidewalk opportunities and were prioritized as a moderate need. Additional summarized details on these pedestrian facility improvements are listed in Table 5-7. The New Mexico state planned listed communities that actively participate in the Safe Routes to School Program. Of the communities within Navajo Nation, only the border communities of Gallup and Farmington were listed.

Table 5-7| Identified Pedestrian Facility Improvements

State	Highway	Area	Street Face	From	To	Sidewalk Need
Arizona	US-89	Page	Both	Industrial Rd.	Dam Access Rd.	Moderate
Arizona	SR -98	Page	Both	US-89 intersection	Coppermine Rd.	Moderate

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Pedestrians on Highway Shoulder



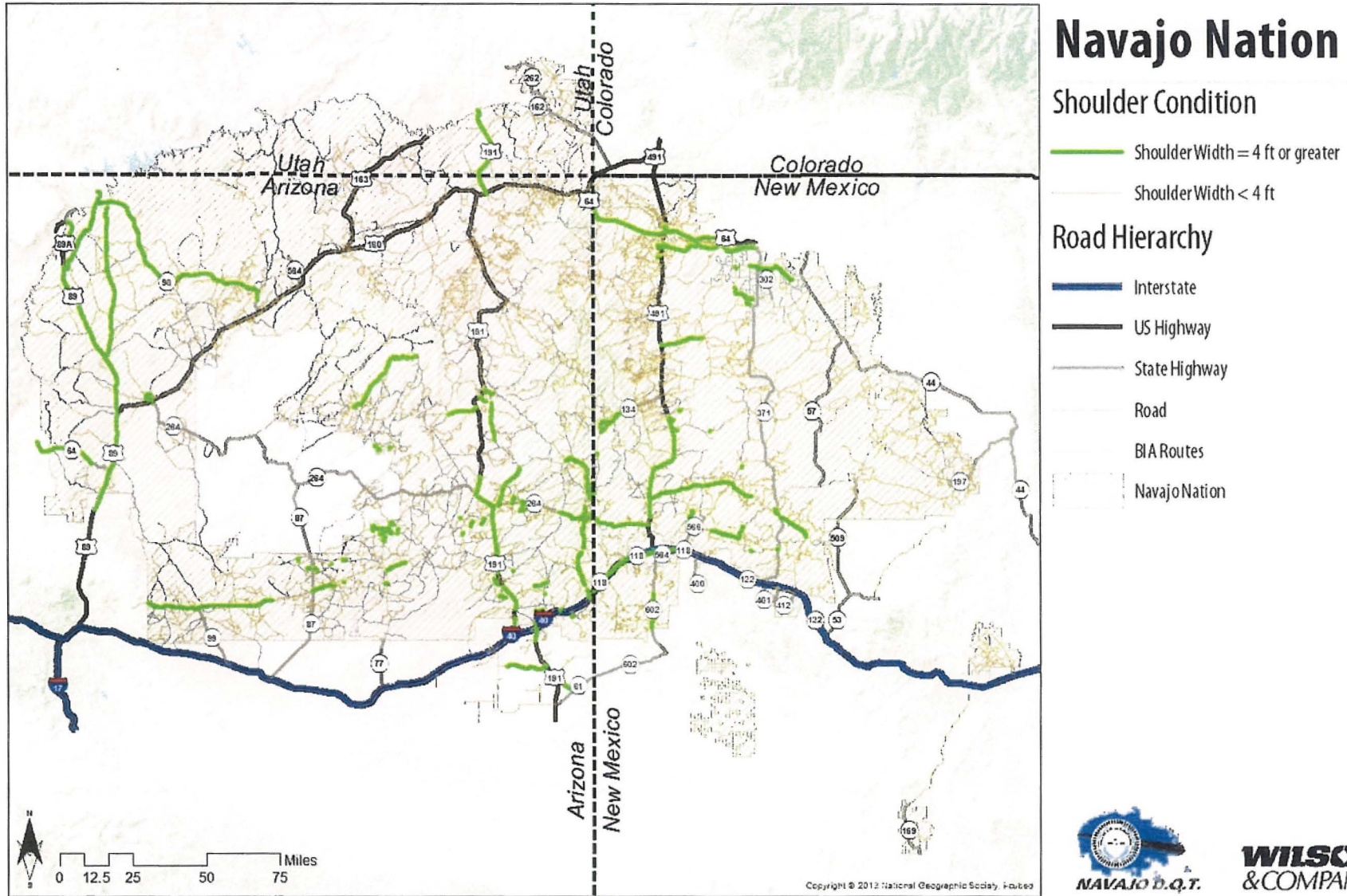
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Figure 5-6| Existing Road Shoulder Width



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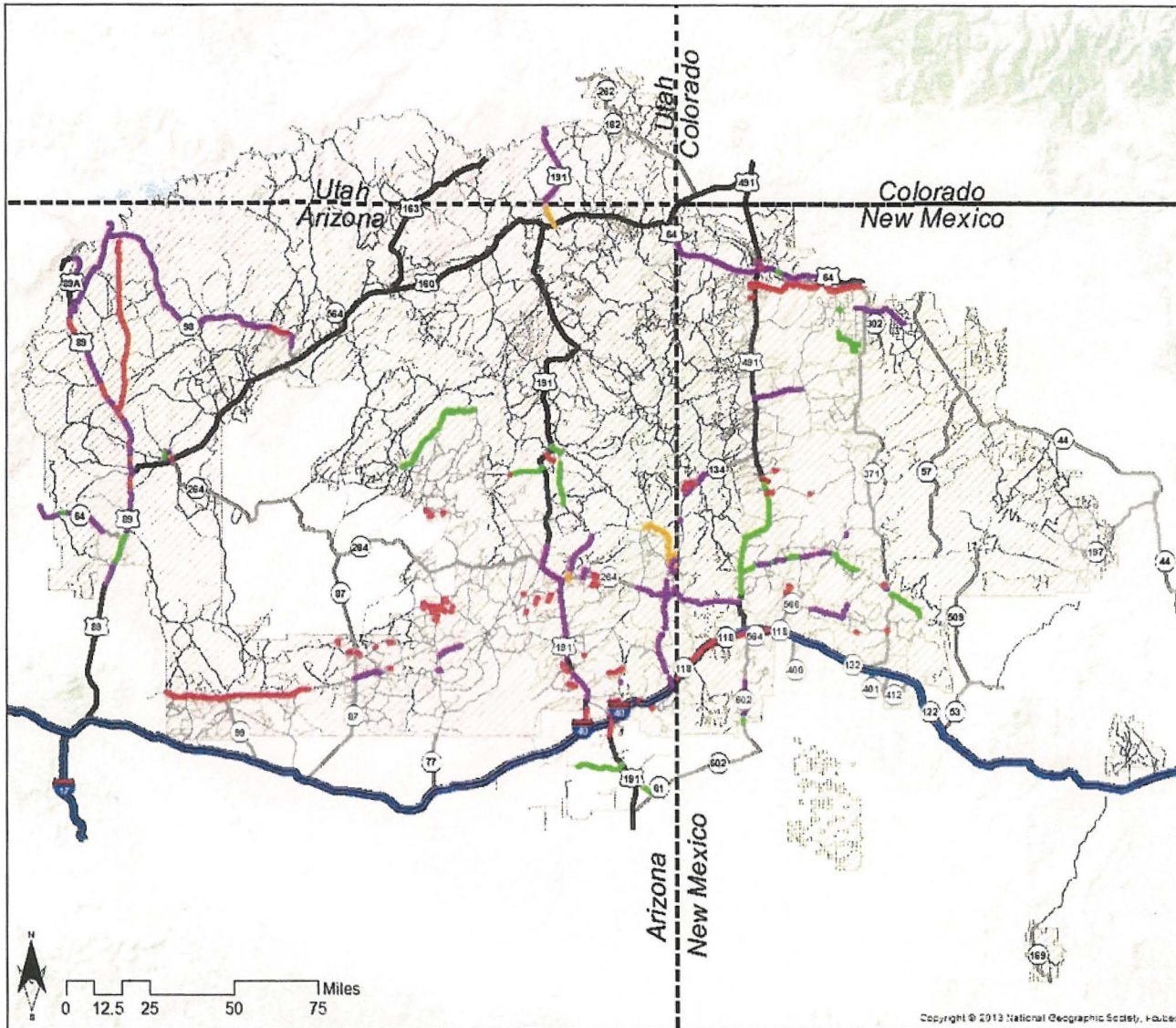


Figure 5-7| Ranking of Shoulder Width Condition



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Navajo Nation

Shoulder Condition

Shoulder Width = 4 ft or greater

- None
- Critical Condition
- Tolerable Condition
- Excellent Condition



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5.5 INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

Regions implementing ITS projects are required to develop a regional ITS architecture consistent with national guidelines and standards. While the states of Arizona and New Mexico have developed strategic ITS plans and defined the statewide framework and architecture for ITS on state managed facilities within Navajo Nation, a regional ITS architecture for the Nation has not been developed. A strategic ITS assessment needs to be conducted for the Navajo Nation to coordinate the efforts of various agencies and stakeholders on the Nation and incorporate existing and planned ITS into an architecture that is consistent and coordinated with state ITS. Coordination of ITS may require intergovernmental agreements with state DOTs and other agencies that are not currently in-place.

The Arizona strategic plan for early deployment of ITS on I-40 was completed in 1997. This activity included the deployment of Highway Condition Reporting System (HCRS), which provides continuous and up-to-date information on roadway and weather conditions to the users. Applications and technologies in the Arizona ITS plan on Navajo Nation lands include Advanced Traveler Information Systems (ATIS) through kiosks and 511 telephone system, Road Weather Information System (RWIS), closed-circuit television (CCTV) cameras, and 21 existing or planned variable-message signs (VMSs). The New Mexico strategic ITS plan has likewise defined a full array of ITS deployments that in-part have been implemented in Navajo Nation. In 2007, when the plan was last published, there were at least seven operational VMSs on state managed roads in the New Mexico portion of the Nation.

The Navajo Division of Transportation created a traffic management center (TMC) to support the emergency management department. The TMC functions as the key technical and institutional hub to bring together the various jurisdictions, modal interests, and service providers to focus on optimizing the performance of the entire surface transportation system. The TMC is located in the Navajo Division of Transportation building in Tse Bonito near the city of Window Rock and monitors at least two CCTV cameras and is equipped to monitor increased ITS infrastructure throughout Navajo Nation. ITS deployments in some parts of Navajo Nation include

portable DMS, signal preemption for tribal public safety vehicles, local and tribal police dispatch, and data communications for construction and maintenance coordination. Expanding use of ITS has also been considered to identify tourism opportunities on tribal lands.

5.6 SAFETY

Safety is an important factor to consider in transportation planning and engineering activities. In MAP-21, there is specific direction to reduce the number and rate of fatal and serious injury crashes. For Navajo Nation, as with many tribes, there are issues with tracking and reporting crashes on the system, which in turn, directly relates to the availability of federal and state funding to mitigate crashes.

5.6.1 NAVAJO NATION STRATEGIC HIGHWAY SAFETY PLAN (SHSP)

Navajo Nation and the Navajo DOT recently completed their Navajo Nation Strategic Highway Safety Plan (SHSP) in 2018 with the help of Wilson & Company. The goal of the SHSP is to establish and understand the existing roadway safety conditions, which provides necessary insights for Navajo Nation in the years to come and ultimately gives guidance on mitigating safety performance measures. The study analyzed crash trends over the entire Navajo Nation, an area over 27,000 square miles and identified stakeholder strategies, emphasis areas, and critical focus areas.

The full SHSP can be located in Appendix L of this plan.

4 E'S OF HIGHWAY SAFETY

The four E's of safety define the broad stakeholders who care about safety and are responsible for making roads safe for all users. These stakeholders provide perspective to the SHSP and include the following:

- **ENGINEERING** – What can be done *physically* to make the road safer?

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- **EDUCATION** – What can be *taught* to encourage good driving behavior?
- **ENFORCEMENT** – What laws can *enforce* poor driving behavior?
- **EMERGENCY MEDICAL SERVICES** – What can be done to *improve* emergency response times and connections to hospitals?

STATE EMPHASIS AREAS

Safety funding for Navajo Nation can be received through direct grand source and state safety programs from Arizona, New Mexico, and Utah.

Some important differences exist between safety emphasis areas and strategies outlined in individual state SHSP plans that will impact how safety funding can be obtained. Table 5-8 identifies emphasis areas that are designated in the state SHSP's for Arizona, New Mexico, and Utah. Many of the categories are common between all three states.

The top three priorities amongst all three state safety plans include:

1. Speeding/ Aggressive driving
2. Impaired driving
3. Distracted driving.
4. Distracted driving.

Understanding these emphasis areas allows agencies within their respective states to pursue Highway Safety Improvement Program (HSIP) funding which is used to help implement the strategies outlined in the SHSP. Since each state has different SHSP emphasis areas, it is also important to understand where the various transportation safety funding programs can be used, with engineering, education, enforcement, and emergency service provider improvements to improve roadway safety conditions.

Table 5-8| Arizona, New Mexico, and Utah State Emphasis Areas

State Emphasis Areas			
	Arizona	New Mexico	Utah
Speeding/Aggressive Driving	X	X	X
Impaired Driving	X	X	X
Distracted Driving	X	X	X
Intersection Crashes		X	X
Motorcycles	X		X
Lane Departure Crashes		X	X
Occupant Protection (Restraints)	X	X	X
Nonmotorized Users (Bike/Ped)	X		X
Public Info/Education		X	X
Age Related	X	X	X
Traffic Records/ Data Improvements	X	X	
Policy Initiatives	X		
Drowsy Driving			X
Emergency Services Response		X	
Infrastructure and Operations	X		
Native Americans		X	
Heavy Vehicles/Transit	X		
Natural Risks	X		
Special Users		X	
Traffic Incident Management	X		
Interjurisdictional	X		