

2009 Navajo Nation

LONG RANGE TRANSPORTATION PLAN

December 2009



21175A

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**2009 Navajo Nation
Long Range Transportation Plan**

Prepared For:

Navajo Nation Department of Transportation
December, 2009



ACKNOWLEDGMENTS

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ACRONYMS

2009 LRTP	2009 Long Range Transportation Plan
AASHTO	American Association of State Highway Officials
ADOT	Arizona Department of Transportation
ADT	Average Daily Traffic
ARC	Agency Roads Committee
BIA	Bureau of Indian Affairs
BIA-NRODOT	Bureau of Indian Affairs - Navajo Regional Office - Division of Transportation
BLKM	Black Mesa and Lake Powell Railroad
BLM	Bureau of Land Management
BNSF	Burlington Northern Santa Fe Railroad
CE	Construction Engineering
CFR	Code of Federal Regulations
CHR	Community Health Representative
CTC	Cost to Construct
DOE	United States Department of Energy
DOI	Department of the Interior
EPA	United States Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FLIP	Federal Lands Highway Program
FTA	Federal Transit Administration
HTF	Highway Trust Fund
HUD	Housing and Urban Development
IRA	Indian Reorganization Act
IRR	Indian Reservation Roads
IRRCC	Indian Reservation Roads Coordination Committee
ITEA	Indian Tribal Economic Alliance
LGA	Local Governance Act
LRTP	Long Range Transportation Plan
MMS	Maintenance Management System
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MW	Megawatts
NAIHS	Navajo Area Indian Health Service
Navajo DOT	Navajo Division of Transportation
NHA	Navajo Housing Authority
NIIP	Navajo Irrigation Industry Project

ACRONYMS

NMSHTD	New Mexico State Highway and Transportation Department
NPS	United States National Park Service
NRRI	Navajo Region Road Inventory
NTP	Navajo Transmission Project
NTS	Navajo Transit Service
PE	Preliminary Engineering
PMS	Pavement Management System
RIFDS	Road Inventory Field Data Module
RNDF	Relative Needs Distribution Formula
ROW	Right-Of-Way
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
TCDC	Transportation and Community Development Committee
TEA-21	Transportation Equity Act for the 21st Century
TIP	Transportation Improvement Program
TTAM	Tribal Transportation Allocation Methodology
TTIP	Tribal Transportation Improvement Program
UDOT	Utah Department of Transportation
USFS	United States Forestry Service
VMT	Vehicle Miles Traveled
VPD	Vehicles Per Day

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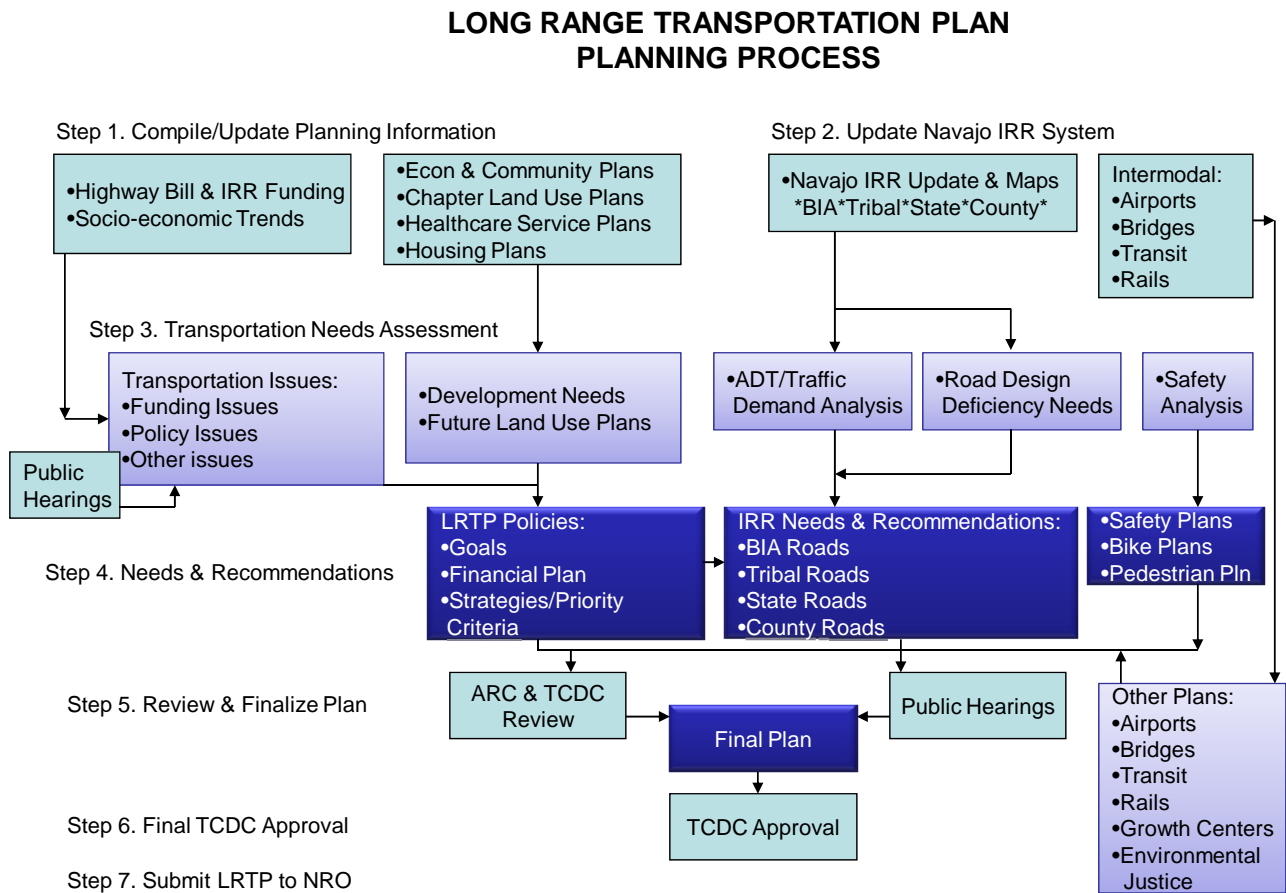
EXECUTIVE SUMMARY

A. Background

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

The 2009 LRTP follows the planning process (Figure 0-1) which includes examination of tribal and IRR program policies and transportation issues; socioeconomic data and development plans; all modes of transportation data (roads, bridges, airports, transit and rails (including road inventory data for future traffic volume and transportation improvement needs according to highway design guidelines and pavement management requirements); and crash data analysis for safety needs. The review process includes public involvement at public hearings and final approval by the tribal transportation committees.

Figure 0-1. Navajo Nation LRTP Planning Process



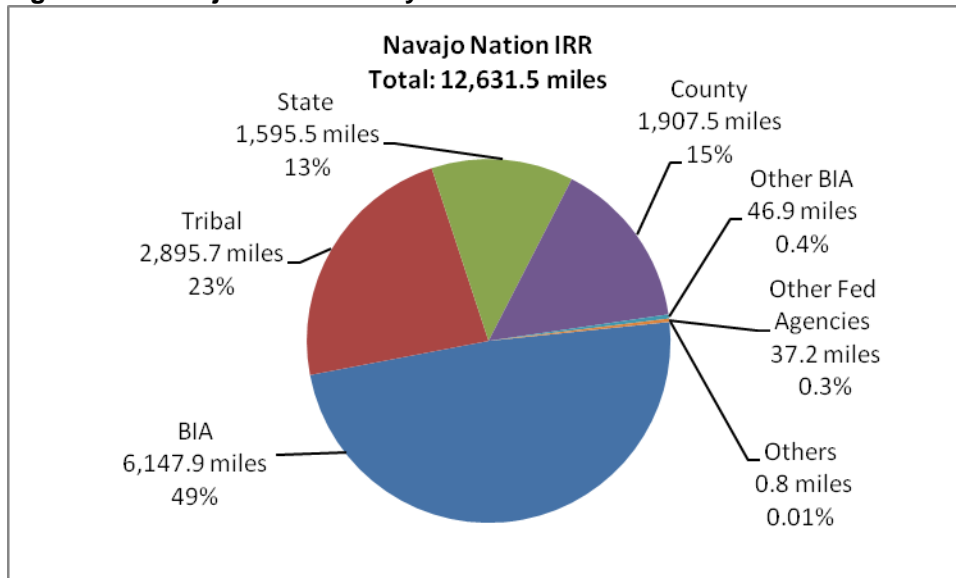
Public Involvement Process: The Long Range Transportation Plan update included a Technical Advisory Committee made up of representatives from throughout Navajo Nation. The project team held four (4) public meetings, located in Chinle, Tuba City, Window Rock and Shiprock. Additionally, a survey was conducted to understand if any outlying concerns were not being addressed. Figure 0-2 is a summary of the 143 survey responses.

Figure 0-2. Navajo Nation LRTP Survey Summary

2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE SUMMARY										
Navajo Nation 2009 Long Range Transportation Plan Questionnaire Summary										
1) What are your concerns regarding road and bridge improvements and where are they? (see attached descriptions)										
2) What are your priorities from high (8) to low (1)										
Average Score:	Road Improvements	Road Maintenance	Safety	Bridge Improvements	Transit Improvements	Bicycle Paths and Sidewalks	Airport Improvements	Other		
Rank:	1	2	3	4	5	6	7	8		
3) Road Improvement: What are your priorities from high (8) to low (1)										
To pave more dirt or gravel roads										
Average Score:	To improve existing paved roads	To grade and improve drainage	To rehabilitate or replace bridges	Other						
Rank:	1	2	3	4	5					
4) Road Maintenance: What are your priorities from high (8) to low (1)										
Pothole repair										
Average Score:	Blading of dirt roads	Maintenance during emergencies	Snow removal	Bridge maintenance	Other					
Rank:	1	2	3	4	5	6				
5) Safety Improvement: What are your priorities from high (8) to low (1)										
Roadway striping										
Average Score:	Roadway signage	Install traffic signals	Install guard rails	Install street lights	Install cross walks	Install sidewalks and bicycle paths	Other			
Rank:	1	2	3	4	5	6	7	8		
6) What should be the transportation/road improvement goals from high (8) to low (1)?										
Improve travel safety										
Average Score:	Support economic development	Access to recreation	Connection to transit, airports, etc...	accessment	Other					
Rank:	1	2	3	4	5	6				
7) What are you major development (economic, transportation) concerns from high (8) to low (1)?										
Safety										
Average Score:	Cultural Preservation	all types (noise, air)	Privacy	Others						
Rank:	1	2	3	4	5					
Average Score based on average of all 143 responses as submitted from April 23, 2009 Open House										

Navajo IRR Mileage: The overall Navajo IRR system consists of 12,631.5 miles of public roads (2008 Navajo Region Road Inventory – Figure 0-3): Navajo-BIA roads (6,147.9 miles); tribal roads (2,895.7 miles); state roads (1,595.5 miles); county roads (1,907.5 miles); other BIA programs' roads (46.9 miles); other federal agency roads (37.2 miles), and others roads (0.8 miles).

Figure 0-3. Navajo Nation IRR System



Source: 2008 Navajo Region Road Inventory

B. Transportation Needs Assessment

Available data including the 2008 road inventory, 1999-2007 crash data, chapter land use plans and planned development projected were used to identify overall transportation needs in relation to tribal and IRR planning and highway design guidelines to meet transportation needs in the following areas:

- Highway Geometric Design Deficiencies
- Network Connectivity Needs
- Pavement Deficiencies
- Safety
- Chapter House Access Needs
- Growth Centers Mobility Needs
- Community and Economic Development Transportation Needs
- Scenic Byways, Tourism and Recreation
- Multimodal Transportation Needs
- Other Transportation Needs
- Cultural Environmental Considerations

C. Navajo-BIA Road Transportation Needs

Of the total 6,147.9 miles Navajo-BIA Roads, 5,995.4 miles needs improvements such as surface upgrade and/or widening. 1,313.8 miles of paved roads need pavement reconstruction and rehabilitation. When these roads have been improved, the transportation needs mentioned above (B) will be addressed. Table VI-1 below shows the recommended road improvement needs of the Navajo-BIA Roads by class.

Table 0-1 Navajo-BIA Roads' Long Range Road Improvement Needs in Miles

ADS	CLASS	FADT	Miles of Roads Needing Only Surface Imp	Miles of Roads Needing Only Roadway Widening	Miles of Roads Needing Surface Imp & Roadway Widening	Sub-Total	2003 LRTP Total By Class	2009 LRTP Total By Class
1	1-Major Arterial	N/A	0.9	0.1	0.3	1.3	0.0	4.1
2		N/A	2.0	0.8	0.0	2.8		
3		N/A	0.0	0.0	0.0	0.0		
4	2-Rural Minor Arterial	>=400	5.9	13.8	54.0	73.7	917.7	754.6
5			8.7	184.0	397.1	589.8		
6			5.3	11.5	2.7	19.5		
7		<400	0.0	0.0	0.0	0.0		
8			0.0	24.3	23.0	47.3		
9			0.0	0.0	24.3	24.3		
10	4-Rural Major Collector	>250	17.5	15.0	138.2	170.7	4468.1	3757.0
10		50-250	1.8	5.2	365.8	372.8		
11		>250	38.6	136.9	988.7	1164.2		
11		50-250	33.7	82.0	1668.6	1784.3		
11		<50	0.0	1.1	0.0	1.1		
12		>250	1.9	0.0	76.6	78.5		
12		50-250	0.0	0.0	185.4	185.4		
13	5-Rural Local	>400	0.1	5.5	43.1	48.7	0	1402.1
13		50-400	125.3	6.6	18.1	150.0		
14		>400	2.9	28.5	72.0	103.4		
14		50-400	68.5	14.7	806.2	889.4		
15		>400	0.0	0.0	8.4	8.4		
15		50-400	0.0	0.0	202.2	202.2		
16	6-City Min Arterial	N/A	0.0	0.9	2.6	3.5	0.0	3.5
17	7-City Collector	N/A	0.0	0.0	0.0	0.0	0.0	0.0
18	3-City Local	N/A	8.8	23.5	1.8	34.1	61.5	34.1
Grand Total:							5447.3	5955.4

To improve 5,955.4 miles of the Navajo-BIA road system to meet the design standards will cost \$6.5 billion (Table VI-2). To address pavement deficiencies of 1,341.4 miles of paved Navajo-BIA roads alone (Chapter 5 Need 3) will cost \$1.4 billion. However, when roads are upgraded to meet the design standards, pavement conditions will also be addressed. To address the overall Navajo-BIA road system deficiencies, the Navajo Nation will need approximately \$7.0 billion. This figure is seven times the current 20-year funding level of the Navajo IRR Program, which has been about \$1 billion or \$50 million per year. Table VI-1 summarizes and compares improvement costs between 2009 to 2003 improvement needs of the Navajo-BIA roads. The drastic increase from 2003 cost is partly due to the nearly double in construction cost in recent years caused by fuel cost increase.

Table 0-2 Navajo-BIA Road Improvement Cost (in \$millions)

ADS	CLASS	FADT	Miles of Roads Needing Only Surface Imp	Miles of Roads Needing Only Roadway Widening	Miles of Roads Needing Surface Imp & Roadway Widening	Sub-Total	2003 LRTP Total By Class	2009 LRTP Total By Class
1	1-Major Arterial	N/A	\$1,621.18	\$97.55	\$287.98	\$2,006.71	\$0	\$6,626.75
2		N/A	\$3,602.63	\$1,017.41	\$0.00	\$4,620.04		
3		N/A	\$0.00	\$0.00	\$0.00	\$0.00		
4	2-Rural Minor Arterial	>=400	\$3,962.52	\$6,578.34	\$46,971.29	\$57,512.16	\$705,236.00	\$910,355.29
5			\$17,184.79	\$143,682.36	\$613,970.89	\$774,838.04		
6			\$7,080.76	\$3,064.10	\$3,367.38	\$13,512.23		
7		<400	\$0.00	\$0.00	\$0.00	\$0.00		
8		\$0.00	\$17,256.06	\$18,497.88	\$35,753.95			
9		\$0.00	\$0.00	\$28,738.92	\$28,738.92			
10		>250	\$20,997.81	\$17,213.29	\$153,547.83	\$191,758.94		
10	50-250	\$1,655.74	\$3,156.54	\$336,300.83	\$341,113.11			
11	>250	\$17,436.49	\$108,964.78	\$1,169,256.91	\$1,295,658.18			
11	50-250	\$26,248.70	\$71,139.17	\$2,036,678.17	\$2,134,066.04			
11	<50	\$0.00	\$236.23	\$0.00	\$236.23			
12	4-Rural Major Collector	>250	\$650.75	\$0.00	\$61,130.04	\$61,780.79	\$3,481,606.00	\$4,149,899.44
12		50-250	\$0.00	\$0.00	\$125,286.15	\$125,286.15		
13	5-Rural Local	>400	\$90.84	\$3,879.43	\$31,595.85	\$35,566.11	\$0	\$1,396,317.06
13		50-400	\$66,262.56	\$1,552.15	\$10,592.06	\$78,406.76		
14		>400	\$6,021.29	\$19,050.97	\$82,582.36	\$107,654.62		
14		50-400	\$70,716.81	\$6,796.71	\$933,346.86	\$1,010,860.37		
15		>400	\$0.00	\$0.00	\$9,184.22	\$9,184.22		
15		50-400	\$0.00	\$0.00	\$154,644.98	\$154,644.98		
16	6-City Minor Art	N/A	\$0.00	\$423.78	\$1,534.00	\$1,957.78	\$0	\$1,957.78
17	7-City Collector	N/A	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0
18	3-City Local	N/A	\$13,675.30	\$12,962.03	\$1,062.00	\$27,699.33	\$31,535.00	\$27,699.33
Grand Total:							\$4,218,377.00	\$6,492,855.65

Implementation Strategies: To address the Navajo Nation’s long range transportation needs, transportation decision-makers need to set and follow the long and short range road improvement goals and objectives, funding strategies and priorities.

Long Range Goals and Objectives

To upgrade roads to meet design standards and management system requirements to correct deficiencies as well as to improve overall network connectivity, travel mobility and accessibility.

- To improve travel safety and reduce accidents on the Navajo-BIA roads.
- To meet existing and future transportation needs in order to promote community and economic vitality.

Funding Strategies

Seek to increase the Navajo IRR funding level through lobbying. Under the Federal Lands Highway Program (FLHP), IRR Program funding needs are factored by population and development growth (through ADT) unlike other FLHP programs, (e.g., Park roads and Parkways, Public Lands Highway Discretionary, Forest Highway and Refuge Roads). These other FLHP roads do not carry the high levels of daily traffic that wear out roads at greater rate: their road miles and traffic volumes are relatively constant. Legislative formula should be established to allocate funds among FLHP programs based on actual needs, instead of each program’s relative share.

2009 Navajo Nation Long Range Transportation Plan

- Seek funding from the IRR Nationwide Bridge Priority Program to help meet the Navajo IRR bridge improvement needs.
- Seek other funding sources such as the Indian Highway Safety Program (\$1.1 million annually), federal Hazard Elimination Program (\$550 million annually), which funds safety improvements on highways administered by the State and the BIA.
- Seek other funding sources such as Public Land Highway Discretionary Funds for Navajo scenic byways projects and/or State Transportation Enhancement Fund for bicycle and pedestrian paths.
- Seek state/federal share of funding for improvement of Navajo-BIA routes to be used as detours during I-40 emergency closures.
- Use the Navajo Nation Fuel Excise Tax to supplement the IRR funds.
- Fund projects according to project/need priority.
- Taxing: Currently, Kayenta is the only primary growth center with a self imposed sales tax of 2.5 percent. It is recommended that the primary and secondary growth center communities work with the Division of Economic Development to identify and implement self funding mechanisms to aid in enhancing infrastructure investment, ultimately improving economic development opportunities for those that wish to invest within Navajo Nation.

Project Prioritization Criteria

When funding is insufficient, project prioritization is a crucial implementation strategy to help meet long range mobility goals. The Long Range Transportation Plan recommends projects that address the long range transportation needs as described in Table 0-4 be given ratings from high to low priority accordingly.

Table 0-3 Long Range Transportation Planning Priority

Points assigned	Project Type
5-High Priority Projects	Immediate, core transportation needs and issues raised by local chapters, tribal programs, school, healthcare providers, housing programs, intermodal needs as well as BIA engineers.
	School bus routes
	NHA housing streets and access roads
	Class 1 & 2 road improvement needs
	Class 3 & 6 roads-pavement deficiencies
	Safety improvements, sidewalks
	Class 1,2 & 4 roads-pavement deficiencies
	Economic and community development access needs
	Bridge projects
	3-Moderate Priority Projects
Growth center proposed streets	
Class 4 & 5 roads-improvement upgrade	
Scenic byways and park access	
1-Low Priority Projects	Important transportation issues and needs to be implemented last. If IRR funds are limited, should be funded from outside resources.
	Bicycle routes
	Other transportation needs
0	Not a 20-year need nor listed on the LRTP

D. Plan Recommendations

To improve travel safety on the Navajo IRR, the Navajo Nation needs to review or consider developing policies and programs in the following areas:

- **Safety Improvement Program** - An annual Safety Improvement Program should be established to develop a systematic approach for crash mitigation based on reported crash data. The crash data, coupled with the IRR Roadway Inventory database will provide the data necessary to understand the high crash location areas throughout the Navajo Nation transportation system.
- **Open Range Policy** - The Open Range Policy adopted by the Navajo Nation and State of Arizona needs to be re-evaluated to improve safety to prevent animals on roadways and reduce animal related crashes on the Navajo Nation.
- **Vendors in the ROW** - Statistics show there are crashes related to vendors within highway ROW selling crafts, foods, etc. As a government, the Navajo decision makers need to partner with the States to jointly establish policy, legislation and enforcement guidelines to make the road safer while still providing a means for local artists and supporting the needed tourism.

- **Access Management** - A successful Access Management strategy for Navajo Nation should be developed to fully protect the transportation infrastructure investments made on the system.
- **Signing Program** - An annual signing program should be established to enhance on-road and roadside safety. The annual signing program would include all signs to regulate, warn or guide motorists and should include new signs as well as signs that need to be replaced due to damage or wear/reflectivity.
- **Striping Program** - An annual striping program should be established to enhance on-road and roadside safety. The striping program would first focus on the highest traveled roadways to ensure that roadway stripes can be seen to help drivers navigate in daytime, nighttime and adverse weather conditions.
- **Transit** - The demand for Navajo Transit Service (NTS) exceeds the capacity and some market areas are not served. Some growth centers do not have localized service and it is highly recommended that a 20-year Transit Plan be developed to identify:
 - **Expanded Service Needs**
 - **Local Service Needs**
 - **Regional Service Needs**
 - **Park-n-Ride Locations**
- **Master Planning** - Each Primary and Secondary Growth Center should develop a Community Plan that develops a 20-year plan that examines future land use, multi-modal transportation needs, infrastructure needs, environmental considerations and unique characteristics to the community.
- **DOT Coordination** - Common reoccurring coordination between the Navajo Division of Transportation and the state DOTs should occur, either in the form of semi-annual or quarterly meetings to ensure that the needs of the various Divisions within Navajo Nation and the state DOTs have a common understanding of needs, priorities and processes. Additionally, crash data coordination and data standardization between Navajo DOT and the State DOTs should occur so safety and highway related data could be shared.

E. Bridge Improvements

There are 178 bridges on the Navajo-BIA roads. Of these 58 bridges were identified for deficiencies, including 33 bridges needing replacement (\$15.5M) and 25 bridges needing rehabilitation (\$4.4M). The anticipated total funding needs for bridge design and improvements is \$23.8M.

F. Airports

To increase aviation service coverage and maximize FAA funding, develop all eight primary airports and construct a new primary airport in Ramah Chapter to expand service coverage to this satellite Navajo community. To upgrade all primary airports to meet Airplane Design Group II, Approach Category B standards and increase capacity to meet future operation forecasts.

G. Maintenance

According to the BIA-NRODOT the \$5.9 million FY 2008 road maintenance fund was allocated to all agencies. While in FY 2007 \$6.5 million was spent on routine maintenance, bridge maintenance, snow and ice control, emergency maintenance, and program management. The shortfall in maintenance is an issue that will degrade the roadways at a quicker pace.

H. State Highways

State roads are an important part of the Navajo IRR system. They are the main arterials connecting Navajo Nation population centers to the Four Corners Area's regional road networks, off-reservation towns and major airports. They are part of the interstate, national (U.S.) and state highway systems. Most state routes on the Navajo Reservation are rural two-lane highways except in urbanized areas where they are four-lane with high traffic volume. Table XI-1 summarizes the state road mileage.

Table 0-4. State Roads (in miles)

Agency	Arizona State Highways	New Mexico State Highways	Utah State Highways	Agency Total
New Lands	89.3	0.0	0.0	89.3
Northern	70.2	113.8	41.7	225.7
Western	503.5		25.9	529.4
Eastern	0.0	413.2	0.0	413.2
Chinle	60.8	0.0	0.0	60.8
Ft. Defiance	213.3	48.6	0.0	261.9
NIIP	0.0	15.2	0.0	15.2
State Total	937.1	590.8	67.6	1,595.5

Source: 2008 Navajo Region Road Inventory

Arizona, New Mexico and Utah State Departments of Transportation have classified these state roads according to their own functional classification systems. However, under the IRR regulations, these state highways meet the IRR functional classification for: Class 1, Major Arterial Roads, providing an integrated network between large population centers and having average daily traffic of 10,000 vehicles per day with more than two lanes of traffic; and Class 2, Rural Minor Arterial Roads, providing an integrated network between large population centers and having average daily traffic less than 10,000 vehicles per day, may link smaller towns and communities to major resort areas and generally provide for at least in-county or inter-state service and are spaced at intervals consistent with population density.

Arizona State Road Needs: Of the total 937.1 miles of Arizona State Highways on the Navajo Nation, the plan identifies transportation improvement needs on 69.2 miles of roadway within 5 years, and an additional 98.4 miles of improvements within 10 years.

New Mexico State Road Needs: Of the total 590.8 miles of New Mexico State Highways on the Navajo Nation, the plan identifies transportation improvement needs on 117.3 miles of highway within 5 years, and 49.1 miles of additional highway improvements within 10 years.

Utah State Road Needs: Of the total 67.6 miles of Utah State Highways on the Navajo Nation, the plan identifies transportation improvement needs on 9.3 miles of highway within 5 years and 40 miles of highway within 10 years.

I. County Road Transportation Needs

There are a total 1,907.5 miles of County roads within Navajo Nation and 1,620.4 miles of County roads need surface improvement and roadway widening to safety meet the geometric design guidelines/IRR adequate standards. The total cost to bring County Roads to the Geometric Design Standards is \$1.4 billion.

J. Tribal Road Transportation Needs

There are a total 2,895.7 miles of Tribal Roads within Navajo Nation, and 2,831.0 miles need improvements. Additionally, 53.3 miles of Class 3 Tribal Roads need improvements based on the BIA pavement rating standards. This equates to approximately \$2.9M in tribal road related needs.

CHAPTER I - INTRODUCTION

A. PLAN INTRODUCTION

The 2009 Navajo Nation Long Range Transportation Plan (2009 LRTP) is a twenty-year comprehensive plan developed and updated by the Navajo Division of Transportation (Navajo DOT) in a five-year cycle. The study area includes the boundary limits of the Navajo Reservation and tribal ranch areas as situated within the States of Arizona, New Mexico, and Utah. Map 1-1 depicts the Transportation Plan study area.

The 2009 LRTP identifies the Nation's multi-modal transportation needs over the next 20 years and develops an implementation plan for improvements. The plan provides long range planning policies and implementation guidelines for Navajo Indian Reservation Roads (IRR) Program improvements. It is based on a comprehensive analysis of all pertinent factors and issues affecting the Navajo Nation's existing and future transportation needs.

The LRTP is an important component in obtaining Federal funding for roadway improvements through the IRR Program. The Navajo IRR Program is administered jointly by the Bureau of Indian Affairs – Division of Transportation and the Federal Lands Highways Program (FLHP) of the Federal Highway Administration. The BIA Navajo Regional Office – Division of Transportation (BIA-NRODOT) administers Navajo Region of the IRR Program construction and maintenance. To qualify for the funding, each Indian Reservation must establish an approved long range transportation plan and Tribal Transportation Improvement Program (TTIP) which is a 3- to 5-year road and bridge construction priority schedule. The Navajo Nation will use this 2009 LRTP to satisfy the long range transportation plan requirement, and will utilize the findings and recommendations of the LRTP to define a 3-5 year road and bridge construction of the Navajo Nation Transportation Improvement Program (TIP).

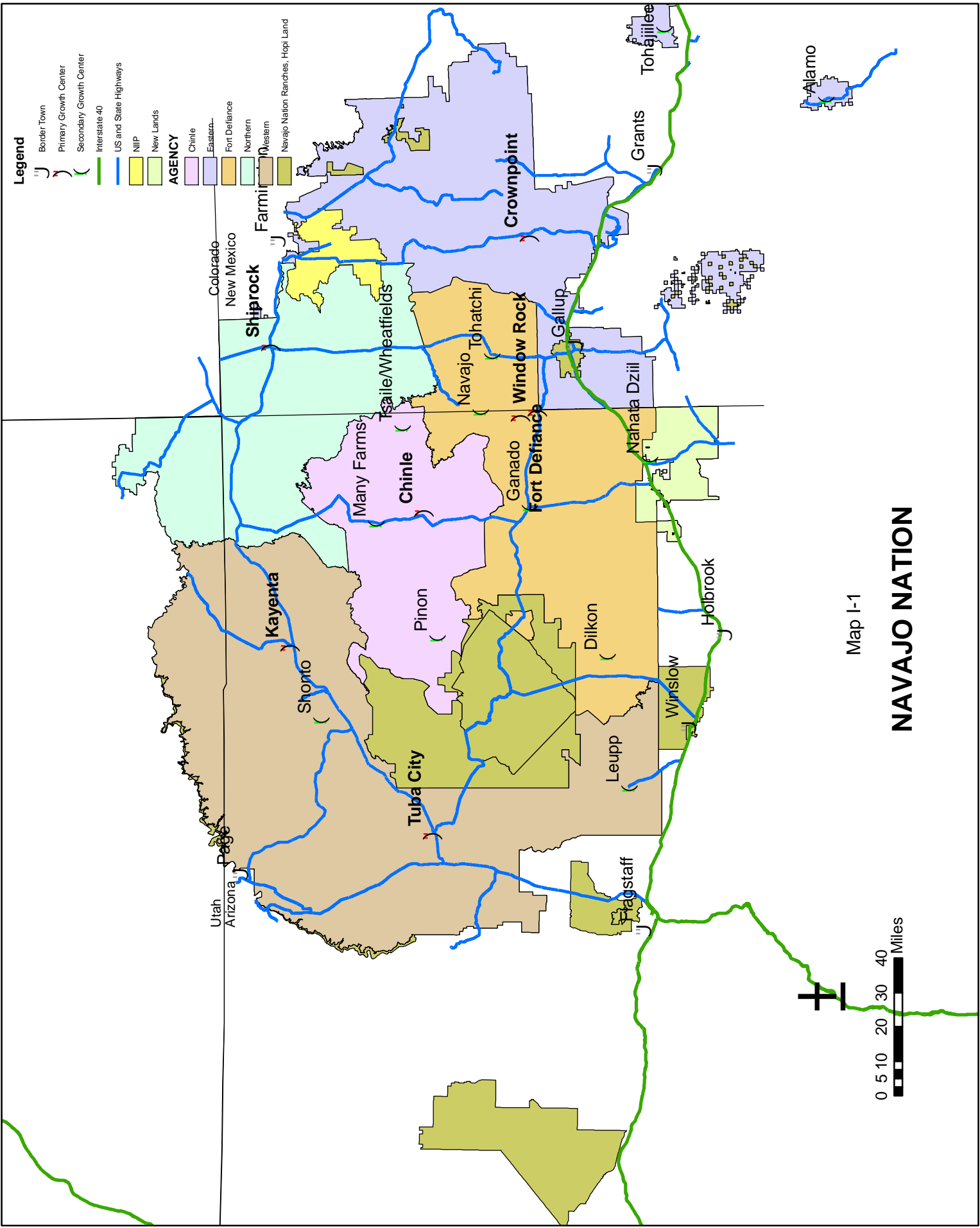
The purpose of this plan, as required by federal agency regulations, is to identify transportation improvement needs for funding of those Navajo Nation long range transportation improvements. This LRTP is also intended to be a transportation planning tool for the Transportation and Community Development Committee (TCDC) of the Navajo Nation Council and the Agency Roads Committees (ARC). It further provides recommendations for long range improvements for Navajo-BIA, State, and County roads, bridge, airport as well as transit improvements. The recommendations of the LRTP will provide guidance to the Navajo Nation, Navajo DOT, the State Departments of Transportation, Chapter communities within the Reservation, and private interests when considering future development plans.

B. PLAN GOALS

The Navajo Nation LRTP is the Navajo Nation's vision of future transportation construction to fulfill and meet the Nation's long term transportation needs. The planning process and methodology used in this plan includes examination of tribal and IRR program goals and objectives, highway design criteria, and transportation issues to identify future needs.

Transportation Goals:

- To provide a comprehensive transportation system that encompasses all modes of transportation, including rail, bus, and air.
- To provide safe and efficient transportation network to and within the Navajo Reservation.
- To improve overall road and bridge conditions to achieve a reduction in the number and severity of traffic accidents.
- To develop the necessary multimodal transportation system to foster and support economic development and increase employment opportunities.
- To provide a high level of connectivity between Growth Centers including Shiprock, Tuba City, Chinle, Fort Defiance, Window Rock, Crownpoint, and Kayenta.



Map I-1
NAVAJO NATION

0 5 10 20 30 40 Miles

C. FEDERAL FUNDING OF INDIAN RESERVATION ROAD SYSTEM

The IRR program was established to provide for construction of public roads and bridges under Bureau of Indian Affairs (BIA) administration. Its funding is authorized under the Federal Lands Highway Program (FLHP) and through the Bureau of Indian Affairs-Division of Transportation. The 1948 and subsequent memorandum of agreements between the BIA and Federal Highway Administration (FHWA) established their joint responsibilities for the IRR program.

The purpose of the IRR program is to provide safe and adequate transportation facilities including public road access to and within Indian reservations, Indian trust land, or Native American communities. Indian Reservation Roads by definition include BIA, state, county, and other local government public roads.

In 1998, a funding distribution formula was developed for the IRR Program under the Transportation Equity Act for the 21st Century (TEA-21). Originally, tribal allocations were distributed according to the Relative Needs Distribution Formula (RNDF). In July 2004, a new distribution formula and updated IRR regulations, referred to as the Tribal Transportation Allocation Methodology (TTAM), as documented in the IRR Program final regulation, 25 CFR Part 170. The TTAM uses an inventory of IRR facilities as the major factor in determining the funding amounts that each Tribe receives. The updated regulation removed growth limitations in the inventory and initiated significant incentives for Tribes to add all eligible tribal, State, and county routes to the inventory with somewhat negative impacts to the larger land based tribes.

Using the TTAM allocation formula, the IRR funds are distributed to twelve (12) BIA regional offices. The IRR Program funds can be used for any type of Title 23 transportation project providing access to or located within Federal or Indian reservations, Indian trust land, restricted Indian land, and Alaska native villages, and may be used for the State Local matching share for apportioned Federal-aid Highway Funds. Title 23, United State Code provides statutory requirements for IRR and other federal funded highway programs. Congress has been appropriating funds for IRR through highway appropriations. The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) authorized IRR funding for FY2005-2009.

As a condition for the continuance of IRR funds and in accordance with 23 USC 116, the BIA Regional Offices and Tribes are responsible for road maintenance of BIA and tribal roads respectively using Department of the Interior (DOI) funds appropriated annually under DOI Appropriation Acts, tribal funds, and up to 25% of IRR construction funds authorized under SAFETEA_LU.

The current SAFETEA-LU highway authorization contains a statute that directs the Secretary of Transportation, in cooperation with the Secretary of the Interior, to complete a comprehensive national inventory review of transportation facilities eligible under the IRR Program. Each year, the inventory may be updated by tribes to reflect the transportation needs, which are ranked against the relative needs of other tribes.

D. SAFETEA-LU REVIEW

P.L. 109-50, Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), was signed into law by President George W. Bush on August 10, 2005, increasing IRR funding to nearly \$2 billion for FY2005-2009. However, it makes some changes to the FLHP, which substantially affects the IRR program and its funding level, as described below.

IRR Program Activities

IRR funding for a highway, road, bridge, parkway, or transit facility project or activities on an Indian reservation may be carried out, in accordance with the Indian Self-Determination and Education Assistance Act, to a requesting Indian tribal government or consortium (two or more tribes) that has

satisfactorily demonstrated financial stability and financial management to the Secretary. Funding provided is to include any amount that would have been withheld for IRR Program administrative costs.

National Tribal Transportation Facility Inventory

In order to identify the tribal transportation system and determine relative transportation needs among the tribes, the Secretary is required to complete a comprehensive national inventory of transportation facilities that are eligible for assistance under the IRR program within 2 years of enactment with a report to Congress due within 90 days after the inventory is completed.

Nationwide Priority Program

Separate contract authority (replaces the previous set-aside) for 2005-2009 is provided for carrying out planning, design, engineering, preconstruction, construction, and inspection of projects to replace deficient IRR bridges. The Indian Reservation Road Bridge Program (IRRBP) was amended by establishing new policies and provisions. It authorizes \$14 million of IRRBP funds per year for the replacement or rehabilitation of structurally deficient or functionally obsolete IRR bridges. In accordance with these changes, the FHWA, with input and recommendations from the BIA and the Indian Reservation Roads Coordinating Committee (IRRCC), is proposing funding distribution procedures for BIA owned and non-BIA owned IRR bridge projects. The proposed changes allow funding for preliminary engineering (PE), construction engineering (CE), and construction for the replacement or rehabilitation of structurally deficient or functionally obsolete IRR bridges.

IRR Road & Bridge Maintenance

Up to 25% of a tribe's IRR construction funding may now be used for the purpose of road and bridge maintenance, although BIA will retain primary responsibility for IRR maintenance programs through DOI appropriations.

Tribal-State-BIA Road Maintenance Agreements

An Indian tribe may enter into a road maintenance agreement with a State and/or BIA to assume the responsibilities of the respective DOT for roads in and providing access to Indian reservations. Annual report to Congress is required beginning in 2005 (prepared and submitted by the Secretary) identifying tribes and States that have entered into these agreements, miles assumed, and funds transferred.

Deputy Assistant Secretary of Transportation for Tribal Government Affairs

A new position in DOT is established to plan, coordinate, and implement DOT programs serving Indian tribes.

Tribal Transit Grant Program

In SAFETEA-LU, Congress created a new Tribal Transit Grant Program, by reserving funds from the Federal Transit Administration (FTA) rural transit program, called Section 5311 Rural Public Transportation program to make federal transit grant funds directly available to Tribal governments. The available grant funding started at \$8 million in FY 2006 and increases in steps to \$15 million in FY 2009.

E. ROAD CONSTRUCTION FUNDS

The Navajo IRR Program's primary source of funding is the Highway Trust Fund (HTF), an interest-bearing account funded by federal gasoline taxes, cross-country trucking levies, and other sources. IRR funds are primarily distributed for construction and improvement of IRR roads, bridges, and other eligible transportation facilities.

1. IRR Funds

SAFETEA-LU authorized a total of \$1.93 billion for the IRR Program or 40% increase: \$300M, \$330M, \$370M, \$410M, and \$450M for fiscal years 2005, 2006, 2007, 2008, and 2009 respectively. Table I-1 shows the FY2008 annual IRR appropriation and take-downs. Table I-2 summarizes the FLHP fund program.

Table I-1. Summary of FY 2008 IRR Funding

Tribal Transportation Allocation Methodology	Up to \$275M		Over \$275M		Total
Authorized Funding Amounts	275,000,000		135,000,000		410,000,000
Less Rescission	0		0		0
Subtotal	275,000,000		135,000,000		410,000,000
Less FHWA takedown per Approps Bill	0		0		0
Subtotal	275,000,000		135,000,000		410,000,000
Less Lake Tahoe Funding	1,375,000		675,000		2,050,000
Subtotal	273,625,000		134,325,000		407,950,000
Less for Obligation Limitation (7.9%)	21,616,375		10,611,675		32,228,050
Subtotal	252,008,625		123,713,325		375,721,950
Less Bridge Inspections	670,732		329,268		1,000,000
BIA PM&O/PRAE	16,432,927		8,067,073		24,500,000
FLH-HQ (Inventory, Travel, S&O, and Safety)	1,006,098		493,902		1,500,000
Subtotal	233,898,868		114,823,082		348,721,950
Less Tribal Transportation Planning (2%)	5,040,173		2,474,267		7,514,440
Subtotal	228,858,695		112,348,815		341,207,510
Available for RNDP Distribution	@ 95%	217,415,762	@ 75%	84,261,611	301,677,373
Available for High Priority Project	@ 5%	11,442,935	@ 12.5%	14,043,602	25,486,537
Available for Population Adjustment Factor			@ 12.5%	14,043,602	14,043,602
Available for Tribal Transportation Planning		5,040,173		2,474,267	7,514,440
Total Funds Available for Distribution					348,721,952

Source: Navajo DOT

Table I-2. Federal Lands Highway Program – Funding Authorizations Table, FYs 2005-2009 (in Millions)

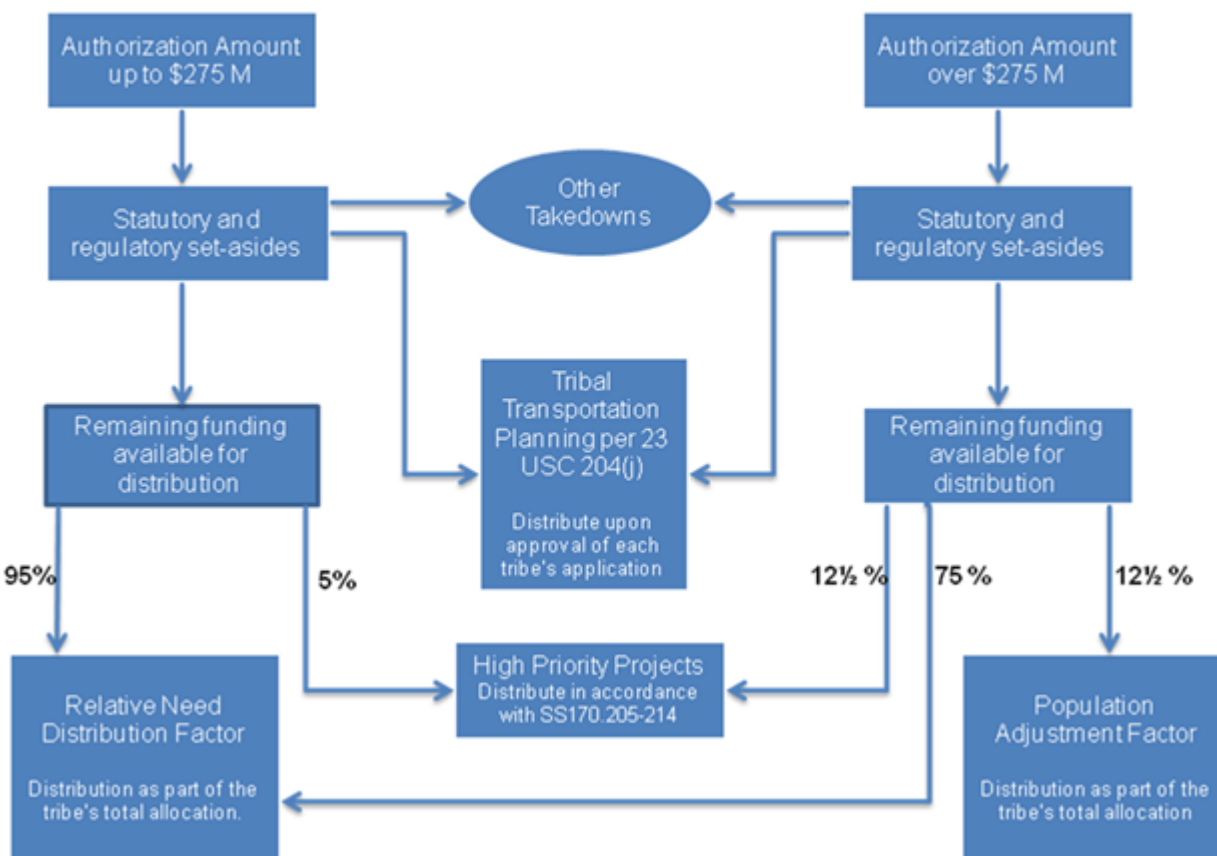
Funded Program		2005	2006	2007	2008	2009	Total
B.1	Emergency Relief - Federal Roads	Funding levels determined as needed					
B.2	Indian Reservation Roads (IRR)	300	330	370	410	450	1,860.0
B.3a	IRR Maintenance	Up to 25% of funding in B.2					
B.4	IRR Bridge	14	14	14	14	14	70.0
B.5	Park Roads & Parkways	180	195	210	225	240	1,050.0
B.6	Public Lands Highways	260	280	280	290	300	1,410.0
B.7	Refuge Roads	29	29	29	29	29	145.0

* BIA Maintenance and IRR Bridge authorizations are estimates.

2. Funding Distribution Formula

As a result of the mandated TEA-21 negotiated rulemaking process, the 25 CFR Part 170 Indian Reservation Roads Program regulations set forth the Tribal Transportation Allocation Methodology (TTAM) to allocate IRR Program funds. After appropriate statutory and regulatory set-asides, as well as other takedowns, the remaining funds are allocated as shown in the chart below.

Annual Tribal Transportation Allocation Methodology



F. NAVAJO NATION'S CONCERNS

1. Road Inventory Issue

TEA-21 of 1998 mandated a rewriting of the 25 CFR Part 170. The new rule implemented in November 2004 included all IRR roads (state, county, BIA, etc) in the distribution formula.

The new 25 CFR Part 170 allows roads other than BIA to be computed in the IRR funding distribution formula that permits tribes and regions to inventory and include roads under the ownerships of State and County. This creates a disproportionate and drastic increase in the national IRR inventory mileage total (See Table I-3 and Table I-4). Regions with high amounts of County and State roads and few BIA roads are allocated higher amounts of funding for their BIA/tribal roads due to this change in the inventory and formula.

Table I-3. Nationwide IRR Inventory Total Mileage

Year of Inventory	BIA Roads Mileage	Tribal Roads Mileage	State Roads Mileage	County Roads Mileage	Other Agency Mileage	Approved Total IRR Mileage
1994	25,700*		25,600*			51,300
2005	27,518	2,851	9,049	22,324	1,037	62,779
2006	28,882	4,287	13,164	34,345	4,646	85,324
2007	29,878	9,659	13,676	43,077	5,393	101,683

* These categories were combined in 1994.

Notes: 1994 and 2004 Additional Mileages were rounded to the nearest mile.

Source: FHWA, IRR Program Comprehensive Inventory Report, January 2008.

Table I-4. Total IRR Inventory Roadway Mileage By Region

Region	2005	2006	2007
Great Plains	7,925	12,562	14,343
Southern Plains	2,144	2,217	3,220
Rocky Mountain	3,414	6,575	8,129
Alaska	3,172	7,478	12,722
Midwest	10,173	13,596	14,009
Eastern Oklahoma	2,657	7,628	11,288
Western	7,216	7,218	7,587
Pacific	795	1,272	1,489
Southwest	4,652	5,517	6,117
Navajo	9,753	9,810	10,076
Northwest	9,547	9,983	10,762
Eastern	1,331	1,468	1,931
Total	62,779	85,324	101,683

Source: FHWA, IRR Program Comprehensive Inventory Report, January 2008.

2. Decreased IRR Funding for Navajo Nation

This new TTAM method of computing IRR funding has created a dramatic shift in IRR funding distribution among the BIA regions from funding of past years. Now large tribes with high BIA and Tribal road mileage get less percentage of the available funding, while some small tribes and regions with much less BIA road mileage, but with added mileage of state and county roads to their system, get substantial increases.

Table I-5 illustrates this redistribution of funds in recent years. Navajo Region's funding reduced from an average of 26% during TEA-21 share to 17% share during SAFETEA-LU as shown on Figure I-1 below.

Figure I-1. IRR Funding

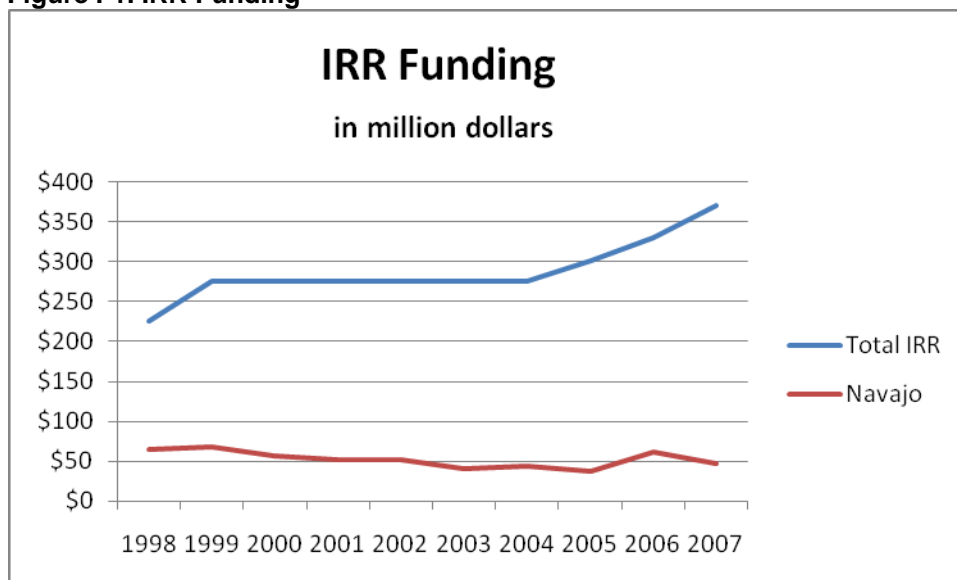


Table I-5. TEA-21 and SAFETEA-LU – IRR Construction Allocations in Million Dollars

Region	TEA-21						SAFETEA-LU			
	FY1998		FY1999		FY2000		FY 2007		FY 2008	
	In \$million	%	In \$million	%	In \$million	%	In \$million	%	In \$million	%
Great Plains	\$20.225	10.3%	\$22.243	9.2%	\$28.115	12.0%	\$19.600	7.1%	\$24.500	8.1%
South Plains	\$9.455	4.8%	\$8.847	3.7%	\$10.331	4.4%	\$8.800	3.2%	\$10.100	3.3%
Rocky Mtn	\$13.940	7.1%	\$25.197	10.4%	\$16.850	7.2%	\$23.300	8.4%	\$22.800	7.6%
Alaska	\$23.569	12.0%	\$17.997	7.4%	\$27.099	11.5%	\$31.300	11.3%	\$39.400	13.1%
Midwest	\$9.859	5.0%	\$9.931	4.1%	\$11.340	4.8%	\$40.200	14.5%	\$44.400	14.7%
E Oklahoma	\$20.213	10.3%	\$20.059	8.3%	\$17.303	7.4%	\$40.600	14.6%	\$43.700	14.5%
Western	\$9.455	4.8%	\$30.369	12.6%	\$9.894	4.2%	\$19.600	7.1%	\$19.200	6.4%
Pacific	\$5.257	2.7%	\$6.229	2.6%	\$8.303	3.5%	\$6.400	2.3%	\$5.700	1.9%
Southwest	\$13.485	6.8%	\$14.184	5.9%	\$21.231	9.0%	\$16.800	6.1%	\$13.200	4.4%
Navajo	\$64.493	32.7%	\$67.528	27.9%	\$57.320	24.4%	\$47.400	17.1%	\$52.200	17.3%
Northwest	\$3.368	1.7%	\$14.482	6.0%	\$14.273	6.1%	\$17.400	6.3%	\$20.200	6.7%
Eastern	\$3.811	1.9%	\$4.745	2.0%	\$12.754	5.4%	\$5.900	2.1%	\$6.300	2.1%
Total	\$197.132	100%	\$241.811	100%	\$234.812	100%	\$277.300	100%	\$301.700	100%

Source: Navajo Regional Office Division of Transportation.

Figure I-1 shows while total IRR funding increased 40% during SAFETEA-LU, Navajo Region's funding decreased. This may derive from not only the change in the inventory to include the State and County roads but also from the 25% set aside (12.5% to High Priority Projects and 12.5% for Population Adjustment Factor) making only 75% of the total IRR program fund available for road construction. This also means that 75% of remaining IRR funds for road construction is not enough and 25% set-aside is too much, indicating the TTAM or formula needs to be changed. This in turn has caused an enormous backlog of transportation need for Navajo due to the funding share dropping while the needs continue to grow.

3. Obligation Limitation & Funding Impacts

The obligation limitation is a congressional contract authority reduction on available IRR funds, approximately 7%-15% of each annual appropriation. Prior to TEA-21 and SAFETEA-LU, the FLHP, including the IRR, were exempt from this annual deduction. A comparison of the IRR program funding levels to those of State highways funding, indicates that the entire IRR Program is funded less than the smallest state DOT program, even though the mileage of all BIA roads equals the mileage of a comparable state road system. The obligation limitation even further reduces the actual funding available for the IRR road construction, and, thus transportation needs of tribal roads can not be fully funded.

4. Navajo Nation Objectives

On June 19, 2008, the TCDC of the Navajo Nation Council passed a resolution to approve the Navajo Nation Position on the Indian Reservation Roads Program Funding Distribution and Recommendations to the Assistant Secretary of Indian Affairs Addressing the Concerns in 25 CFR 170, Appendix C to Subpart C.

This document states that the Navajo Nation participated in the IRR TEA-21 Negotiated rulemaking process in good faith to develop a fair and equitable funding distribution formula. The Navajo Nation consented to adding a provision to implement a new "Highest Priority Projects Program" along with the "Population Adjustment Factor" to address smaller tribe's transportation needs.

While working with the new regulation, the Navajo Nation realizes that some provisions were modified and the final rule is not as intended. The IRR inventories of other tribes are being inflated with road mileage that are owned by others, i.e. county and state roads, which are eligible to receive separate funding. This is occurring due to 25 CFR 170, Appendix C to Subpart C, Question 10.

The Navajo Nation believes the IRR program is to serve members of Indian tribes residing on Reservations. Therefore, the federal IRR funds appropriated for road construction should be primarily used for roads within the reservations. County and state roads are facilities under the jurisdiction of those respective governmental agencies. Thus, the Navajo Nation agrees that 25 CFR 170, Appendix C to Subpart C, Question 10 needs to be re-written to clarify and make a distinction between which roads generate 100% funding in the formula and which roads should be factored in at a lower percentage.

The current funding formula favors roads owned by others, with higher traffic volumes, which are eligible for other federal funds. Use of a "Sliding Scale Rates of Federal-Aid Participation in Public Lands State for Projects on the Interstate System" application does not treat all tribes equally because the rates fluctuate from state to state.

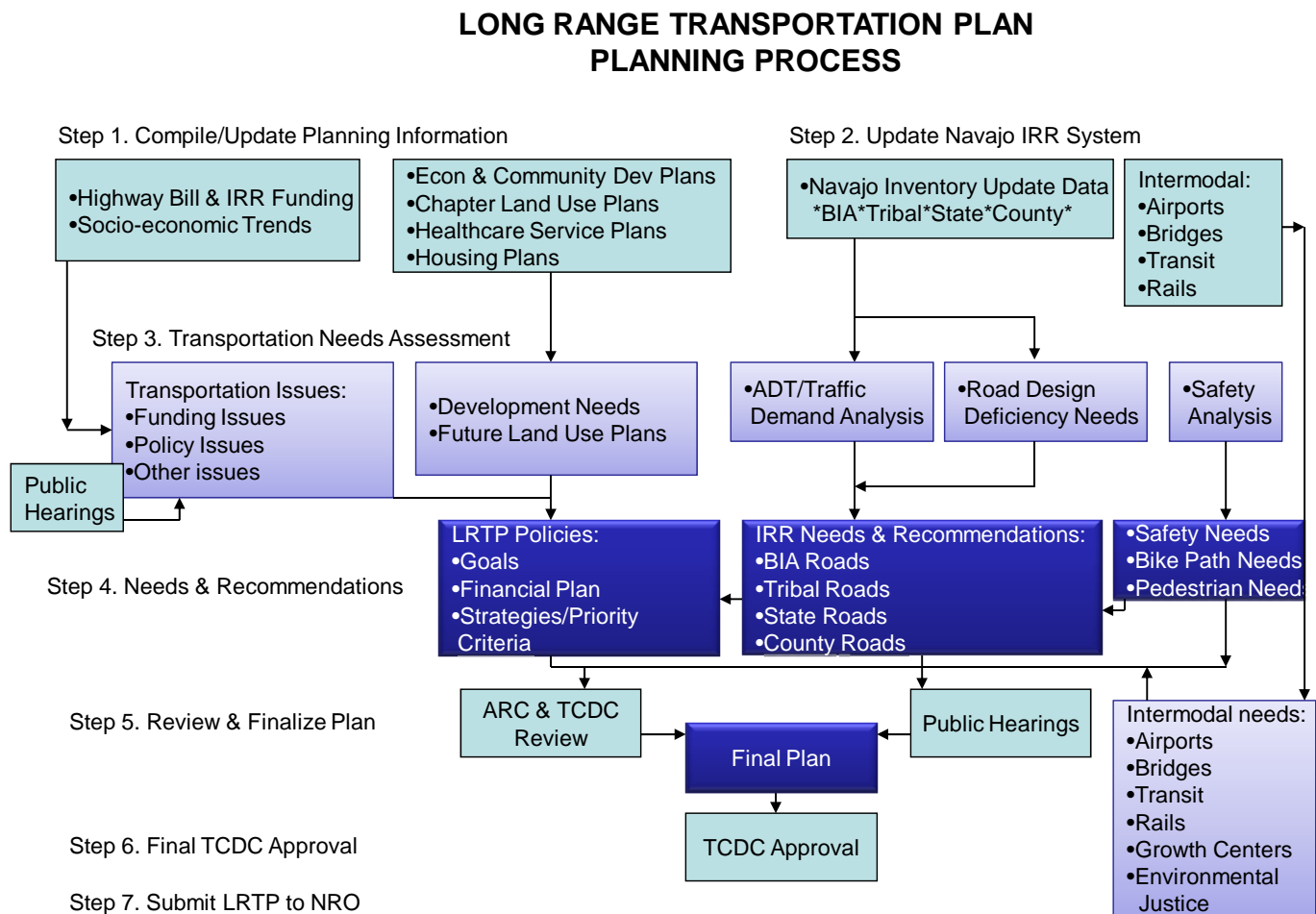
The Navajo Nation believes that in order to be fair and keep within the intent of the Rulemaking, the county/township and urban roads that were grandfathered into the official inventory at the start of the new regulation be counted at 100% until the end of Fiscal Year 2009, where they may then be counted at a modified non Federal sliding scale. All state, other federal, and interstate roads would be set to 0% Cost to Construct (CTC) and Vehicle Miles Traveled (VMT).

The Navajo Nation will not support changes to the relative need formula that will negatively influence the additional tribal roads that will be included during the inventory update for this year and in later years.

G. L RTP PLANNING PROCESS

The long range transportation planning scope is comprehensive. It includes examination of tribal and IRR program goals, objectives and transportation issues; compilation of information (socioeconomic data and development plans); analyses of all modes of transportation data (roads, bridges, airports, transit and rails); evaluation of road inventory data for future transportation according to highway design guidelines and pavement management requirements; and crash data analysis for safety needs. The review process includes public involvement at public hearings and final approval by the tribal transportation committees. Figure I-2 below illustrates the L RTP process and explains the rationale of this 2009 L RTP contents and organization.

Figure I-2. Navajo Nation L RTP Planning Process



H. DOCUMENT ORGANIZATION

The 2009 Navajo Nation Long Range Transportation Plan is organized into twelve chapters as follows:

- **Chapter 1** documents the process for obtaining Federal funding through the IRR Program and the historical and projected funding levels for the Navajo Nation.
- **Chapter 2** provides a profile of the Navajo Nation to better understand the transportation needs of the general population. This profile provides summaries of the various socioeconomic features of the reservation, including population and employment forecasts, land uses, travel behaviors and demands.
- **Chapter 3** summarizes the IRR inventory for all roadways serving the Navajo Nation Reservation. The inventory classifies the roadways into various jurisdictions, namely: Navajo-BIA, Tribal, State, County, and other agency roads. Characteristics of these roadways are provided, as well as supporting graphics to identify their locations.
- **Chapter 4** discusses existing and future travel demands on the Navajo IRR roadway system. Primary travel patterns and origins/destinations are presented.
- **Chapter 5** comprises the entire transportation needs assessment for the Navajo Nation. Transportation Needs are categorized into 11 focus areas: geometric design deficiencies, Class 2 Road needs, pavement deficiencies, safety concerns, Chapter House access needs, Growth Center Street needs, community and economic development transportation needs, scenic byways and tourism, intermodal transportation, other transportation needs, and cultural and environmental considerations. The information in Chapter 5 captures the recommendations of the later chapters of the study.
- **Chapter 6** presents the conclusions and recommendations for the Navajo-BIA roads. Within this chapter, the long range transportation plan is outlined, along with the improvement plan and funding strategies to prioritize projects. The long range construction priority strategy is established.
- **Chapter 7** presents the unique transportation needs of each Growth Center within the reservation. Development trends are reviewed and the specific transportation issues for each community are discussed.
- **Chapter 8** outlines the Navajo Nation airport needs. Strategies for developing a master airport plan are identified.
- **Chapter 9** summarizes the bridge improvement and maintenance needs.
- **Chapter 10** summarizes the Navajo-BIA road maintenance needs. General information on the Navajo Road maintenance programs and its funding source are presented.
- **Chapter 11** identifies the improvements needed along each major State highway that runs through the Navajo Nation.
- **Chapter 12** identifies the improvements needed along County roads serving the reservation.
- **Chapter 13** identifies the improvements needed along Tribal roads serving the reservation.
- **Appendix A** shows returned survey questionnaires.
- **Appendix B** shows access management samples.
- **Appendix C** shows transportation needs by route.

CHAPTER II - NAVAJO NATION PROFILE

This chapter provides background information of the Navajo Nation government, socioeconomic and transportation characteristics that underline its transportation needs, funding formula, and decision making,

A. NAVAJO NATION GOVERNMENT

The first Navajo Tribal Council was established in 1923, but it was not until 1938 that the first election took place and an elected Tribal Chairman headed the Navajo Nation government. The Title II Amendments passed in December 1989 established the present three-branch government of Executive, Legislative, and Judicial Branches.

The Executive Branch is headed by the President of the Navajo Nation and the Vice President. The Legislative Branch consists of the Speaker of the Council and the Navajo Nation Council comprised of 88 elected council delegates representing 110 chapters, consisting of the smallest recognized administrative units in the communities. The Judicial Branch includes the Chief Justice and the Navajo Nation courts. Elections for the President of the Navajo Nation and the Council Delegates are held every four years in November. Elections for the local Chapters are held on the offsetting four-year term. Window Rock, Arizona is the capital of the Navajo Nation where the tribal governmental headquarter is located.

The Navajo Nation is not an Indian Reorganization Act (IRA) tribe. Instead of a BIA-approved constitution, the Navajo Tribal Codes govern Navajo Nation operations. The 1989 Title II Amendment gives the oversight of all tribal government programs to twelve standing committees of the Navajo Nation Council. One of the standing committees, the TCDC has oversight authority on all transportation development on the Navajo Nation. Five ARCs identify agency-level transportation needs and recommend agency construction priorities to TCDC. Each ARC is appointed by their respective Agency Council.

B. LAND BASE

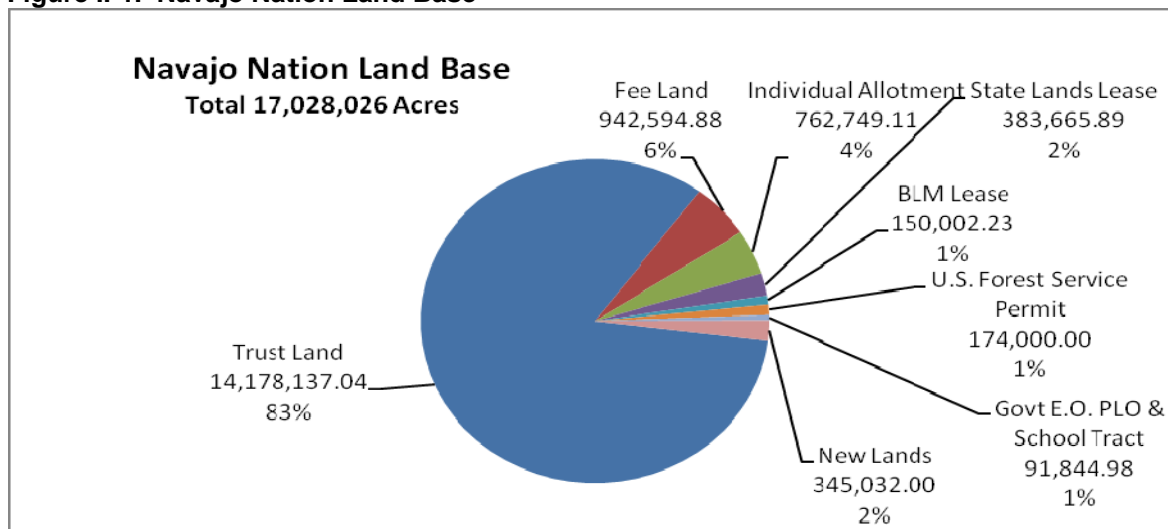
The Navajo Nation Reservation is comprised of a complex mix of trust, allotted, railroad, fee, and private lands. Also present is an overlap of state, county, tribal, and federal jurisdictional boundaries. Varying jurisdictional methods for calculating, recording, and coding geographic information, combined with the complexity of land ownership, make it hard to find accurate land acreage for the reservation. The data and figures presented in this report are based on the available data provided by the Navajo Land Department Title Section, BIA, states, counties, and other sources..

The Navajo Nation has the largest land base reservation in the United States. It encompasses approximately 26,600 sq. miles or 17.0 million acres (68% in Arizona, 25% in New Mexico and 7% in Utah).¹ The reservation also falls under ten counties: Apache, Coconino, and Navajo in AZ; Bernalillo, Cibola, McKinley, San Juan, Sandoval, and Socorro in NM; and San Juan in UT. Average density is 6.8 persons per square mile. The Navajo reservation also includes three Navajo satellite communities in Alamo, Tohajilee, and Ramah that are located in western and central New Mexico. The reservation land is also organized into five agencies, 23 districts and 110 chapters.

The majority of the Navajo Reservation land, approximately 83%, is comprised of Navajo Tribal Trust land, while the rest includes Tribal Fee land, Individual Navajo Allotment, State land, U.S. Forestry land, U.S. Bureau of Land Management (BLM) Lease land, and other government tracts such as Executive Orders, Public Land Orders, and school tracts. Most of the tribal fee lands, allotments, and BLM leases are in the Eastern Navajo Agency in New Mexico; these areas are referred to as the Checkerboard area. Figure II-1 shows the distribution of the Navajo Nation land base.

¹ Division of Economic Development Website 2008, Navajo Nation Land Area

Figure II-1. Navajo Nation Land Base



The five Navajo agencies are Shiprock/Northern Navajo, Western Navajo, Eastern Navajo, Chinle and Fort Defiance Agencies. The New Lands (Nahat'a' Dziil) Chapter, which was acquired pursuant to the 1974 Navajo-Hopi Relocation Act and Navajo Irrigation Industry Project (NIIP), which is the commercial agricultural area designated for tribal agri-industry development are considered additional agencies by the BIA -NRODOT for the IRR program management purpose. Ramah is a satellite community that does not have acreage but is counted in the Census. Table II-1 shows the relative population and acreage within each agency.

Table II-1. Land Area and Population by Agency

Agency	2000 Population	Land Acreage
Shiprock/Northern Navajo	30,981	2,641,395
Western Navajo	38,260	5,549,025
Eastern Navajo	33,841	3,341,125
Chinle	28,491	1,883,269
Ft. Defiance	45,761	3,157,550
New Lands	1,452	345,032
NIIP	0	110,630
Ramah	1676	
Total	180,462	17,028,026

Sources: Census 2000 Data Land Department-Title Section 03/31/98

Notes: Each Agency's acreage is based on the geographical polygon area from the Agency shapefile.

The Navajo IRR Program funds construction and improvement of the Navajo-BIA roads and other transportation infrastructure within the Navajo Reservation for each of these agencies, with the exception of the Ramah area. This area receives separate funding for its administration and programs from the BIA-Southwest Regional Office.

The lands covered by the Navajo IRR Program include the newly acquired lands/ranches. These lands are acquired from the Navajo-Hopi dispute and are located within the Western agency. Roads on these newly acquired lands/ranches are being inventoried and will be added to the IRR system.

Road development on U.S. Forestry lands receive funding from the FLHP under separate categories.

C. POPULATION

According to the 2000 Census, the Navajo Nation is the largest Indian tribe in the United States with an estimated nationwide population of 269,202. The 2000 Census population on the Navajo Reservation was 180,462, which represents an annual population growth of 1.96% from the 1990 Census population of 148,658. Of the 180,462 total reservation population, 175,228 (96.4%) were Navajos, with the remaining population comprised of other Indian tribes and races.

The FHWA considers a community of 5,000 or greater a small urban area.² Of the 110 chapters of the Navajo Nation, Shiprock, Tuba City, Chinle, Ft. Defiance, Window Rock/St. Michaels and Kayenta communities had populations greater than 5,000 in 2000, qualifying them as small urban areas.

1. Socioeconomic Characteristics

The following provides a discussion of various socioeconomic attributes of the Navajo Nation. The figures are based on the U.S. Census Bureau's official estimates from its 2007 American Community Survey produced for the Navajo Nation Reservation and Off-Reservation Trust Land in Arizona, New Mexico, and Utah.

Households and Families

In 2007 there were 41,645 households on the Navajo Nation Reservation with an average household size of 3.9 people, and a total of 31,398 families with an average of 4.7 persons per family.

Geographical Mobility

The majority (96%) of the people lived in the same residence. The rest had recently moved from elsewhere.

Education

The total school enrollment was 52,272 in 2007. Of this, 39,772 were elementary and high school enrollment, 4,833 were preschool and kindergarten enrollment and 7,667 were college and graduate school enrollment. Of those people 25 years of age and older, 64% had, at a minimum, graduated from high school and 9% had a bachelor's degree or higher.

Income

The Navajo Nation's median household income was \$25,456, or approximately half of the U.S. household median income of \$50,740. The Navajo Nation's per capita income was \$10,441, or less than half of the U.S. per capita income of \$26,688.

Labor Force and Employment

53,458 or 44.3% of people 16 years of age and over were in the labor force. Of the total labor force, 46,246 were employed in civilian labor force and 135 were employed in the Armed Forces. Approximately 14% were unemployed twice the U.S. unemployment rate. However, the 2005-2006 Comprehensive Economic Development Strategy by the Navajo Nation Division of Economic Development reports higher unemployment rate of 48.5% in 2005.

Poverty

In 2007, 36.8% of the population, and 30.8% of all families, lived below the poverty level.

Travel to Work

A Navajo family has an average of 1.98 cars per household.³ Of those individuals commuting to work, 76.6% drove to work alone, 11.9% carpooled, 0.6% used public transportation, 0.1% walked and 2.1% used other means. Mean travel time to work was 34.5 minutes.

² FHWA Highway Functional Classification - Concepts, Criteria and Procedures

³ 2001 Navajo DOT origin-destination survey

2. Future Population

Based on the 1990 and 2000 Census data, the Navajo Reservation's population grew at 1.82% annually from 1990 to 2000 (Table II-2). If the same growth rate continues, the Navajo Nation Reservation's population in 2030 is estimated to increase to 310,012 people.

Table II-2. Population Projection by Agency

Agency	2000	2010	2020	2030
Shiprock Agency	30,981	37,104	44,438	53,222
Western Agency	38,260	45,822	54,879	65,726
Eastern Agency	33,841	40,530	48,541	58,135
Chinle Agency	28,491	34,122	40,867	48,944
Ft. Defiance Agency	45,761	54,806	65,638	78,612
New Lands	1,452	1,739	2,083	2,494
Ramah	1,676	2,007	2,404	2,879
Reservation Total	180,462	216,131	258,850	310,012

D. NAVAJO NATION ECONOMY

The economy of the Navajo Nation depends primarily on employment in private and public sectors and in basic industries. Comparing 2000 and 2007 Census data on economic characteristics for the Navajo Nation (Table II-3), employment increased 7,781 jobs or 20.2%. Private sector jobs increased 25% between 2000 and 2007. This private sector accounts for the largest employment sector, at 54.4% of the total employment. Government employees represent the next largest portion of the total employment, at 42.6%. Compared to the Census 2000 data, 52.2% were in private sector and 44.3% were in government, indicating a slight increase in private sector. In 2007, the number of self-employed individual represents the only decrease in employment type.

Table II-3. Navajo Nation Employment Comparison by Sector

Employment Sector	2000	2007	Difference	Percent
Private Sector	20,063	25,166	5,103	25%
Government	17,042	19,722	2,680	16%
Self-employed	1,294	1,251	-43	-3%
Unpaid family workers	66	107	41	62%
Total	38,465	46,246	7,781	20%

Table II-4 provides additional breakdown of employment type for both 2000 and 2007. As indicated in this table, 739 jobs were lost in wholesale trade, information, transportation, warehousing and utilities and professional, scientific and management while 16,301 jobs were gained in most sectors.

In the public sector, employment by schools and Indian public health services was the largest portion of any industry, accounting for nearly 16,000 employees. The Navajo Nation government also employed about 6,500 people. Cuts in government funding made public sector jobs gained only moderate.

In the private sector, significant employment increases were documented in the finance, insurance, real estate sector (110%); 76% in agriculture, forestry, mining; and 51% in retail trade. Lease extension of the Pittsburgh and Midway Mine, oil and gas related business expansion and bringing businesses to industrial parks and the Karigan Estate development were probably the major contribution to the employment increase.

Table II-4. Navajo Nation's Employment by Industry

Industries/Economic Sectors	Number of Employees 2000	Number of Employees 2007	% Increase
Agriculture, forestry, fishing, hunting, mining	1,501	2,641	75.9%
Construction	4,759	5,683	19.4%
Manufacturing	1,702	1,897	11.5%
Wholesale Trade	448	294	-34.4%
Retail Trade	3,201	4,830	50.9%
Transportation, warehousing, utilities	2,312	1,919	-17.0%
Information	321	257	-19.9%
Finance, insurance, real estate, rental, leasing	785	1,653	110.6%
Professional, scientific, management, administrative, waste management services	1,071	943	-12.0%
Educational, health, social services	13,705	15,977	16.6%
Arts, entertainment, recreation, hotel, and food services	3,280	3,961	20.8%
Other services (except public administration)	1,313	1,509	14.9%
Public administration	4,067	4,682	15.1%
Total	38,465	46,246	20.2%

Source: Census 2000 and 2007 American Community Survey.

The Navajo Nation's economy in 2007 seemed to fare better than in 2000. Per capita income increased to \$10,441 in 2007 from \$8,536 from Census 2000, unemployment rate was down (this is not the case in the 2005 report by Division Economic Development), and the number of people living below the poverty level reduced to 36.8% in 2007 from 42.9% in 2000. However, the Navajo Nation's economy, employment, and income were well below the U.S. national average, and comparable to that of a developing country.

The gasoline price reduction in 2008 drastically reduced the Navajo Nation's revenue from oil, resulting in a proposed 15.6% government budget cut for 2010, and, if the trend continues, this may result in future budget cuts. The U.S. recession that started in 2008 has badly reduced the tribal and employee's 401K investments. The Navajo Nation's public sector is tied to government funding while the private sector depends on demand in energy and natural resources production and people's purchasing power. The U.S. recession impacts the Navajo Nation in both fronts.

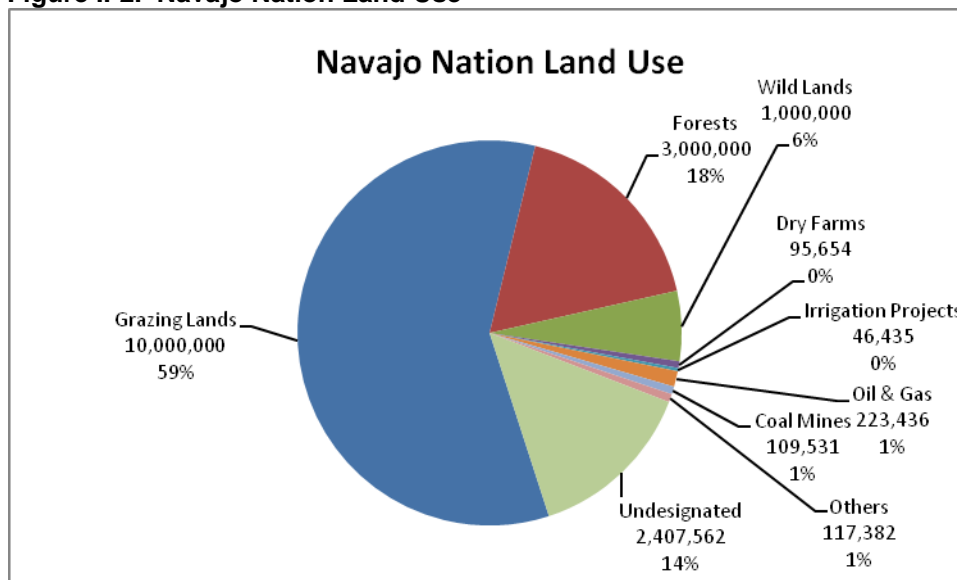
The Navajo Nation, however, has some major economic development projects, such as the Fire Rock Casino, which opened in 2009, and the Desert Rock Power Plant planned to be opened in 2010. The Federal Stimulus Recovery Act may provide additional business developments at major center growth areas such as Shiprock, Tuba City, and Window Rock, that may help create more jobs and revenue. The Obama administration's economic stimulus plan for infrastructure, expansion of healthcare to all children, and Indian healthcare programs and education may help lessen the severity of the impact of the U.S. economic recession on the Navajo Nation.

E. LAND USE

1. Reservation-Wide Land Use

The majority of Navajo Reservation land is used for grazing. The reservation's high desert characteristics, scarcity of water, dry climate and currently inaccessible natural resources become inhibitive development factors. As summarized in Figure II-2, of the Navajo Nation's total 17.0 million acres, approximately 10 million acres are open grazing lands. 3-4 million acres are designated forest lands (Defiance Plateaus and Chuska Mountain) and wild lands. Only small areas are used for dry farming, and irrigation projects (NIIP in Shiprock Agency). Some lands are leased for oil and gas development and coal mining at Black Mesa areas and in the eastern part of the reservation. Very small areas are non-agricultural such as community, business and residential uses.

Figure II-2. Navajo Nation Land Use



Settlement Patterns

The traditional lifestyle of sheep herding provided a stable living in the past, and still provides Navajo families a good supplemental income at present. As a result, Navajos live sparsely across the Navajo Reservation with an average density of 6.8 people per square mile. Population and land are divided into 110 chapters. Each chapter has its own government, which provides services located at a chapter house. A chapter house also serves as a community center. Higher densities of housing, community, and economic development are found in population centers, as dictated by development cost and tribal development policies.

2. Land Use Plans and Practices

Primary Growth Centers

The Navajo Nation has designated six communities as Primary Growth Centers for economic development: Shiprock, Kayenta, Chinle, Crownpoint, Fort Defiance and Window Rock-St. Michaels. They are also the Navajo Nation’s major population centers. Plans for these communities are to promote local retail business development, in an effort to capture dollars that Navajos normally spend outside the reservation on basic supplies and services. Another goal is to attract major industry/manufacturing to the reservation using availability of ample labor, land and tax incentives. The Navajo Nation is to implement these goals by making land available through land withdrawals, small business loans, and promotion of tourism and industrial sites.

Secondary Growth Centers and Navajo Satellite Communities

Ganado, Navajo, Many Farms, Pinon, Tsaile/Wheatfields, Nahata Dziil, Tohatchi, Dilkon, Leupp, and Shonto are designated as Secondary Growth Centers in Arizona. In New Mexico, Alamo, Tohajiilee, and Ramah are designated as satellite communities. Each of these areas is secondary in population and employment needing planned economic development.

The Local Governance Act (LGA) of 1998 allows chapters to approve land withdrawal, business and homesite leases, and to implement and expedite development plans. However, prior to exercising such authority and implementing any development projects, chapters have to develop a land use plan. There are 72 chapters that have completed and received certification of their land use plans. These land use plans, however, emphasize only housing development sites for the chapters. Recent LGA requirements include general land use, thoroughfare and open space plans as well.

All six Primary Growth Centers have developed their land use plans. Of the Secondary Growth Centers, only Many Farms, Pinon, Nahata Dziil, Tohatchi, Leupp, and Shonto have completed their land use plans. For Navajo satellite communities, only Ramah has its land use plan.

F. MODES OF TRANSPORTATION

Although roads have been the primary mode of transportation on the Navajo Nation, other transportation modes such as air, rail, and public transit have also increased in importance to the Navajo public. At present, access to tribal primary airports, regional railway and transit stations are in place. Access needs for future facilities are identified and discussed in Chapter V, Transportation Needs. Below is background on modes of transportation other than private vehicles in use on the Navajo Nation.

1. Air Transportation

There are approximately 32 airfields on the Navajo Reservation and the Checkerboard area. Of these, four are privately owned. Of the 28 public airfields, eight are Navajo Nation Primary Airports: Shiprock, Kayenta, Tuba City, Crownpoint, Chinle, Window Rock, Ganado, and Oljato Airports. They are small airports with single paved runways, except for Ganado which has an unpaved runway. All except Ganado Airport are currently in use. The remaining 20 airfields are Navajo Nation Secondary Airports. All have dirt runways with no supporting facilities and are mostly inactive or in poor condition. All Navajo Nation airports are open to the public.

Of the Navajo Nation Primary Airports, only Window Rock Airport has a small terminal. The Navajo Nation Air Transportation Services under the Division of General Services operates from the Window Rock Airport providing charter services primarily for the Navajo Nation Government. Eagle Air, a private company, also provides air transportation services and is based in Window Rock, Chinle and Kayenta Airports.

The Navajo Nation Primary Airports are used primarily for medical emergencies and secondarily for tribal government business. However, business and tourist use of Navajo Nation airports is increasing, especially at Kayenta and Chinle Airports. The Navajo Department of Transportation (Navajo DOT) is responsible for maintaining and overseeing development of Navajo Nation airports. Chapter VIII provides more information on each airport and overall improvement needs.

Adjacent Regional Airports and Air Transports:

Gallup, Flagstaff, Page and Farmington are the closest cities with regional airports having commercial airlines servicing to major destinations.

2. Public Transportation

Navajo Transit

The Navajo Transit System (NTS) provides public transportation services on the Navajo Reservation, serving 57 of 110 chapters. NTS operates intercity bus service on seven fixed routes linking Navajo growth centers and adjacent border towns. The Tuba City-Window Rock, Toyey-Window Rock, Kayenta-Ft. Defiance, Crownpoint-Ft. Defiance, and Farmington-Window Rock routes operate one round trip per day Monday to Friday. Window Rock-Fort Defiance and Tsaile-Gallup routes are core service routes operating four and two round trips each weekday, respectively. In January 2009, the Flagstaff to Tuba City Route was started; this is a one hour trip that will run four times per day. In May 2009, the Kayenta to Tuba City route began to provide a one-hour, one-way trip. NTS connects with Hopi Transit System, Greyhound Busline, Amtrak Passenger Train, Gallup Transit Express, Red Apple Transit, and Flagstaff Mountain Line. NTS has several connections with Navajo Senior Centers along the routes

Most NTS fixed routes operate along state highways. NTS fixed route ridership has increased over the years. Ridership was 65,513 in 2008 and it is expected to increase by 20% in FY 2009, due to the \$1.00 per day ride fee that was established in November 2008 and will remain in place until November 2010.

Fixed route customers are classified as 51% general, 22% elderly, 20% commuters and disabled, youth and students making up the rest. NTS buses pick up riders at designated stops, but no NTS stations have been constructed. NTS charters provide transportation for groups, organizations and private tours on and off the Navajo Nation twelve months a year. NTS charter service includes transportation to Arizona State University, University of New Mexico, Haskell University, and other colleges.

Other Public Transit Services

Other tribal and private services that provide public transportation to Navajos on the reservation are as follows: Community Health Representative (CHR), a Navajo Nation agency providing emergency medical transportation upon request; a transport program run by Navajo Aging Services Department; Toyei Industries; the Horticulture Independent Living Program; St. Michael Special Education; and Safe-Ride Services, a private operation for non-emergency medical transport. The Navajo Nation Headstart Program provides bus service to transport about 800-900 pre-school children and transports teachers for home-study programs. Transport routes depend on customer/client residence location and intended destinations.

School districts, including BIA and contract schools and church schools on the reservation, usually provide bus services using government/school district buses. These buses run on fixed routes. A main concern regarding transportation needs is the road condition of school bus routes. The safety and welfare of the children is the main concern.

Adjacent Regional Bus Services

Regional bus services such as Greyhound have no routes going through the Navajo Reservation. The nearest Greyhound stations are in Holbrook, Flagstaff, and Winslow, Arizona and Gallup and Farmington, New Mexico. Currently the NTS bus stops at the Greyhound station in Gallup.

3. Railroads and Train Services

The Burlington Northern Santa Fe (BNSF) Railroad, a transcontinental railway that connects Los Angeles to Chicago, crosses northern Arizona and New Mexico. The BNSF rail line generally runs east-west just south of the Navajo Reservation boundary except in Arizona through the Nahata Dziil (New Lands) Chapter area, and in New Mexico through the Church Rock Chapter and checkerboard area in the Eastern Navajo Agency, where the BNSF line runs on the reservation.

The Black Mesa and Lake Powell (BLKM) Railroad operates within the western portion of the Navajo Reservation for the sole purpose of transporting coal from a strip mine at Black Mesa to the Salt River Project Navajo Generating Station near Page, Arizona. The generating station provides power to three southwestern states.

Passenger Rail Service

Passenger rail service is provided by Amtrak on the BNSF Railroad line. Amtrak stations closest to the Navajo Nation are in Gallup, New Mexico and in Winslow and Flagstaff, Arizona. Flagstaff had the highest passenger stop/boardings of 39,723 in 2008, while Winslow had 4,767 and Gallup had 12,517. In comparison and based on information in the 2003 LRTP, Flagstaff had the highest passenger stop/boardings of 54,200 in 1993 of 109,700 total passengers boarding in Arizona. At the time that figure was anticipated to reach 172,000 by the year 2015, a 57% increase.

Freight Rail Service

Freight service on the BNSF Railroad also stops in Gallup, Winslow and Flagstaff. In 2005, approximately 135,000,000 tons of freight moved by rail in Arizona.⁴ This compares to 175,000,000 tons in 1993 which at that time was estimated to increase to 275,000,000 tons by 2015. This includes material shipped in crates and containers and bulk materials such as coal, copper ore, and liquids.

The 78-mile BLKM Railroad was constructed in 1972 it is isolated and not connected with any other railroad; and it hauls 8.4 million tons of coal annually.⁵ There is a tribal plan to build rail freight access at New Lands for economic development. However, the project is only conceptual. Information on proposed railroad needs is referenced in Chapter 5, NEED 9-Railroads.

⁴ 2009 Arizona Multimodal Freight Analysis Study, page 27.

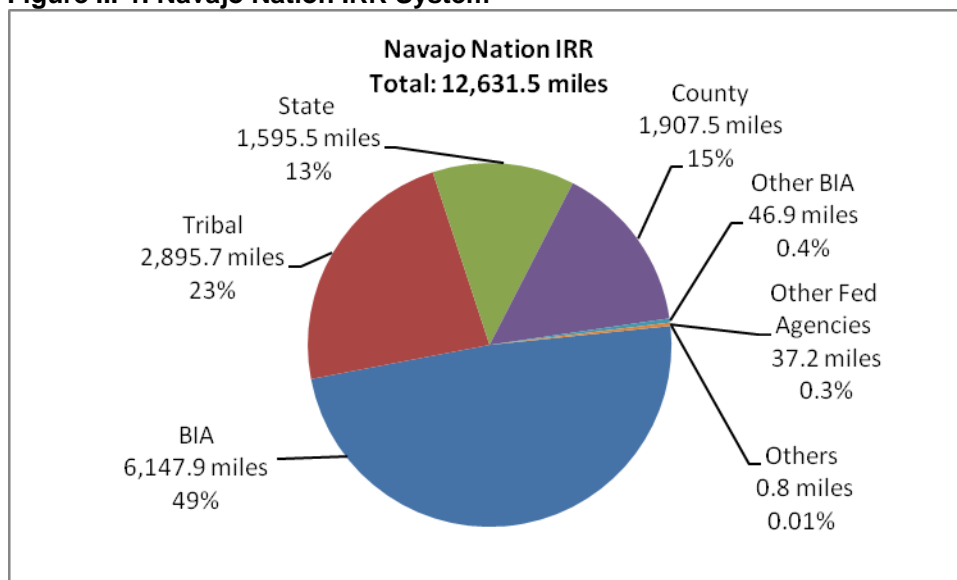
⁵ 2007 Arizona Railroad Inventory and Assessment, page 46.

CHAPTER III - NAVAJO NATION INDIAN RESERVATION ROAD SYSTEM

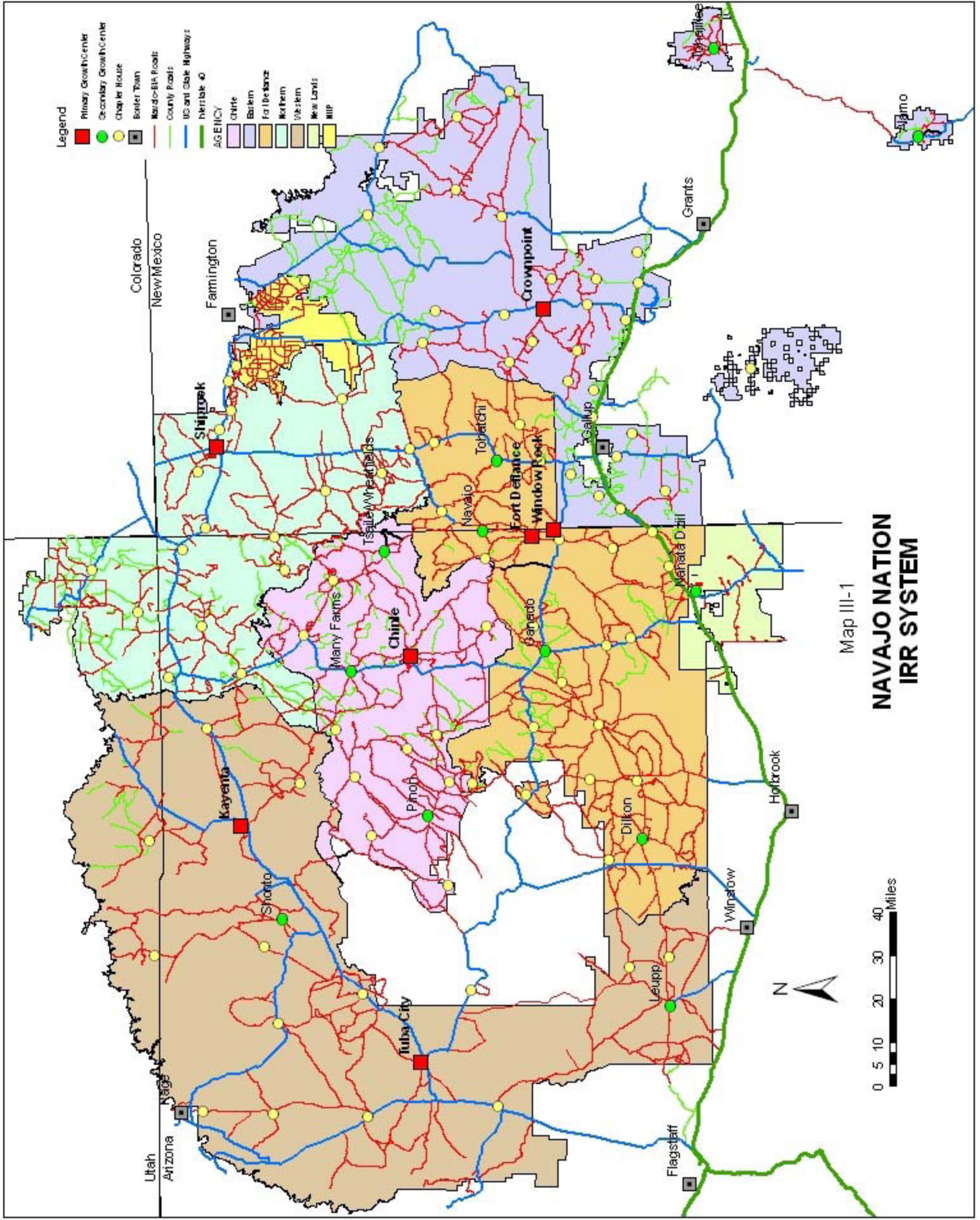
A. NAVAJO NATION IRR SYSTEM

An IRR System is defined as a road network serving an Indian reservation, comprised of public road systems located within, or providing access to it. Navajo IRR roads are funded and administered by various government highway programs. According to the 2008 Navajo Region Road Inventory (NRR) database, the Navajo IRR system consists overall of 12,631.5 miles of public roads that can be subdivided by right-of-way ownership or program administration as follows: Navajo-BIA roads (6,147.9 miles); tribal roads (2,895.7 miles); state roads (1,595.5 miles); county roads (1,907.5 miles); other BIA programs' roads (46.9 miles); other federal agency roads (37.2 miles), and others roads (0.8 miles). Navajo-BIA, state and county roads are the main road systems serving the Navajo Reservation. Figure III-1 shows the percentage and mileage division of the overall Navajo IRR roads by ownership/program administration. Map III-1 shows the overall Navajo IRR road system. Table III-1 shows ownership/program administration and mileage division by administrative agency.

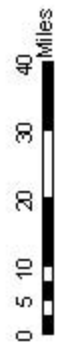
Figure III-1. Navajo Nation IRR System



Source: 2008 Navajo Region Road Inventory



Map III-1
**NAVAJO NATION
 IRR SYSTEM**



- Legend**
- Primary Growth Center
 - Secondary Growth Center
 - Chapter House
 - Border Town
 - Radio-BA Roads
 - County Road
 - US and State Highways
 - Interstate 40
- AGENCY**
- Chinle
 - Baskin
 - Fort Defiance
 - Northern
 - Eastern
 - New Lands
 - NIP

Utah
 Arizona
 Colorado
 New Mexico

Shiprock
 Kayenta
 Shonto
 Many Farms
 Chinle
 Tsalile
 Navajo
 Tohatchi
 Navajo
 Mangab
 Dilkon
 Leupp
 Tuba City
 Fort Defiance
 Window Rock
 Crownpoint
 Grants
 Farmington
 Gallup
 Mescalero
 Holbrook
 Winstow

Table III-1. Overall Navajo Nation IRR System (in miles)

Agency	BIA (1)	Tribal (2)	State (3)	County (5)	Other BIA (6)	Other Fed (7)	Others (8)	Agency Total
New Lands (00)	86.7	0.0	89.3	0.0	0.0	0.0	0.0	176.0
Northern (32)	1,209.8	558.3	225.7	276.0	2.6	0.0	0.0	2,272.4
Western (33)	1,446.0	731.5	529.4	242.1	23.3	2.0	0.8	2,975.1
Eastern (34)	666.0	197.3	413.2	795.2	0.0	16.3	0.0	2,088.0
Chinle (35)	1,028.0	372.6	60.8	306.9	11.3	18.8	0.0	1,798.4
Ft. Defiance (36)	1,405.0	1,036.0	261.9	264.9	9.7	0.1	0.0	2,977.6
NIIP (48)	306.4	0.0	15.2	22.4	0.0	0.0	0.0	344.0
Total	6,147.9	2,895.7	1,595.5	1,907.5	46.9	37.2	0.8	12,631.5

Source: 2008 Navajo Region Road Inventory

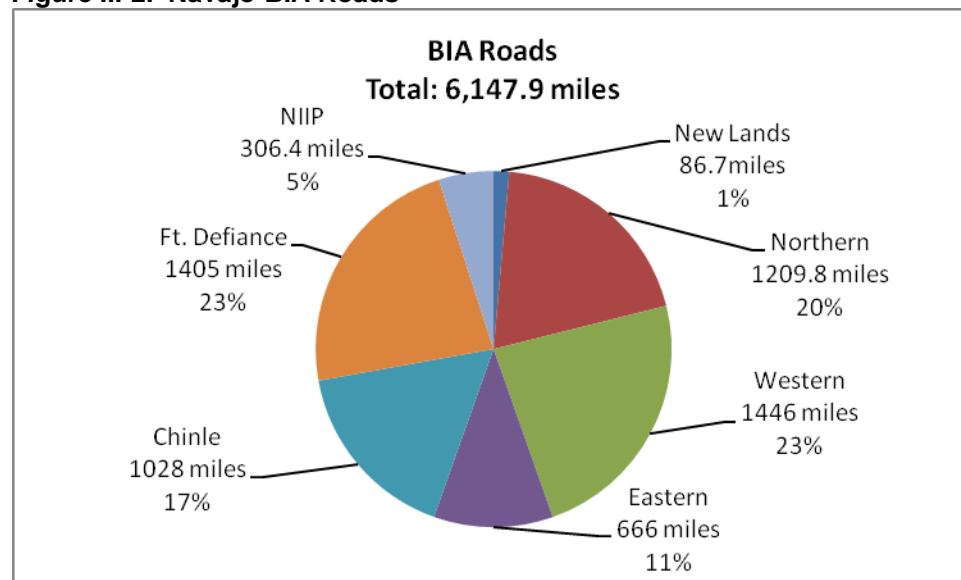
B. NAVAJO-BIA ROADS

1. Navajo Nation Bureau of Indian Affairs Roads

Navajo Nation BIA Road System consists of existing and proposed public roads within the Navajo Reservation that meet the IRR definition and for which the BIA Navajo Regional Office Division of Transportation (BIA-NRODOT) has or plans to obtain a legal right-of-way. The Navajo-BIA road system or Navajo Routes include arterial roads, streets and other local public roads either linking to the state highway network or providing access to local Navajo communities.

The Navajo-BIA road system, totaling 6,147.9 miles, is the largest component of the Navajo IRR systems. The Navajo-BIA road system is subdivided into seven agencies for administrative and inventory purposes: Shiprock/Northern, Western, Eastern, Chinle, Ft. Defiance, NIIP, and New Lands Agencies. Figure III-2 shows the Navajo-BIA road system mileage in these agencies.

Figure III-2. Navajo-BIA Roads

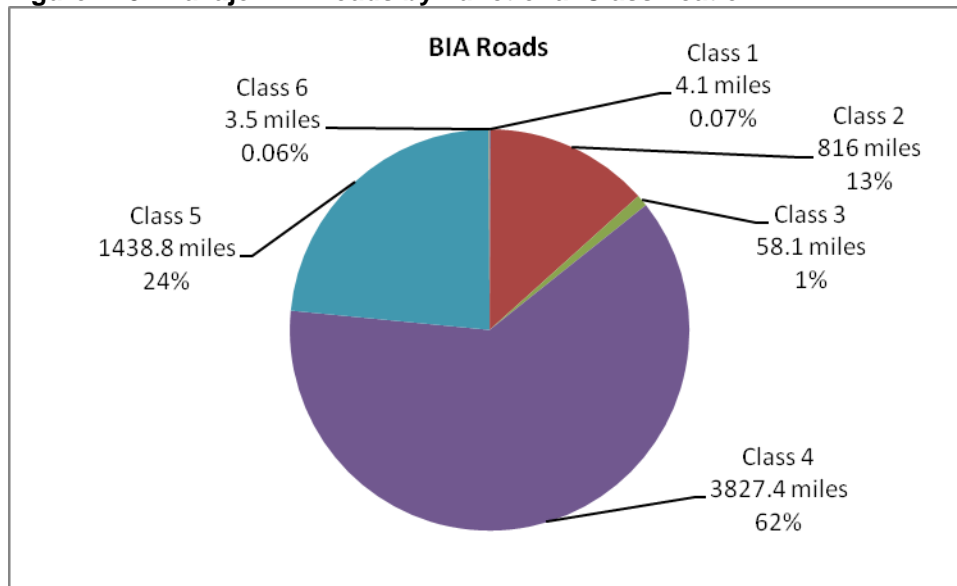


Source: 2008 Navajo Region Road Inventory

2. Navajo-BIA Roads by Functional Classification

The Navajo-BIA roads are classified by their functional classification (Map III-2). Figure III-3 provides road mileage and percentage division by functional classification of the Navajo-BIA road system. Table III-2 summarizes the road mileage and percentage division by function classification of Navajo-BIA road system.

Figure III-3. Navajo-BIA Roads by Functional Classification



Source: 2008 Navajo Region Road Inventory

Table III-2. Navajo-BIA Roads by Functional Classification (in miles)

Agency	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Agency Total
New Lands	0.0	0.2	17.0	68.3	1.2	0.0	86.7
Northern	0.0	95.0	12.5	783.0	318.4	0.9	1,209.8
Western	1.0	102.4	17.9	804.7	520.0	0.0	1,446.0
Eastern	0.0	111.9	6.8	271.7	273.0	2.6	666.0
Chinle	1.1	234.0	3.4	717.5	72.0	0.0	1,028.0
Ft. Defiance	2.0	242.0	0.5	990.4	170.1	0.0	1,405.0
NIIP	0.0	30.5	0.0	191.8	84.1	0.0	306.4
Class Total	4.1	816.0	58.1	3,827.4	1,438.8	3.5	6,147.9

Source: 2008 Navajo Region Road Inventory

The following provides a description of the various roadway classifications, as defined in the DOI-BIA IRR Coding Guide, October 2004

Class 1 – Major Arterial Roads: The Navajo-BIA Class 1 roads are major arterial roads providing an integrated network with characteristics for serving traffic between large population centers, generally without stub connections and having average daily traffic volumes of 10,000 vehicles per day or more with more than two lanes of traffic. Class 1 roads constitute 4.1 miles or only 0.07% of the total Navajo-BIA system.

Class 2 – Rural Minor Arterial Roads: The Navajo-BIA Class 2 roads are rural minor arterial roads providing an integrated network having characteristics for serving traffic between large population centers, generally without stub connections. These roads typically link smaller towns and communities to major resort areas that attract travel over long distances and generally provide for relatively high overall travel speeds with minimum interference to through traffic movement. Class 2 roads generally provide for at least inter-county or interstate service and are spaced at intervals consistent with population density. This class of road will have less than 10,000 vehicles per day. Class 2 roads constitute 816.0 miles or 13% of the entire Navajo-BIA system.

Class 3 – Streets: Street type roads are located within communities serving residential and other urban areas. These are streets at Navajo Growth Center communities, Navajo Housing Authority housing streets, etc. Class 3 streets amount to 58.1 miles or 1.0% of the total Navajo-BIA system.

Class 4 – Rural Collector Roads: The Navajo-BIA Class 4 roads are rural major collector roads that serve as a collector to rural local roads. The Navajo-BIA Class 4 roads make up most of the Navajo-BIA system, 3,827.4 miles or 62%.

Class 5 – Rural Local Roads: These roads are rural local roads that may be either section line or stub type roads, which make connections within the grid of the IRR system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. This class also includes roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes. Class 5 roads amount to 1,438.8 miles of the total Navajo-BIA system, or 24%.

Class 6 – City Minor Arterial Roads: These roads consist of minor arterial streets that are located within communities and serve as access to major arterials. Class 6 roads amount to 3.5 mile or only 0.06% of the total Navajo-BIA system.

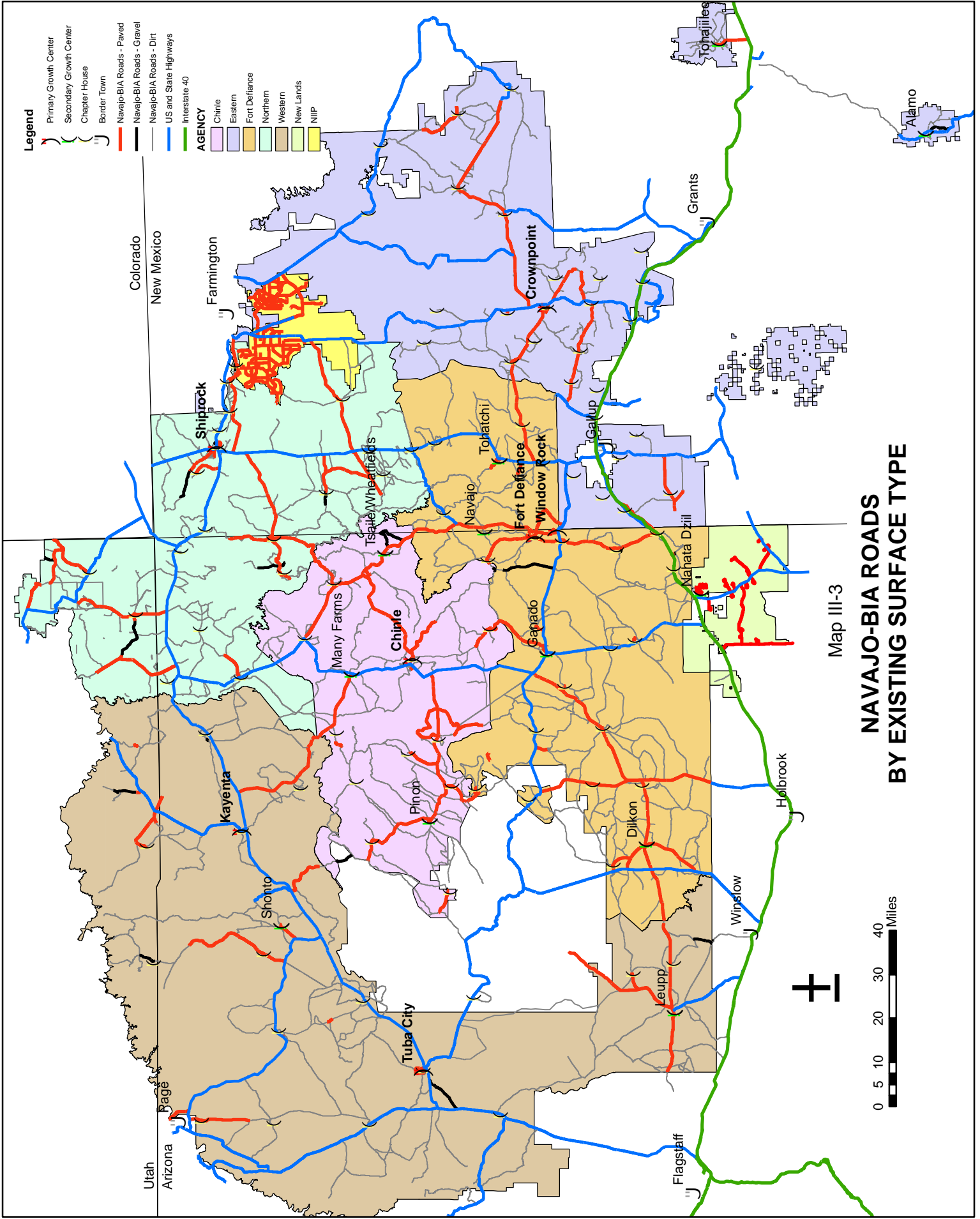
Class 7 – City Collector Streets: These are streets located within communities and serve as collectors to the city local streets. The Navajo Nation currently has none of this road class.

Classes 8-10 – These are classification for non-road and other intermodal transportation facilities. The Navajo Nation has yet to inventory these.

Class 11 – This is a classification to indicate an overlapping or previously inventoried road section (s) and is used to indicate that it is not to be used for accumulating needs data. This class is used for reporting and identification only.

3. Navajo-BIA Roads by Surface Type

The majority of Navajo-BIA roads are unpaved (Map III-3). Out of 6,147.9 miles total Navajo-BIA roads, only 1,494.4 miles (24%) are paved, 105.7 miles (2%) are gravel, 4,203.0 miles (68%) are earth, 291.7 miles (5%) are primitive roads, and 8.5 miles (0.1%) are proposed roads. Figure III-4 shows percentages of the Navajo-BIA road system by surface type. Table III-3 shows mileages of the Navajo-BIA road system by surface type and agency.



Legend

- Primary Growth Center
- Secondary Growth Center
- Chapter House
- Border Town
- Navajo-BIA Roads - Paved
- Navajo-BIA Roads - Gravel
- Navajo-BIA Roads - Dirt
- US and State Highways
- Interstate 40

AGENCY

- Chinle
- Eastern
- Fort Defiance
- Northern
- Western
- New Lands
- NIP

Map III-3

NAVAJO-BIA ROADS BY EXISTING SURFACE TYPE



Colorado
New Mexico

Utah
Arizona

Page

Shonto

Kayenta

Many Farms

Chinle

Pinon

Tuba City

Isate/Wheatfields

Navajo

Tohatchi

Fort Defiance

Window Rock

Gapado

Dilkon

Leupp

Winstow

Halbrook

Nahata Dzil

Galup

Crowpoint

Grants

Shiprock

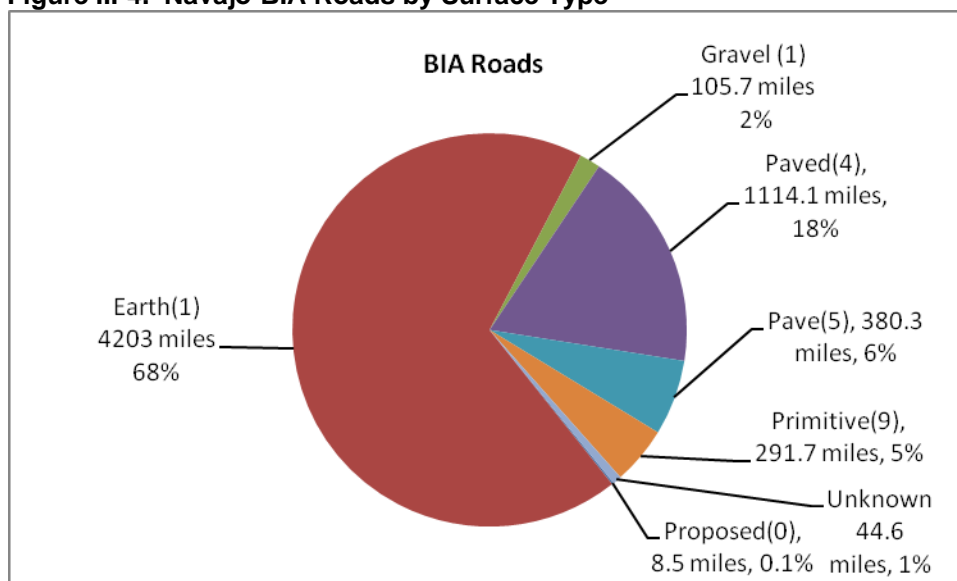
Farmington

Tonajilee

Alamo

Flagstaff

Figure III-4. Navajo-BIA Roads by Surface Type



Source: 2008 Navajo Region Road Inventory

Table III-3. Navajo-BIA Roads by Surface Type (in miles)

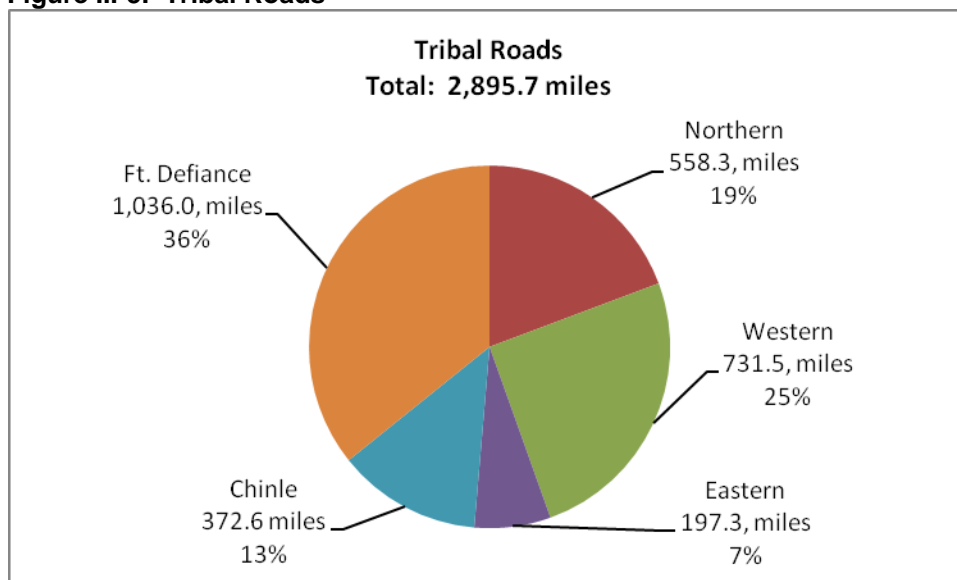
Agency	Proposed (0)	Earth (1)	Gravel (3)	Paved (4)	Paved (5)	Primitive (9)	Unknown	Agency Total
New Lands	0.0	3.1	0.0	83.6	0.0	0.0	0.0	86.7
Northern	0.0	880.4	40.1	189.3	61.5	37.7	0.8	1,209.8
Western	0.0	1,069.4	27.6	103.8	78.8	166.4	0.0	1,446.0
Eastern	0.0	456.5	5.5	129.2	57.6	17.2	0.0	666.0
Chinle	0.0	752.8	15.7	188.5	52.1	11.2	7.7	1,028.0
Ft. Defiance	0.0	1,040.3	16.8	200.1	88.6	59.2	0.0	1,405.0
NIIP	8.5	0.5	0.0	219.6	41.7	0.0	36.1	306.4
Surface Total	8.5	4,203.0	105.7	1,114.1	380.3	291.7	44.6	6,147.9

Source: 2008 Navajo Region Road Inventory

C. TRIBAL ROADS

Tribal Roads are public roads under the jurisdiction of the Navajo Nation. The tribal road category consists mostly of minor public roads serving tribal government facilities, housing, communities and commercial areas. Of the 2,895.7 total tribal road mileage, 2,801.1 miles are earth roads, 11.6 miles are gravel roads, 78.6 miles are paved roads, and 4.4 miles are primitive roads. Figure III-5 and Table III-4 show tribal road mileage division by agency.

Figure III-5. Tribal Roads



Source: 2008 Navajo Region Road Inventory

Table III-4. Tribal Roads (in miles)

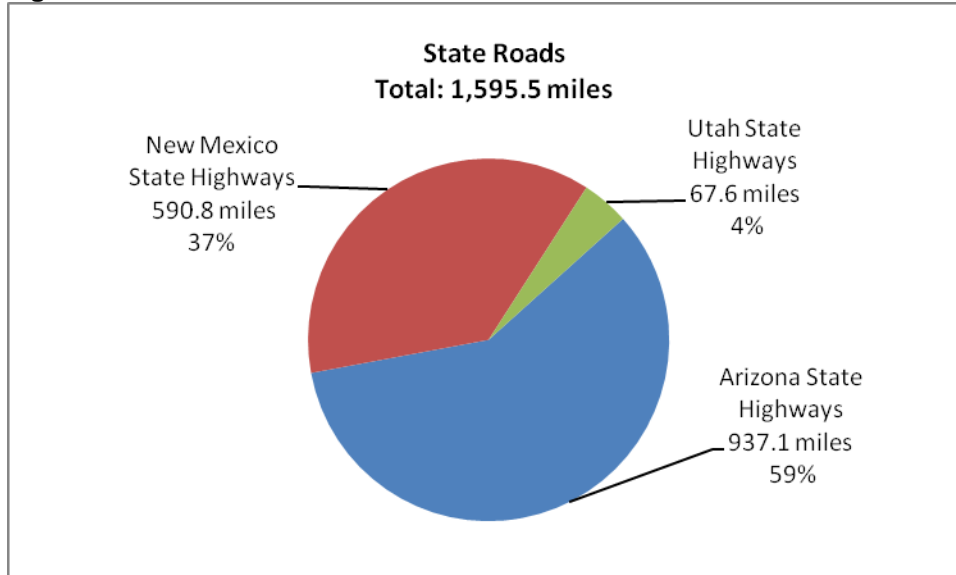
Agency	Earth(1)	Gravel(3)	Paved(4)	Paved (5)	Primitive(9)	Agency Total
New Lands	0.0	0.0	0.0	0.0	0.0	0.0
Northern	551.1	0.0	7.2	0.0	0.0	558.3
Western	698.7	0.0	32.8	0.0	0.0	731.5
Eastern	191.6	0.0	1.3	0.0	4.4	197.3
Chinle	350.4	0.8	21.4	0.0	0.0	372.6
Ft. Defiance	1,009.3	10.8	15.9	0.0	0.0	1,036.0
NIIP	0.0	0.0	0.0	0.0	0.0	0.0
Surface Total	2,801.1	11.6	78.6	0.0	4.4	2,895.7

Source: 2008 Navajo Region Road Inventory

D. STATE ROADS

There are 1,595.5 miles of Arizona, New Mexico, and Utah state highways that provide access for the Navajo Nation and connections to the surrounding region. State routes are main arterials/thoroughfares of the Navajo Reservation linking the nation’s capital, Window Rock, Arizona and the other Navajo population/growth centers. State highway systems on the Navajo Reservation include 937.1 miles in Arizona, 590.8 miles in New Mexico, and 67.6 miles in Utah. Figure III-6 and Table III-5 show mileage division of state highways by agency. All state highways are paved roads except for the NM57 of which its entire length of 40.1 miles is earth.

Figure III-6. State Roads



Source: 2008 Navajo Region Road Inventory

Table III-5. State Roads (in miles)

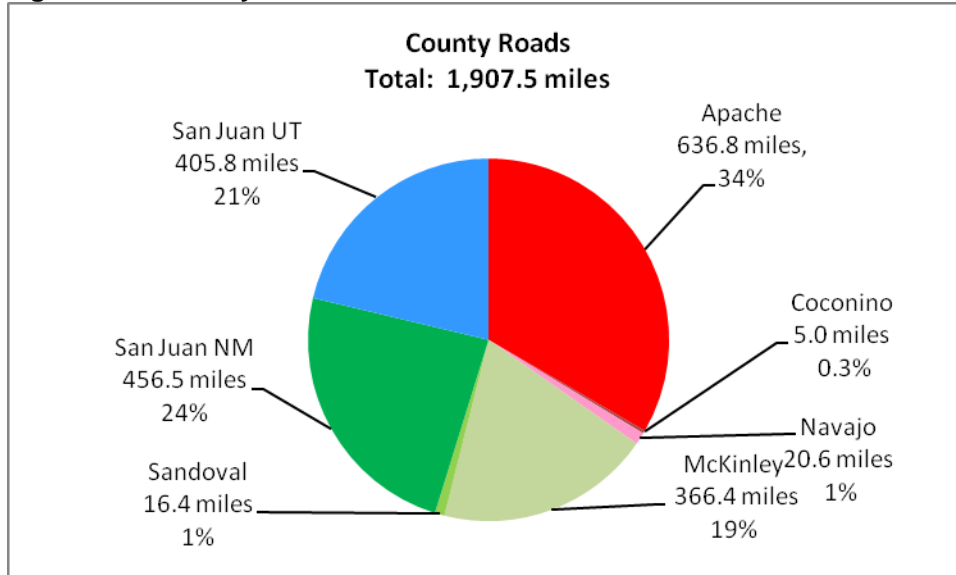
Agency	Arizona State Highways	New Mexico State Highways	Utah State Highways	Agency Total
New Lands	89.3	0.0	0.0	89.3
Northern	70.2	113.8	41.7	225.7
Western	503.5		25.9	529.4
Eastern	0.0	413.2	0.0	413.2
Chinle	60.8	0.0	0.0	60.8
Ft. Defiance	213.3	48.6	0.0	261.9
NIIP	0.0	15.2	0.0	15.2
State Total	937.1	590.8	67.6	1,595.5

Source: 2008 Navajo Region Road Inventory

E. COUNTY ROADS

County roads on the Navajo Reservation are primarily local collector roads extending from nearby off-reservation communities. The majority of county roads are in the Navajo Eastern Agency and Checkerboard areas of that agency where they provide access to Navajo Chapter areas. Other county roads are in Chinle, Shiprock, Western, Ft. Defiance, and NIIP Agencies respectively (see Figure III-7). Of the total 1,907.5 miles of county roads, 1,511.1 miles or 79% are earth roads, 110.3 miles or 6% are gravel, 134.9 miles or 7% are paved, and 151.2 miles or 8% are primitive roads. Table III-6 summarizes the mileage of County roads within the Navajo Nation reservation by county.

Figure III-7. County Roads



Source: 2008 Navajo Region Road Inventory

Table III-6. County Roads (in miles)

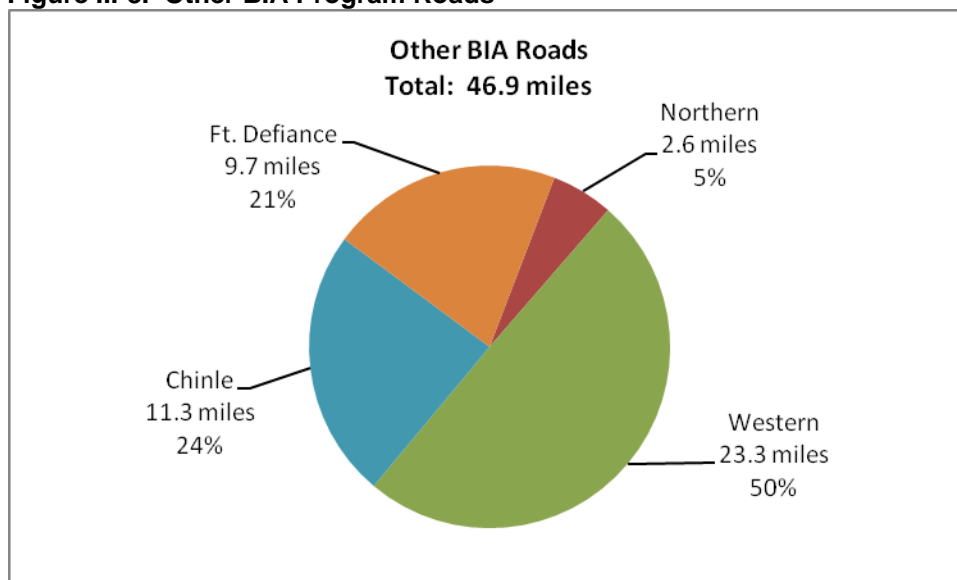
Agency	Apache	Coconino	Navajo	McKinley	Sandoval	San Juan NM	San Juan UT	Agency Total
New Lands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Northern	39.6	0.0	0.0	0.0	0.0	6.9	229.5	276.0
Western	40.2	5.0	20.6	0.0	0.0	0.0	176.3	242.1
Eastern	0.0	0.0	0.0	351.6	16.4	427.2	0.0	795.2
Chinle	306.9	0.0	0.0	0.0	0.0	0.0	0.0	306.9
Ft. Defiance	250.1	0.0	0.0	14.8	0.0	0.0	0.0	264.9
NIIP	0.0	0.0	0.0	0.0	0.0	22.4	0.0	22.4
County Total	636.8	5.0	20.6	366.4	16.4	456.5	405.8	1,907.5

Source: 2008 Navajo Region Road Inventory

F. OTHER BIA PROGRAM ROADS

This category describes a small group of roads, of which rights-of-way belong to various programs in the BIA (i.e., Forestry, BIA schools and facilities). Of the total 46.9 miles, 16.1 miles are earth roads and 30.8 miles are paved roads. There are no roads under this category in Eastern, NIIP, and New Lands Agencies. Figure III-8 and Table III-7 depict roads under this category by agency in percent and mileage division.

Figure III-8. Other BIA Program Roads



Source: 2008 Navajo Region Road Inventory

Table III-7. Other BIA Programs Roads (in miles)

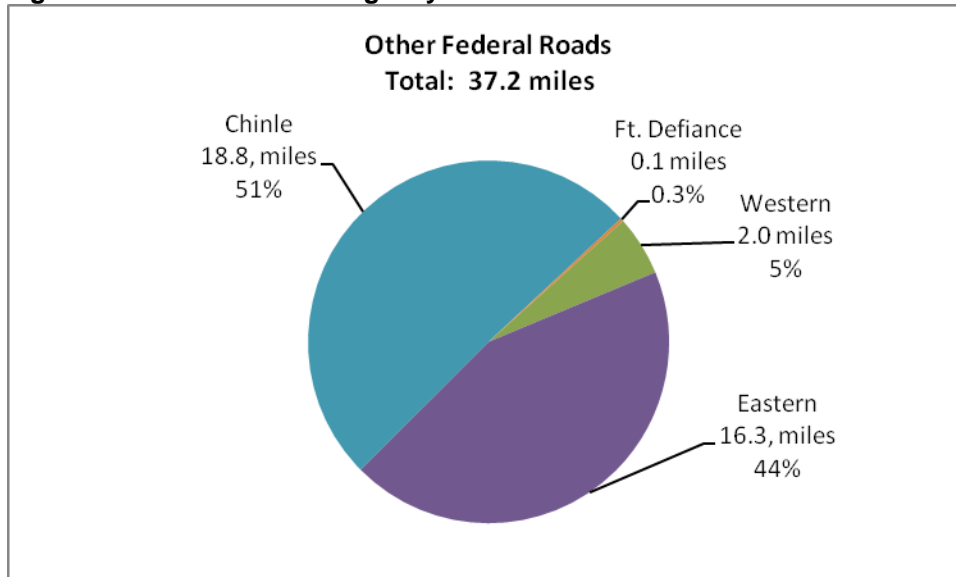
Agency	Proposed(0)	Earth(1)	Gravel(3)	Paved(4)	Paved(5)	Primitive(9)	Agency Total
New Lands	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Northern	0.0	0.0	0.0	2.6	0.0	0.0	2.6
Western	0.0	13.9	0.0	9.4	0.0	0.0	23.3
Eastern	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chinle	0.0	1.2	0.0	10.1	0.0	0.0	11.3
Ft. Defiance	0.0	1.0	0.0	8.7	0.0	0.0	9.7
NIIP	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Surface Total	0.0	16.1	0.0	30.8	0.0	0.0	46.9

Source: 2008 Navajo Region Road Inventory

G. OTHER FEDERAL AGENCY ROADS

These roads are under federal agencies, e.g., National Park Service (NPS), BLM that own land/properties within the boundary of the Navajo Reservation. Of the total 37.2 miles, 12.3 miles are earth roads and 24.9 miles are paved roads. There are no roads under this category in Shiprock, NIIP and New Lands Agencies. Figure III-7 and Table III-8 depict roads under this category by agency in percent and mileage division.

Figure III-9. Other Federal Agency Roads



Source: 2008 Navajo Region Road Inventory

Table III-8. Other Federal Agency Roads (in miles)

Agency	Proposed(0)	Earth(1)	Gravel(3)	Paved(4)	Paved(5)	Primitive(9)	Agency Total
New Lands	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Northern	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Western	0.0	0.0	0.0	2.0	0.0	0.0	2.0
Eastern	0.0	12.1	0.0	4.2	0.0	0.0	16.3
Chinle	0.0	0.2	0.0	18.6	0.0	0.0	18.8
Ft. Defiance	0.0	0.0	0.0	0.1	0.0	0.0	0.1
NIIP	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Surface Total	0.0	12.3	0.0	24.9	0.0	0.0	37.2

Source: 2008 Navajo Region Road Inventory

H. OTHER ROADS

This category describes other private and public roads not included to any other categories previously described, such as petroleum and mining, and utility companies. There are only 0.8 miles of other roads in the Western Navajo Agency.

CHAPTER IV - NAVAJO-BIA ROADS TRAFFIC DEMAND

A. EXISTING TRAFFIC VOLUME

The Navajo-BIA road system is generally characterized as rural low volume roads. Out of a total of 6,147.9 miles of the Navajo-BIA roads, 46% or 2,831.4 miles have average daily traffic (ADT) volumes less than 250 vehicles per day (vpd), with 2,830.3 miles of these having an ADT volume between 50-249 vpd and 1.1 miles of these having an ADT volume less than 50 vpd. 28%, or 1,742.9 miles of the Navajo-BIA road system have ADT volumes between 250-9999 vpd, and 0.1%, or 4.9 miles have ADT volumes of 10,000 vpd and greater.

B. TRAFFIC DEMAND FORECAST

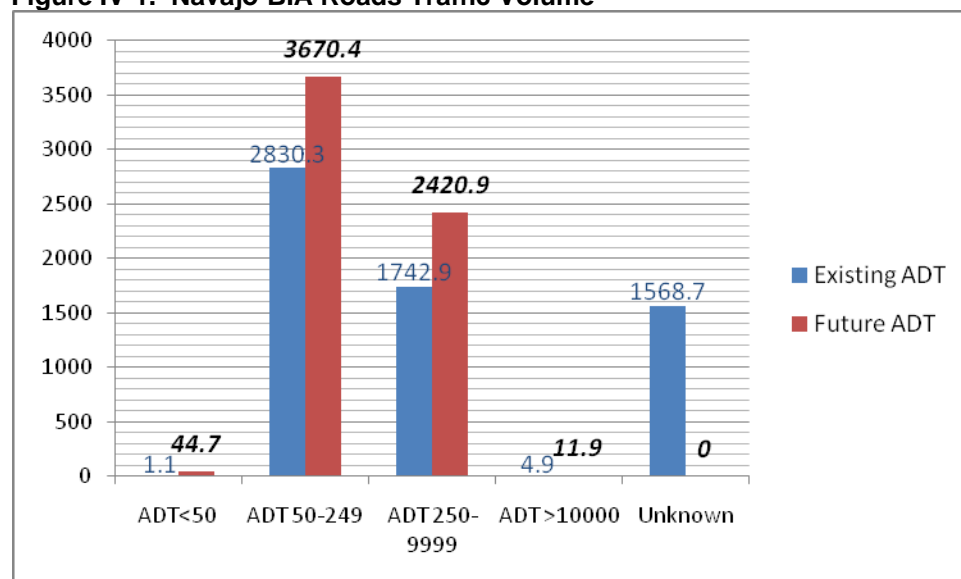
1. Twenty-Year Traffic Volume

The 2008 Navajo Region Road Inventory Field Data Module (RIFDS) estimates a 2% annual traffic growth rate for all Navajo-BIA roads. Similarly the Arizona Department of Transportation (ADOT) also estimates and uses a 2% annual traffic growth rate for all state routes on the Navajo and Hopi reservations.

Based on this projected traffic growth, within the next 20 years 39%, or 2,420.9 miles, of Navajo-BIA roads will have ADT volumes between 250-9999 vehicles per day (vpd) and 0.2%, or 11.9 miles, will have ADT volumes of 10,000 vpd and greater. The majority, 60% or 3,715.1 miles, will have ADT volumes between 50-249 and 1%, or 44.7 miles, will have ADT volumes less than 50 vpd.

Figure IV-1 compares miles of Navajo-BIA roads with existing and twenty-year (20) projected ADT volumes (2007 NRRRI). The graph shows a significant increase in the next 20 years in Navajo-BIA roads mileage with ADT volumes from less than 50, 50-250 vpd, 250-9999 vpd and those with ADT volumes of 10,000 vpd and greater.

Figure IV-1. Navajo-BIA Roads Traffic Volume



Source: 2008 Navajo Region Road Inventory

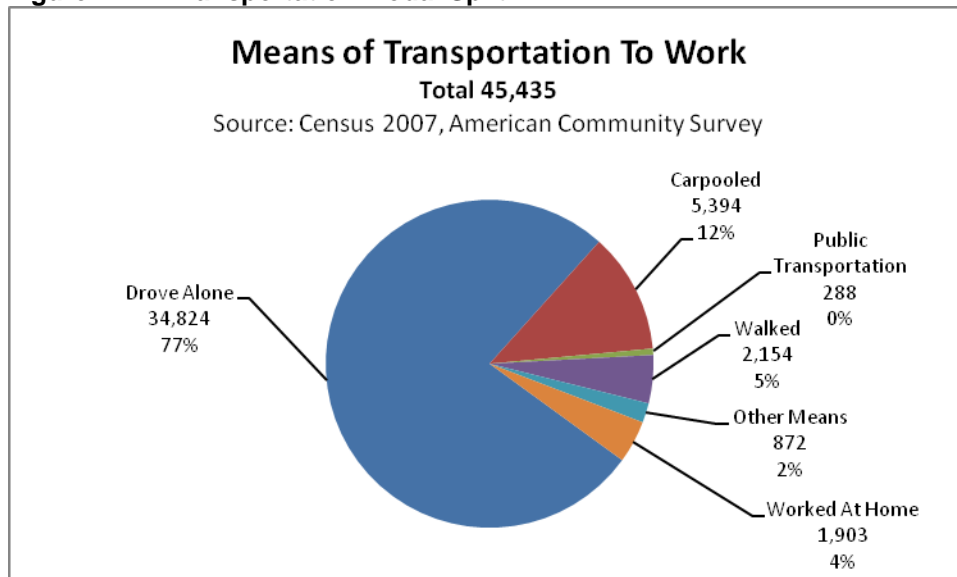
2. Estimate of Daily Person-Trips

For planning and estimating purposes, it is assumed that drivers on Navajo-BIA roads follow rural vehicle occupancy patterns, with 1.5 persons per vehicle for passenger cars and one (1) person per vehicle for trucks. ADOT uses these same figures in its planning for state highways on the Navajo Nation.

3. Estimate of Current and Future Modal Split

Modal split for Navajo transportation is virtually insignificant. Of the total 45,435 Navajo Nation residents commuting to work, 34,824 or 77% drove alone to work, 5,394 or 12% carpooled, 2,154 walked, and only 288 or 0.6% used transit to go to work (Census 2007, American Community Survey). Modal split is summarized in Figure IV-2. Similar percentages are expected for the future because of the Navajo Nation's rural setting and vast distance between communities.

Figure IV-2: Transportation Modal Split



C. TRAVEL PATTERNS

Based on the Transportation Planning Program's origin-destination survey conducted in 2001, a Navajo family has an average of 1.98 cars per household. On a weekday, commuter/driving to work trips generates approximately 41% of trips; driving children to school 31%; and school buses (picking up school children from bus stops to school) make up another 28% of total trips.

On average, a Navajo family makes approximately eight trips a year to healthcare facilities, and five trips a month to nearby border towns (usually on the weekend).

CHAPTER V - TRANSPORTATION NEEDS ASSESSMENT

A. **PLANNING METHODOLOGY**

The Navajo Nation comprehensive Transportation Plan is the Navajo Nation's vision of future transportation development to meet and fulfill the Nation's long term transportation needs. The planning process and methodology used in this plan includes examination of tribal and IRR program goals and objectives, transportation planning and highway design criteria, and transportation issues to identify future transportation needs.

1. **Transportation Goals:**

- To provide safe and efficient transportation and public road access to and within the Navajo Reservation including improvement of overall road conditions, bridges, and reduction in the number and severity of traffic crashes.
- To develop the necessary transportation system to foster and support economic development and to increase employment opportunities.

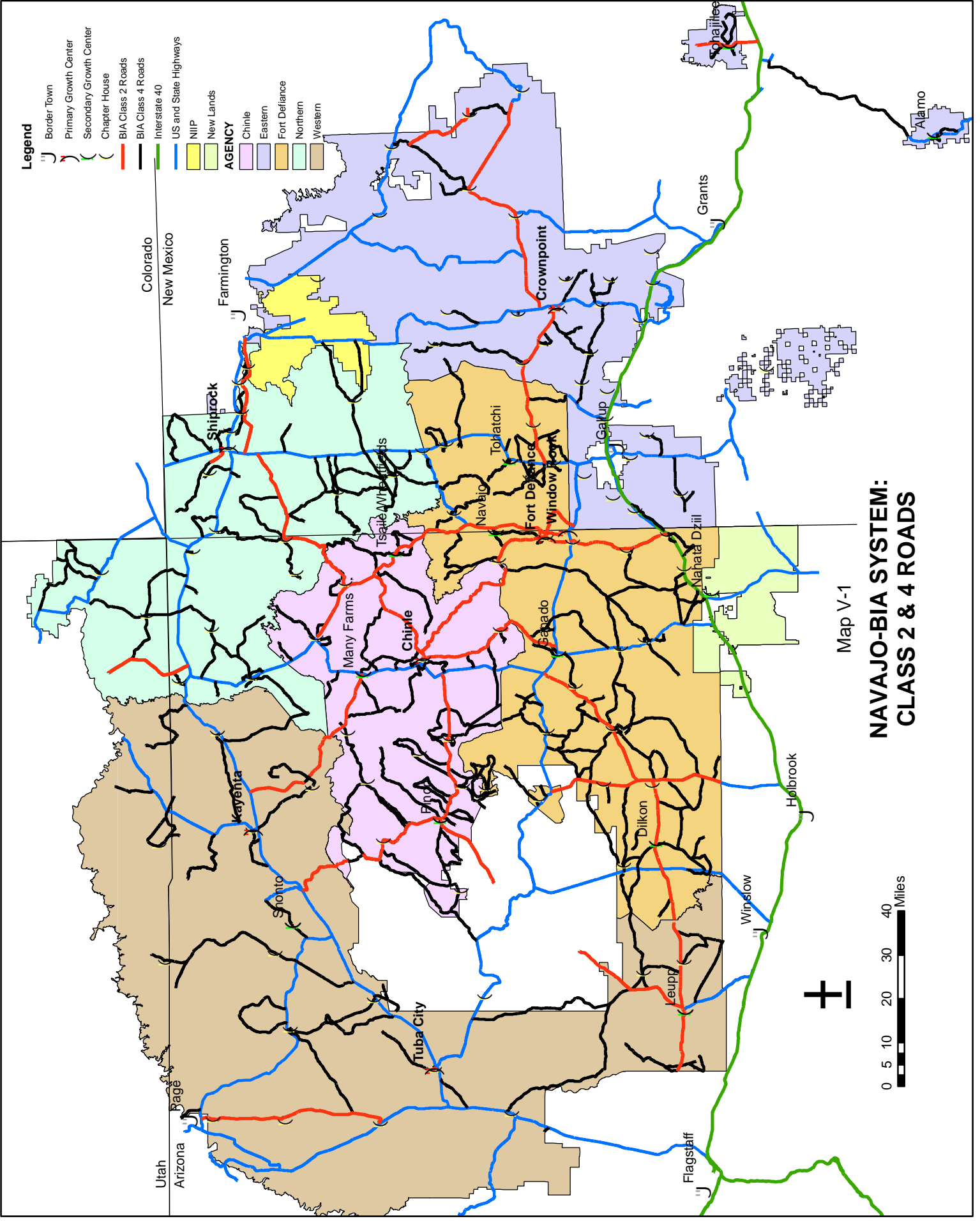
2. **Planning Guidelines:**

In compliance with transportation planning regulations and procedures, including IRR transportation planning guidelines, current SAFETEA-LU funding levels for the IRR Program, highway design criteria in 81 IAM and the American Association of State Highway and Transportation Officials (AASHTO) procedures were used in the planning process and the needs assessment.

3. **Transportation Issues:**

- The Navajo Nation is the largest tribe in both land area and population, but due to inadequate funding for the Navajo IRR Program, seventy-six percent (76%) of the Navajo-BIA road system is unpaved.
- Community transportation survey respondents identified the following important topics (The survey results from the 143 respondents are included in Figure V-1 and individual questionnaire responses are included as Appendix A):
 1. Safety improvements were the highest transportation goal, ranked above economic development, access to recreation, connection to transit and connection to freight;
 2. Safety improvements (roadway striping, signage, traffic control, guard rail and street lights);
 3. Road improvements (paving existing dirt or gravel roads);
 4. Road maintenance (pothole repair and blading of dirt roads); and
 5. Bridge improvements.
- The poor condition of local roads, coupled with increased traffic and safety issues have become a primary concern for chapters, school administrators, health care providers, and tribal and transportation leaders. Lack of paved roads has been identified as affecting quality of life.

Together, the Navajo Nation's transportation goals, planning guidelines and tribal transportation issues above, and road inventory and other planning data form the basis for determining transportation needs. The 2008 Navajo Region Road Inventory Field Data System (RIFDS) data, Navajo Nation Census 2000 demographic data, 1999-2007 crash data, and other pertinent planning information were used to analyze and identify the Navajo Nation's 20 year transportation needs in a systematic way. The planning/transportation needs assessment process is summarized in Figure V-2 as follows:

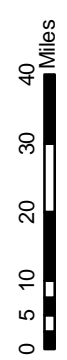


Legend

- Border Town
 - Primary Growth Center
 - Secondary Growth Center
 - Chapter House
 - BIA Class 2 Roads
 - BIA Class 4 Roads
 - Interstate 40
 - US and State Highways
 - NIP
 - New Lands
- AGENCY**
- Chinle
 - Eastern
 - Fort Defiance
 - Northern
 - Western

**NAVAJO-BIA SYSTEM:
CLASS 2 & 4 ROADS**

Map V-1



Colorado
New Mexico

Utah
Arizona

Farmington

Tuba City

Shonto

Many Farms

Chinle

Page

Sagaado

Dilkon

Leup

Flagstaff

Winslow

Holbrook

Grants

Shiprock

Crownpoint

Alamo

Chalup

Nahata Drill

Navajo

Tohatchi

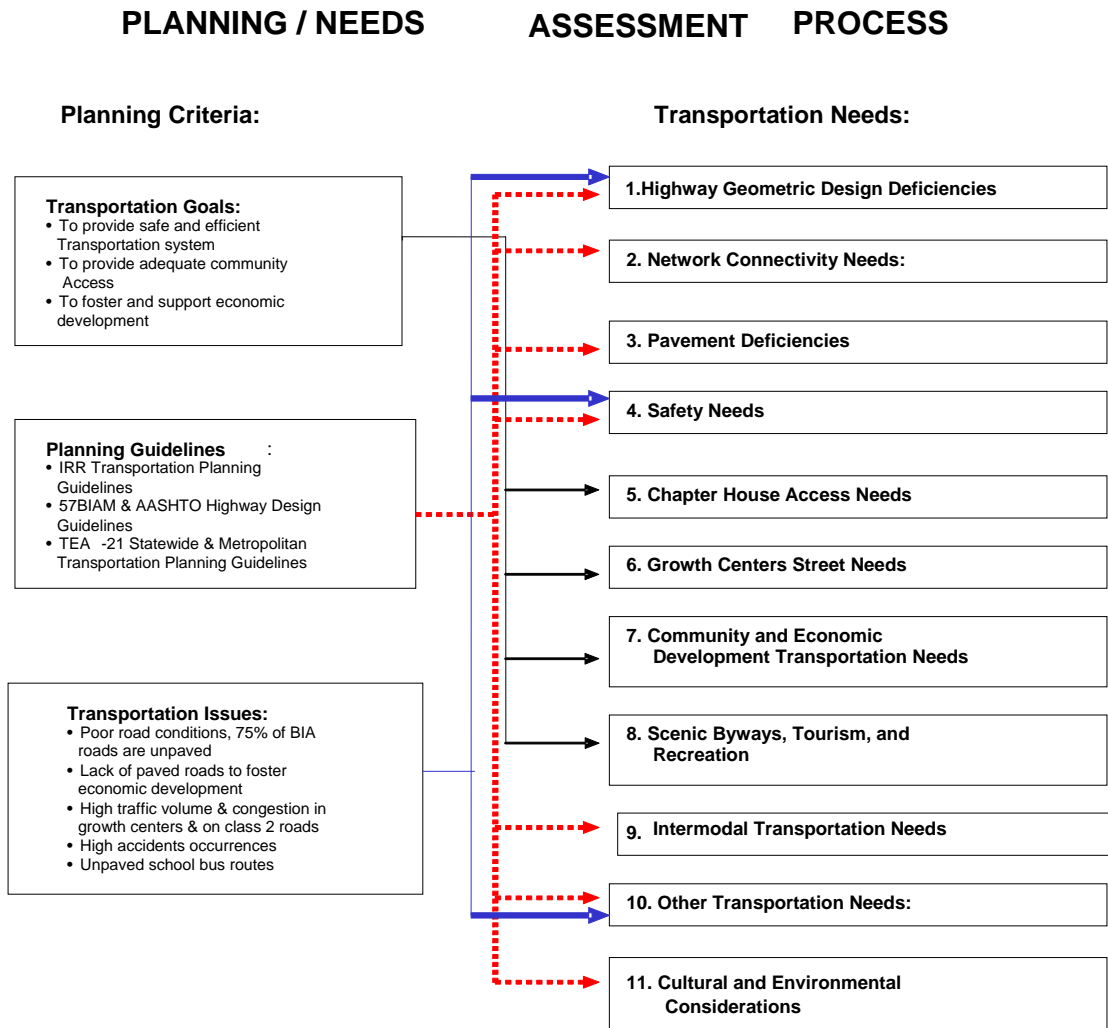
Fort Defiance

Window Rock

Chalup

Shajilee

Figure V-2. Planning / Needs Assessment Process



B. NAVAJO-BIA ROAD ISSUES AND NEEDS

The Navajo-BIA road issues and needs are summarized in the next eleven sections, described as Needs 1 through 11. The needs were developed based on available data sources and public outreach.

NEED 1: Highway Geometric Design Deficiencies

To meet the Navajo IRR program objectives, design and construction of roads, bridges, and other transportation facilities must be done to current acceptable engineering standards for anticipated 20-year traffic volume. Based on the highway geometric design guidelines and 20-year projected traffic volume (Table V-1), of the total Navajo-BIA roadway system, 97% of total Navajo-BIA road system or 5,955.4 miles have geometric design deficiencies (Table V-2) including upgrades in road geometry, surfacing, and/or highway capacity.

Table V-1. Geometric Design Standards

ADS	Future ADT	Functional Classification	Needs Surface Upgrade	Needs Shoulder Widening	Needs Roadway Widening	Needs Shoulder Type Upgrade
1,2,3	N/A	1-Major Arterial	Surface Type<5	Shoulder Width<6 ft	Roadway Width<66 ft	Shoulder Type<3
4,5,6	>=400	2-Rural Minor	Surface Type<5	Shoulder Width<6 ft	Roadway Width<36 ft	Shoulder Type<3
7,8,9	<400	2-Rural Minor	Surface Type<4	Shoulder Width<4 ft	Roadway Width<32 ft	Shoulder Type<3
10,11,12	>=400	4-Rural Major	Surface Type<5	Shoulder Width<4 ft	Roadway Width<32 ft	Shoulder Type <3 for ADS10; <2 for ADS11; <1 for ADS12;
	>250<400	4-Rural Major	Surface Type<4			
	50-250	4-Rural Major	Surface Type<3	Shoulder Width<4 ft	Roadway Width<32 ft	Shoulder Type <3 for ADS10; <2 for ADS11; <1 for ADS12;
13,14,15	<50	4-Rural Major	Surface Type <1	Shoulder Width<4 ft	Roadway Width<32 ft	Shoulder Type <3 for ADS10; <2 for ADS11; <1 for ADS12;
	>400	5-Rural Local	Surface Type <4	Shoulder Width<2 ft	Roadway Width<28 ft	Shoulder Type <3 for ADS13; <2 for ADS14; <1 for ADS15;
	50-400	5-Rural Local	Surface Type <3	Shoulder Width<2 ft	Roadway Width<28 ft	Shoulder Type <3 for ADS13; <2 for ADS14; <1 for ADS15;
16,17,18	<50	5-Rural Local	Surface Type <1	Shoulder Width<2 ft	Roadway Width<28 ft	Shoulder Type <3 for ADS13; <2 for ADS14; <1 for ADS15;
	>=400	6-City Minor	Surface Type <5	N/A	Roadway Width	N/A
	>250<400	7-City Collector 3-City Local	Surface Type<4		<50 for ADS 16, <(21-38) for ADS 17 or 18	
16,17,18	50-250	6-City Minor 7-City Collector 3-City Local	Surface Type <3	N/A	Roadway Width <50 for ADS 16, <(21-38) for ADS 17 or 18	N/A
	Under 50	6-City Minor 7-City Collector 3-City Local	Surface Type <1	N/A	Roadway Width <50 for ADS 16, <(21-38) for ADS 17 or 18	N/A

Source: 25 CFR Part 170, Table 1 – Adequate Standard Characteristics, 7/19/2004, page 43123.

Notes: Surface Type Codes: 6, 5, 4=Paved; 3=Gravel; 1=Earth;
Shoulder Type Codes: 4=Curb; 3=Paved; 2=Gravel; 1=Earth.

Table V-2. Miles of Navajo-BIA Roads with Geometric Deficiencies/Total NEED 1

ADS	CLASS	FADT	Miles of Roads Needing Only Surface Imp	Miles of Roads Needing Only Roadway Widening	Miles of Roads Needing Surface Imp & Roadway Widening	Sub-Total	Total By Class
1	1-Major Arterial	N/A	0.9	0.1	0.3	1.3	4.1
2		N/A	2.0	0.8	0.0	2.8	
3		N/A	0.0	0.0	0.0	0.0	
4	2-Rural Minor Arterial	>=400	5.9	13.8	54.0	73.7	754.6
5			8.7	184.0	397.1	589.8	
6			5.3	11.5	2.7	19.5	
7		<400	0.0	0.0	0.0	0.0	
8			0.0	24.3	23.0	47.3	
9			0.0	0.0	24.3	24.3	
10	4-Rural Major Collector	>250	17.5	15.0	138.2	170.7	3757.0
10		50-250	1.8	5.2	365.8	372.8	
11		>250	38.6	136.9	988.7	1164.2	
11		50-250	33.7	82.0	1668.6	1784.3	
11		<50	0.0	1.1	0.0	1.1	
12		>250	1.9	0.0	76.6	78.5	
12	50-250	0.0	0.0	185.4	185.4		
13	5-Rural Local	>400	0.1	5.5	43.1	48.7	1402.1
13		50-400	125.3	6.6	18.1	150.0	
14		>400	2.9	28.5	72.0	103.4	
14		50-400	68.5	14.7	806.2	889.4	
15		>400	0.0	0.0	8.4	8.4	
15		50-400	0.0	0.0	202.2	202.2	
16	6-City Minor Arterial	N/A	0.0	0.9	2.6	3.5	3.5
17	7-City Collector	N/A	0.0	0.0	0.0	0.0	0.0
18	3-City Local	N/A	8.8	23.5	1.8	34.1	34.1
Grand Total							5955.4

Source: 2008 Navajo Region Road Inventory.

NEED 2: Network Connectivity Needs

BIA Class 1 (Major Arterial), Class 2 (Rural Minor Arterial) and Class 4 (Rural Major Collector) roads together work to provide network connectivity from Class 5 (Rural Local) roads to population centers, state road systems and regional network. However, the connectivity of Navajo-BIA roads system is hardly efficient due to the fact that much of these roads are unpaved: 11% of the Navajo-BIA Class 2 roads; 83% of Class 4 roads; and 93% of Class 5 road are unpaved (Table V-3a). This can be easily illustrated by comparing Map V-1, showing all Class 2 & 4 roads as they should have functioned with Map V-2, showing actual paved Class 2 & 4 roads. Missing roads or gaps in Map V-2 clearly show that the paved segments are not continuous throughout the network thus demonstrates poor continuity or inefficiency of the network when the arterials and major collectors are not paved.

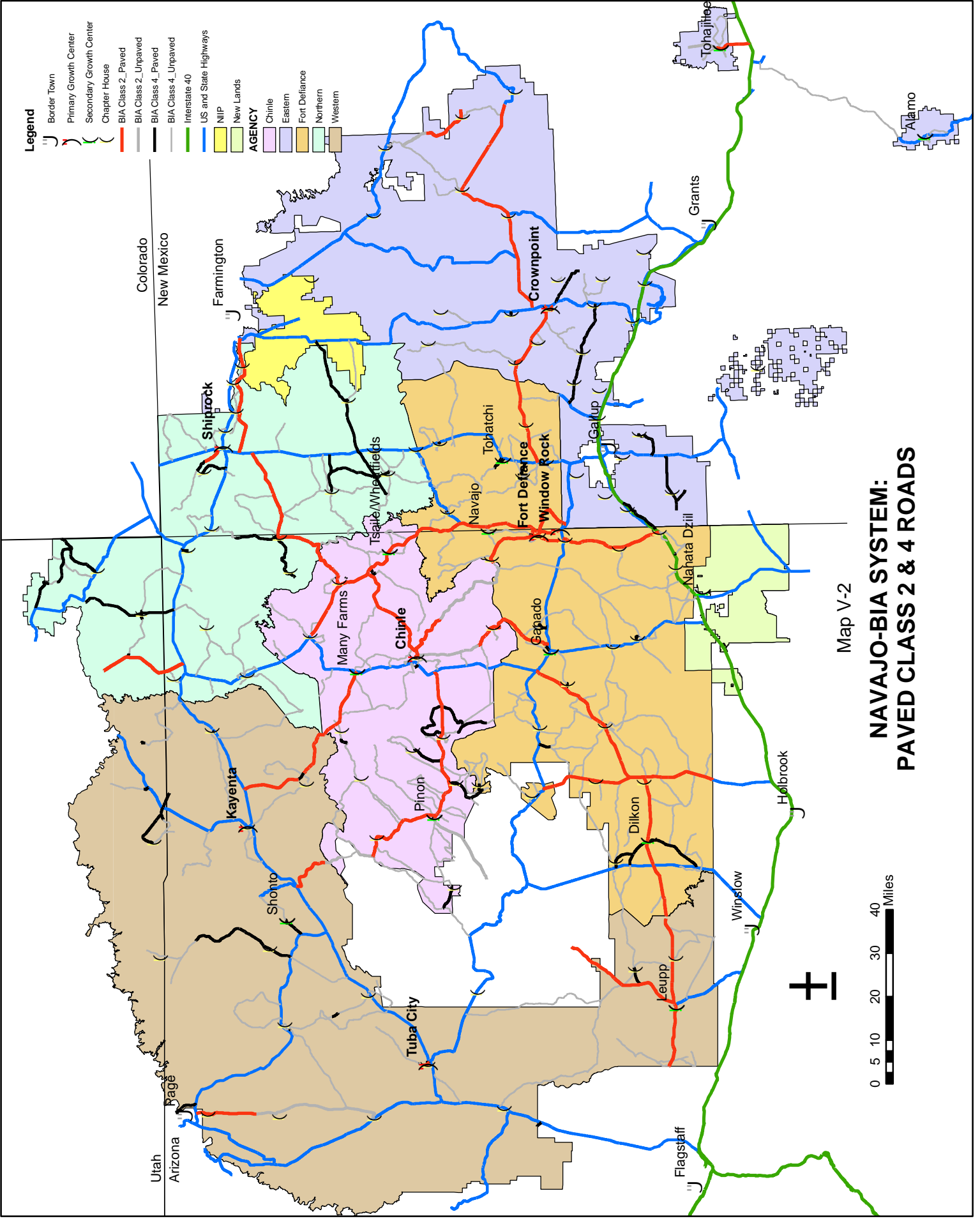
Table V-3a. Navajo-BIA Roads' Surface Type By Class

Surface Type	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Surface Total
Proposed	0.0	0.0	0.0	8.5	0.0	0.0	8.5
Earth	0.0	85.0	5.8	2901.7	1210.5	0.0	4,203.0
Gravel	0.0	1.4	2.0	89.5	12.8	0.0	105.7
Paved (4)	3.2	465.0	45.3	534.4	62.7	3.5	1,114.1
Paved (5)	0.9	264.2	5.0	91.9	18.3	0.0	380.3
Primitive	0.0	0.4	0.0	172.2	119.1	0.0	291.7
Unknown	0.0	0.0	0.0	29.2	15.4	0.0	44.6
Class Total	4.1	816.0	58.1	3,827.4	1,438.8	3.5	6,147.9
% Unpaved By Class		11%	13%	83%	93%	0%	75%
% Paved By Class	100%	89%	87%	16%	6%	100%	24%

Source: 2008 Navajo Region Road Inventory.

Map V-3 illustrates and Table V-3a lists, the Class 2 and 4 roadway segments that are currently unpaved and carry more than 250 ADT, which would meet the criteria under the 81 IAM to be paved.¹ These road sections, although unpaved, have high traffic volume meaning the public is using them regularly because there are no other alternative routes. As shown, there are 19.1 miles of unpaved Class 2 roads that currently carry over 400 ADT, and 33.8 miles that carry over 250 ADT. Of the unpaved Class 4 roads, there are 140.9 miles that currently carry over 400 ADT and 298.2 miles that carry over 250 ADT. At minimum, these roads should be paved to improve the overall Navajo-BIA road connectivity.

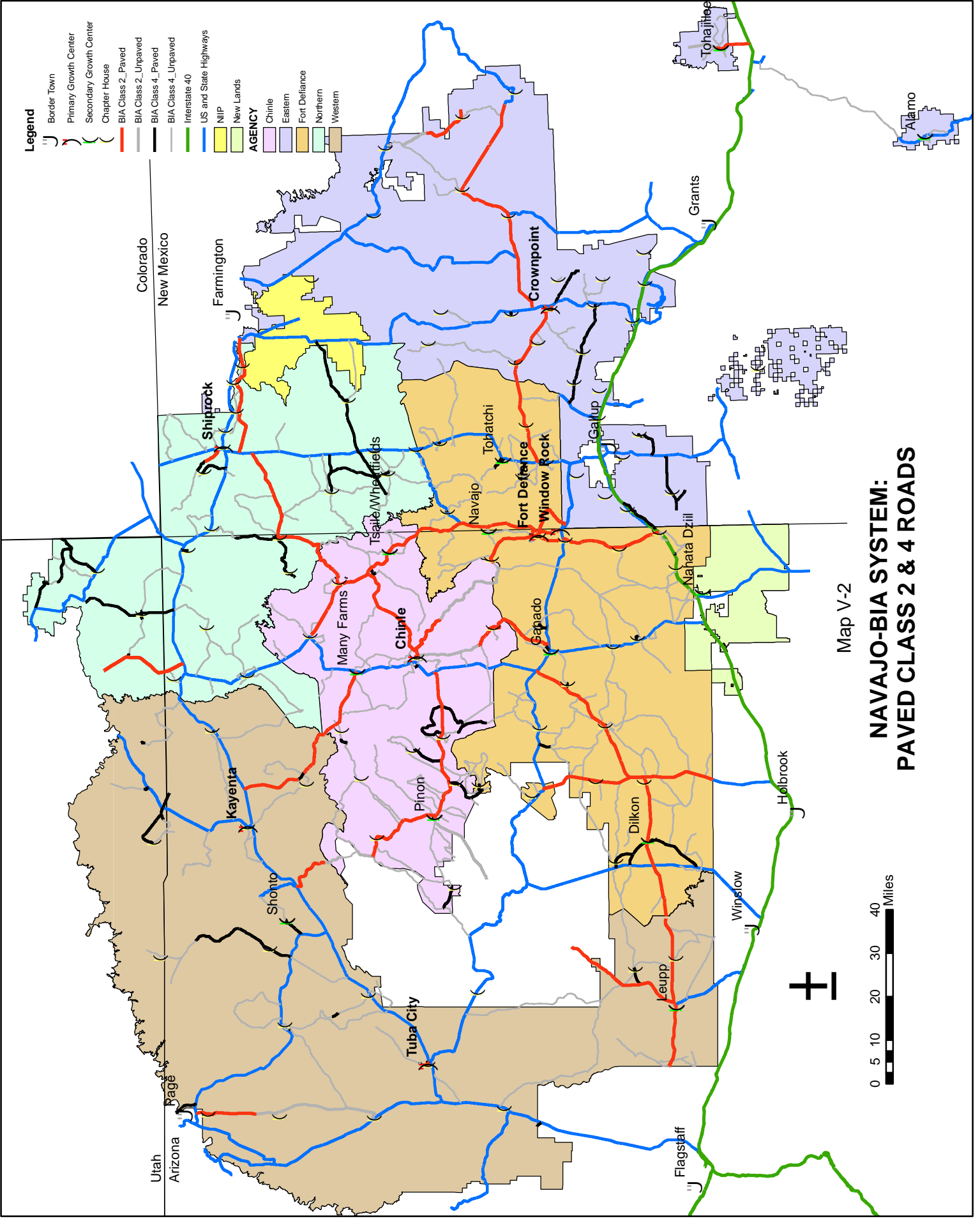
¹ 57 BIAM, Supplement 4, Sec. 2.2B (3), Surface improvement criteria: (1) All class 2 and 4 roads with less than 50 ADT (20-year projected) will not be constructed with gravel surfacing; (2) All class 2 and 4 roads with less than 250 ADT (20-year projected) will not be constructed with paved surfacing.



Map V-2

**NAVAJO-BIA SYSTEM:
PAVED CLASS 2 & 4 ROADS**





Legend

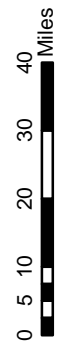
- Border Town
- Primary Growth Center
- Secondary Growth Center
- Chapter House
- BIA Class 2_Paved
- BIA Class 2_Unpaved
- BIA Class 4_Paved
- BIA Class 4_Unpaved
- Interstate 40
- US and State Highways
- NIP
- New Lands

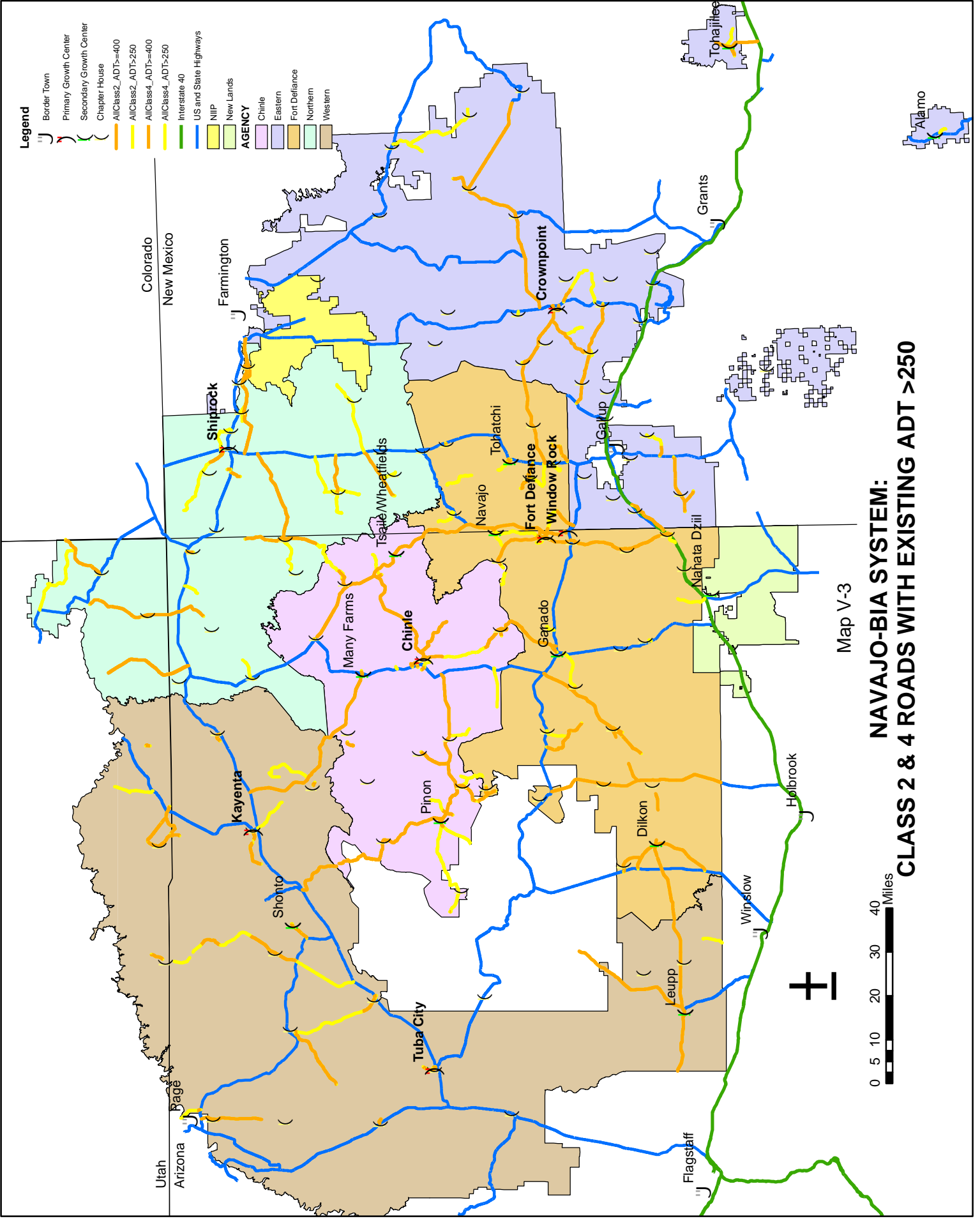
AGENCY

- Chinle
- Eastern
- Fort Defiance
- Northern
- Western

Map V-2

**NAVAJO-BIA SYSTEM:
PAVED CLASS 2 & 4 ROADS**





Legend

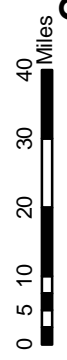
- Border Town
- Primary Growth Center
- Secondary Growth Center
- Chapter House
- AIClass2_ADT>=400
- AIClass2_ADT>250
- AIClass4_ADT>=400
- AIClass4_ADT>250
- Interstate 40
- US and State Highways
- NIP
- New Lands

AGENCY

- Chinle
- Eastern
- Fort Defiance
- Northern
- Western

Map V-3

**NAVAJO-BIA SYSTEM:
CLASS 2 & 4 ROADS WITH EXISTING ADT > 250**



Existing Navajo-BIA Class 2 roads that are already paved, and are nearing or have exceeded their design life and need to be re-constructed are included in the Need (1) category: Highway Geometric Design Deficiencies, for Class 2 roads (Table V-2).

Table V-3. Unpaved Navajo-BIA Class 2 Road Segments with 20-Year ADT > 250 Meeting 81 IAM Requirements to Be Paved

Agency	Route	BMP	EMP	Miles	Existing ADT	20-Year ADT	Existing Surface Type
Western	N2	30.1	32.3	2.2	1,211	1,798	Earth
Western	N20	0	4.5	4.5	550	817	Earth
Western	N20	24.4	29.9	5.5	170	252	Earth
Western	N41	33.4	34.8	1.4	543	806	Earth
Eastern	N56	11.3	13.7	2.4	1,551	2,303	Earth
Eastern	N474	0	6.5	6.5	253	376	Earth
Chinle	N4	1.3	19.5	18.2	367	545	Earth
Chinle	N7	13.7	32.6	18.9	241	358	Earth
Chinle	N13	4.8	9.6	4.8	370	549	Earth
Chinle	N27	22.4	36.8	14.4	415	616	Earth
Chinle	N41	21.3	25.6	4.3	543	806	Earth
Chinle	N41	30.1	32.5	2.4	543	806	Earth
Ft. Defiance	N7	32.6	36.8	4.2	258	383	Earth
Total:				89.7			

Source: 2008 Navajo Region Road Inventory

Proposed Navajo-BIA Class 2 Roads:

The Navajo Reservation is large with few paved roads. Map V-1 shows Navajo-Class 4 roads that are regularly used by the locals to access state highways. N8031 and N8027 provide a shortcut from Chinle to Tuba City through Pinon; N46 connects N9 to US550 at Counselor; and N55 connects Alamo to I-40. Pinon and Alamo are Navajo Secondary Growth centers. This plan proposes to reclassify these roads, which are identified in Table V-4 to Class 2 since they connect population centers to state roads, thus meeting BIA/FHWA’s class 2 road definition. Reclassifying and paving these roads will improve the overall efficiency of the road network, reduce travel time and conserve fuel. Table V-5 summarizes the total Class 2 road needs.

Table V-4. Proposed Navajo-BIA Class 2 Roads

Agency	Route No., Location	BMP	EMP	Miles	Existing ADT	20-Year ADT	Existing Surface Type
CHL	N8031* from Pinon to N8027 east of Hard Rock.	0	23.1	23.1	264	392	Earth
CHL	N8027, from N8031 to AZ264 at Dennebbito Junction	0	7	7	229	340	Earth
ENA	N46* from Pueblo Pintado to Counselor.	0	19.8	19.8	390	579	Earth
ENA	N55* from Alamo to I-40	0	40.1	40.1	63	94	Earth
Total:				90			

Table V-5. Total Class 2 Road Needs

Transportation needs	Total Miles
To pave existing unpaved Navajo-BIA Class 2 roads	89.7
To pave proposed Class 2 roads	90.0
Need 2. Total	179.7

NEED 3: Pavement Deficiencies

Of the total 6,147.9 miles of Navajo-BIA roadways, 24% or 1,494.4 miles are paved. To meet the Pavement Management System (PMS) requirement, pavement deficiencies of Navajo BIA road sections were identified based on BIADOT wearing surface or pavement rating standards (Table V-6). Per the 2008 inventory, a total of 1,313.8 miles of Navajo BIA paved roads have pavement and/or design deficiencies and require reconstruction of the roadway (Table V-7). There are 1.3 miles of Navajo BIA paved roads that have moderate pavement deficiencies and require pavement rehabilitation, while 26.3 miles require minor rehabilitation. A total of 153.0 miles have slight deficiencies or are in good surface condition and only require routine maintenance to extend the life of their pavement.

Total cost to improve pavement deficiencies for all Navajo-BIA road classes (Table V-6) is \$1.4 billion.

Table V-6. Pavement Rating Standards

Pavement Rating (PCI)	Roadbed Condition (RB)	Improvement Criteria	Improvement Needs
0 - 9 Very Poor	3 - Min built-up roadbed with inadequate drainage and alignment	PCI < 40 or RB < 5	Reconstruction
10 - 39 Poor	4 - A designed and constructed roadbed with some drainage and alignment		
40 - 50 Fair	5 - A roadbed constructed to adequate design standards	PCI = 40-50 and RB >= 5	Rehabilitation
51 - 69 Good	6 - A roadbed constructed to adequate design standards with curb and gutter on one side	PCI = 51-69 and RB >= 5	Minor Rehabilitation
>=70 Very Good	7 - A roadbed constructed to adequate design standards with curb and gutter on both sides	PCI >= 70 and RB >= 5	Maintenance Only

Source: 2007 RIFDS Coding Guide – Pavement Rating and Roadbed Condition standards.

Table V-7. Miles of Navajo-BIA Roads with Pavement Deficiencies

Road Class	PCI<40 and RB<5, Need Reconstruction for Geometric Design and Pavement Deterioration	RB<5, Need Reconstruction for Geometric Design	PCI<40, Need Reconstruction for Pavement Deterioration	PCI=40-50 and RB>=5, Need Rehabilitation	PCI=51-69 and RB>=5, Need Minor Rehabilitation	PCI>=70 and RB>=5, Need Maintenance Only
1	0.5	3.2	0.0	0.0	0.4	0.0
2	325.3	295.4	0.5	0.0	9.1	98.9
3	22.5	14.1	0.2	0.0	7.9	5.6
4	269.2	298.1	0.3	1.3	8.9	48.5
5	18.0	63.0	0.0	0.0	0.0	0.0
6	0.6	2.9	0.0	0.0	0.0	0.0
Total	636.1	676.7	1.0	1.3	26.3	153.0
Percent	42.6%	45.3%	0.1%	0.1%	1.8%	10.2%

Source: 2008 Navajo Region Road Inventory.

NEED 4: Safety

BIA policy requires that IRR program development² include identification of sites with high crash potential so they can be brought to the attention of road design engineers. Another requirement is identification of sites with high crash occurrences so that safety projects or a highway safety program can be developed to help reduce the number of crashes.

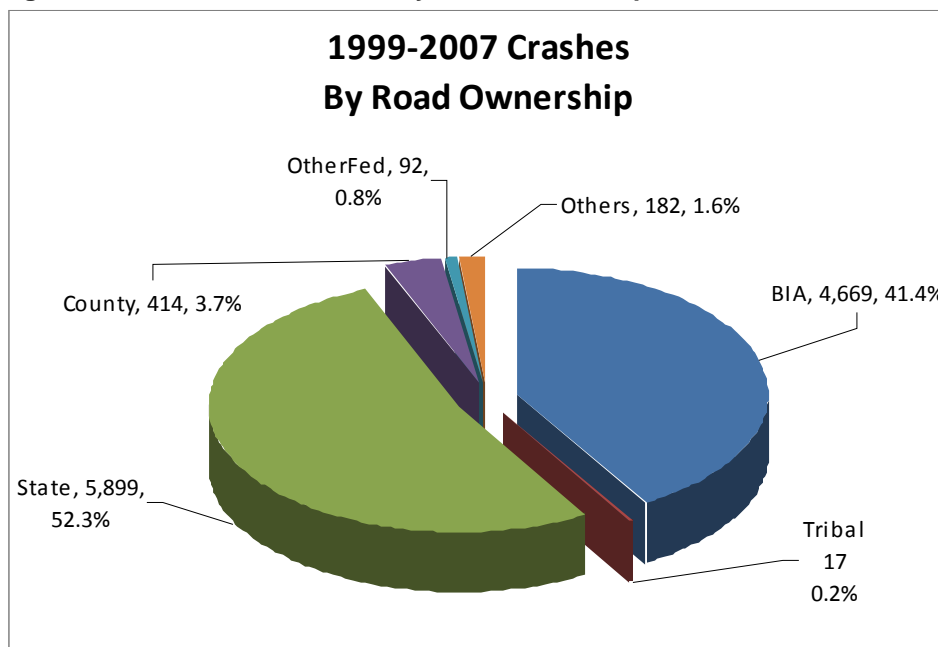
The 2007 Motor Vehicle Crash Facts prepared by ADOT reports that Native Americans made up 15.34% of total crash fatalities (the third largest group after White and Hispanic), while their population was only 5.25% of Arizona. This indicates the seriousness of traffic crashes and safety issues on the Navajo Nation.

² 57BIAM, Road Construction-Development of Program, Sec. 6.11 (B-D)



In the years 1999-2007, a total of 11,273 traffic crashes occurred on the Navajo Nation. The majority of the crashes happened on state and Navajo-BIA roads. As summarized in Figure V-3, 52.3% or 5,899 crashes occurred on state highways; 41.4% or 4,669 crashes on Navajo BIA roads; 3.7% or 414 crashes on county roads; 1.6% or 182 crashes on other public roads; and 0.8% on other tribal and government program roads.

Figure V-3. 1999-2007 Crashes by Road Ownership



When compared to the 1992-1996 statistics (an average of 991 crashes annually), the crash total for 1999-2007 (1,253 crashes annually) has increased by 26%.

Figure V-4. 1999-2007 Crashes by Agency

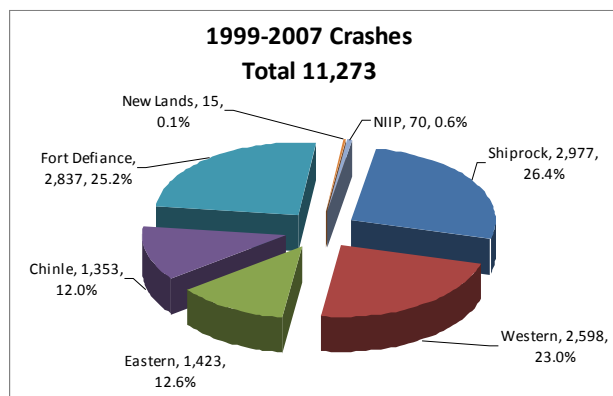


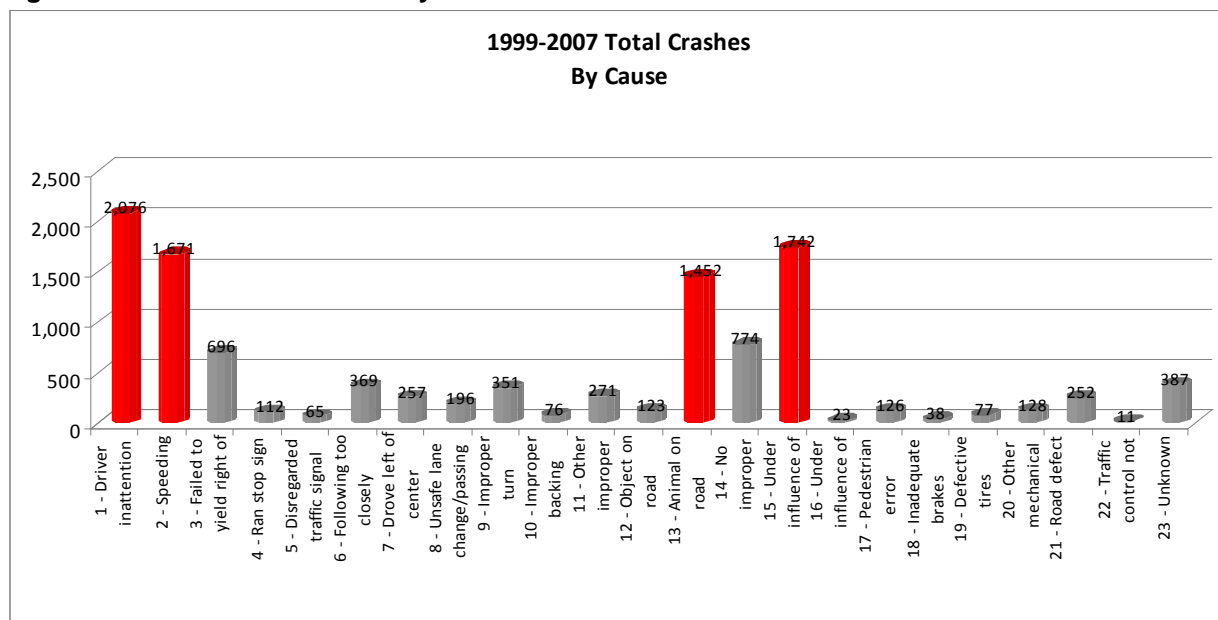
Figure V-4 identifies that from 1999-2007, the highest number of crashes (26.4%) occurred in Shiprock Agency; 25.2% in Fort Defiance; 23.0% in Western; 12.6% in Eastern; 12.0% in Chinle; 0.6% in NIIP; and 0.1% in New Lands.

Statistical Summary:

- Fatality: 4.7% of the 1999-2007 traffic crashes resulted in fatalities. Navajo fatality rates were 6.9 times those of Arizona (0.68% in 2007).
- Injury: 41.3% resulted in injuries. The Navajo rate of injuries was 10.5% higher than the Arizona rate (30.85%).
- Number of Vehicles Involved: 54.9% were one-vehicle crashes, 42.5% were two-vehicle crashes, the remaining 2.6% involved three or more vehicles.
- Weather: 85.6% occurred in clear weather. Snow and rain occurred for 5.9% and 3.1% of the crashes respectively.

- Road Condition: 72.9% occurred on dry road condition. 8.2% occurred on snow packed roads. Loose sand and gravel, and wet road conditions occurred for 5.1% and 4.7% of crashes, respectively.
- Cause: As shown in Figure V-5, Driver's inattention, DUI, speeding, and animals on road were major causes: 19.7%, 16.5%, 15.9%, and 13.8% of total crashes respectively. Only 2.4% involved road defects, and 1.2% involved pedestrian error. Again when compared to statewide Arizona statistics: Navajo crashes that hit an animal were 2.5 times the rate for all rural areas (5.8%), and DUI crashes were 2.9 times the statewide Arizona rate of 5.62%.

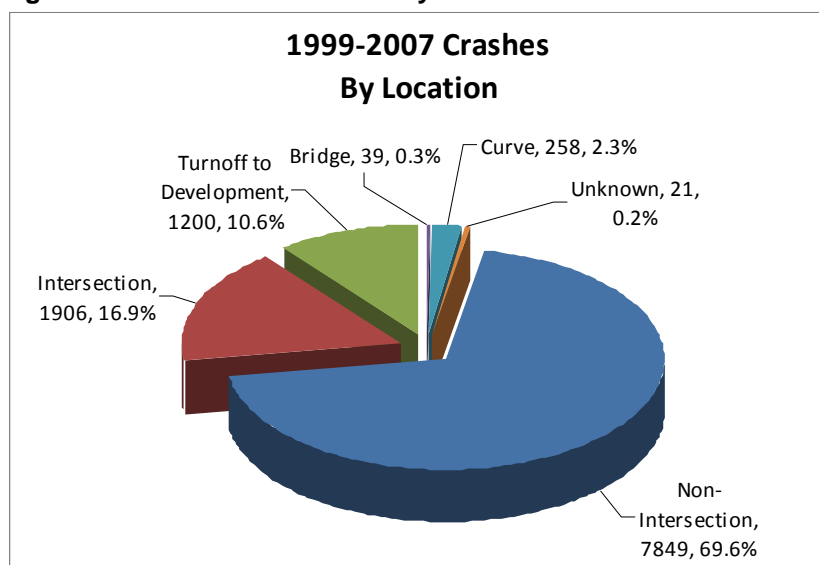
Figure V-5. 1999-2007 Crashes by Cause



Crash Location:

As shown in Figure V-6, of the total 11,273 crashes that have occurred between 1999 and 2007, 7,849 or 69.6% were non-intersection crashes, 1,906 or 16.9% occurred at road intersections, and 1,200 or 10.6% occurred at turnoffs or access to development (e.g., stores, schools, chapter houses, clinics, government offices, etc.).

Figure V-6. 1999-2007 Crashes by Location



Crash rates are calculated using the following formula:

$$\text{Crash Rate} = \frac{\text{Number of Crashes} \times 1,000,000}{\text{Average Daily Traffic}_1 \text{ (ADT)} \times \text{No. of Days}_2 \times \text{Road Length (mi)}}$$

Notes:

- * Crash rate formula utilized by Arizona Department of Transportation
- 1 Average Daily Traffic volume was acquired from the 2008 Navajo Region Road Inventory Database
- 2 No. of Days = 365 x 9

Using the crash rating system (Table V-8), safety of Navajo Nation roads and intersections can be identified and rated accordingly.

Table V-8. Crash Rating System

Crash Rate	Rating
> 4.0	Very High
2.01 – 4.0	High
1.75 – 2.0	Moderate
1.16 – 1.74	Low
0 – 1.15	Very Low

Safety Issues:

Dangerous Road Sections:

The most dangerous road sections on the Navajo Nation occurred in the major growth centers, on major State, Navajo-BIA and county roads (Table V-9). In the urbanized areas: driver inattention, failure to yield right of way, speeding and following too close were the major causes of the crashes. High traffic volume coupled with excessive access with turning vehicles and congestion in the urbanized areas may have also contributed to these crashes. Appropriate speed limits, road widening, better lane marking, raised medians, sidewalks and street lights are recommended for the growth center areas. Other road sections had a high percentage of crashes caused by animals on road. Fencing along these road sections is highly recommended. Map V-4 identifies road segments that warrant additional study to determine proper safety recommendations.

Table V-9. Road Sections with High Crash Rates

US/State Routes:

Route	BMP	EMP	ADT	Number of Crashes	Crash Rate
US64	22	32	7800	201	0.78
US160	382	395	4150	190	1.07
US163	393	399	2186	228	5.29
US191	409	411	1326	20	2.30
US191	447	468	3470	272	1.14
AZ264	435	477	4761	607	0.92
US491	89	95	6500	139	1.08

Source: Navajo Nation 1999 – 2007 Crash Data

Navajo-BIA Routes:

Route	BMP	EMP	ADT	Number of Crashes	Crash Rate
N2	1	8	211	18	3.71
N7	0	3	12780	81	0.64
N12	22	29	2967	101	1.48
N36	12	28	3200	166	0.99

Dangerous Road Intersections:

The road intersections with the highest number of crashes on the Navajo Nation were primarily located in major Navajo growth centers (Table V-10). These fifteen intersections within Navajo Nation experienced a high number of crashes (>20) from 1999-2007, and all but one are located within the segments identified in Table V-9. Map V-4 shows road segments and Map V-5 identifies the intersections should be further studied to identify the appropriate safety treatments required to mitigate the issues.

Table V-10. Road Intersections with High Number of Crashes

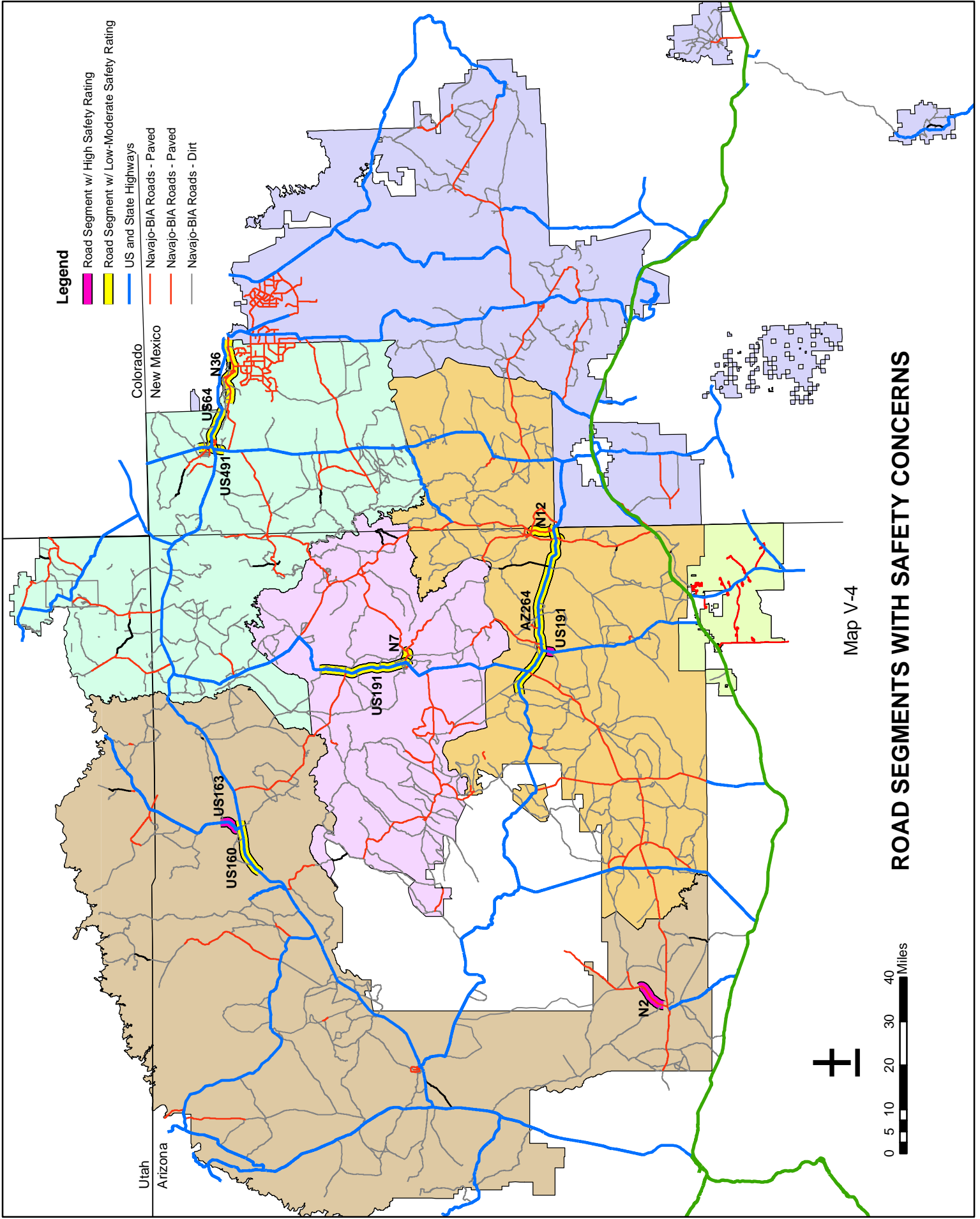
State Routes:

Route	Community	MP	ADT	Number of Crashes
US64/US491(SW)	Shiprock	21.94	22923	101
AZ264/N12	Window Rock	475.50	10616	69
US64/US491(NE)	Shiprock	22.80	10278	53
US160/AZ264	Tuba City	321.80	13989	45
AZ264/N112	St. Michaels	473.61	10616	43
US191/N7	Chinle	447.83	9917	41
US160/US163	Kayenta	393.55	2264	41
AZ264/US191S	Ganado	446.90	6352	34
US491/N531	Shiprock	92.20	10278	33
AZ264/N15/US191	Ganado	441.01	2312	21
US64/POE Access	Shiprock	22.50	22923	21

Source: Navajo Nation 1999 – 2007 Crash Data

Navajo-BIA Routes:

Route	Community	MP	ADT	Number of Crashes
N12/N100	Window Rock	24.1		34
N12/N110	Fort Defiance	28.4		32



INTERSECTIONS WITH SAFETY CONCERNS

Map V-5

Legend

Total Crashes - Intersection

- 101 - US491/US64SW
- 69 - AZ264/N12
- 53 - US491/US64NE
- 45 - US160/AZ264
- 43 - AZ264/N112
- 41 - US191/N7, US160/US163
- 34 - AZ264/US191, N12/N100
- 33 - US491/N531
- 32 - N12/N110
- 21 - AZ264/N15, US64/POE

Colorado
New Mexico

Utah
Arizona

US491/US64SW&NE

US160/US163

US160/AZ264

US191/N7

AZ264/N15

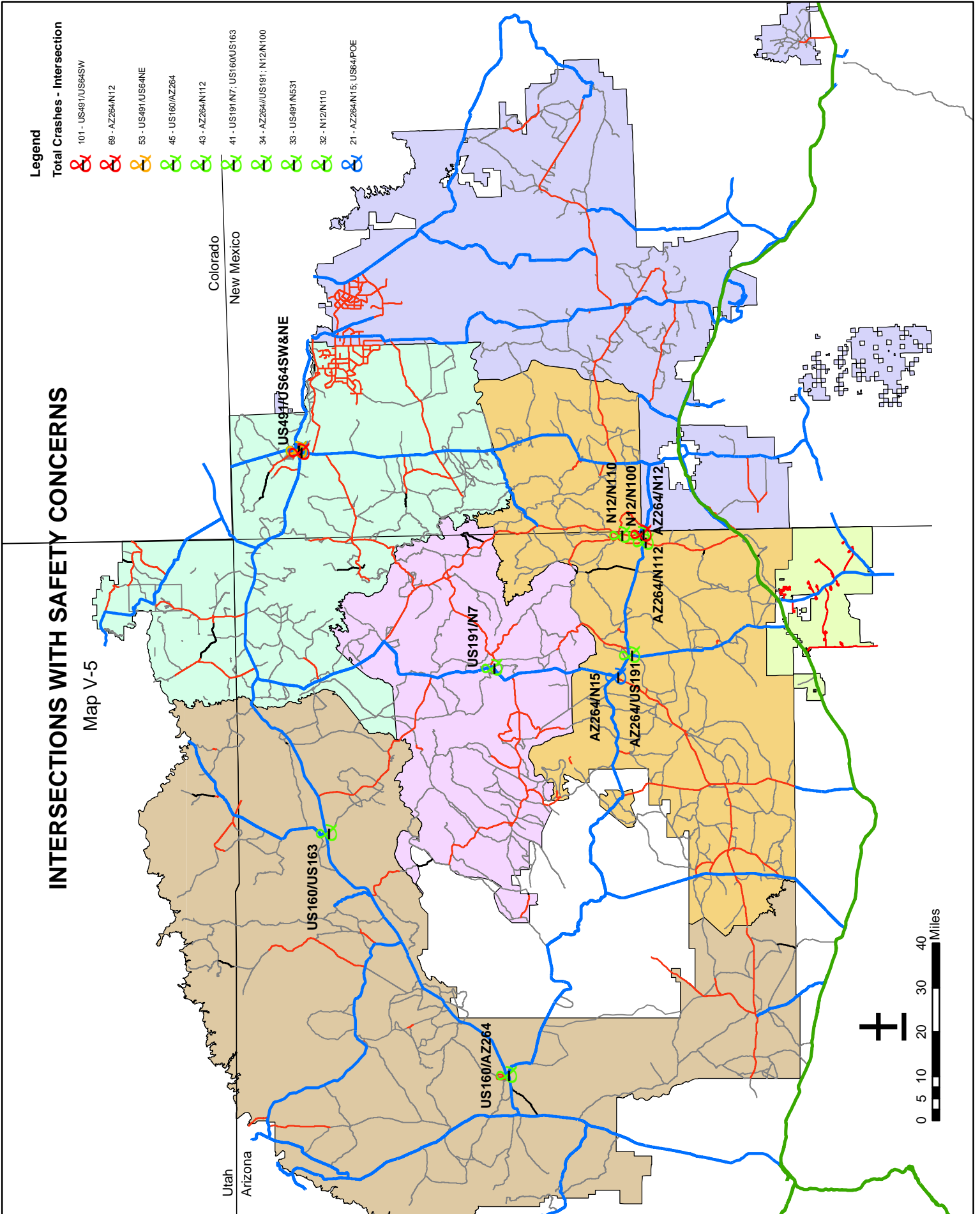
AZ264/US191

AZ264/N112

N12/N110

N12/N100

AZ264/N12



Access Management:

1,200 crashes or 10.6% of all crashes occurred at turnoffs or access to development (stores, schools, etc). The Navajo Nation growth centers commercial strips were high among places where crashes occurred. Traffic congestion at multiple access points to convenience stores, fast food restaurants, banks, and shopping centers seemed to be a cause of crashes on main highways within the Growth Center communities. Lack of street lights and access control seemed to be a cause of crashes in these communities. Table V-11 shows commercial strips in the growth center areas where high number of crashes occurred.

Table V-11. Locations of Frequent Crashes at Development Access

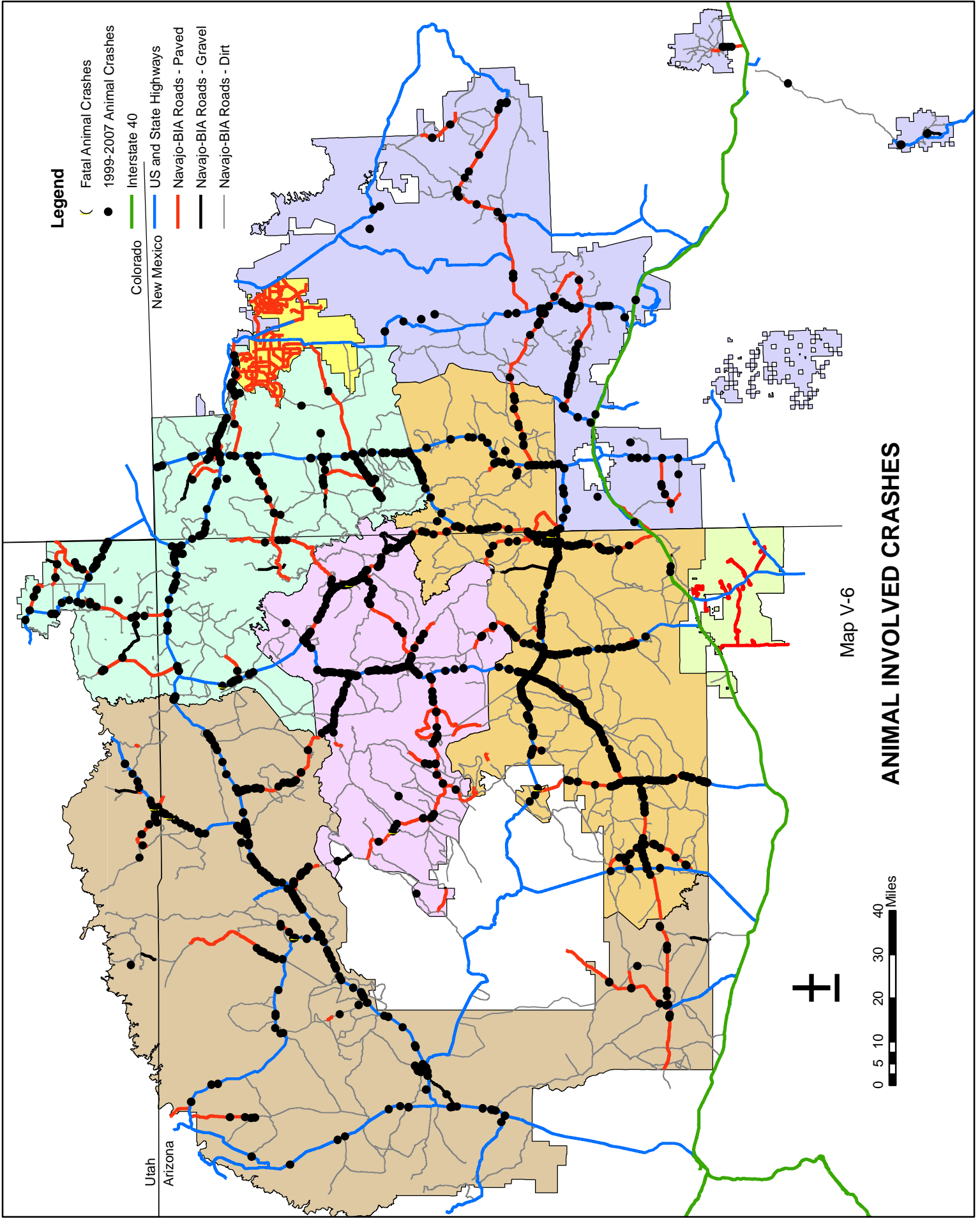
Agency	Community	Route No.	BMP	EMP	No. Crashes
N35	Chinle	US191	446.7	448.2	58
N35	Chinle	N7	0.0	2.7	54
N36	Ganado	AZ264	446.2	447.1	29
N33	Kayenta	US163	393.5	396.0	148
N33	Kayenta	US160	391.0	394.6	34
N32	Shiprock	US491	90.4	93.5	122
N32	Shiprock	US64	21.0	24.4	256
N36	St. Michaels	AZ264	474.8	476.0	74
N36	St. Michaels	AZ264	472.4	473.0	21
N33	Tuba City	N1017	0.0	1.6	32

Turns offs to schools, chapter houses, and tourist attractions were other locations where crashes occurred frequently. NHA housing access roads also produced significant numbers of crashes. (Please note that this plan classifies crashes at turnoffs to NHA housing sites as intersection crashes.) Lack of accelerating and decelerating lanes and poor lighting may have contributed to the cause of these crashes.

Roads with Animal Crash Problems:

Animals (cattle on roadway) appear to be a significant cause of crashes on Navajo Nation roads. 1,452 crashes or 13.8% of all crashes on the Navajo Nation roads were caused by the presence of animals on roadways. This figure is 2.4 times that of all animal-related crashes in rural Arizona in 2007. Of the 1,452 crashes, eight were fatal, as shown in Map V-6. Animals on roadways contributed to high crash occurrences. The Navajo Nation’s open range policy must be revisited when planning safety improvements on Navajo IRR roads. Even state highways, which are normally fenced, become crash-prone because cattle owners tend to let their cattle graze the right-of-way. ROW fencing and cattle guards along road sections with high animal-on-road crashes should be installed. Regular repairs and maintenance of ROW fence and cattle guards are needed to prevent crashes.

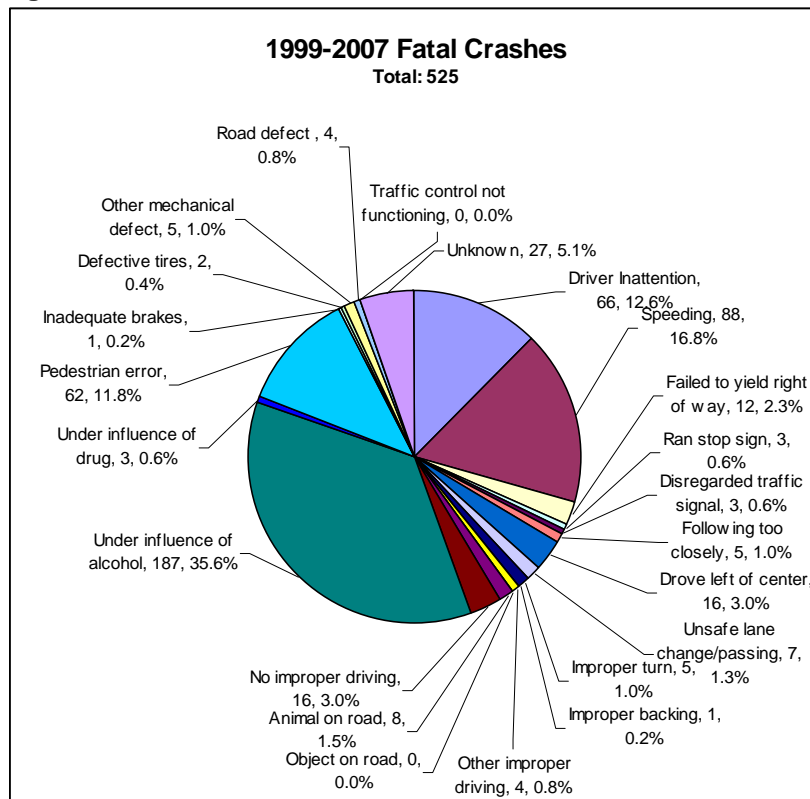
ADOT has identified that animal fencing safety improvements should be installed on US Route 191 north of Chinle. It is critical that a collaborative approach between the states and Navajo DOT be used to ensure that any funding, particularly for safety and capacity upgrades and modifications, is used on long-lasting projects.



Road Sections with Fatal Crashes:

A total of 525 crashes or 4.6% of all crashes resulted in fatalities. Figure V-7 shows DUI related crashes caused 187 or 35.6% of fatal crashes; speeding caused 88 or 16.8%; driver inattention caused 66 or 12.6%; and pedestrian error caused 62 or 11.8%. Taken together, these four causes accounted for over 76% of all Navajo Nation traffic fatalities. Most fatal crashes occurred on State highways and major Navajo-BIA roads where speed and traffic volume may have been the contributing factors.

Figure V-7. 1999-2007 Fatal Crashes



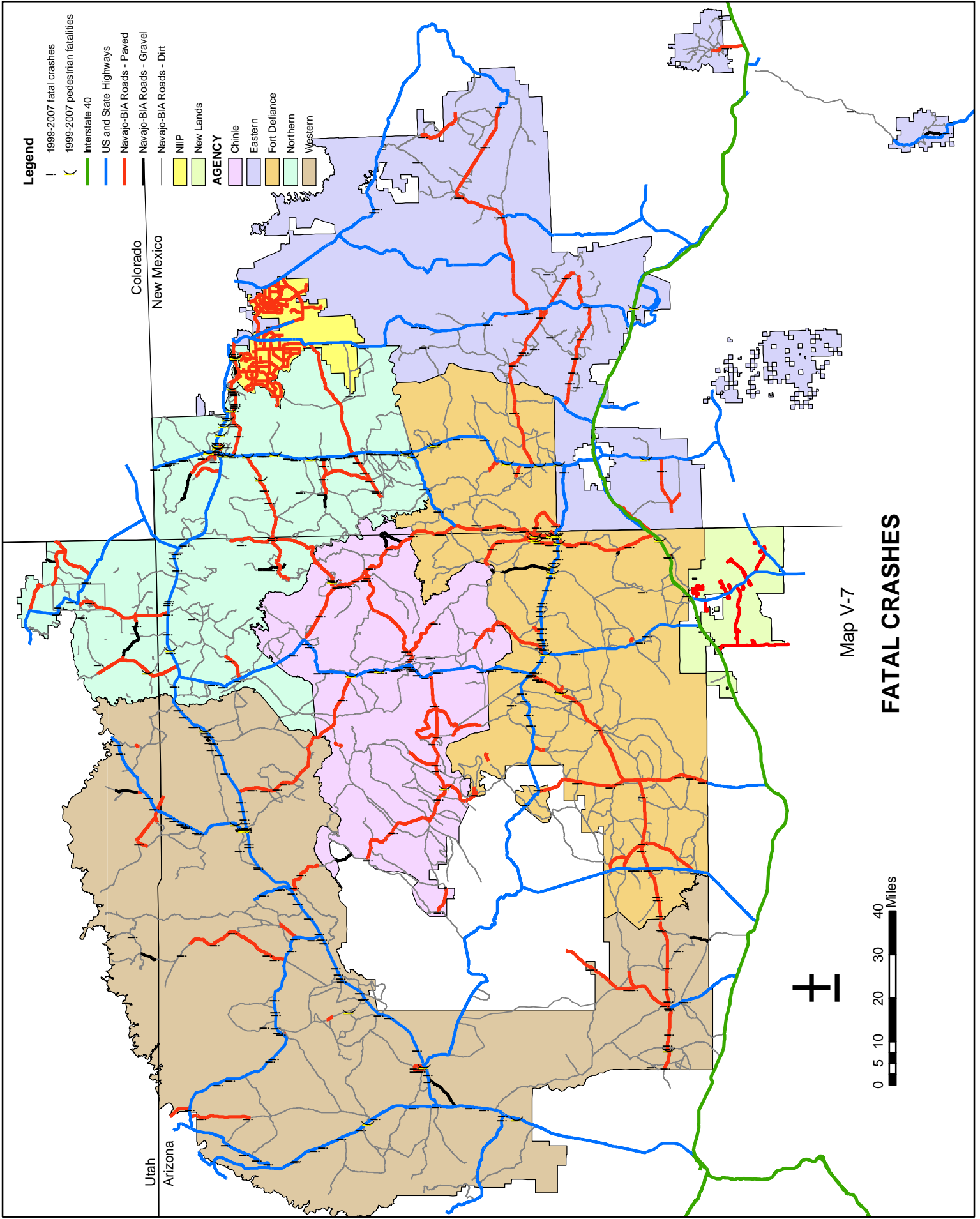
In growth centers, DUI and pedestrian error seem to be the significant contributing factors. The communities' increasing demographics suggest monitoring speed limits, possibly installing crosswalk marking and warning signs and enhanced police enforcement. Table V-12 identifies routes where major fatal crashes occurred. (Map V-7 shows all fatal crash locations). Table V-13 identifies the fatal crash locations which involved pedestrian errors and may need additional pedestrian crossing improvements.

Table V-12 Major Fatal Crashes

No. of Fatal Crashes	Route No.	Cause
55	US160	18-DUI, 11-Driver Inattention, 7-Unknown
50	US491	20-DUI, 8-Speeding
41	AZ 264	11-DUI, 6-Ped Error, 5-Speeding
35	US 191	9-DUI, 8-Driver Inattention, 6-Speeding
27	N 12	8-DUI, 4-Driver Inattention, 4-Speeding
26	N 26	12-DUI, 7-Driver Inattention, 4-Speeding
20	US 163	6-DUI, 4-Unknown, 3-Ped Error
20	NM 64	6- Ped Error, 4-DUI
18	US 89	5-DUI, 3-Driver Inattention, 3-Speeding
16	N 36	7-DUI, 4-Speeding, 3-Ped Error
14	N 98	7-DUI, 4-Speeding

Table V-13. Potential Sidewalk and Pedestrian Crossing Needs

Agency	# Fatal Crashes	Route #	Locations	MP
N34	1	0	Baca	0
N32	1	N12	Mexican Water	3
N36	2	N12	St. Michaels	24.0-24.8
N36	1	N12	Ft. Defiance	28.4
N35	1	N13	Lukachukai	2.2
N33	1	N15	Leupp	5.5
N33	1	N21	Tonalea	5
N34	1	CR34	Bread Springs	--
N32	1	N36	Nenahnezad	17.2
N32	2	N36	Upper Fruitland	25.3 -25.5
N36	1	I-40	Lupton	356
N35	1	N59	Many Farms	0.14
N32	3	NM64	Shiprock	23.6-24.2
N32	3	NM64	Hogback	26.8-30.7
N35	1	N65	Whippoorwill	10.3
N33	1	US89	Cameron	462
N33	1	US89	Bodaway	498.4
N36	1	N100	St. Michaels	--
N36	2	N112	Ft. Defiance	5.8-6.47
N34	1	NM122	Baca	10.94
N32	1	NM134	Sheepsprings	1.2
N36	1	N151	Steamboat	0
N33	1	US160	Deenhotso	418.5
N32	1	US160	Red Mesa	441.5
N33	3	US163	Kayenta	394-396.6
N36	1	US191	Wide Ruin	--
N35	1	US191	Chinle	455
N36	1	AZ264	Ganado	446.9
N36	2	AZ264	Kinlichee	466.0-467.5
N36	3	AZ264	St. Michaels	473.61-475.43
N32	1	N362	Nenahnezad	1.2
N34	1	US491	Rock Springs	9.2
N36	1	US491	Twin Lakes	13.6
N36	1	US491	Tohatchi	21.06
N32	1	US491	Sheepsprings	48.2
N36	3	US491	Naschitti	41.1-41.8
N32	2	US491	Sanostee	70.1-78.6
N32	5	US491	Shiprock	84.9-94.2
N32	1	N551	Shiprock	0.74
N34	2	NM602	Bread Springs	18.5
N33	1	N1017	Tuba City	0.05
N32	1	NM-N13	Shiprock	14.8



Legend

- ! 1999-2007 fatal crashes
- (1999-2007 pedestrian fatalities
- Interstate 40
- US and State Highways
- Navajo-BIA Roads - Paved
- Navajo-BIA Roads - Gravel
- Navajo-BIA Roads - Dirt
- NIP
- New Lands

AGENCY

- Chinle
- Eastern
- Fort Defiance
- Northern
- Western

Colorado
New Mexico

Utah
Arizona

Map V-7

FATAL CRASHES



Crash Locations with Road Defects and Traffic Control Malfunction:

Road defects caused 252 crashes or 2.4% of all crashes. There were 11 crashes caused by traffic control malfunction. There were not sufficient data from police reports to get specific information on the road conditions. However, supervisory or design engineers should seek out these road sections to further investigate road defect problem. See Map V-8 for locations of crashes by road defect and non-functional traffic signals.

Safety Improvement Recommendations:

To promote safe mobility and reduce the potential for crashes, this plan has identified roadway segments and intersections that should be examined for safety improvements beyond the location identified in Table V-10. There are two primary focus areas where safety can be improved, including roadway and roadside safety. Roadway safety would help to reduce crashes caused by driver inattention, excessive access, turning vehicles, animals on the road and roadway geometry. Safety improvement strategies that relate to roadway safety would include access management, roadway striping, roadway warning signs, proper intersection control and pedestrian crossing locations.

The second grouping of safety improvement strategies would include those that relate to roadside safety. Roadside safety improvements would include strategies that relate to animal related crashes, pedestrian type crashes, and those crashes that involved fixed objects or runoff the road incidents. Safety improvement strategies that relate to roadside safety would include animal fencing, sidewalks, roadway warning signs and clearing roadside hazards (proper clear zone).

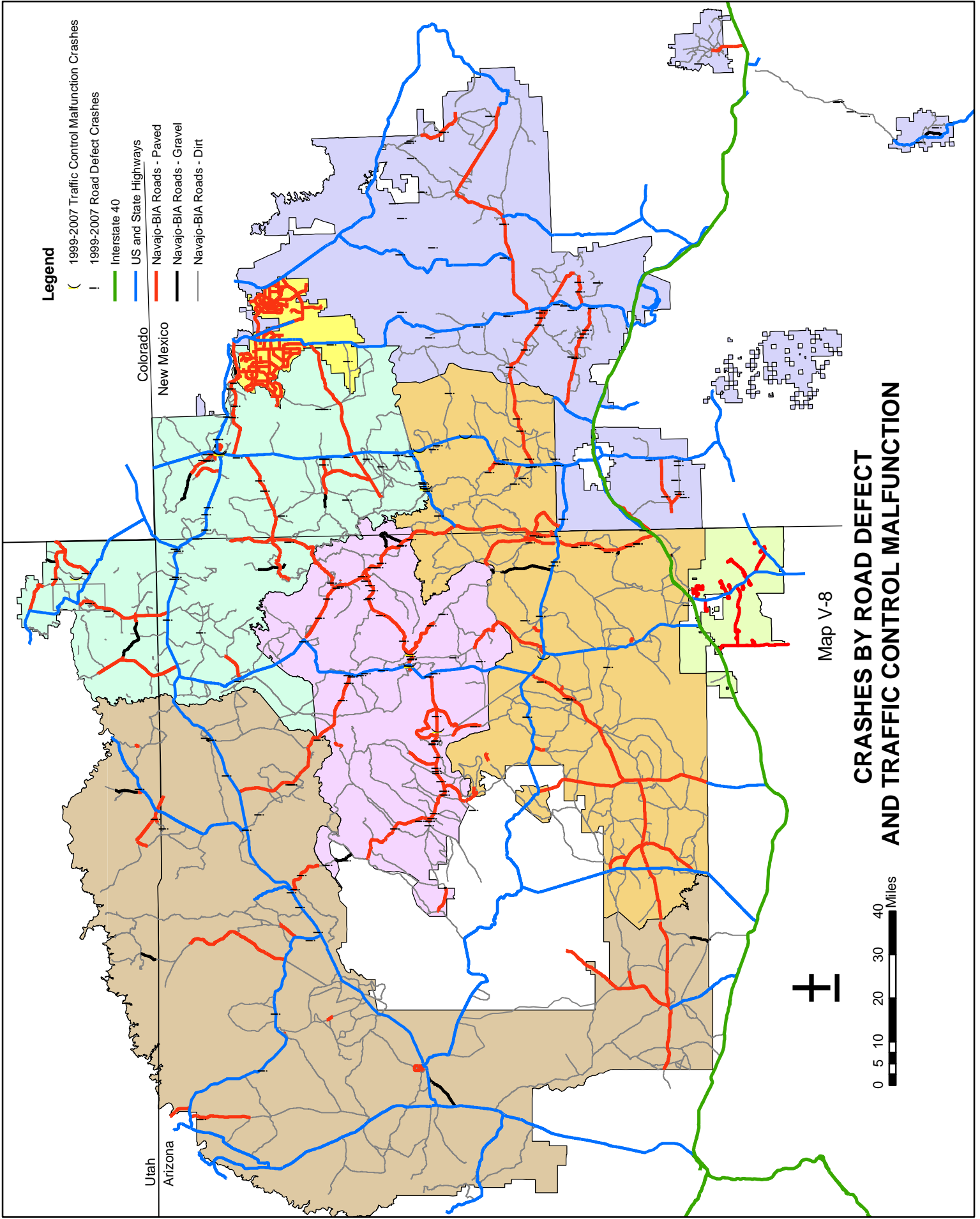
The crash locations that are included in this Plan are a first step in identifying potential studies and improvement projects that will help make multi-modal travel safer. It is intended that this is a starting point and that as new data is developed, the high crash locations on both the Navajo BIA and State Routes will be examined under a recurring process to ensure that the high crash locations are continuously identified and ultimately fixed. Any improvement project must go through the planning and project development processes to identify the correct solutions to any problem and to identify and program funds for needed improvements.

It is highly recommended that the Navajo DOT conduct traffic data collection activities on the segments and at the intersection location that exhibit a high number and/or rate of crashes. This information will ultimately provide for a thorough understanding as projects are scoped and programmed.

Table V-14 summarizes total safety needs.

Table V-14. Total Safety Needs

High Crash Rate Segments	133	Miles
High Crash Rate Intersections	13	Intersections
Access Management Needs	23.6	Miles
Pedestrian Crossing Layouts	62	Locations
Corridor Safety Audits	117	Miles
Intersection Safety Audits	18	Intersections



NEED 5: Chapter House Access Needs

Accessibility is a federal policy guiding IRR program development.³ Accessibility to local government and services is an issue in every one of the Navajo Nation's 110 chapters. The Navajo Nation and BIA-NRODOT have an affirmative responsibility to provide all-weather access to chapter houses that provide community based government services and facilities.

The 1998 Navajo Nation Local Governance Act (LGA) allows the decentralizing of the Navajo Nation government's authority and functions to the chapters. When a chapter house becomes a center for government services and functions, traffic to it will be dramatically elevated. Aside from housing government programs, a Navajo chapter house is a central place in Navajo community life. A chapter house is where residents can use telephones, pick up mail, receive personal messages, have meetings and social gatherings. Other community facilities such as recreation areas, nursery, schools, housing, and business sites, are generally situated nearby.

Sixteen (16) chapters still lack paved access roads to their chapter houses. Access roads to these chapter houses are impassible during severe weather. A total of 164.8 miles of roads (Table V-15) providing access to chapter houses are unpaved. These unpaved access roads include 149.8 miles of BIA Class 4 roads and 15.0 miles of County roads. Map V-9 shows these chapter houses with locations and miles of unpaved access roads.

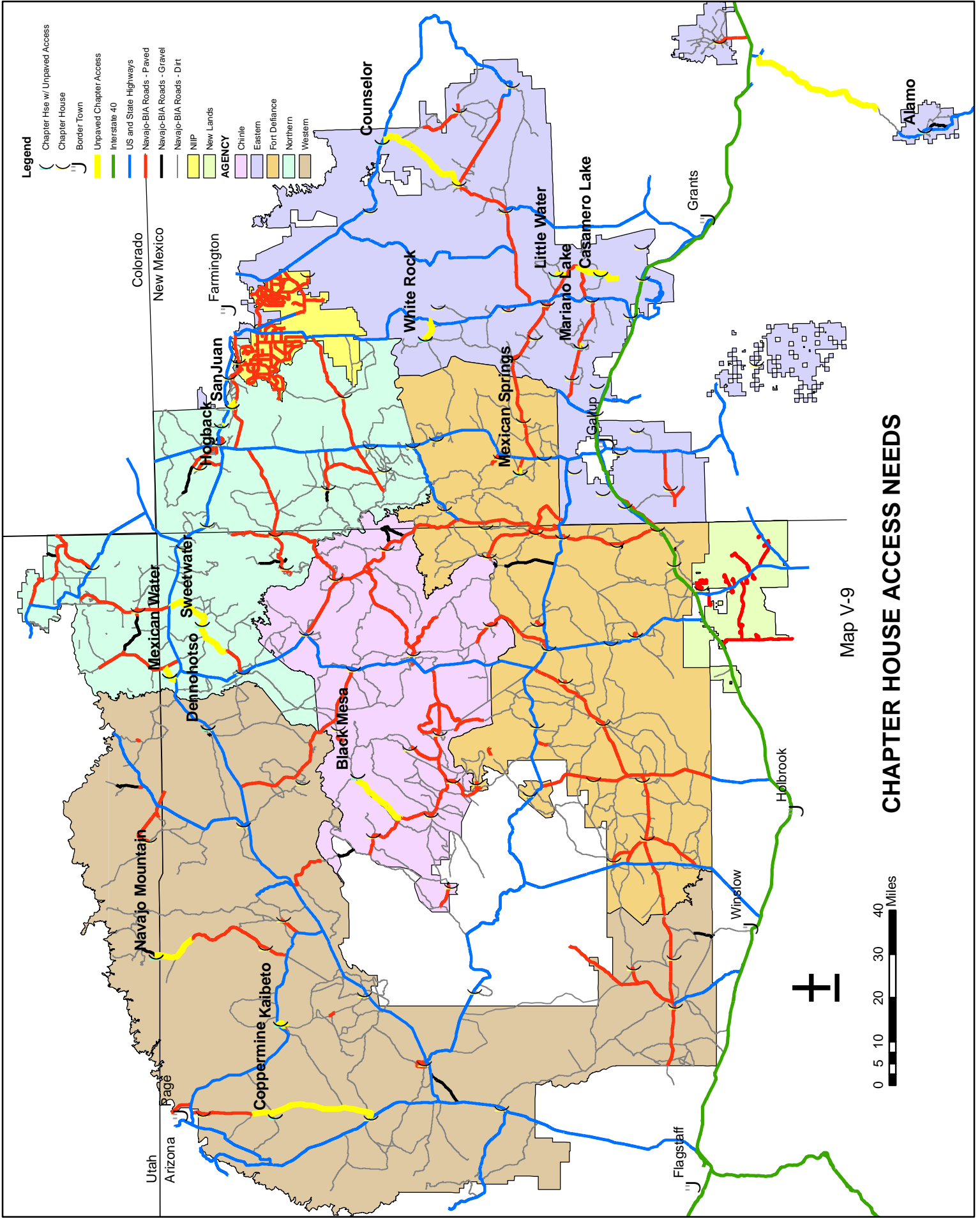
Table V-15. BIA Class 4 Roads Providing Access to Chapter Houses

Agency	Route No., Access to Chapter House.	BMP	EMP	Improve-ment Miles	Existing ADT	20-Year ADT	Existing Surface Type	Proposed Surface Type
SR	N35, to Sweet Water	7.2	28.1	20.9	553	821	Earth	Paved
	N368, to San Juan	0	2.1	2.1	342	508	Earth	Paved
		2.1	2.9	0.8			Earth	Gravel
	N5031, to Hogback	7.7	7.8	0.1	398	591	Earth	Paved
	N5056, to Mexican Water	0	5.4	5.4	67	99	Earth	Gravel
WNA	N16, to Navajo Mountain	40.4	50.7	10.3	322	478	Earth	Paved
	N20, to Coppermine	0	29.9	29.9	170	252	Earth	Paved
	N6331, to Kaibeto	0	1.4	1.4	213	316	Earth	Paved
		1.4	2.4	1	50	74	Earth	Gravel
	N6460, to Dennehotso	24.9	25.9	1	672	998	Earth	Paved
ENA	CR19, to Casamero Lake	5.2	15	9.8	N/A	N/A	Earth	Paved
	N46, to Counselor	0	5.6	5.6	545	809	Earth	Paved
		5.6	15.6	10	89	132	Earth	Gravel
		15.6	23.7	8.1	382	567	Earth	Paved
	N55, to Alamo	7	40.1	33.1	N/A	N/A	Earth	Paved
	N7057, to White Rock	23.2	23.7	0.5	50	74	Earth	Gravel
	CR7760, to White Rock	0	5.2	5.2	N/A	N/A	Earth	Paved
	N7111, to Mariano Lake	2.3	2.8	0.5	328	487	Earth	Paved
	N481, to Little Water	16.6	18.4	1.8	225	334	Earth	Paved
	N7119, to to Little Water	0	1.2	1.2	248	368	Earth	Paved
CHL	N8066, to Black Mesa	0	5	5	242	359	Earth	Paved
		5	15.4	10.4	166	247	Earth	Gravel
FTD	N30, to Mexican Springs	3	3.7	0.7	1659	2464	Earth	Paved
Total Roads to be paved/gravel:				164.8				
Total BIA Roads to be paved/gravel:				149.8				
Total County Roads to be paved/gravel:				15.0				

Source: 2008 Navajo Region Road Inventory Database.

3 MOA between BIA and FHWA, 5-24-83, the BIA is responsible in the development of public road system which will provide transportation facilities and provide access for use and development of Indian Lands.





Legend

- Chapter Hse w/ Unpaved Access
- Chapter House
- Border Town
- Unpaved Chapter Access
- Interstate 40
- US and State Highways
- Navajo-BIA Roads - Paved
- Navajo-BIA Roads - Gravel
- Navajo-BIA Roads - Dirt
- NIP
- New Lands

AGENCY

- Chinle
- Eastern
- Fort Defiance
- Northern
- Western

Colorado
New Mexico

Utah
Arizona

Mexican Water
Sweetwater

Navajo Mountain

Coppermine Kaibeto

Page

Dennohotso

San Juan

Hogback

Farmington

White Rock

Mexican Springs

Little Water

Mariano Lake

Casamero Lake

Grants

Alamo

Black Mesa

Gallop

Winslow

Flagstaff

Holbrook

Map V-9

CHAPTER HOUSE ACCESS NEEDS



NEED 6: Growth Center Street Needs

IRR Program planning regulations require that long range transportation planning consider impacts of existing and future traffic generators and land uses. Navajo Nation policies, combined with population growth are driving development of the Navajo Primary Growth Centers. Expansion of infrastructure, including transportation systems, will be required to support this development. While many of Navajo primary growth centers qualify as small urban areas (a community of 5,000 population is classified as a small urban area⁴), their transportation systems typically are comprised of only a few paved roads. A typical Navajo Primary Growth Center transportation system consists of a state highway and/or a Navajo-BIA Class 2 road, NHA housing subdivision streets, short access roads to government facilities, and miscellaneous unpaved system and non-system roads. Table V-16 shows existing signalization, miles of streets and street lights at the Primary Growth Centers.

Table V-16. Growth Centers' Existing Streets, Lighting, and Signalization

Growth Centers	2000 Population	Paved 3 to 5-Lane Streets (Miles)	Paved 2-Lane Streets (Miles)	Gravel Roads	Street Lights (Miles)	Signalization
Tuba City	8,225	1.7	8.7	6.2	1.0	1
Shiprock	8,156	7.6	4.7	1.2	5.0	4
Chinle	5,366	3.3	1.9	1.4	1.3	1
Kayenta	4,922	1.8	0.2	0.0	2.0	1
Fort Defiance	4,061	2.7	6.7	0.0	0.9	3
Window Rock	3,059	2.2	2.3	0.0	2.5	2
Crownpoint	2,630	3.1	4.5	2.5	0.0	0
Total	36,419	22.4	28.9	11.3	12.7	12

Future Transportation Needs:

Population at Navajo Primary Growth Centers Community is estimated to increase at 2.5% growth rate annually. Shiprock, Tuba City, Chinle, Kayenta, Fort Defiance, and Window Rock will be among the most populated communities with populations well over 5,000. School, healthcare, and other community services will be needed as well as employment and economic development.

Existing traffic congestion has already strained the main streets in Growth Centers. Traffic crashes were reported high on the primary growth centers' main streets (see Chapter 5-Need 4: Safety). More streets and an efficient street network are needed for each primary growth center to provide alternate routes in order to reduce traffic congestion and accidents.

Chapter VII discusses transportation needs and proposed Primary Growth street plans for Shiprock, Tuba City, Kayenta, Crownpoint, Chinle, Fort Defiance, and Window Rock. These Navajo Primary Growth Centers need additional streets to promote economic development and serve future populations. Tables V-17 and V-18 summarize proposed construction of streets, lighting and signalization needs recommended for Navajo-BIA roads and State Highways at each growth center by 2030.

Table V-17. Growth Centers' Proposed Improvements and Needs on Navajo-BIA Roads

Growth Centers	2030 Population	Sidewalks	New Bus Stops	Paved 2-Lane Streets (Miles)	Gravel Roads	Access Management	Total Road Improvement Miles	Traffic Control Needs
Tuba City	17,253	0	2	0	0	0	0	0
Shiprock	17,018	1.53	1	8.3	0	0	9.83	2
Chinle	11,256	2.96	0	6.32	6.8	0	13.12	0
Kayenta	10,323	0	0	4.42	0	0	4.42	0
Fort Defiance	9,133	0	0	5.26	0	0	5.26	0
Window Rock	8,518	0	0	4.47	0	0	4.47	0
Crownpoint	5,517	0.42	0	0.4	0	0	.82	0
Need 6. Total	79,018	4.91	3	29.17	6.8	0	37.92	2

Table V-18. Growth Centers' Proposed Improvements and Needs on State Highways

Growth Centers	2030 Population	Sidewalks	New Bus Stops	Paved 2-Lane And 4-lane Streets (Miles)	Gravel Roads	Access Management	Total Road Improvement Miles	Traffic Control Needs
Tuba City	17,253	2.1	2	0	0	0	2.1	0
Shiprock	17,018	2.86	1	0	0	3.85	6.71	2
Chinle	11,256	0	0	0.33	0	0.25	0.58	0
Kayenta	10,323	0	0	0	0	0	0	0
Fort Defiance	9,133	0	0	0	0	0	0	0
Window Rock	8,518	0	0	0	0	2.67	2.67	0
Crownpoint	5,517	0	0	0	0	0	0	0
Need 6. Total	79,018	4.96	3	0.33	0	6.77	12.06	2

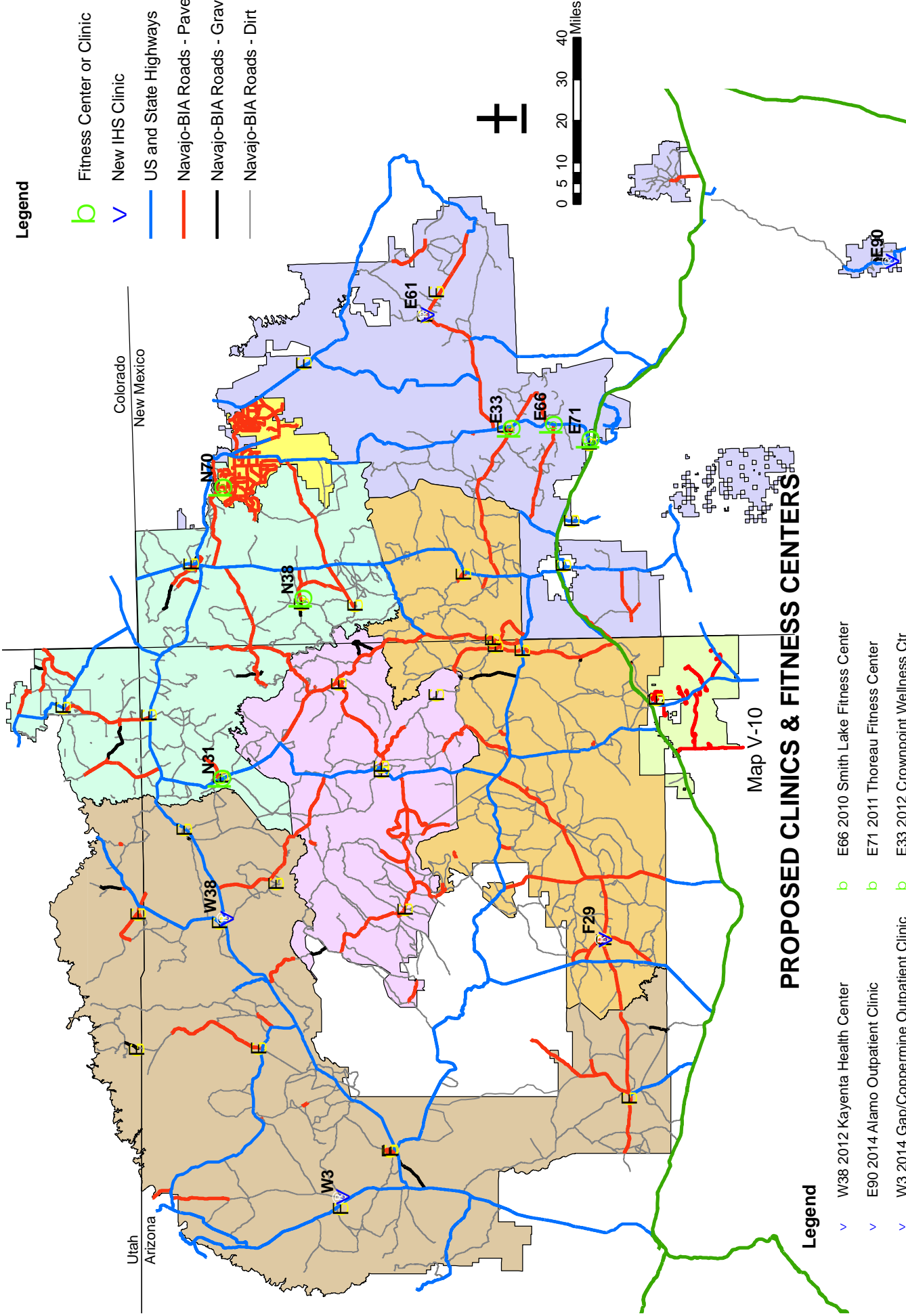
NEED 7: Community Economic Development Transportation Needs

To meet program objectives, IRR must provide access to development and for land use. Health care facilities, public residential projects, schools, shopping centers, industrial development, coal mines, etc. generate considerable traffic. They are major community and economic development providing employment and are major traffic generators on the Navajo Nation. Access as well as safety improvement needs for existing and future development are discussed below.

Health Care Facilities:

Navajo Area Indian Health Service

- Existing Facilities:** The Navajo Area Indian Health Service (NAIHS) is the primary health care provider on the Navajo Nation. NAIHS program administration is divided into 8 service units: Chinle, Crownpoint, Fort Defiance, Gallup, Kayenta, Shiprock, Tuba City, and Winslow Service Units. Within these service units, NAIHS facilities include 6 hospitals, 9 health centers, 12 health stations, and 18 dental clinics (2007) (see Map V-10). NAIHS also provides over 50 primary care services at schools and about 60 at Chapter.



Legend

- b Fitness Center or Clinic
- V New IHS Clinic
- US and State Highways
- Navajo-BIA Roads - Paved
- Navajo-BIA Roads - Gravel
- Navajo-BIA Roads - Dirt

Legend

- V W38 2012 Kayenta Health Center
- V E90 2014 Alamo Outpatient Clinic
- V W3 2014 Gap/Coppermine Outpatient Clinic
- V E61 2015 Pueblo Pintado Outpatient Clinic
- V F29 2020 Dikon Outpatient Clinic
- b N31 2010 Rock Point Wellness Center
- b E66 2010 Smith Lake Fitness Center
- b E71 2011 Thoreau Fitness Center
- b E33 2012 Crownpoint Wellness Ctr
- b N70 2013 Upper Fruitland Health Center
- b N38 2014 Sanostee Medical service center

PROPOSED CLINICS & FITNESS CENTERS

Map V-10

Table V-19. Health Care Visits

Type of Visits	Annual Patient Visits
Inpatient Discharges	16,494
Outpatient Visits	1,295,955
Dental Visits	133,943
Source: 2007 NAIHS Profile - 2006-2007 IHS Data	

NAIHS health care programs generate a great number of trips to, from, and within the communities where they are located (Table V-19). NAIHS estimates all facilities generated a minimum of 1.4 million trips or 3,900 road trips per day (not including staff work trips). Hospitals account for 76% of patient visits, health centers 19%, and health stations 5%.

Other health care facilities are contract facilities located within or near the Navajo Nation. These include Sage Memorial Hospital (Ganado, AZ), Presbyterian Medical Services (Cuba, NM and Farmington, NM), Winslow Memorial Hospital (Winslow, AZ), and San Juan Health Care Services (Montezuma Creek, UT). These facilities generated approximately 78,000 outpatient visits and 2,300 inpatient admissions annually. Others are private facilities, mostly small dental clinics, and one private clinic provides family care in St. Michael, AZ.

Proposed Facilities:

NAIHS has proposed replacement and new facilities to meet its short and long range goals. In its FY2011 IHS Planned Health Care facility Construction Budget, NAIHS proposes outpatient facilities for underserved areas of the Navajo Nation, Table V-20 summarizes existing and proposed NAIHS facilities on the Navajo Nation.

Table V-20. Proposed NAIS and Contract Health Care Facilities

Est. Open Year	Proposed New Facility	Chapter
2012	Kayenta Health Center w/ 129 staff quarters units	Kayenta
2020	Dilkon Health Station w/ 109 staff quarters units	Dilkon
2014	Alamo Health Station w/ 33 staff quarters units	Alamo
2015	Pueblo Pintado Health Station	Pueblo Pintado
2014	Bodaway Gap Health Station	Gap/Coppermine

Source: 2007 NAIHS Profile

Navajos depend on transportation to provide access to health care facilities for emergency and routine care. Road development priority should be given to the maintenance and improvement of roads serving health care facilities, especially roads that are major routes for emergency care and air and ambulance transport. To accomplish this, the reservation road network must be efficient, in good condition, and well maintained. Table V-21 shows accessibility and safety improvement needs identified by NAIHS for its existing and proposed facilities.

Table V-21. Transportation Needs for Proposed NAIS Facilities

Map I.d.	Est. Open Year	Proposed New Facility	Rte #	MP	Transportation Needs
W38	2012	Kayenta HC	US160	394.5	Widen road to add turning lanes, street lights
F29	2020	Dilkon HS	N15	54.2	Turning lanes, turn off
E90	2014	Alamo HS	NM169	23.6	Turning lanes, turnoff
E61	2015	Pueblo Pintado HS	N9	76.1	Paving parking lot, and access road, street lights, sidewalks.
W3	2014	Gap/Coppermine HS	N6321	0.1	Pave access road

Navajo Division of Health:

The Navajo Division of Health departments provide health related services including alcohol/substance abuse, mental health, domestic violence, traditional healing, fitness, and health education.

The Department of Behavioral Health has planned for four Wellness Centers. In addition, Sanostee and Upper Fruitland Chapters have identified health care facility needs and sites through Capital Improvement Program Planning, Table V-22.

Table V-22 Proposed Tribal Health Facilities

Map I.d.	Est. Open Year	Proposed Facility	Chapter	Rte #	MP	Transportation Needs
E33	2012	Wellness Center	Crownpoint	N1040	2.1	Street lights
E66	2010	Fitness Center	Smith Lake	N703	0.5	Need of sidewalks, street lights, pave access road, parking lot.
E71	2011	Fitness Center	Thoreau	NM371	1.7	Need of sidewalks, pave access road, and parking lot
N31	2010	Wellness Center	Rock Point	US191	495.3	Paving parking lot, access road and street lights
N38	2014	Medical service center	Sanostee	N34	17.7	Pave access road, and parking lot, street lights
N70	2013	Health Center	Upper Fruitland	N3005	0.8	Pave access road, and parking lot, street lights

Source: 2009 CIP Project Priorities (WIND) and 2009 Navajo DOT's chapter survey.

The Community Health Representatives (CHR) program provides emergency medical transportation upon request, while Navajo Aging Service provides transportation for Navajo elderly to Senior Centers in some chapters. CHR offices and Senior Centers are located at chapter houses while other offices are mostly located at various Navajo Nation government complexes. Access improvement to all chapter houses and tribal office complexes is identified as a transportation need to improve public access to tribal health care programs.

Residential Development:

NHA housing subdivisions are major traffic generators throughout the reservation. The Navajo Housing Authority (NHA), funded by the federal Department of Housing and Urban Development (HUD), is the major tribal agency building housing for low income families. NHA has planned and constructed less of subdivision housing and more of scattered homes recently. NHA however, cannot provide any planned NHA housing development for this 2009 LRTP update. Chapters nevertheless provided us their proposed housing projects and transportation needs, Table V-23.

Table V-23. Proposed Housing and Related Transportation Needs by Chapters

Map I.d.	Est. Open Year	Proposed Facility	Chapter	Rte #	MP	Transportation Needs
E84	2012	NHA Housing	Whitehorse Lake	N9	63	Street lights, pave access road
F17	2009	Housing Development	St. Michaels	CR408	0	Pave Street
F6	2010	Housing Development	Ft. Defiance	N110	0.9	Pave Street
W26	2012	Residential Housing Complex	Gap	US89	488.6	Turn out Lane
E45	2014	Mobile Home Park	Huerfano	CR7150	5.3	Street lights, new pave asphalt

Source: 2009 CIP Project Priorities (WIND) and 2009 Navajo DOT's chapter survey.

Schools:

In 2006-2007 school year only 46% or 42,492 of total 92,260 Navajo Nation school children attended 140 public schools located on the Navajo Nation (Table V-24). Of these, 80 are public (state/county) schools and 60 are BIA schools (these figures do not include private, church schools and headstart programs). The other 54% attended public schools at Border Towns such as Flagstaff, Winslow, Holbrook and Page in Arizona; Gallup, Cuba, Aztec, Bloomfields and Farmington in New Mexico; and Mexican Hat and Montezuma in Utah.

Table V-24 Enrollment Demographics – SY 2006-07

Institution	Location	# of Schools	Enrollment
Arizona Public Schools	On Navajo	44	17,304
Arizona Charter Schools	On Navajo	4	638
Total Arizona		48	17,942
New Mexico Public Schools	On Navajo	27	7,607
Total New Mexico		27	7,607
Utah Public Schools	On Navajo	5	984
Total Utah		5	984
OIEP-BIA Funded School*	On Navajo	60	15,959
Total OIEP-BIA		60	15,959

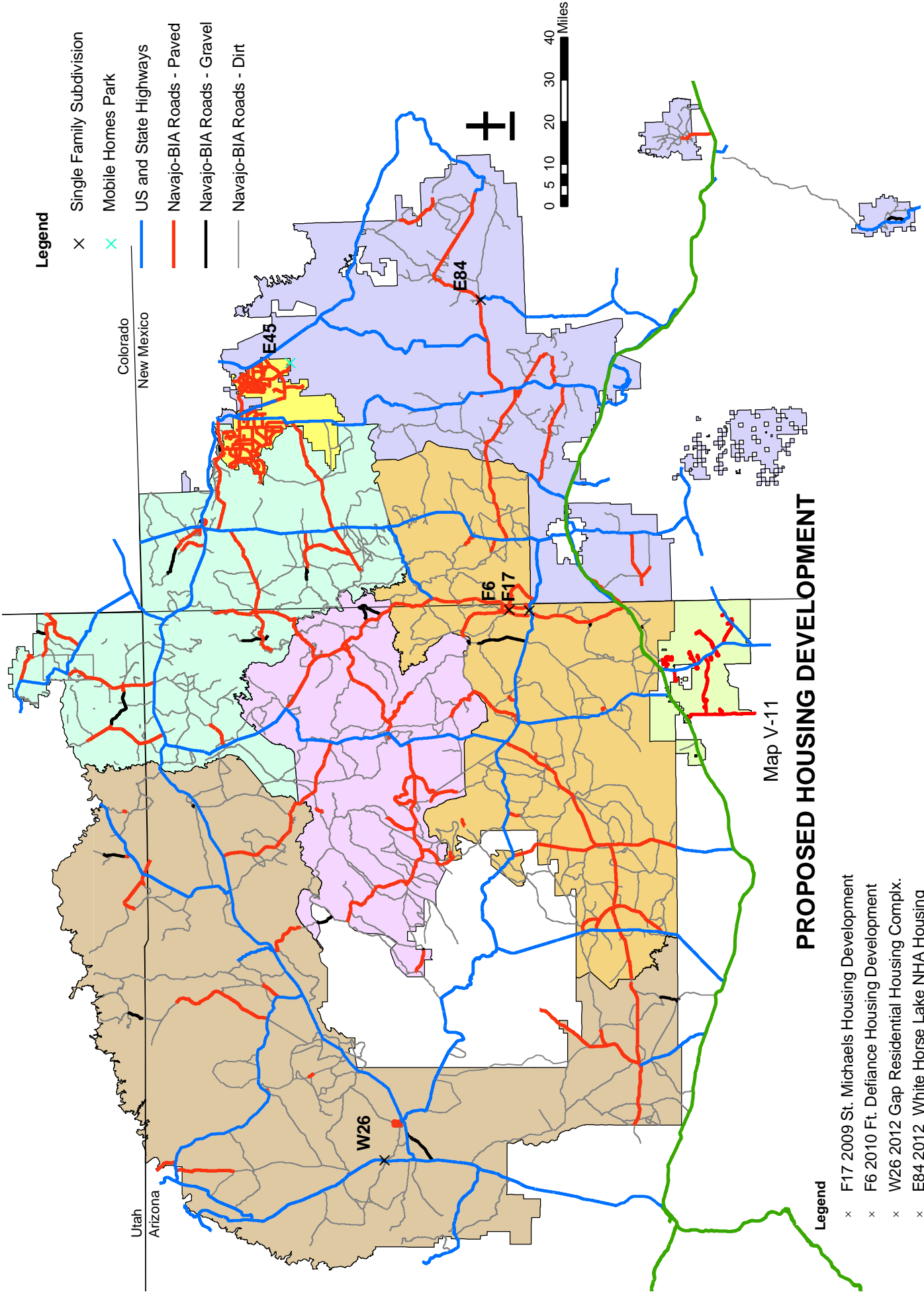
OIEP-BIA Total Enrollment based on SY2004 05 140 42,492

Table V-25 shows proposed schools and Headstart projects and recommended transportation needs. See also Map V-11.

Table V-25 Proposed Schools and Headstart Projects

Map I.d.	Estimated Open Year	Proposed Facility	Chapter	Rte #	MP	Transportation Needs
C1	2010	Head Start	Black Mesa,	N8066	15.4	Pave N8066 and access road
C13	2010	Head Start	Cottonwood	Tribal Road	0.2	Pave access road, parking lot pavement
C14	2010	Head Start	Whippoorwill	N602	0.2	Parking lot pavement
C7	2010	Head Start	Nazlini	N27	16.85	Parking lot pavement/gravel
E14	2010	Preschool	Chichiltah	N7046	4.3	Paving parking lot, access road, sidewalks, street lights.
E17	2011	Head Start	Church Rock	CR7063	0.3	Paving parking lot, access road, sidewalks, street lights.
E40	2014	Preschool	Crownpoint	N1042	1.3	Street lights
E46	2010	Head Start	Iyanbito	CR33		Turning lanes
E49	2010	Head Start	Little Water	N7119	1.2	Paving parking lot, access road, sidewalks, street lights.
E67	2011	Head Start	Smith Lake	N703	0.5	Need of sidewalks, pave access road, and parking lot.
F19	2010	Elementary School	Teesto	N60	22.8	Pave Access and to School Bus Route
N11	2013	Head Start building	Cove	N5018	0.2	Pave access road, and parking lot, street lights
N57	2011	New Head Start building	Sweetwater	N35	18.6	Pave access road, and parking lot, street lights
N74	2015	High School	Upper Fruitland	N3005	1.2	Pave access road, and parking lot, street lights
W17	2010	Head Start	Kayenta	US163	398.13	Access Turn out
W29	2015	New School K-6	Coalmine Canyon	N6720	39.1	Rd. Construction/access
W30	2015	New School	Dennehotso	US160/N6465	418	Pave N6465

Source: 2009 CIP Project Priorities (WIND) and 2009 Navajo DOT's chapter survey.



Legend

- x Single Family Subdivision
- x Mobile Homes Park
- US and State Highways
- Navajo-BIA Roads - Paved
- Navajo-BIA Roads - Gravel
- Navajo-BIA Roads - Dirt

Map V-11

PROPOSED HOUSING DEVELOPMENT

Legend

- x F17 2009 St. Michaels Housing Development
- x F6 2010 Ft. Defiance Housing Development
- x W26 2012 Gap Residential Housing Complx.
- x E84 2012 White Horse Lake NHA Housing
- x E45 2014 Huerfana Mobile Homes Park

Economic Development:

The Navajo Nation Division of Economic Development has three major development goals for the near future: industrial, tourism, and commercial and real estate development. Development in these areas will produce base industry growth and job creation.

Industrial Development:

Economic development and manufacturing is considered to be the most important aspect of industry.

There are five industrial plants in operation on the Navajo Nation:

- Raytheon at the NAPI Industrial Park.
- MechTronics of Arizona in the Fort Defiance Industrial Park.
- TDI in the Leupp Industrial Park.
- Southwest Cabinet at the Church Rock Industrial Park.
- Gallup Camper Sales.

Considering the paramount importance of manufacturing, the Division is actively recruiting new industrial businesses, of which the important ones are:

- Latex Glove Manufacturing Plant
- Montezuma Creek Sewing Factory
- BCDS Manufacturing Operation
- Housing Panel Manufacturing
- Indian Tribal Economic Alliance (ITEA)

Tourism Development:

Tourism has the potential of generating a substantial amount of income for the Navajo Nation. According to a recent study, the tourism industry has an economic impact of \$100 million dollars and supports 3,506 jobs. To promote tourism in the Navajo Nation and to capture more of the tourist dollars, the Navajo Nation Division of Economic Development have planned a number of projects:

- Completion of Phase II and Phase III-Antelope Marina & Resort
- Shiprock RV Park
- Monument Valley Interpretive Center
- Dine Biitah Scenic Road
- Dine Tourism Corridor

Commercial & Real Estate Development:

Office and retail space development has been initiated by Chuska/Sahara, utilizing private financing and using the Bureau of Indian Affairs loan guarantee program at various sites. The sites are:

- White Cone Commercial Development - Phase I development is in the bid process to prepare a 4.0 acre tract of land in White Cone, AZ, a southwestern community for future business. The target business is an 8,000-10,000 square foot retail center that includes a gas station, convenience store, laundry and a small sit-down eating operation.
- Karigan Housing Development Phase II - Phase II development of housing on Karigan Estates in St. Michaels, AZ will began in July, 2004. The project is a continuation of home ownership on fee lands located at Karigan Estates.
- Sawmill Retail Center - Site Development for a small retail center currently being advertised for bids. Attract business for the 3.0 acre tract of land in Sawmill, AZ includes a gas station and convenience store.
- Newlands Shopping Center - Infrastructure planning and development to accommodate a future full-scale shopping center at Sanders, AZ is in the architect and engineering stages. The project will provide for tenant recruitment and construction of a commercial facility to accommodate the Newlands community.
- Tuba City Office and Retail Complex (42,000 sq. ft.) Completion date is June, 2004
- Kayenta Office and Retail Complex
- Shiprock Office and Retail Complex
- Dilkon Office and Retail Complex
- Fort Defiance Office and Retail Complex
- Crownpoint Office and Retail Complex

Table V-26 identifies the Navajo Nation Economic Development Priorities

Table V-26 Navajo Nation Economic Development Priorities

Map i.d.	Est. Open Year	Proposed Facility	Chapter	Rte #	MP	Transportation Needs
F26	*	Nahat'ah Dziil Shopping Center	Nahat'ah Dziil	N9402	0.1	Roundabout
E86	*	Latex Gloves Manufacturing Plant	Church Rock, NM	NM118	28.9	Widen NM118 for turning lanes and median
E86	*	Church Rock Gateway Incubator Service	Church Rock, NM	NM118	28.9	Widen NM118 for turning lanes and median
F7	2010	Commercial Development	Ganado	US191	417.3	Turning lanes
W33	*	Kerley Valley Commercial/Industrial Site	Tuba City	US160	320.08	Widen road for turning lanes
W34	*	Shonto Jct. Commercial/Industrial Park	Shonto, AZ	US160	361.6	Access Turning lanes
W33	*	Coalmine Canyon Commercial/Industrial Site	Coalmine Canyon, AZ	US160	320.08	Turning lanes
W35	*	Chilchinbeto Commercial/Industrial Park	Chilchinbeto, AZ	N59	29.4	Turning lanes
W28	2015	Commercial Development	Bittersprings	US89US89A	524	Turning lanes
W36	*	Kaibeto Commercial & Tourism Development	Kaibeto, AZ	AZ98	331.03	Turn off
N2	2011	Montezuma Shopping Center	Aneth	UT262	22.5	Pave access road, and parking lot, street lights
W37	*	Antelope Point Resort	LeChee/Page	N222	4.5	Turn off
	*	Auto Parts Store & Auto Repair	Chinle, AZ	No site identified yet		
	*	Huerfano Roadside Devmt-Tourism	Huerfano, NM			
E82	2011	Torreon Roadside Development-Tourism	Torreon	Tribal Road	0.4	Sidewalks, pave access road, and parking lot
C17	*	Gorman's Trailer Ct redevelopment	Chinle, AZ	N8092	0.1	Pave access road (N8092)
N77	*	Convenience Store & Gas station	Sheepsprings, NM	NM134	0.03	Widen NM134 for turning lanes
F15	2009	Karigan Housing	St. Michaels	Tribal Road	0.1	Pave street
C18	*	Wheatfields Lake Renovation	Wheatfields, AZ	N12	64.2	Turning lanes, multiple access points, parking
F27	*	Karigan Estates Apartment Complex	St. Michaels	Tribal Road	0.1	Pave street
N52	2012	TeecNosPos Commercial Center	Teec Nos Pos	US160	465.5	Pave access road, and parking lot, street lights
	*	Convenience Store/Gas Station	Chinle, AZ	N No site identified yet		
	*	Storage Units	Chinle, AZ	No site identified yet		
N45	2012	Fair grounds	Shiprock	US491	88	Paving parking lot, access road and street lights
	*	Monarch Park	St. Michaels			
F28		Karigan Restaurant	St. Michaels	AZ264	473.4	None
E88		Eastern Navajo Office & Retail Complex	Crownpoint	N9	38.9	Turn off
N78		Office Complex & Retail Center	Shiprock	US491	90.7	
N50	2012	Hotel & Conference Center	Shiprock	US491	90.8	Paving parking lot, access road and street lights
		American Family Entertainment Center				

2009 Navajo Nation Long Range Transportation Plan

W40		Bottled Water Processing Plant (Leupp, AZ)	Leupp/Twin Arrows	I-40/N6930	230.4	Pave access road (N6930)
		Seven Rural Commercial Facilities				
N79		Sheepsprings Welcome Center	Sheepsprings	NM134	0.03	Widen NM134 for turning lanes
W33		Kerly Valley Commerical Light Industrial Site	Tuba City	US160	320.08	Widen road for turning lanes
		Navajo Nation Shopping Centers				
		Acciona Thermal Solar Project				
E89		Mariano Lake Trading Post		N49	1.5	Turn off

Source: Division of Economic Development 2007

Notes: *No funding year has been yet established.

In addition to the Division of Economic Development priority projects, several Chapters have also planned several more economic development projects for their chapters to be funded under Capital Improvement Programming. The Navajo Nation Gaming Enterprise has also proposed to build three more casinos. See Table V-27 below.

Table V-27 Other Economic Development Projects

Map I.d.	Est. Open Year	Proposed Project	Chapter	Rte #	MP	Transportation Needs
E10	2013	Convenience store/laundromat	Casamero Lake	CR19	9.6	Paving parking lot, access road, sidewalks, street lights.
E26	2014	Commercial site development (11acres)	Counselor	US550	97.1	Paving parking lot, access road, sidewalk, street lights
E39	2014	Vendor Village	Crownpoint	N1040	1.6	Street lights
E4	2010	Smoke House	Baca	CR100	0	Paving parking lot, and access road, street lights, sidewalks
E41	2014	Performing Arts	Crownpoint	N1042	2	Street lights
E50	2012	Laundromat	Little Water	N7119	1.2	Paving parking lot, access road, sidewalks, street lights.
E52	2014	Bottling Co.	Little Water	N7119	1.2	Paving parking lot, access road, sidewalks, street lights.
E54	2012	Economic dev	Manuelito	NM118	6.9	Turning lanes
E82	2011	Arts & Crafts	Torreon	Tribal Road	0.4	Sidewalks, pave access road, and parking lot
E90		Convenience Store	Churchrock	NM118	29.5	Access mgmt/Turn out
E91		Convenience Store	Crownpoint	N9	39.78	Access mgmt/Turn out
F12	2009	Commercial Center	Nahat'ah Dził	N2011	1	Pavement of roadway
F13	2009	Convenience Store	Naschitti	T6914	12.1	Pavement reconstruction
F14	2010	Convenience Store	Red Lake	N12	41.6	Turn off, access
F16	2010	Golf Course Development	St. Michaels	N12	22.4	Pave Access from N12 to St. Michaels School
F18	2009	Convenience Store	Steamboat	N25	0	Pave Roadway, Access to north Tselani
F2	2009	Convenience Store	Cornfields	N151	10.2	Pave Roadway and pave access
F21	2010	Convenience Store	White Cone	N9062	21.3	Pave access on N9062
F23	2010	Convenience Store	Wide Ruins	N9205	14.8	Pave roadway
F24	2010	Dine Tah Gateway Ctr/Gas Station	Lupton	N12	0	Access mangement, Sign
F3	2009	Convenience Store	Coyote Canyon	N37	5.95	Pave Roadway to 491 Access Traffic
F8	2009	Convenience Store	Ganado	N9202	0	Paved Roadway
F9	2010	Convenience Store	Houck	N9010	0	Pave road to Pine Springs from I-40
N12	2010	Laundromat Mat	Cove	N5018	0.2	Pave access road, and parking lot, street lights
N14	2011	100 Acres Master Planning	Cudeii	N57	0.2	Pave access road, and parking lot, street lights
N16	2013	Scenic View Hotel	Cudeii	N571	0	Pave access road, and parking lot, street lights
N19	2011	Red Ranch Resort Center	Mexican Water	N12_UT	2.4	Pave access road, and parking lot, street lights

2009 Navajo Nation Long Range Transportation Plan

N25	2014	Convenience store	Red Mesa	US160	449.9	Pave access road, and parking lot, street lights
N43	2012	Visitor Center	Shiprock	US64	23.16	Pave access road, and parking lot, street lights
N49	2011	Hotel & restaurant	Shiprock	US491	90.8	Paving parking lot, access road and street lights
N52	2012	16 Acres site development	Teec Nos Pos	US160	465.5	Pave access road, and parking lot, street lights
N60	2012	Bingo-Casino Hall	Hogback	N5031	0.2	Pave access road, and parking lot, street lights
N73	2012	Convenience Store	Upper Fruitland	N36	21.7	Pave access road, and parking lot, street lights
W12	2011	Baby Rock Commercial Ctr.	Dennehotso	US160	407.5	Access Turn out
W19	2012	Tall Mt. Solar Proj.	Navajo Mountain			
W20	2012	Wind Farm	Shonto	N40	2.7	Construction/access
W31	2010	Visitor Ctr/Artist Plaza	Shonto	US160	361.6	Access Turning lanes
W32	2010	Antelope Cyn Visitor Ctr	LeChee	AZ98	299.5	Sign
W7	2010	Truck Stop	Gap	US89	486	Access Turn out
W41		Convenience Store	Leupp	N15	14.8	Access Turn out
W42		Convenience Store	Dennehotso	US160	417.7	Access mgmt/Turn out
F30	2010	Casino	Navajo	I-40/ N2013	320.01	Pave access road(N2013)
N76	2011	Casino	Upper Fruitland	N36	27.8	Pave access road, and parking lot, street lights
W39	2012	Casino	Twin Arrows	I-40/ N6930	230.4	Pave access road(N6930)

Sources: Navajo Nation Gaming Enterprise, Navajo DOT's chapter survey, RBDOs, 2009.

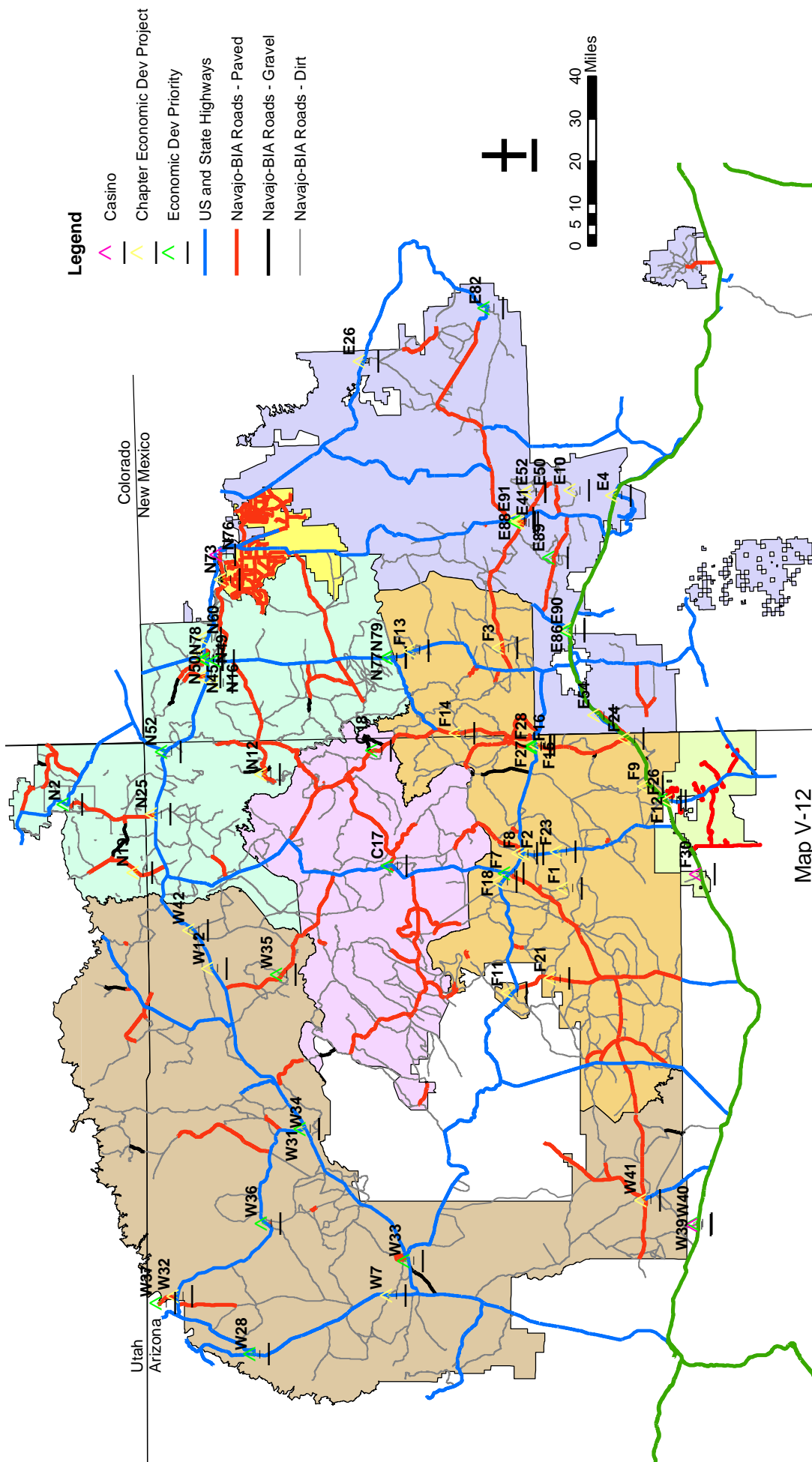
New access roads, turnoffs, traffic signals, street lights, and accelerate/decelerate lanes are recommended for safety and accessibility for these planned economic developments. Overall transportation system connectivity is also crucial to the Navajo Nation's economic future. Map V-12 illustrates the proposed economic development projects. Without an adequate transportation system, the Nation's future economic growth will be severely constrained.

Energy Development:

Energy development is now an important part to the Navajo Nation's overall economic development strategies. The Dine' Power Authority (DPA) oversees energy development for the Navajo Nation has proposed four major projects as follows:

- **Navajo Transmission Project:** The Navajo Transmission Project (NTP) is a 469-mile high voltage transmission line to supply electricity from the Four Corners region power plants to Arizona, Nevada and California substations. This project will supplant the aging existing transmission system eliminating a supply gap in the Southwest grid and providing stability and reliability in the event of outage and impacts to the power plants.
- **Desert Rock Power Plant:** Desert Rock is a coal-fired 1,500 megawatts (MW) power plant planned to start operating in 2010. The project is located in Burnham Chapter. The power plant will create 400 jobs. The project will add commuter and heavy truck traffic impacting N5082, N5, NM371 and US491. There is also a proposed road to be built by BHP Billiton Navajo Coal Company to provide access to its mining sites north of the Desert Rock plant and to Desert Rock Power Plant access road. This road will replace approximately 18.4 miles of N5082 north of N5.
- **Dine' Wind Project:** DPA has identified potential three (3) high wind resource sites in Grey Mountain/Cameron, Oljato/Kayenta and Black Mesa areas. These sites have strong wind that can generate electricity of 200-700 MW, 50-100 MW, and 50-100 MW respectively. Aside from Wind resource, DPA also found potential sites for solar energy development.
- **Coalbed Methane Production Plant:** The Navajo Oil and Gas Company is hoping to add revenue to the Navajo Nation's coffer by planning to tap into more than 220 billion cubic feet gas reserve in the San Juan Basin. This is a methane gas reserve underneath Upper Fruitland, Nenahnezad and San Juan Chapters. The project will be located east of the BHP Billington Mine and includes gas gathering and compression station. The product will be delivered into some of the existing major interstate pipelines that already exist on the Navajo Nation.

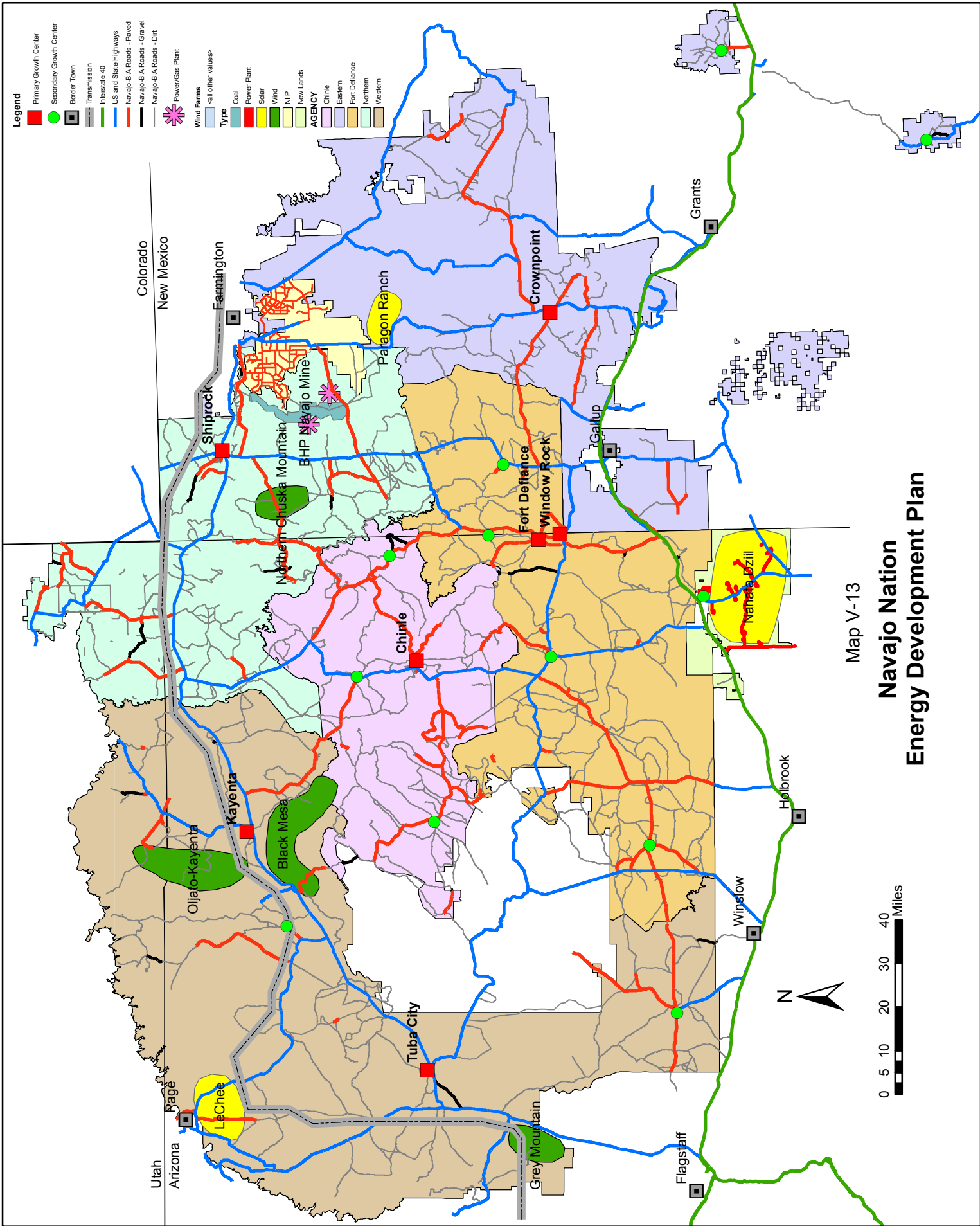
These four projects are shown on Map V-13 Navajo Nation Energy Development Plan.



Map V-12

ECONOMIC DEVELOPMENT PROJECTS

- | | | | | |
|--|--|--------------------------------------|------------------------------------|-----------------------------------|
| Legend | ▲ F26 Nahata Dzili Shopping Center | ▲ W40 Bottled Water Processing Plant | ▲ E90 Churchrock Convenience Store | ▲ N49 Hotel & restaurant |
| ▲ F26 Nahata Dzili Shopping Center | ▲ E86 Latex Gloves Manufacturing Plant | ▲ N79 Sheepsprings Welcome Center | ▲ E91 Crownpoint Convenience Store | ▲ N60 Bingo-Casino Hall |
| ▲ F7 Commercial Development | ▲ F15 Karigian Housing | ▲ E89 Mariano Lake Trading Post | ▲ F3 Convenience Store | ▲ N73 Convenience Store |
| ▲ W34 Shonto Commercial/Industrial Park | ▲ F27 Karigian Estates Apartment Complex | ▲ E10 Convenience store/laundromat | ▲ F8 Convenience Store | ▲ W7 Truck Stop |
| ▲ W33 Kerley Valley Commercial/Industrial Park | ▲ N52 Tee'NosPos Commercial Center | ▲ E39 Vendor Village | ▲ F9 Convenience Store | ▲ W12 Baby Rock Commercial Ctr. |
| ▲ W35 Chichibeto Commercial/Industrial Park | ▲ N45 Fair grounds | ▲ E4 Smoke House | ▲ N12 Laundromat Mat | ▲ W31 Visitor Ctr/Artist Plaza |
| ▲ W28 Commercial Development | ▲ F28 Karigian Restaurant | ▲ E41 Performing Arts | ▲ N14 100 Acres Master Planning | ▲ W32 Antelope Cyn Visitor Ctr |
| ▲ W36 Kaibeto Commercial & Tourism Development | ▲ E88 Eastern Navajo Office & Retail Complex | ▲ N78 Office Complex & Retail Center | ▲ N16 Scenic View Hotel | ▲ W41 Leupp Convenience Store |
| ▲ N2 Montezuma Shopping Center | ▲ N78 Office Complex & Retail Center | ▲ E52 Bottling Co. | ▲ N19 Red Ranch Resort Center | ▲ W32 Antelope Cyn Visitor Ctr |
| ▲ W37 Antelope Point Resort | ▲ N50 Hotel & Conference Center | ▲ E54 Economic dev | ▲ N25 Convenience store | ▲ W42 Dennotoos Convenience Store |
| ▲ E82 Toreon Roadside Development-Tourism | | | ▲ N43 Visitor Center | ▲ F30 2010 Pintia Road Casino |
| | | | | ▲ N76 2011 Upper Fruitland Casino |
| | | | | ▲ W39 2012 Twin Arrows Casino |



Legend

- Primary Growth Center
- Secondary Growth Center
- Border Town
- Transmission
- Intrastate 40
- US and State Highways
- Navajo-BIA Roads - Paved
- Navajo-BIA Roads - Gravel
- Navajo-BIA Roads - Dirt
- Power/Gas Plant

Wind Farms
Type
>all other values<

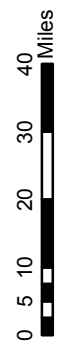
- Coal
- Power Plant
- Solar
- Wind
- NIP
- New Lands

AGENCY

- Chinle
- Eastern
- Fort Defiance
- Northern
- Western

Map V-13

**Navajo Nation
Energy Development Plan**



Community Development:

The Navajo Nation and its chapters are actively pursuing community development. The majority of the Navajo Nation Capital Improvement Program (CIP) projects are located within the chapter house tracts. Paving the access roads to chapter houses will also provide better transportation access to these facilities. Table V-28 lists the 2009 Navajo Nation CIP listing with related transportation needs for each CIP project. See also Map V-14 for project locations.

Table V-28. 2009 Capital Improvement Program

Map I.d.	Est. Open Year	Project Name	Chapter	Route #	Project Route Milepost	Transportation Improvement Needs
C10	2011	Public Safety Cmplx	Pinon	N8030	0.9	Turn off, parking lot pavement, sign
C11	2010	Police Sub-station	Round Rock	N12	96.6	Turn off, parking lot pavement, sign
C12	2011	Senior Ctr	Tsaile	N12	76.2	Turn off, parking lot pavement, sign
C15	2010	Multi-Purpose Ctr	Whippoorwill	N602	0.1	Parking lot pavement
C16	2011	Transfer station	Whippoorwill	N65	6.75	Pave access road
C2	2011	New Chapter Hse	Blue Gap	N406	0.05	Parking lot pavement
C3	2014	Multi-Purpose Ctr	Blue Gap	N406	0.05	Parking lot pavement
C4	2014	Multi-Purpose Ctr	Blue Gap	N8068	9.05	Pave access road, parking lot pavement
C5	2010	Veteran Cemetery	Chinle	N8094	4.2	Pave access road
C6	2011	New Chapter Hse	Hardrock	Tribal Road	0.15	Pave access road, parking lot pavement
C8	2012	New Chapter Hse	Nazlini	N27	16.85	Pave access road,
C9	2012	ARISE Hogan Bldg	Pinon	N8030	0.6	Parking lot pavement
E1	2011	Senior Center	Alamo	NM169	25.6	Turning lanes, street lights, sidewalks
E11	2011	Senior Center	Chichiltah	N7046	4.3	Paving parking lot, access road, sidewalks, street lights.
E12	2014	Jones Ranch Bldg	Chichiltah	N7046	4.3	Paving parking lot, access road, sidewalks, street lights.
E13	2011	Techno Center	Chichiltah	N7046	4.3	Paving parking lot, access road, sidewalks, street lights.
E15	2012	Multi-Purpose Center	Chichiltah	N7046	4.3	Paving parking lot, access road, sidewalks, street lights.
E16	2010	Sr/VA Center	Church Rock	CR33	0.2	Paving parking lot, access road, sidewalks, street lights.
E18	2011	Police Substation	Church Rock	NM118	28.8	Paving parking lot, access road, sidewalks, street lights.
E19	2012	Multi-Purpose Center	Church Rock	NM118	29.5	Paving parking lot, access road, sidewalks, street lights.
E2	2013	Fire Station	Alamo	NM169	25.6	Turning lanes, street lights, sidewalks
E20	2014	VA Memorial Park	Church Rock	NM118	29.2	Paving parking lot, access road, sidewalks, street lights.
E21	2010	Senior Center	Counselor	US550	97.9	Paving parking lot, access road, sidewalk, street lights
E22	2011	Computer Lab	Counselor	US550	97.9	Paving parking lot, access road, sidewalk, street lights
E23	2012	Fire Equip & Bldg	Counselor	US550	97.1	Paving parking lot, access road, sidewalk, street lights
E24	2013	Multi-Purpose Ctr	Counselor	US550	97.9	Paving parking lot, access road, sidewalk, street lights
E25	2013	Transfer Station	Counselor	US550	97.9	Paving parking lot, access road, sidewalk, street lights
E27	2010	Chapter Ofc & Warehouse	Crownpoint	N1040	2.2	Paving parking lot, sidewalk
E28	2011	Domestic Violence Shelter	Crownpoint	Tribal Road		Paving parking lot, sidewalk
E3	2013	Multi-Purpose Center	Alamo	NM169	25.6	Turning lanes, street lights, sidewalks
E30	2012	Multi-Purpose	Crownpoint	N1042	2.16	Street lights



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E31	2012	Rodeo Ground	Crownpoint	N9	36.2	Turn off
E32	2012	Agency Admin Cmplx	Crownpoint	N1042	1.2	Street lights
E34	2013	Chapter Cmplx	Crownpoint	N1040	2.17	Street lights
E35	2013	Youth Ctr	Crownpoint	N1040	2.02	Street lights
E36	2014	Judicial Cmplx	Crownpoint	N1042	2.3	Street lights
E37	2014	VA Ofc	Crownpoint	N1040	2.17	Street lights
E42	2010	Senior Ctr	Huerfano	CR7165	0.15	Street lights, new pave asphalt.
E43	2010	Warehouse	Huerfano	CR7165	0.15	Street lights, new pave asphalt.
E44	2011	New Cemetery	Huerfano	CR7150	5.9	Street lights, new pave asphalt.
E47	2011	Warehouse	Lake Valley	CR7750	0.1	Paving parking lot, access road, sidewalks, street lights.
E48	2011	Multi-Purpose	Lake Valley	CR7750	0.1	Paving parking lot, access road, sidewalks, street lights.
E5	2011	Senior Center	Baca	Tribal Road	0.1	Paving parking lot, and access road, street lights, sidewalks
E51	2013	Senior Ctr/Preschool	Little Water	N7119	1.2	Paving parking lot, access road, sidewalks, street lights.
E53	2011	Multi-Purpose	Manuelito	CR4	0.3	Paving parking lot, access road, sidewalks, street lights.
E55	2011	Senior Ctr	Nageezi	US550	115.4	Paving of parking lot, street lights.
E56	2010	Library	Ojo Encino	N474	16.8	Paving parking lot, access road, sidewalks, street lights.
E57	2012	Fire Station	Ojo Encino	CR474	4.5	Paving parking lot, access road, sidewalks, street lights.
E58	2012	Youth Ctr, Pub	Ojo Encino	N474	16.8	Paving parking lot, access road, sidewalks, street lights.
E59	2010	Senior Ctr	Pueblo Pintado	N9	76.1	Paving parking lot, and access road, street lights, sidewalks.
E6	2012	New Chapter House	Becenti	N7120	0.8	Paving parking lot, access road, sidewalks, street lights.
E60	2011	Fire Station	Pueblo Pintado	N9	76.1	Paving parking lot, and access road, street lights, sidewalks.
E62	2013	Transfer Station	Pueblo Pintado	N9	76.3	Paving parking lot, and access road, street lights, sidewalks.
E63	2014	Senior Center	Red Rock	CR2	0.7 w. NM602	Paving parking lot, and access road, street lights, sidewalks
E64	2010	Multi-Purpose	Rock Springs	CR9	2.0 s. NM264	Turn off
E65	2012	Police Sub-Office	Rock Springs	CR9	2.0 s. NM264	Turn off
E68	2011	Senior Ctr	Standing Rock	N7057	0.7	Need of sidewalks, pave access road, and parking lot.
E69	2013	Multi-Purpose	Standing Rock	N7057	0.6	Need of sidewalks, pave access road, and parking lot.
E70	2011	First Response	Thoreau	NM371	1.7	Need of sidewalks, pave access road, and parking lot
E73	2010	Child Care	Tohajiilee	N56	6	Turning lanes, street lights, sidewalks
E74	2011	New Chapter Hse	Tohajiilee	N56	3.7	Turning lanes, street lights, sidewalks
E75	2011	Detention Ctr	Tohajiilee	N56	6	Turning lanes, street lights, sidewalks
E76	2011	Youth Multi	Tohajiilee	N56	3.7	Turning lanes, street lights, sidewalks
E77	2011	Police Substation	Tohajiilee	N56	6	Turning lanes, street lights, sidewalks
E78	2011	Fire/Rescue	Tohajiilee	N56	6	Turning lanes, street lights, sidewalks

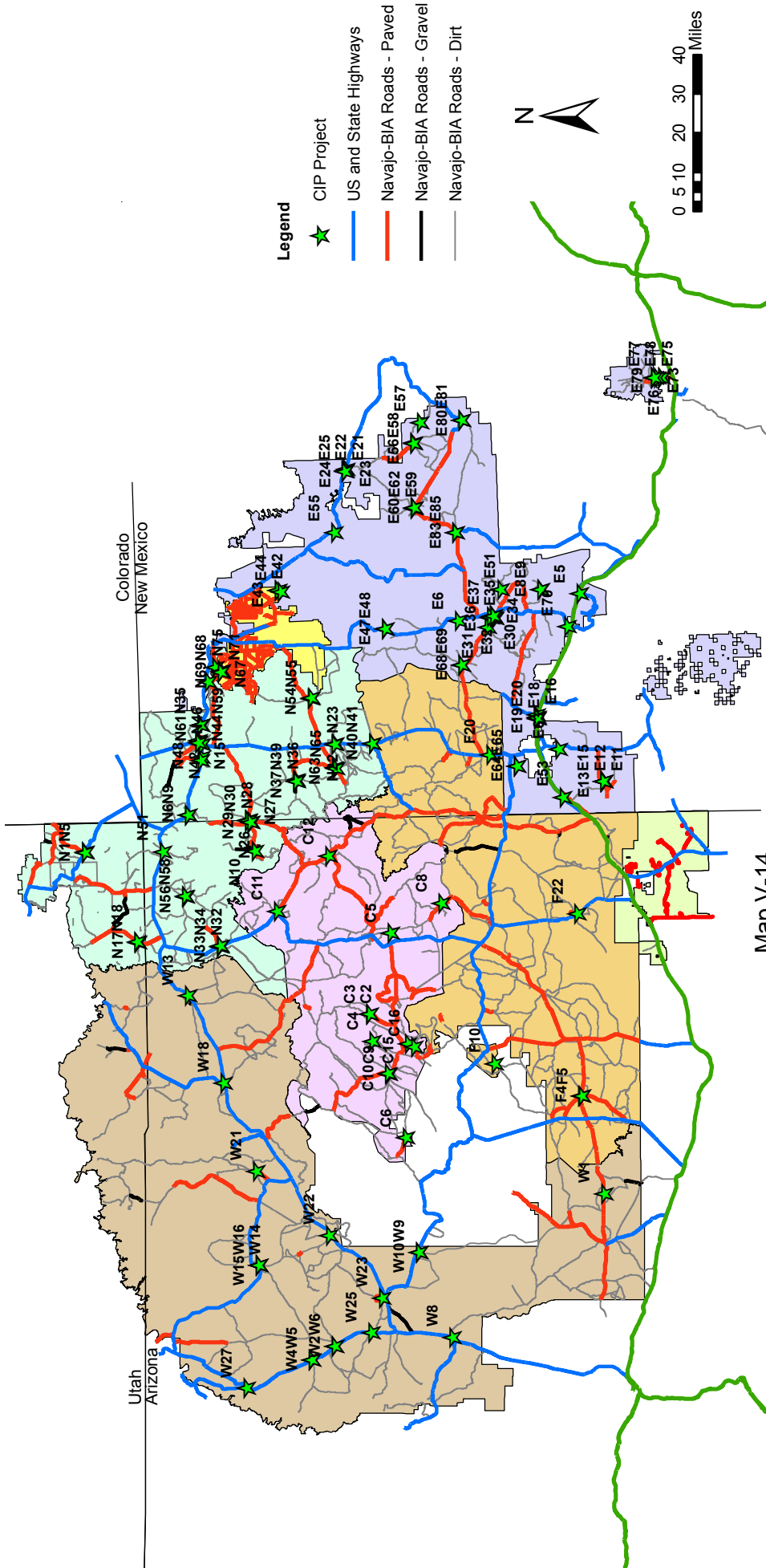
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E79	2012	Tribal Cmplx	Tohajiilee	N56	5	Turning lanes, street lights, sidewalks
E8	2012	Veteran Administration Bldg	Casamero Lake	CR19	9.6	Paving parking lot, access road, sidewalks, street lights.
E80	2010	Police Substation	Torreon	Tribal Road	0.4	Sidewalks, pave access road, and parking lot
E81	2010	Multi-Purpose	Torreon	Tribal Road	0.4	Sidewalks, pave access road, and parking lot
E83	2010	Senior Ctr	Whitehorse Lake	N9	62.9	Pave access road and parking lot.
E85	2013	Youth Multi	Whitehorse Lake	N9	62.9	Pave access road and parking lot.
E9	2013	Senior Ctr	Casamero Lake	CR19	9.6	Paving parking lot, access road, sidewalks, street lights.
F10	2010	Community Chapter Complex	Jeddito	N9751	7.5	Pave Roadway for access route
F20	2012	Multi Purpose Bldg	Twin Lakes	US491	13.2	Street lights and sidewalk
F22	2009	Senior Citizen Center	Wide Ruins	N9345	0	Pave roadway
F4	2011	New Chapter House	Dilkon			
F5	2011	Senior Citizen Center	Dilkon			
N1	2011	Solid Waste facility	Aneth	UT162	22.6	Pave access road, and parking lot, street lights
N10	2012	Warehouse building	Cove	N5018	0.2	Pave access road, and parking lot, street lights
N13	2010	Community cemetery	Cudeii	US64	18.8	Pave access road, and parking lot, street lights
N15	2012	Multi-Purpose building	Cudeii	N57	0.2	Pave access road, and parking lot, street lights
N17	2010	Multi-Purpose building	Mexican Water	N12_UT	2.4	Pave access road, and parking lot, street lights
N18	2011	New Chapter House	Mexican Water	N12_UT	2.4	Pave access road, and parking lot, street lights
N21	2011	Education Center	Nenahnezad	N365	1.6	Pave access road, and parking lot, street lights
N22	2012	Multi-Purpose building & Veterans Park	Newcomb	US491	56.7	Pave access road, and parking lot, street lights
N23	2013	Senior Citizen garage	Newcomb	N5001	12.2	Pave access road, and parking lot, street lights
N26	2010	Veterans Center	Red Valley	N13	25	Pave access road and parking lot, street lights
N27	2011	New Chapter House	Red Valley	N13	23.8	Pave access road and parking lot, street lights
N28	2011	Multi-Purpose building/Head Start	Red Valley	N13_NM	0	Pave access road and parking lot, street lights
N29	2012	Transfer Station	Red Valley	N5020	0.15	Pave access road and parking lot, street lights
N30	2012	Apache County Yard	Red Valley	N13	24	Pave access road and parking lot, street lights
N32	2011	New Chapter House	Rock Point	US191	495.3	Paving parking lot, access road and street lights
N33	2012	Elderly Group Home	Rock Point	US191	495.3	Paving parking lot, access road and street lights
N34	2014	Transfer Station	Rock Point	US191	495.3	Paving parking lot, and street lights
N35	2012	Warehouse	Hogback	N5031	0.2	Paving parking lot, and street lights
N36	2013	Post Office	Sanostee	N34	17	Pave access road, and parking lot, street lights
N37	2014	Public Safety building	Sanostee	N34	16.7	Pave access road, and parking lot, street lights
N39	2014	Storage facility	Sanostee	N34	16.7	Pave access road, and parking lot, street lights
N40	2014	Day Care Center	Sheep Springs	NM134	0.4	Pave access road, and parking lot, street lights
N41	2014	Warehouse building	Sheep Springs	N5008	0.5	Pave access road, and parking lot, street lights
N42	2014	Community library	Shiprock	US64	23.15	Pave access road, and parking lot, street lights
N44	2011	Court building complex	Shiprock	N531		Paving parking lot, access road

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						and street lights
N46	2014	Multi-Purpose building	Shiprock	US491	90.9	Paving parking lot, access road and street lights
N48	2013	Tribal Museum	Shiprock	N531		Paving parking lot, access road and street lights
N5	2014	Warehouse	Aneth	UT162	22.5	Pave access road, and parking lot, street lights
N51	2010	Solid Waste facility	Teec Nos Pos	US160	459.6	
N54	2014	Multi-Purpose building	Burnum	N5080	0.8	Pave access road, and parking lot, street lights
N55	2011	Warehouse	Burnum	N5080	0.8	Pave access road, and parking lot, street lights
N56	2012	New Chapter House	Sweetwater	N35	18.6	Pave access road, and parking lot, street lights
N58	2012	New Senior Center	Sweetwater	N35	18.9	Pave access road, and parking lot, street lights
N59	2010	Multi-Purpose building	Hogback	N5031	0.2	Pave access road, and parking lot, street lights
N6	2010	New Senior Center	Beclabito	US64	3.8	Pave access road, and parking lot, street lights
N61	2012	Library & computer lab	Hogback	N5031	0.2	Pave access road, and parking lot, street lights
N63	2011	Multi-Purpose	Two Grey Hills	N5000	15.2	Pave access road, and parking lot, street lights
N65	2013	New Chapter House	Two Grey Hills	N19	11.06	Pave access road, and parking lot, street lights
N67	2011	Fire/Police Station	Upper Fruitland	N3005	0.8	
N68	2012	Senior Citizen Center	Upper Fruitland	N3005	0.8	Pave access road, and parking lot, street lights
N69	2012	Library	Upper Fruitland	N3005	0.8	Pave access road, and parking lot, street lights
N71	2014	Day Care Center	Upper Fruitland	N3005	0.8	Pave access road, and parking lot, street lights
N75	2013	Nursing Home	Upper Fruitland	N562	0.3	Pave access road, and parking lot, street lights
N9	2010	Multi-Purpose building	Beclabito	US64	3.8	Pave access road, and parking lot, street lights
W1	2011	Senior Crt	Brirdsprings	N15	27.4	Access Turn out
W10	2011	Multi-Purpose Bldg.	Coalmine canyon	N6720	39.1	Rd Const. Access Turn out
W13	2011	Multi-Purpose Bldg.	Dennehotso	N6460	Sect 50/.73	Construction/access
W14	2011	Multi-Purpose Bldg.	Kaibeto	N21	28.6	Construction/access
W15	2012	Safety Complx	Kaibeto	N21	28.6	Construction/access
W16	2012	One-Stop Tribal Cmplx.	Kaibeto	N21	28.6	Construction/access
W18	2010	Detention Bldg.	Kayenta	US163	398.17	Construction/access
W2	2011	Senior Crt	Gap	N20	0.08	Access Turn out
W21	2013	Gov't Cmplx.	Shonto	N6322	4.8	Rd. Construction/access
W22	2012	Multi-Purpose Bldg.	Tonalea	N21	0.07	Turn out Lane
W23	2012	Adult Detention Ctr.	Tuba City	N1017	0.8	Access Turn out
W25	2012	Maintenace Yard	Gap	US89/N23	486.9	Turn out Lane
W27	2015	Multi-Purpose Bldg.	Bittersprings	US89	523.6	Turn out Lane
W4	2012	Youth Ctr.	Cedar Ridge	US89	502.2	Access turn out
W5	2010	New Chapter House	Cedar Ridge	US89	505.2	Access Turn out
W6	2010	Police/Fire station	Gap	N20	0.08	Access Turn out
W8	2011	New Chapter House	Cameron	US89	466.2	Turn out Lane
W9	2011	Senior Ctr.	Coalmine Canyon	N6720	39.1	Rd Const. Access Turn out

Source: 2009 CIP Project Priorities (WIND) and 2009 Navajo DOT's chapter survey.



CAPITAL IMPROVEMENT PROJECTS

Map V-14

- Legend**
- ★ CIP Project
 - US and State Highways
 - Navajo-BIA Roads - Paved
 - Navajo-BIA Roads - Gravel
 - Navajo-BIA Roads - Dirt
- Legend**
- ★ C10 Pinon Public Safety Cmplx
 - ★ C11 Round Rock Police Sub-station
 - ★ C12 Tsalie Senior Ctr
 - ★ C15 Whippoorwill Multi-Purpose Ctr
 - ★ C16 Whippoorwill Transfer station
 - ★ C2 Blue Gap New Chapter Hse
 - ★ C3 Blue Gap Multi-Purpose Ctr
 - ★ C4 Blue Gap Multi-Purpose Ctr
 - ★ C5 Chinle Veteran Cemetery
 - ★ C6 Hardrock New Chapter Hse
 - ★ C8 Nazlini New Chapter Hse
 - ★ C9 Phron ARISE Hogan Bldg
 - ★ E1 Alamo Senior Center
 - ★ E11 Chichilahn Senior Center
 - ★ E12 Chichilahn Jones Ranch Bldg
 - ★ E13 Chichilahn Techno Center
 - ★ E15 Chichilahn Multi-Purpose Center
 - ★ E16 Church Rock SrVA Center
 - ★ E18 Church Rock Police Substation
 - ★ F19 Church Rock Multi-Purpose Center
 - ★ E2 Alamo Fire Station
 - ★ E20 Church Rock VA Memorial Park
 - ★ E21 Counselor Senior Center
 - ★ E22 Counselor Computer Lab
 - ★ E23 Counselor Fire Equip & Bldg
 - ★ E24 Counselor Multi-Purpose Ctr
 - ★ E25 Counselor Transfer Station
 - ★ E27 Crownpoint Chapter Ofc & Warehouse
 - ★ E28 Crownpoint Domestic Violence Shelter
 - ★ E3 Alamo Multi-Purpose Center
 - ★ E6 Becenti New Chapter House
 - ★ E30 Crownpoint Multi-Purpose
 - ★ E31 Crownpoint Rodeo Ground
 - ★ E32 Crownpoint Agency Admin Cmplx
 - ★ E34 Crownpoint Chapter Cmplx
 - ★ E35 Crownpoint Youth Ctr
 - ★ E36 Crownpoint Judicial Cmplx
 - ★ E37 Crownpoint VA Ofc
 - ★ E42 Huerfano Senior Ctr
 - ★ E43 Huerfano Warehouse
 - ★ E44 Huerfano New Cemetery
 - ★ E47 Lake Valley Warehouse
 - ★ E48 Lake Valley Multi-Purpose
 - ★ E5 Baca Senior Center
 - ★ E51 Little Water Senior Ctr/Preschool
 - ★ E53 Manuelito Multi-Purpose
 - ★ E55 Nageezi Senior Ctr
 - ★ E56 Ojo Enchiro Library
 - ★ E57 Ojo Enchiro Fire Station
 - ★ E58 Ojo Enchiro Youth Ctr, Pub
 - ★ E59 Pueblo Pintado Senior Ctr
 - ★ E6 Becenti New Chapter House
 - ★ E60 Pueblo Pintado Fire Station
 - ★ E62 Pueblo Pintado Transfer Station
 - ★ E63 Red Rock Senior Center
 - ★ E64 Rock Springs Multi-Purpose
 - ★ E65 Rock Springs Police Sub-Office
 - ★ E66 Standing Rock Senior Ctr
 - ★ E68 Standing Rock Multi-Purpose
 - ★ E69 Thoreau First Response
 - ★ E73 Tohajiilee Child Care
 - ★ E74 Tohajiilee New Chapter Hse
 - ★ E75 Tohajiilee Detention Ctr
 - ★ E76 Tohajiilee Youth Multi
 - ★ E77 Tohajiilee Police Substation
 - ★ E78 Tohajiilee Fire/Rescue
 - ★ E79 Tohajiilee Tribal Cmplx
 - ★ E8 Casamero Lk Veteran Administration Bldg
 - ★ E80 Torreon Police Substation
 - ★ E81 Torreon Multi-Purpose
 - ★ E83 White Horse Lk Senior Ctr
 - ★ E85 White Horse Lk Youth Multi
 - ★ E86 Casamero Lk Senior Ctr
 - ★ E90 Pueblo Pintado Fire Station
 - ★ E91 Pueblo Pintado Transfer Station
 - ★ E93 Rock Springs Multi-Purpose
 - ★ E94 Rock Springs Police Sub-Office
 - ★ E95 Rock Springs Senior Ctr
 - ★ E96 Standing Rock Senior Ctr
 - ★ E97 Thoreau First Response
 - ★ E70 Thoreau Warehouse
 - ★ N13 Cudelil Community cemetery
 - ★ N15 Gudeil Multi-Purpose building
 - ★ N17 Mexican Water Multi-Purpose building
 - ★ N18 Mexican Water New Chapter House
 - ★ N21 Nenahnezad Education Center
 - ★ N22 Newcomb Multi-Purpose Bldg & Veterans Park
 - ★ N23 Newcomb Senior Citizen garage
 - ★ N26 Red Valley Veterans Center
 - ★ N27 Red Valley New Chapter House
 - ★ N28 Red Valley Multi-Purpose building/Head Start
 - ★ N29 Red Valley Transfer Station
 - ★ N30 Red Valley Apache County Yard
 - ★ N32 Rock Point New Chapter House
 - ★ N33 Rock Point Elderly Group Home
 - ★ N34 Rock Point Transfer Station
 - ★ N35 Hogback Warehouse
 - ★ N36 Sanostee Post Office
 - ★ N37 Sanostee Public Safety building
 - ★ N38 Upper Fruiland Senior Citizen Center
 - ★ N39 Sanostee Storage facility
 - ★ N40 Sheepspings Day Care Center
 - ★ N41 Sheepspings Warehouse building
 - ★ N42 Shiprock Community library
 - ★ N44 Shiprock Court building complex
 - ★ N46 Shiprock Multi-Purpose building
 - ★ N48 Shiprock Tribal Museum
 - ★ N5 Aneth Warehouse
 - ★ N51 Teec Nos Pos Solid Waste facility
 - ★ N54 Burnham Multi-Purpose building
 - ★ N55 Burnham Warehouse
 - ★ N56 Sweetwater New Chapter House
 - ★ N58 Sweetwater New Senior Center
 - ★ N59 Hogback Multi-Purpose building
 - ★ N8 Bedabito New Senior Center
 - ★ N91 Hogback Library & computer lab
 - ★ N93 Two Grey Hills Multi-Purpose
 - ★ N95 Two Grey Hills New Chapter House
 - ★ N97 Upper Fruiland Fire/Police Station
 - ★ N98 Upper Fruiland Senior Citizen Center
 - ★ N99 Upper Fruiland Library
 - ★ N71 Upper Fruiland Day Care Center
 - ★ N75 Upper Fruiland Nursing Home
 - ★ N9 Bedabito Multi-Purpose building
 - ★ W1 Birdspings Senior Ctr
 - ★ W10 Coalmine Cyn Multi-Purpose Bldg.
 - ★ W13 Demehetso Multi-Purpose Bldg.
 - ★ W14 Kabeto Multi-Purpose Bldg.
 - ★ W15 Kabeto Safety Cmplx
 - ★ W16 Kabeto One-Stop Tribal Cmplx.
 - ★ W18 Kayenta Detention Bldg.
 - ★ W2 Gap Senior Ctr
 - ★ W21 Shonto Govt Cmplx.
 - ★ W22 Tonaiea Multi-Purpose Bldg.
 - ★ W23 Tuba City Adult Detention Ctr.
 - ★ W25 Gap Maintenance Yard
 - ★ W27 Bittersprings Multi-Purpose Bldg.
 - ★ W4 Cedar Ridge Youth Ctr.
 - ★ W6 Cedar Ridge New Chapter House
 - ★ W8 Gap Police/Fire station
 - ★ W9 Coalmine Cyn Senior Ctr.

NEED 8: Scenic Byways, Tourism & Recreation Needs

Tourism is a major industry that can generate \$100 million dollars and it supports 3,500 jobs on the Navajo Nation according to the Division of Economic Development. To promote tourism on the Navajo Nation, the Navajo Nation Tourism Department has developed a comprehensive Navajo Nation Scenic Byways Plan identifying scenic routes that links all of the Nation’s attractions that are most scenic, culturally significant and have naturally intrinsic qualities. Among these are the Canyon de Chelly National Monument, Lake Powell, Monument Valley, Navajo National Monument, Antelope Canyon, Four Corners Monument and Chaco Culture National Historical Park. These natural and cultural resources have provided new sources of income to Navajo people and the surrounding communities.

The Navajo Nation Tourism Department lead, Parks and Recreation, Navajo Division of Transportation, Chapters and Non-profit organizations all support scenic byways development and provide matching funds to state and federal grants in order to implement the Navajo Nation Scenic Byways plan and projects.

Scenic Byways and Projects:

The Navajo Nation Scenic Byways Plan on Map V-15 shows the Navajo Nation designated scenic byway corridors. Each corridor has been named based on its intrinsic quality whether it is natural, scenic or of Navajo cultural and historical characters (see Table V-29). The table also identifies transportation improvements that are needed to enhance and support each byway development project.

Table V-29. Scenic Byway Related Transportation Needs

State	Scenic Byways	Rte No.	BMP	EMP	Byway Dev. Projects	Proj Year	Proj MP	Existing ADT	Transportation Needs
AZ	Dine'tah/Among the People	N12	0.0	75.7	Lupton Gateway Ctr	2010	0.0	1213	Signage Access Mgmt
		N64	0.0	24.5					
	Fredonia Vermillion Cliffs	US89A	523.9	546.5		4.7	4.7	168	Signage
	Naatsis'aan/Navajo Mountain	AZ98	294.7	361.6	Antelope Canyon Kios Kaibeto Kios Inscription Hse/Navajo Mtn Kios Shonto Visitor Information	2010	299.5 Kios 331.06 349.3K aibeto Kios 33615	5289 Kios 2210 01885Ka ibeto Kios 31885	Signage Access Mgmt
	Kayenta-Monument Valley	US163	393.5	416.7	MV Visitor Center				Signage
Tse'nikani/Flat Rock Mesa	US191	462.0	510.3					Signage	
NM	Trail of the Ancients	N9	39.8	53.1					Signage
		N13	0	21.1					
		N19	6.0	18.3					
		N5001	0	12.4					
		US64	0	31.6					
		NM134	0	22.3					
		NM264	0	16.3					
		NM371	0	105.5					
		US491	0	107.0					
		US550	123.1	150.0					
UT	Trail of the Ancients	UT162	14.6	32.0					Signage
		US163	0	20.6					
		UT262	0	22.6					

Source: Navajo Tourism Department, 2009.

Other tourism developments include plans for the following by the Division of Economic Development:

1. Completion of the Antelope Marina and Resort Phases II & III (N222).
2. Shiprock RV Park



Recreation:

The U.S. National Park Service operates the Canyon De Chelly National Monument, Lake Powell, Chaco Culture National Historical Park and Navajo National Monument. The Navajo Parks and Recreation Department, established in 1958, manages tribal parks, monuments, a zoo, five fairgrounds and administers fair events and youth recreational programs.

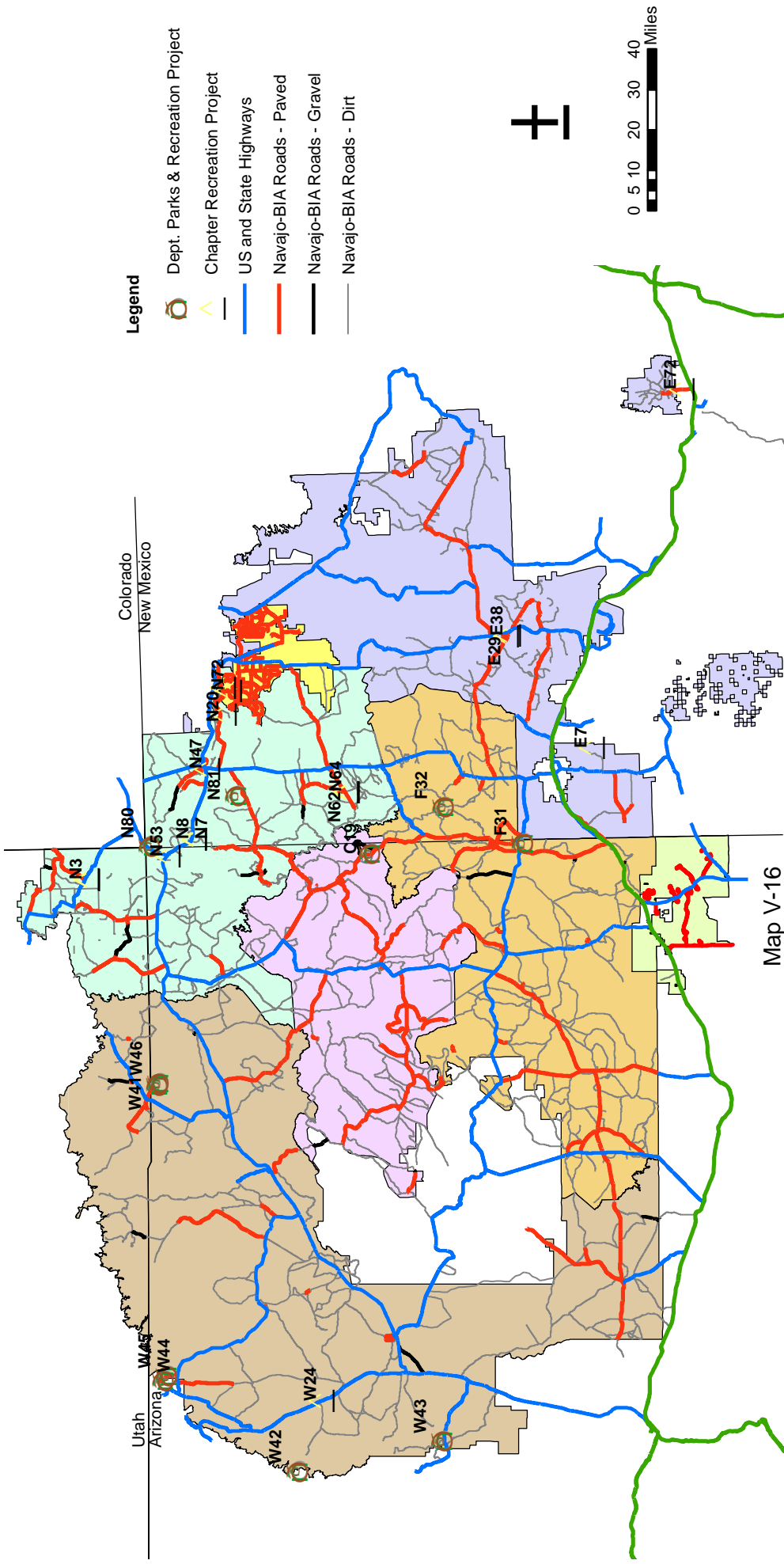
Many Navajo parks and recreation areas have poor access. Lack of reasonable access to most Navajo recreation sites, many of which are potential tourist attractions, has discouraged their use. The Navajo Parks and Recreation Department’s revenue is mainly generated from entrance fees collected from Monument Valley Tribal Park and tribal fairs. Other park facilities have no entrance fee. Revenues are primarily used for facility maintenance, and are often insufficient to cover major road improvements. Improvement of access roads to tribal parks and tourist attractions will attract more park users and tourists alike. Good roads to the tribal parks will also extend tourists’ time of stay because there will be more places to explore and things to do. Table V-30 lists all Navajo Nation parks’ access improvement needs, and Map V-16 illustrates these needs.

Table V-30. Park Access Needs with Project Priority

NUM	Project Priority	Park Name	Chapter	Route No.	MP	Transportation Needs
W41	1	Monument Valley Tribal Park	Ojatoh	Non-sys	0	Pave valley (13.0 mi loop road) drive
W42	2	Marble Canyon Tribal Park	Bodaway	N6110	25.0	Pave 25.0 mi N6110 to confluence for Grand Canyon East project from Cedar Ridge
W43	3	Little Colorado Gorge Overlook	Cameron	N6140	4.0	Improve 4.0 mi access road (gravel) to 1st viewpoint
N80	4	Four Corners Monument	Teec Nos Pos	US160	471.2	Pave parking lot
W46	5	Monument Valley Tribal Park	Ojatoh	N42	21.8	Pave 2.0 mi loop road around administrative area
W44	6	Upper Antelope Canyon Tribal Park	Lechee	N222	5.2	Pave parking lot
W45	7	Lower Antelope Canyon Tribal Park	Lechee	N222	3.5	Pave parking lot
F31	8	Navajo Nation Fairgrounds	St. Michaels	AZ264	475.0	Pave entire fairgrounds for vehicle parking
F32	9	Bowl Canyon Recreation Area (Camp Asaayi)	Mexican Springs	N31	13.3	Gravel 9.5 mi N31 from Navajo to N31/N30 jct.
N81	10	Shiprock Pinnacle	Shiprock	Tribal Rd	2.0	Gravel 2.0 mi Access road and parking lot
C19	11	Wheatfields Lake	Wheatfields	N12	64.6	Gravel 2.0 mi loop road around north campground

Source: Navajo Parks and Recreation Department, August 18, 2009

Chapters also have planned for additional parks and recreation projects for their communities, see Table V-31.



Map V-16

PROPOSED PARKS AND RECREATION PROJECTS

Dept. of Parks & Recreation Priority

- W41 1. Monument Valley Tribal Park
- W42 2. Marble Canyon Tribal Park
- W43 3. Little Colorado Gorge Overlook
- N80 4. Four Corners Monument
- W46 5. Monument Valley Tribal Park
- W44 6. Upper Antelope Canyon Tribal Park
- W45 7. Lower Antelope Canyon Tribal Park
- F31 8. Window Rock Navajo Nation Fairgrounds
- F32 9. Bowl Canyon (Camp Asaayi)
- N81 10. Shiprock Pinnacle
- C-19 11. Wheatfields Lake

Chapter Park & Recreation Projects

- △ N20 2010. Nenahnezad Morgan Lake Recreation center
- △ N47 2010. Shiprock Skate Park facilities
- △ N62 2010. Two Grey Hills Rodeo Ground
- △ N66 2010. Uppr Fruitland Fairgrounds improvement
- △ E7 2010. Breadsprings Rodeo Arena
- △ E72 2010. Tohajilee Skateboard Park
- △ N7 2011. Beclabito Skate Park
- △ E29 2011. Crownpoint Skateboard Park

- △ N8 2012. Beclabito Picnic ground
- △ N64 2012. Two Grey Hills Veterans Park
- △ W24 2012. Cedar Ridge Veteran Park
- △ N4 2013. Aneth Ball Park
- △ N3 2013. Aneth Veteran Memorial Park
- △ N53 2013. Teec Nos Pos Rodeo Ground
- △ E38 2014. Crownpoint Public Park
- △ N72 2015. Uppr Fruitland Community Park

Legend

- Dept. Parks & Recreation Project
- △ Chapter Recreation Project
- US and State Highways
- Navajo-BIA Roads - Paved
- Navajo-BIA Roads - Gravel
- Navajo-BIA Roads - Dirt



Table V-31. Chapters' Planned Park and Recreation Projects

NUM	Estimated Open Year	Project Name	Chapter	Route #	Project Route Milepost	Transportation Improvement Needs
E29	2011	Skateboard Park	Crownpoint	N1042	2.1	Street lights
E38	2014	Public Park	Crownpoint	N1040	2.1	Street lights
E7	2010	Rodeo Arena	Bread Springs	CR10	1.9	Gravel road
E72	2010	Skateboard Park	Tohajilee	N56	3.7	Turning lanes, street lights, sidewalks
N20	2010	Morgan Lake Recreation center	Nenahnezad	Tribal Road		Pave access road, and parking lot, street lights
N3	2013	Veteran Memorial Park	Aneth	UT162	22.3	Pave access road, and parking lot, street lights
N4	2013	Ball Park	Aneth	UT162	22.3	Pave access road, and parking lot, street lights
N47	2010	Skate Park facilities	Shiprock	US64	21.5	Paving parking lot, access road and street lights
N53	2013	Rodeo Grounds	Teec Nos Pos	US160	465.6	Pave access road, and parking lot, street lights
N62	2010	Rodeo Ground	Two Grey Hills	N5000	15.1	Pave access road, and parking lot, street lights
N64	2012	Veterans Park	Two Grey Hills	N19	11	Pave access road, and parking lot, street lights
N66	2010	Fairgrounds improvement	Upper Fruitland	N562	0.2	Pave access road, and parking lot, street lights
N7	2011	Skate Park	Beclabito	US64	3.9	Pave access road, and parking lot, street lights
N72	2015	Community Park	Upper Fruitland	N3005	1	Pave access road, and parking lot, street lights
N8	2012	Picnic ground	Beclabito	US64	3.8	Pave access road, and parking lot, street lights
W24	2012	Veteran Park	Cedar Ridge	US89	505.2	Access Turn out

Sources: Navajo DOT's chapter survey, 2009.

Table V-32 Summarizes the total scenic byway, tourism and recreation transportation needs.

Table V-32. Total Scenic Byways, Tourism, and Recreation Transportation Needs

Transportation Needs	Navajo-BIA Road Miles	State Road Miles	County Road Miles	Non-Sys Road Miles	Total Miles
Scenic byways and tourism projects: Signage and access management improvements	N/A	N/A	N/A	N/A	N/A
Tribal Park: Access road improvements	38.5	N/A	N/A	19.0	57.5
Chapters' planned park and recreation projects: Access road improvements	N/A	N/A	7.0	3.0	10.0
Need 8. Total	38.5	N/A	7.0	22.0	67.5

NEED 9: Multimodal Transportation Needs

To meet SAFETEA-LU requirements regarding multimodal transportation, transportation planning must promote the use of other modes of transportation. The multimodal needs related to sidewalks and bicycle mobility in the growth centers are included in Chapter VII, Growth Center Mobility Improvements. Need 9 focuses on aviation, railroad and transit related improvements only

Airport Access Needs:

The Chapter VIII, Navajo Nation Airport Needs has identified airport development needs and recommendations based on State aviation studies and Navajo DOT estimates. The recommendations include new construction of one primary airport in Oljatoh and improvement of eight (8) secondary airports in Ramah Navajo, Rock Point, Navajo Mountain, Monument Valley, Huerfano, Pinon, Dilcon, Alamo and Nahat'a Dził (New Lands) communities. Priority will be given to the primary airports that are already recognized by the Federal Aviation Administration (FAA) in its National Plan of Integrated Airport Systems (NPIAS) and are therefore, eligible for FAA funding. However, improvement and new

construction of secondary airports are also recommended to provide air transportation to health care facilities and provide emergency landing strips in remote areas. The planned airport developments will help improve air service coverage for the entire reservation including Navajo satellite communities such as Ramah.

Approximately 8.5 miles of new access road construction and paving of existing roads are needed to serve the proposed airport development (Table V-33). See also Map VIII-2 for proposed airport development.

Table V-33. Airport Road Construction Needs

Agency	Primary Airports	Route Number	Est. Access Road Length (miles)
CHL	Oljatoh	Non-System Route (New)	2
SR	Rock Point	N502/N35	1
WNA	Navajo Mountain	Non-System Route (New)	1
WNA	Monument Valley	Non-System Route (New)	0.5
CHL	Pinon	Non-System Route (New)	0.5
FTD	Dilcon	Non-System Route (New)	2
NL	Nahat'a Dziil	Non-System Route (New)	0.5
	Alamo	Non-System Route (New)	1.0
	Ramah		
Total Navajo-BIA Roads:			1
State Roads:			0.5
Non-Sys Roads:			7
Total:			8.5

Navajo Transit Route Needs:

Navajo Transit System Five Year Plan:

May 2009: According to the Navajo Transit System Five Year Plan dated May 2009, ridership in 2008 was approximately 70,000 trips per year; however, it is forecasted that there is an estimated demand for transit of nearly 700,000 one-way passenger trips per year. The plan addresses five key areas: Management/Administration, Operations/Service, Marketing, Coordination, and Funding.

The Navajo Transit System (NTS) provides public transportation services on the Navajo Reservation, serving 57 of 110 chapters. NTS operates intercity bus service on (13) fixed routes linking Navajo growth centers and adjacent border towns. The Tuba City-Window Rock, Toyey-Window Rock, Kayenta-Ft. Defiance, Crownpoint-Ft. Defiance, Dilkon-Window Rock and routes operate one round trip per day Monday to Friday. Window Rock and Gallup routes are core service routes operating four and two round trips each weekday, respectively. In January 2009, the Flagstaff to Tuba City Route was started; this is a one hour trip that will run four times per day. In 2009, the Kayenta to Tuba City route began to provide a one-hour, one-way trip.

NTS connects with Hopi Transit System, Greyhound Busline, Amtrak Passenger Train, Gallup Transit Express, Red Apple Transit, and Flagstaff Mountain Line. NTS has several connections with Navajo Senior Centers along the routes. Most NTS fixed routes operate along state highways. NTS fixed route ridership has increased over the years. Ridership was 65,513 in 2008 and it is expected to increase by 20% in FY 2009, due to the \$1.00 per day ride fee that was established in November 2008 and will remain in place until November 2010. Fixed route customers are classified as 51% general, 22% elderly, 20% commuters and disabled, youth and students making up the rest. NTS buses pick up riders at designated stops, but no NTS stations have been constructed. NTS charters provide transportation for groups, organizations and private tours on and off the Navajo Nation twelve months a year. NTS charter service includes transportation to Arizona State University, University of New Mexico, Haskell University, and other colleges. The recommendations within each area are summarized in Table V-34.

Table V-34. Navajo Transit Recommendations

Key Area	Topic	Recommendations
Management	Wage Adjustments	Conduct review of driver's wages/wage history and make adjustments, as appropriate.
	Personnel/Staffing	Add two positions to support marketing and planning.
Operations	Route Service Expansion	Monitor performance of newly added routes. Implement Routes 11 (Flag/Tuba City) and 12 (Kayenta/Tuba City)
	Transit Centers	Review cost/feasibility of developing transit centers at major activity center to support the truck route system. Identify locations for transit centers that could be expanded to provide connections with other regional transit services.
	Local Service / Regional Transportation Hubs	Expand existing transit centers to provide local feeder service to more remote areas and secondary growth centers. Add local circulator service in Fort Defiance/Window Rock area to provide access throughout the day to government and activity centers.
	Navajo Transit Facility	Complete construction planning for new facility.
Marketing		Develop marketing program.
Coordination		Partner with other agencies and transportation providers to coordinate transportation services, especially for human services, colleges, employers, and Navajo TANF to increase ridership.
Capital Plan	Equipment	Purchase vehicles, shelters, and other amenities. Fund New Maintenance Facility construction.
Funding	Section 5311 ARRA	Apply for Section 5311 funding. Apply for ARRA funding; possible source of funding for new NTS facility.

At the public open house meetings held for the LRTP, many people noted that there was a need for additional signage to designate the available transit routes, the stop locations, and the schedules. It is recommended that a transit signage program be pursued to encourage ridership and awareness of the transit system that is available.

Navajo Transit provides long-haul type routes between the population centers. Additional investigation should be done to identify if local circulator, call-n-ride or other short trip/demand response type system is supportable within the growth centers.

Transit System Long Range Plan:

The Navajo Transit System (NTS) Program under the Division of General Services completed the NTS Five Year Plan in 2009. The NTS plan projects transit demand to increase at 1.4% annually estimating approximately 700,000 passenger trips, generally for and between the primary and secondary growth centers in 2025. The plan outlines strategic goals and objectives for NTS to meet the future demand including increasing ridership and enhancing service quality, capabilities and efficiency. Implementing the NTS strategic plan will be a long-term activity. The basic elements of the NTS strategic plan are summarized in Table V-35.

Table V-35. Navajo Transit Long Range Plan Recommendation

Action Item	Name	Potential Locations	Recommendations
1	Regional Transportation Hubs	Shiprock, Crownpoint, Chinle, Dilcon, Tuba City, Kayenta, Window Rock, Blanding	Construct 8 regional transportation hubs. These facilities would serve as the central location for feeder bus routes to neighboring chapters and secondary growth centers.
2	Facility Upgrades and New Maintenance Facility	Window Rock or Fort Defiance area	Upgrade existing and construct a new maintenance facility. The central facility is at the end of its useful life and should be replaced. Also, minor and preventative maintenance facilities would be included at the Regional Transportation Hubs for vehicles based there.
3	Trunk Routes	Crownpoint-Gallup Shiprock-Farmington Shiprock-Gallup Kayenta-Tuba City Kayenta-Page Tuba City-Flagstaff Chinle-Window Rock Dilcon-Flagstaff Blanding-Shiprock	Add Trunk Routes to connect a significant amount of the reservation's population together in a network of intercity bus routes. Note: Torreon Chapter recommended future extension of Trunk Routes to the community.
4	Feeder Routes	Pueblo Pintado, Torreon,	Create Feeder Routes to connect secondary growth centers and



2009 Navajo Nation Long Range Transportation Plan

Action Item	Name	Potential Locations	Recommendations
		Tohatchi, Nageezi, Thoreau, Burnside Sanostee, Tsaille, Sanders, Dilcon, Leupp, Inscription House, Kaibeto, Shonto, Round Rock, Rock Point	neighboring chapters to the Regional Transportation Hubs outlined above. These routes would allow residents to board a local bus near the homes, travel to a Regional Transportation Hub, and transfer to the intercity service. Note: Torreon Chapter recommended immediate action for Feeder Route extension to the community.
5	Partnerships		Partner with other agencies/transportation providers to coordinate transportation services on the reservation, such as state human services, colleges, employers, and Navajo TANF to increase ridership.
6	Acquisition and Rollover	Vehicle Fleet Locations	Acquire new vehicles. Adequate replacement of vehicles is critical to controlling maintenance costs and providing a reliable service for passengers. A systematic method of vehicle rollover is needed.
7	Technology	Transit Passenger & Maintenance Facilities	Utilize new technology. Technological improvements are a benefit to both passengers and transit operations personnel.

Arizona Rural Transit Needs Study:

The State of Arizona Rural Transit Needs Study provides regionally-based solutions to rural public transportation in Arizona. The Study intended to serve as an objective, analytical basis for establishing Arizona's long-term strategic direction of rural transit service provision. The study found that transit demand in rural Arizona is projected to increase 34 percent from year 2007 to 2016. There are numerous unmet needs for rural transit services in Arizona. Only 18 percent of the estimated demand for rural transit services is currently being met; while only 13 percent is projected to be met by year 2016. Thus additional rural transit service is needed to meet future demand. Establishing roles and responsibilities between the State, COGs, local governments, tribal governments and transit operators will facilitate the development of public transportation service in rural Arizona.

The study noted that additional rural transit services are needed in multiple cities, town, Tribal Reservations, and intercity corridors throughout the State of Arizona. The key market segments should be elderly persons, persons with disabilities, and persons of low income. The primary purpose for rural transit trips include medical appointments, shopping, work, education, personal business and recreation. These findings are consistent with the Navajo Transit System study, discussed previously.

The study documented that expanded 5311 local program services have been identified for the Navajo Transit System, namely between the cities of Flagstaff and Tuba City, Tuba City and Page, and Tuba City and Kayenta.

Road Improvement Needs:

To support the implementation of the NTS long range strategic plan, assuming all of the new truck and feeder routes are established, road improvements of these existing and future NTS routes would ensure safety of both transit riders and general public. Routine pavement preservation is needed on NTS routes to keep them in good condition and safe.

Most of the existing NTS Fixed Routes operate on State highways with three routes on N59 from Many Farms to US160; N12 from Navajo, NM to Window Rock; and N9 from US491 to Crownpoint. The NTS Long Range Plan has also proposed numerous Feeder Routes to provide additional transit services to smaller communities. These are communities with 5,000 - 10,000 transit trips per year and are appropriate for feeder transit services using smaller vehicles to operate on an ad-hoc basis. Paving chapter house access will provide all-weather roads for most of the needed feeder routes. Improvement of IRR routes used for transit operation is necessary for safety of NTS riders and traveling public sharing the roads.

Railroad Needs:

The Burlington Northern Santa Fe (BNSF) railroad runs along interstate I-40 south of the reservation, and is the only major freight and passenger railroad crossing the Navajo Nation. BNSF connects Albuquerque, NM to the west coast at Los Angeles, CA, and crosses the Navajo Reservation at Nahat'a Dziil (New Lands) Chapter, Church Rock Chapter and checkerboard area in the Eastern Navajo Agency. Freight trains and Amtrak share the BNSF railroad, with stations/stops in Flagstaff, AZ and Gallup, NM.

Rail development is complex and involves various businesses (freight and passenger rail companies), government entities, as well as economic considerations (demand versus supply). The following proposed rail projects have been in discussion but most likely will not materialize for many years to come. Railroad connection needs for these projects, therefore, are not considered.

Table V-36 summarizes the multimodal transportation needs.

Table V-36. Total Multitmodal Transportation Needs

Transportation needs	Navajo-BIA Road Miles	State Road Miles	County Road Miles	Non-System Road Miles	Total Miles
Airport Access	1.0	0.5	N/A	7.0	8.5
Transit Routes	N/A	N/A	N/A	N/A	N/A
Railroads	N/A	N/A	N/A	N/A	0.0
Need 9. Total	1.0	0.5	0.0	6.0	8.5

NEED 10: Other Transportation Needs

These are transportation needs related to or identified in other tribal and state plans. They include plans to implement rural addressing, to provide emergency services during snow and mud emergencies and hazardous shipment accidents, to provide road access in regions that are underdeveloped because of land disputes, to improve non-system public roads, proposed state and regional transportation plans.

Rural Addressing:

The Telecommunications & Utilities Department under the Division of General Services is taking a lead in the Navajo Nation 9-1-1 and Rural Addressing. Its primary goal is to link each telephone number to a physical address in order to enhance efficiency of emergency and public safety responses to 911 calls. A pilot project is being implemented in Tohajiilee with New Mexico State funds for addressing, road naming and signage installation.

Snow and Mud Emergencies:

Much of the Navajo Reservation soils have high clay content and little ground cover and a large number of the unpaved Navajo-BIA roads pass through low lying areas where snow and rain water collect. Navajo Nation residents thus encounter snow and mud emergencies almost every winter and spring. The majority of Navajos live in scattered homes raising sheep and cattle for supplemental income. Families, seniors and school children getting stranded for days or even weeks due to impassible roads has become a norm of life on the Navajo Reservation. Emergency rescue operations are often difficult or delayed until the weather permits. The Navajo Nation needs more paved roads and maintenance funds to keep roads passable, to reduce the snow and mud emergencies. It needs to build a network of all-weather roads to serve those areas of the reservation where the people live.

Hazardous Materials Shipments

U.S. Department of Energy (DOE) programs transport approximately 5,000 shipments annually of non-classified radioactive materials and waste for cleanup, research, and development for medical or industrial uses and national defense purposes. The DOE Waste Isolation Pilot Plant near Carlsbad, NM disposes of transuranic waste shipments from other DOE sites. US 666 and I-40 are the main DOE shipment routes going through the Navajo Nation. DOE reported 22 and 50 shipments of hazardous materials through the Navajo Nation in 1998 and 1999 respectively.

Numerous other hazardous material shipments from private and public sectors also cross the Navajo reservation. Emergencies involving hazardous material releases and transportation of such materials across the Navajo Nation have been reported (U.S. Environmental Protection Agency, Region IX). State highways on the Navajo Nation are major hazardous material shipment routes.

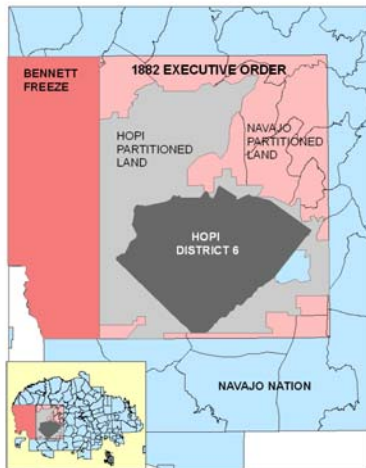
To make hazardous material transportation on the Navajo Nation safe, all shipment routes should be paved. Approximately 10.5 miles of N4 from Pinon to the Hopi reservation needs to be paved, so all hazardous shipments can be shipped on paved routes. This will improve safety and pose less danger for the surrounding Navajo communities. Routine maintenance for these routes is also necessary to keep them safe.



Other hazardous material shipments are transported by the Burlington Northern Santa Fe (BNSF) Railroad crossing the southeast corner of the Navajo Reservation. Approximately 14,000+ shipments of hazardous materials are transported annually on the BNSF

Transportation Needs in Land Dispute Regions:

The P.L. 93-531, Navajo-Hopi Relocation Act of 1974 was an attempt by the Congress to resolve the historical land dispute between the Navajo and Hopi Tribes by dividing the 1882 Executive Order Region into the so-called Navajo and Hopi Partitioned Land portions (NPL & HPL). The Bennett Freeze area is a region west of the 1882 Executive Order Region subject to a 1966 administrative freeze on construction, which was enacted into law in 1980. The freeze on housing and infrastructure construction is a result of litigation to resolve claims derived from 1934 Reservation Boundary Act. After 40 years, in December 2006, the Bennett Freeze was lifted. The Court found that no lands are any longer in litigation, and that the restrictions on development contained in the Bennett Freeze are of no longer in effect. This allows Navajos to build their homes through normal processes and procedures through Navajo Nation. The



Former Bennett Freeze (FBFA) Recovery Plan was completed in December 2008 to address the Navajo Nation's development needs in the FBFA. The plan recommends improving approximately 40.0 miles of roads within the FBFA as follows:

N101	\$9 million
N20	\$63 million
N609	\$6 million
N6331/N6330	\$3 million

Other recommended transportation projects include:

Traffic Safety Improvement Study	\$500,000
Unpaved Road Study	\$300,000
Paved Road Study	\$300,000
Airstrip	\$50,000

Total Cost: \$88 million.

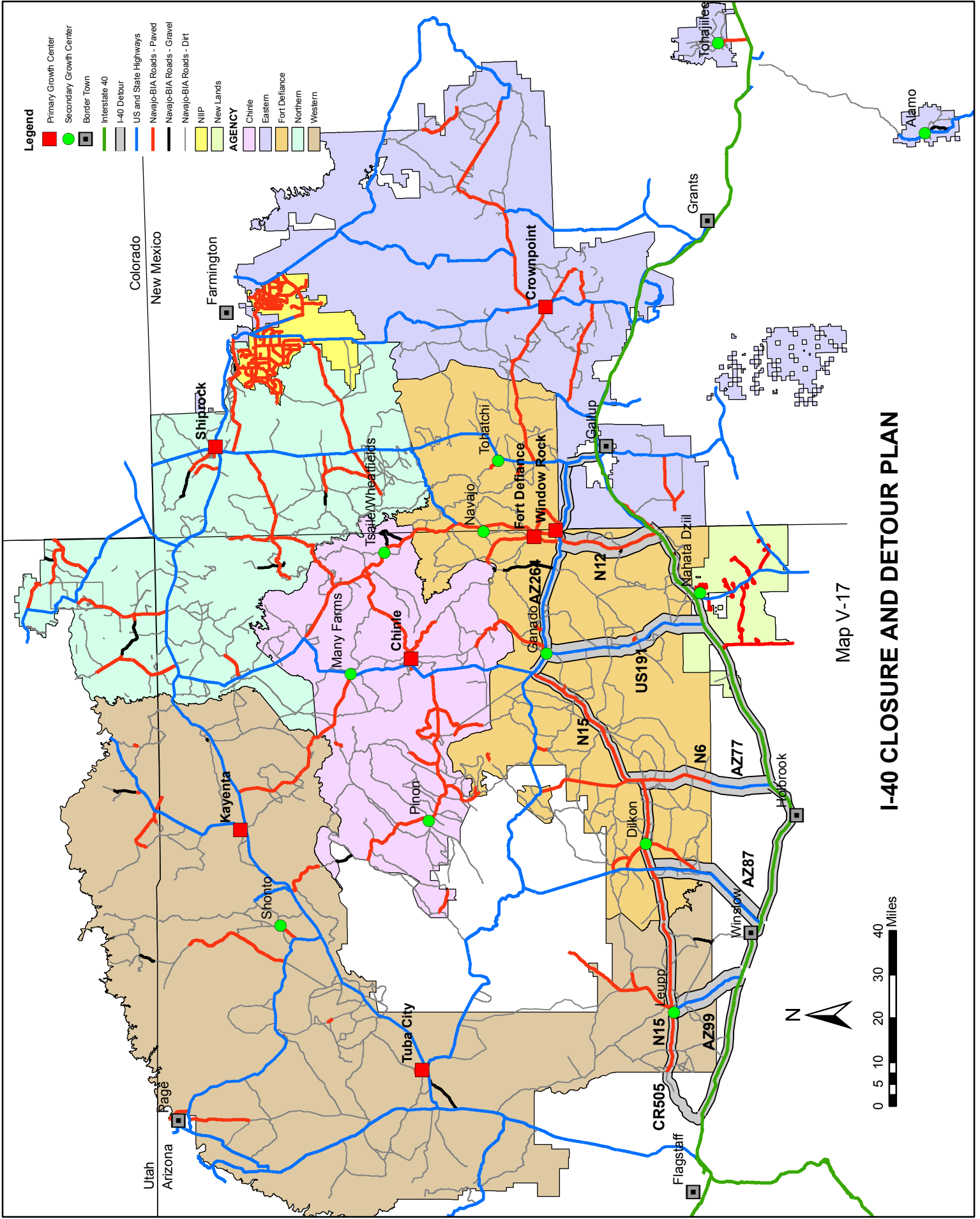
Source: Former Bennett Freeze Area (FBFA) Recovery Plan, 2008.

ADOT I-40 Emergency Plan:

ADOT has developed an I-40 Emergency Interstate Closure Plan (Map V-16) to detour traffic around Interstate closures in cases of emergencies. These plans would only be used in extreme situations such as earthquakes, hazardous material spills or complete roadway failures. The Navajo BIA routes that are part of the I-40 detours are: N15 from the reservation line west of Leupp to AZ264/US191 intersection in Burnside, N6 from AZ77 at the reservation line to N15 intersection 6 miles north of Bitahochee, and N12 from I-40 in Lupton to St. Michaels.

To safely accommodate heavy traffic during the I-40 emergency detours and prevent pavement deterioration due to excess load, these Navajo routes will need pavement and sub-base reconstruction, redesign of culverts, and roadway widening for N15 and N6 (N12 has been reconstructed and met standards). Estimated detour period is 48 hours with 8,000 trucks per day (ADOT, Holbrook District).

The proposed emergency detours cross 1 bridge on N6, 3 bridges on N12, and 8 bridges on N15. All 12 bridges are rated in good condition and meet standard design load and operating ratings. These IRR bridges should safely carry detour traffic without improvement. However, these bridges are not new and for safety reasons, no more than one truck should be allowed to cross a bridge at a time at a speed no greater than 35 miles per hour. Table V-37 Summarizes the needs to meet the I-40 Emergency Detour use, which are mapped on Map V-17.



Legend

- Primary Growth Center
- Secondary Growth Center
- Border Town
- Interstate 40
- I-40 Detour
- US and State Highways
- Navajo-BIA Roads - Paved
- Navajo-BIA Roads - Dirt
- NIP
- New Lands

AGENCY

- Chinle
- Eastern
- Fort Defiance
- Northern
- Western

Map V-17



I-40 CLOSURE AND DETOUR PLAN

Table V-37 Transportation Needs to Meet I-40 Emergency Detour Use

Agency	Route #/ Location	BMP	EMP	Total reconstruction and roadway widening (miles)
WNA/FTD	N15, from reservation line to AZ264 at Burnside.	0	103.1	103.1
FTD	N6 from AZ77 at reservation line to North N15/N6 intersection at Bitahochee.	0	19.9	19.90
FTD	N12 from Lupton to AZ264 Junction in St. Michaels	0	24.7	24.7
Total				147.7

Table V-38 summarizes all of the other transportation needs.

Table V-38 Total Other Transportation Needs

Transportation needs	Navajo-BIA Rd Miles	State Road Miles	County Road Miles	Tribal Roads	Total Miles
Rural Addressing: Miles of unimproved County and Tribal Roads needing improvements.		N/A	1,735.8	2,812.7	4,548.5
Snow and Mud Emergencies: Miles of unimproved Navajo-BIA Roads needing improvements.	4,238.6				4,238.6
Hazardous Material Transportation: Miles of shipment routes needing improvements	10.5	N/A	N/A	N/A	10.5
Improve 40.0 miles of Navajo-BIA roads in Former Bennett Freeze	40.0				
I-40 Closure/Detour: Miles of Navajo-BIA roads used in emergency detour needing improvements	147.7	N/A	N/A	N/A	147.7
Need 10. Total	4,436.8	0	1,735.8	2,812.7	8,985.3

NEED 11: Cultural Environmental Considerations:

IRR long-range transportation plans are required to consider the impacts of existing and proposed transportation system on the environment, and balance the needs of development and the environment (i.e., wildlife, plant life, clean air and water, etc.). This Navajo Nation’s cultural and environmental resources are protected under the National Historic Preservation Act, NEPA, Endangered Species Act, Clean Water Act and Clean Air Act. They are considered as follows.

Archeological and Historical Resources:

Any federally-funded action requires the identification and evaluation of historic properties in accordance with the requirements of Title 36, Code of Federal Regulations (CFR) Part 800, Section 106- the review process established in the National Historic Preservation Act. Title 49, United States Code (USC), Section 303 (originally Section 4(f) of the Department of Transportation Act of 1966) specifies that special efforts be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges and historic sites. For these reasons, listed or eligible historic properties and areas expected to have high density of historic properties have been identified as important considerations associated with the transportation planning of the Navajo Nation.

The entire Navajo Nation is rich with archeological and historical resources. Evidence of prehistoric Navajo habitation on the present day Navajo Reservation and surrounding area is recorded in various archeological investigations, studies required for development on the reservation, the Navajo and Hopi land dispute litigation and fuel resources development. These archeological investigations, including studies of Navajo migration, and other publications cite evidence of Navajo settlements throughout the region. In general, the Navajo settlement in the area ranges from one ruin per 4 square miles for highest density site to one ruin per 33-167 square miles. The concentration of ruin sites appears to be related to pinon-juniper zones where hunting, gathering and alluvial farming could be practiced.

Evidence of Hopi and Anasazi occupations is also found near the Hopi reservation and the surrounding areas making the Navajo lands bordering the Hopi Reservation particularly rich in archeological and historical sites. This greatly impacts planning of the road construction. Clearances of past road construction projects have taken longer time due to the many archeological sites.



Planning for new road construction, such as new street expansion for Growth Center communities (NEED 6) and proposed airports' access roads (NEED 9) will require longer time for archaeological clearance. Other road construction projects involving widening or realignments such as N7 from Canyon De Chelly to Sawmill (NEED 1), N4 from Pinon to Hopi Reservation (NEED 10) will also be subject to additional archeological clearance work thus, will need extra project planning time.

Wildlife:

The Navajo Nation is unique for its natural resources. It is a large Indian reservation with low population and development density and a rich natural environment. The reservation has become a sanctuary for wildlife, rare animals and plant life. The Fort Defiance Plateau and Chuska Mountains have been identified one of the Arizona habitats for the endangered Mexican Spotted Owls.

The Endangered Species Act protects populations and habitat of a variety of listed species of plants and animals on federal lands. The Navajo Reservation, as trust land, is subject to all provisions of the Act. All projects on the reservation which require federal or tribal review, even commercial and home site leases, must be reviewed for possible impacts on listed species. These must be documented in the Environmental Assessment (EA), which accompanies the project documents in the review package.

Planning and design of road projects must meet the Endangered Species Act requirements when applying for right of way clearance. Project planning should provide enough lead time for a lengthy review process and required species surveys. When planning for widening of an existing roadway, environmental clearance will be required as well. Three years should be a nominal time for project R.O.W clearance in general. Proposed road projects in Fort Defiance Plateau and Chuska Mountains such as N13 over the Buffalo Pass will require a lengthy survey and review process since it is in sensitive habitat. The road R.O.W. width should also be reduced to the minimum requirement to minimize impacts to the habitat of the endangered species.

Wetlands:

Federal law on wetlands (E.O. 11990) mandates protection of all wetlands on public lands. Wetlands in an arid region are groundwater recharge areas. Wetlands house rich wildlife habitats and plant communities. Wetlands that are part of drainage channels/systems are crucial to the overall drainage system. They connect the system and maintain the existence of the ecosystem. Wetlands contribute to groundwater recharge. Alluvial deposits such as in wetlands allow water to infiltrate through underlying rock fractures, allowing the recharge of ephemeral streams. Wetlands in high altitude/headwater areas that are often found interwoven with forested areas allow water to percolate through underlying unconsolidated rocks.

The Navajo Nation wetlands are of both permanent and seasonal characteristics influenced by its climatic condition, drainage pattern and soil development. Permanent wetlands are found along washes and major drainage channels such as the Little Colorado River, San Juan River, Chaco River and Chinle Wash and their tributaries. Most seasonal wetlands are often a part of pond and lake system. The Nation wetlands are found more in the eastern region than in the western part of the reservation. The majority of them are found around headwater areas in the Defiance Plateau, Chuska and Carizzo mountains. Others are often small sparse ephemeral wetlands created by seasonal floods or rain storms. Wetlands in the western region are found at high altitudes where precipitation concentrates, such as Navajo Mountain and Black Mesa areas. Others are perennial lakes that are part of interrupted drainage systems and ephemeral streams. There are many small ephemeral lakes, as typified in Red Lake/Tonalea Chapter along Moenkopi Wash and Tolani Lake in the Oraibi Wash drainage.

Wetlands on the Navajo Reservation are sensitive. Prolonged drought can eliminate a wetland completely. Other mechanisms that sustain wetlands include groundwater discharge, non-disruption of surface drainage system and ground cover. Destruction of wetlands may interrupt or even destroy the entire ecosystem--drainage system, plant or animal communities or drying up our water supply. Road development should avoid wetlands, especially those that are part of an overall drainage system. Road development should be carefully planned to avoid the destruction of wetlands especially at headwater recharge areas such as in the Defiance Plateau, Chuska and Carizzo Mountains and Black Mesa.

Water Quality:

The federal Clean Water Act of 1972, (33 U.S.C., Sec. 1251-1376) contains provisions for regulating and maintaining ground and water surface quality. The Clean Water Act is administered by the U.S. EPA and by the Navajo Nation EPA. The main impact of the Clean Water Act on highway development and construction is through its regulation of non-point sources of water pollution.

Unimproved dirt roads erode easily, their sediments often entering surface drainage watercourses. Since a high proportion of Navajo Reservation roads are unimproved dirt, upgrading these roads could be a significant element of future Navajo Nation plans for controlling non-point source pollution of surface waters.

Future road construction projects will in all likelihood have to meet some standards for runoff control, and will require permits by Navajo EPA. Compliance with applicable Clean Water Act provisions as administered by Navajo EPA should be factored into funding and scheduling calculations for future road projects.

Air Quality:

The Clean Air Act amendment of 1990 requirements applies mostly to metropolitan transportation planning. Transportation-related pollutants must be addressed in planning for an area designated non-attainment (not attained to the National Ambient Air Quality Standards) or a maintenance plan must be implemented under Clean Air Act section 175 A (i.e. ozone, carbon monoxide, nitrogen dioxide, and particles with an aerodynamic diameter of less than or equal to a nominal 10 micrometers, etc.). The Act requires incorporation of appropriate measures for air pollution control or congestion reduction to protect the public health. A program such as the implementation of high occupancy vehicle lane in some metropolitan areas is an example of a congestion reduction measure.

Most communities and areas on the Navajo Reservation are classified as attainment or unclassifiable, except for a small area in the northwest New Mexico that is classified as non-attainment area due to generation stations emission. Nonetheless, this is not a transportation-related non-attainment designation. The Navajo Nation has approved its air quality codes (Air Pollution Prevention and Control). These codes mostly deal with industrial pollutants. The Navajo Nation Environmental Protection Agency is currently concerned about road construction projects. On the Navajo Reservation, air pollution from transportation-related activities is usually caused by road construction, since during road construction particulates may be produced beyond the acceptable level. The Navajo EPA follows State and Federal EPA criteria and procedures for determining conformity for the reservation attainment areas regarding road construction.

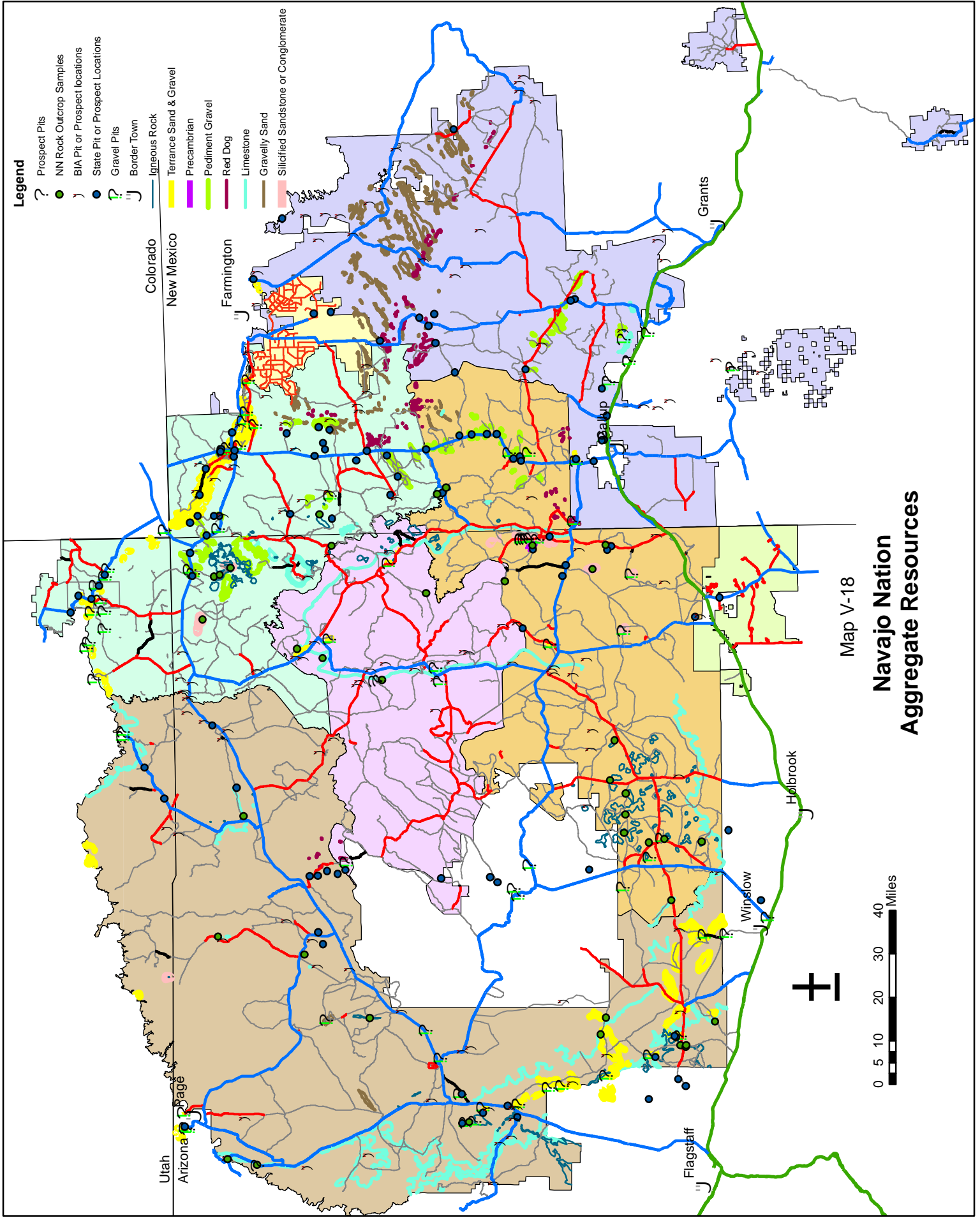
The Navajo Nation Growth Centers have become urbanized. Traffic congestion occurs briefly during rush hours in some communities because these communities are served by few roads. Development mainly clusters along the main roads or at intersections. Growth Centers are the fastest growing communities, fueled by development planned by the Navajo Nation. These communities will need urban street systems soon to accommodate future traffic and provide even distribution of traffic to prevent air pollution caused by the traffic congestion. Chinle, Kayenta, Tuba City, and Shiprock have high population as well as tourist traffic. Their needs for urban street systems have become apparent, especially during the tourist season.

Considerations and Needs:

In all, a balance between development and protecting these delicate resources must be exercised to minimize the impacts of road construction and promote development without destroying the Navajo Nation's valuable cultural and natural heritages. A balance can be achieved through careful planning and engineering.

- **Future Transportation Plans:** Future planning such as street expansion and plans have been proposed for the Navajo Growth Centers to cope with growing population and development at these communities in the future. Good street system, such as those in other urban areas can prevent traffic congestion and air pollution by distributing traffic more evenly. No new roads are proposed to avoid opening up of new areas and disturbance to archeological, wildlife habitats, wetlands and drainage channels. Paving unimproved roads have been proposed and given priority to reduce erosion and sediments to water courses and particulate air pollution.

- **Project Planning:** Adequate time is recommended for surveys of archeological as well as environmental resources, and the R.O.W review process for most projects. Project planning should include three years for R.O.W assessment and clearance process prior to construction. To assure minimum disturbance to the environment, problems must be identified during these surveys and assessments and engineering solutions must be developed.
- **Engineering:** Engineering and design of road projects must identify and mitigate drainage problems, soil erosion, channel erosion, and other environmental impacts. Road improvements in sensitive areas must minimize impacts to the surrounding environment such as minimizing R.O.W. width to minimize disturbance to archeological resources, and plant and animal communities (e.g., N7 from Canyon De Chelly to Sawmill).
- **Environmental Studies:** The R.O.W. clearance process is a crucial element in identifying and protecting cultural and environmental resources. Sound and complete archeological and environmental studies should be completed for all construction. These studies should be structured to include strong and useful alternatives for protecting cultural and environmental resources or mitigating a project's impacts on them. Based on past Navajo IRR budget, the estimated need for project environmental and archaeological assessments are \$100 million for 20 years or \$5 million per year.



Legend

- Prospect Pits
- NN Rock Outcrop Samples
- BIA Pit or Prospect Locations
- State Pit or Prospect Locations
- Gravel Pits
- Border Town
- Igneous Rock
- Terrace Sand & Gravel
- Precambrian
- Pediment Gravel
- Red Dog
- Limestone
- Gravelly Sand
- Silicified Sandstone or Conglomerate

Colorado
New Mexico

Utah
Arizona

Farmington

Grants

Flagstaff

Winslow

Holbrook

Map V-18

**Navajo Nation
Aggregate Resources**



Other Resources Issues:

Aggregate and water resources costs for road construction on the Navajo Nation have become more and more expensive. Great distance between projects, availability and transportation of construction materials all contribute to the high cost.

Aggregate Resources:

In 2005 the Division of Natural Resources Minerals Department completed the survey and mapping of all aggregate resources on the Navajo Nation. The findings show that the Navajo Nation has aggregate resources that make available for road construction and maintenance. These aggregate resources are scattered throughout the Navajo Nation and can be summarized by agency as follows:

Northern Navajo Agency:

San Juan River is the major source of quality gravel on the Navajo Nation, from Farmington to Aneth, Utah. Materials are unconsolidated and various in size from sand and gravel size to boulder size thus reduce cost for quarry and crushing. Carrizo Mountains are large sources of pediment gravel and igneous rock. Newcomb has pediment deposits with ABC quality. Bands of limestone, sand, sediment gravel and more igneous rocks are also scattered.

Western Navajo Agency:

East of Colorado River to US89A and US89 from Gap to Marble Canyon is a good source for limestone. Grand Falls, west of Leupp, and along N70 areas have high quality porous limestone with high magnesium carbonate good for gravel requiring quarry and crushing. South-southwest of Leupp has good quality Igneous-basalt sediment but needs to be quarried for processing. Shadow Mountain near Tuba City is an old mine with quality basalt sediment. Shadow Mountain west of US89 has basic infrastructure gravel.

Navajo Bridge in north Western Navajo Agency has quality gravel material for bus routes. Mexican Hat has limestone sediment, good quality for ABC material.

Fort Defiance Agency:

Precambrian Quartzite quarry sites located in Blue Canyon in Ft. Defiance area and Hunter's Point have the highest quality gravel for cement and asphalt. Basalt sediments in Hopi Buttes, Dilkon, Indian Wells areas are good quality materials for gravel and cement. Indian Wells basalt quarry currently is in operation by a private firm. Limestone sediment southeast of Greasewood to Leupp (Chinle Plateau) is good-to-fair quality gravel source for bus routes.

Eastern Navajo Agency:

There are no quality aggregate sources in most of the Eastern Agency, however, there is a lot of low quality sand gravel. Currently gravel has to be hauled from Farmington and/or Thoreau, NM.

Chinle Agency:

Rock outcrops along US191 and Chinle Wash is a good source for limestone.

Recommendations:

➤ The Navajo Nation with its oversight committees could develop a strategic plan in developing aggregate resources and resolving this issue. There are several avenues that the Navajo Nation can develop its aggregate resources:

1. NECA can develop gravel pits to supply gravel and sand for road construction and maintenance.
2. The Navajo Nation and Chapters partner with other entities to develop gravel pits.

Several projects have been in progress as follows:

- **Carrizo Gravel Pit Project.** The Navajo Division of Transportation is currently partnering with the Apache County on the Carrizo Gravel Pit Development as a pilot project. The Navajo DOT is responsible with land withdrawal and the County with its operation.
- **Dennethotso Gravel Pit.** Another partnering project between the Navajo Division of Transportation and Apache County.
- **Peabody Red Dog Gravel Project.** The Peabody Coal Company in Black Mesa is working with the Navajo Nation. It offers to make available its coal mine tailings known as 'Red Dogs' gravel to the Navajo Nation. The project is now only waiting for the final agreement with the Nation.
- **Shiprock** partnership with NECA on a gravel pit project.
- **Gadiaaha and Sanostee** are partnering with private companies on gravel pit projects.

3. Partnership with railroad companies to have aggregate transport by rail to the Navajo Nation. Rail transport cost is less than trucking cost.
- Resource Development Priority: The plan recommends that the first priority be aggregate resources in Shiprock Agency, i.e., San Juan River and Charizzo resources; the second be Fort Defiance Agency resources because these produce quality aggregates that withstand weigh better than limestone sources.
 - The Navajo Nation and its oversight committees need to develop policies to support aggregate resources development. There are critical works that need to be done prior to actual resource development and are often seen as project obstacles because they usually delay or derail a project. Various actions and program partnership need to be resolved on a number of issues:
 1. Navajo Nation Permits: Presently, the Mineral Department can only permit gravel extractions of only 5,000 cu. yards per year. This will not meet the demand of all road constructions. The regulation may have to be changed with special intergovernmental collaboration.
 2. Land User Support: Grazing boards must be involved and agree upon at the earliest stage of the project development. Land users need to give consent or compensation.
 3. Chapter Support: Chapters need to be involved and
 4. Archeology and Environmental Assessments: The process is long and often delays projects thus need to done early.
 5. Navajo Nation Contractual Process: The process often discourages contractors, needs to involve those who approve contracts early on for efficient planning.

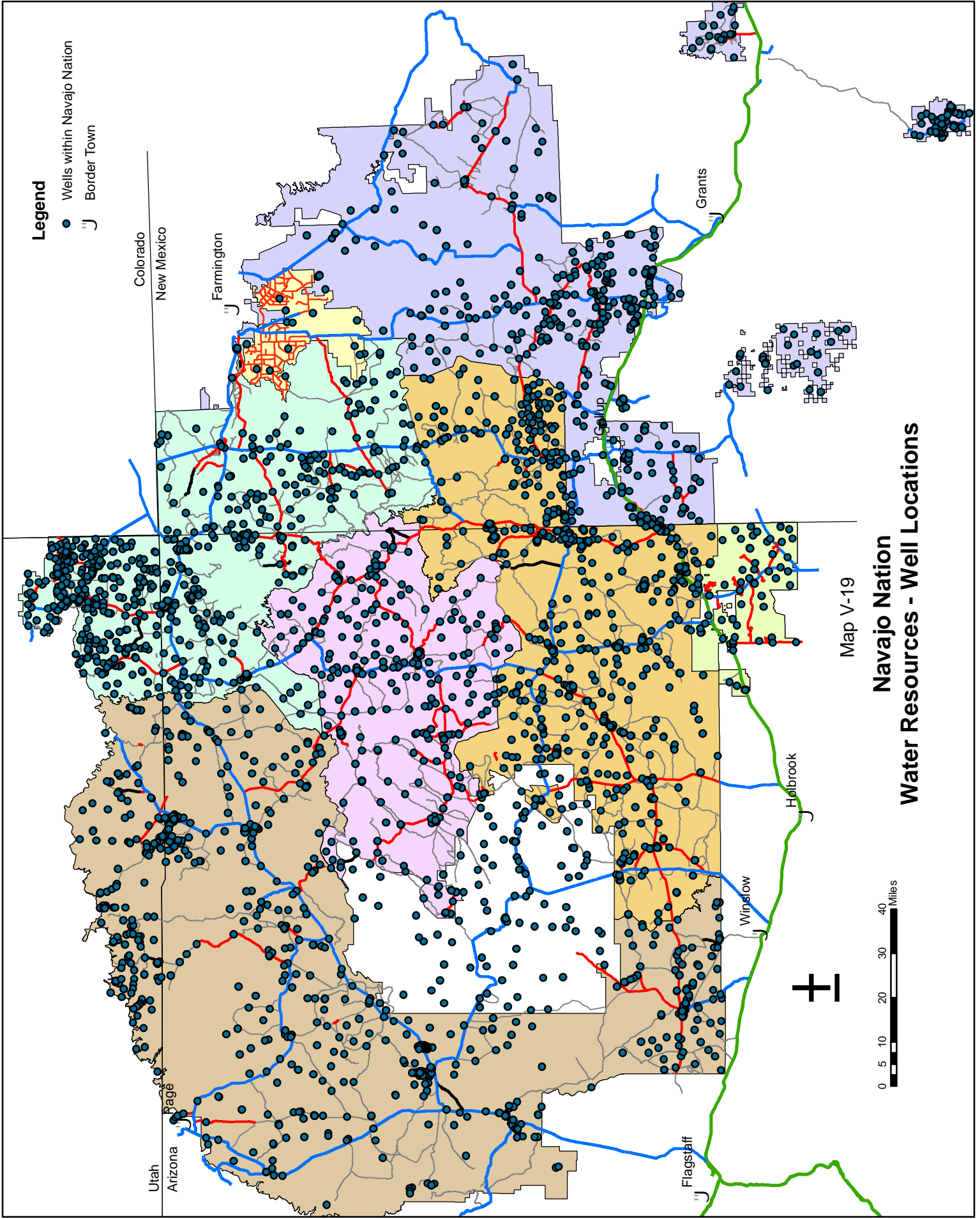
Water Resources:

Well water is the source of water used in road construction. In general, contractors will drill a well near the road construction site. For the most part of the Navajo Nation, groundwater is available and this is preferred practice than the costly hauling of water to the construction sites.

Groundwater is found in four major aquifers underlining the Navajo Nation: 413, 290, 50 and 1.18 million acre-feet are estimated water storage capacity for Coconino, Navajo, Dakota and San Juan Aquifers. Also available are alluvial aquifers underlining many of the washes on the Navajo Nation. Drilling depth is ranging from 200-1000 feet deep. For the most part of the Navajo Nation, contractors can drill a 200-foot deep well for road construction usage except in the farther west of the Western Navajo Agency and a certern part of the Chinle Agency.

Recommendations:

- The Navajo Nation with its oversight committees could develop a strategic plan in developing water resources to resolve the water issue.
- Allow contractors to tap into abandoned well or seek the IHS permission to use their existing wells. The Department of Water Resources has database on well location, ownership, and depth of water table. It plans to do a water need study by chapter. A road construction's water need should also be included. The Navajo DOT can assist with Water Resources in identifying water resources in association with project locations.



Legend

- Wells within Navajo Nation
- ┌┐ Border Town

Map V-19

**Navajo Nation
Water Resources - Well Locations**



C. TOTAL NEEDS

Table V-39 summarizes overall findings and long range transportation needs discussed in this chapter (NEEDS 1-11).

Table V-39. Total Transportation Needs/Findings

Transportation Needs/Findings			Navajo-BIA Road Miles	State Road Miles	County Road Miles	Tribal Road Miles	Total 2009 LRTP Needs Miles	Total 2003 LRTP Needs Miles
1	Highway Geometric Design Deficiencies	To meet highway design guidelines based on 20-yr ADT, 5,955.4 miles of Navajo-BIA roads need surface upgrade and roadway widening.	5,955.4	N/A	N/A	N/A	5,955.4	5,352.5
2	Network Connectivity	89.7 miles of Class 2 roads need to be paved, and 90.0 miles of Class 4 meet criteria for Class 2 definitions and need to be paved.	179.7	N/A	N/A	N/A	179.7	230.7
3	Pavement Deficiencies	1,313.8 miles of Navajo-BIA roads have severe pavement and need reconstruction. 27.6 miles have moderate pavement and need rehabilitation.	1,341.4	N/A	N/A	N/A	1,341.4	898.2
4	Safety Needs	Safety improvement corridors and high crash locations make up 23 percent of the crashes. Safety improvements at these locations should be further studied	33	100	0	N/A	133.0	109.3
5	Chapter Access Needs	16 chapter houses lack paved access roads: 149.8 of Navajo-BIA roads and 15.0 miles of County roads need paving.	149.8	N/A	15	N/A	164.8	230.1
6	Growth Centers Street Needs	To meet future population and development needs: Six Primary Growth Centers need 22.8 miles of 5-lane streets, 70.1 miles of paved 2-lane streets, and 21.7 miles of graveled roads; 30.9 miles of street lights; and evaluation for 26 traffic signalizations.	99.7	15.0	N/A	N/A	114.7	114.7

2009 Navajo Nation Long Range Transportation Plan

Transportation Needs/Findings			Navajo-BIA Road Miles	State Road Miles	County Road Miles	Tribal Road Miles	Total 2009 LRTP Needs Miles	Total 2003 LRTP Needs Miles
7	Community/Economic Development Needs	Healthcare Facilities: turn lanes; street lights; paving access roads; parking lot facilities; sidewalks. NHA Housing Projects: turn lanes; street lights; paving access roads; parking lot facilities; sidewalks. Schools: turn lanes; street lights; paving access roads; parking lot facilities; sidewalks. Economic Development: turn lanes; street lights; intersection control; paving access roads; parking lot facilities; sidewalks. CIP Projects: turn lanes; street lights; intersection control; paving access roads; parking lot facilities; sidewalks. (See Tables in Chapter 5.B. Need 7)	N/A	N/A	N/A	N/A	N/A	3,021.7
8	Scenic Byways, Tourism & Recreation Needs	67.5 miles of roads providing access to tribal parks need to be paved.	38.5	N/A	7.0	22.0	67.5	195.4
9	Multimodal Transportation	Airport Development: 8.5 miles of new access roads need to be constructed. Transit Routes: Implement 5-year plan; expand and provide transit centers; local circulator service in Growth Centers. Bicycle Routes and Sidewalks need improvement, connectivity and new routes need to be constructed. (See Tables in Chapter 5.B. Need 9)	1.0	0.5	0	7.0	8.5	422.5
10	Other Transportation Needs	Rural Addressing and Snow and Mud Emergencies: 4,238.6 miles of Navajo-BIA, 1,735.8 miles of County Roads, and 2,812.7 miles of Tribal Roads are unpaved. Improve these will address these issues. Improve 10.5 miles of Navajo-BIA roads for hazardous material shipment route. Improve 40.0 miles of unpaved Navajo-BIA roads in former Land Dispute areas, and 147.7 miles of roads used for I-40 emergency detours need improvements. (See Tables in Chapter 5.B. Need 10)	4,436.8	0	1,735.8	2,812.7	8,985.3	5,239.8
11	Cultural/Environmental Considerations	To minimize environmental and cultural impacts of proposed transportation projects through implementing necessary environmental assessment.	N/A	N/A	N/A	N/A	N/A	N/A

CHAPTER VI - Conclusions and Recommendations for Navajo-BIA Mobility Improvements

A. *Improvement Types and Mileage*

The Navajo-BIA roads' long range transportation needs are identified and summarized in Chapter V, Transportation Needs Assessment. These needs are the result of past inadequate funding of the Navajo Indian Reservation Roads Program. The Navajo-BIA roads' long range transportation needs and issues include the needs to improve roads to meet the federal design standards and to keep up with Navajo Nation population, traffic volume, and economic growth.

The Navajo-BIA roads' long range transportation needs summarized in Table VI-1 are recommended improvements to the overall Navajo-BIA system by road class to meet the current design standards. These include correcting system deficiencies, improving safety while meeting Navajo Nation development needs. To address these unmet and future transportation needs, a total of 5,955.4 miles of Navajo-BIA roads needing upgrade and 1,341.4 miles needing to address pavement deficiencies. These are summarized by road class and construction type as follows:

- **Navajo-BIA Class 2 and 4 Road Upgrade:** To improve network connectivity and to meet the 81 IAM and AASHTO highway design and improvement standards. Improvement of these arterial and major collector roads will also address other transportation needs such as community and economic development needs, scenic byways, intermodal connections and other transportation needs.
- **Navajo-BIA Class 5 Road Upgrade:** To improve access to rural areas to make connections within the grid of the IRR system. These roads serve areas around Navajo communities, chapter house access, farming areas, school access, tourist attractions, or various small enterprises, forests, grazing, mining, oil, recreation, or other uses.
- **Navajo-BIA Class 3, 6, and 7 Street Upgrade:** Class 3, 6, and 7 roads serve within Navajo urban and community areas providing access to schools, residential, commercial, and government offices areas. They carry moderate to heavy traffic and much of these roads are in poor to severe conditions due to the lack of adequate IRR funds. NHA housing streets are the best example. Most NHA streets badly need reconstruction. The pavement deficiency analysis (Chapter 5 Need 3) identifies the need to improve these roads thus improves residential and community areas access.
- **Safety Improvement:** Several areas of safety improvement are needed to address the broad reaching areas of improving multi-modal safety throughout Navajo Nation.

Table VI-1 Navajo-BIA Roads' Long Range Road Improvement Needs in Miles

ADS	CLASS	FADT	Miles of Roads Needing Only Surface Imp	Miles of Roads Needing Only Roadway Widening	Miles of Roads Needing Surface Imp & Roadway Widening	Sub-Total	2009 LRTP Total By Class	2003 LRTP Total By Class
1	1-Major Arterial	N/A	0.9	0.1	0.3	1.3	4.1	0.0
2		N/A	2.0	0.8	0.0	2.8		
3		N/A	0.0	0.0	0.0	0.0		
4	2-Rural Minor Arterial	>=400	5.9	13.8	54.0	73.7	754.6	917.7
5			8.7	184.0	397.1	589.8		
6			5.3	11.5	2.7	19.5		
7		<400	0.0	0.0	0.0	0.0		
8			0.0	24.3	23.0	47.3		
9			0.0	0.0	24.3	24.3		
10	4-Rural Major Collector	>250	17.5	15.0	138.2	170.7	3757.0	4468.1
10		50-250	1.8	5.2	365.8	372.8		
11		>250	38.6	136.9	988.7	1164.2		
11		50-250	33.7	82.0	1668.6	1784.3		
11		<50	0.0	1.1	0.0	1.1		
12		>250	1.9	0.0	76.6	78.5		
12	50-250	0.0	0.0	185.4	185.4			
13	5-Rural Local	>400	0.1	5.5	43.1	48.7	1402.1	0.0
13		50-400	125.3	6.6	18.1	150.0		
14		>400	2.9	28.5	72.0	103.4		
14		50-400	68.5	14.7	806.2	889.4		
15		>400	0.0	0.0	8.4	8.4		
15		50-400	0.0	0.0	202.2	202.2		
16	6-City Min Arterial	N/A	0.0	0.9	2.6	3.5	3.5	0.0
17	7-City Collector	N/A	0.0	0.0	0.0	0.0	0.0	0.0
18	3-City Local	N/A	8.8	23.5	1.8	34.1	34.1	61.5
Grand Total:							5955.4	5447.3

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B. Improvement Cost

To improve 5,955.4 miles of the Navajo-BIA road system to meet the design standards will cost \$6.5 billion (Table VI-2). To address pavement deficiencies of 1,341.4 miles of paved Navajo-BIA roads alone (Chapter 5 Need 3) will cost \$1.4 billion. However, when upgrade roads to meet the design standards, pavement conditions will also be addressed. It is safe to say to address the overall Navajo-BIA road system deficiencies, the Navajo Nation will need approximately \$7.0 billion. This figure is seven times the current 20-year funding level of the Navajo IRR Program which has been about \$1 billion or \$50 million per year. Table VI-1 summarizes and compares improvement costs between LRTP 2003 and LRTP 2009 improvement needs of the Navajo-BIA roads. The drastic increase from 2003 cost is partly due to the nearly double in construction cost in recent years caused by fuel cost increase.

Table VI-2 Navajo-BIA Road Improvement Cost (in \$millions)

ADS	CLASS	FADT	Miles of Roads Needing Only Surface Imp	Miles of Roads Needing Only Roadway Widening	Miles of Roads Needing Surface Imp & Roadway Widening	Sub-Total	2009 LRTP Total By Class	2003 LRTP Total By Class			
1	1-Major Arterial	N/A	\$1,621.18	\$97.55	\$287.98	\$2,006.71	\$6,626.75	\$0			
2		N/A	\$3,602.63	\$1,017.41	\$0.00	\$4,620.04					
3		N/A	\$0.00	\$0.00	\$0.00	\$0.00					
4	2-Rural Minor Arterial	≥400	\$3,962.52	\$6,578.34	\$46,971.29	\$57,512.16	\$910,355.29	\$705,236.00			
5			\$17,184.79	\$143,682.36	\$613,970.89	\$774,838.04					
6			\$7,080.76	\$3,064.10	\$3,367.38	\$13,512.23					
7		<400	\$0.00	\$0.00	\$0.00	\$0.00					
8			\$0.00	\$17,256.06	\$18,497.88	\$35,753.95					
9			\$0.00	\$0.00	\$28,738.92	\$28,738.92					
10		4-Rural Major Collector	>250	\$20,997.81	\$17,213.29	\$153,547.83			\$191,758.94	\$4,149,899.44	\$3,481,606.00
10			50-250	\$1,655.74	\$3,156.54	\$336,300.83			\$341,113.11		
11			>250	\$17,436.49	\$108,964.78	\$1,169,256.91			\$1,295,658.18		
11	50-250		\$26,248.70	\$71,139.17	\$2,036,678.17	\$2,134,066.04					
11	<50		\$0.00	\$236.23	\$0.00	\$236.23					
12	>250		\$650.75	\$0.00	\$61,130.04	\$61,780.79					
12	50-250		\$0.00	\$0.00	\$125,286.15	\$125,286.15					
13	5-Rural Local	>400	\$90.84	\$3,879.43	\$31,595.85	\$35,566.11	\$1,396,317.06	\$0			
13		50-400	\$66,262.56	\$1,552.15	\$10,592.06	\$78,406.76					
14		>400	\$6,021.29	\$19,050.97	\$82,582.36	\$107,654.62					
14		50-400	\$70,716.81	\$6,796.71	\$933,346.86	\$1,010,860.37					
15		>400	\$0.00	\$0.00	\$9,184.22	\$9,184.22					
15		50-400	\$0.00	\$0.00	\$154,644.98	\$154,644.98					
16	6-City Minor Art	N/A	\$0.00	\$423.78	\$1,534.00	\$1,957.78	\$1,957.78	\$0			
17	7-City Collector	N/A	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0			
18	3-City Local	N/A	\$13,675.30	\$12,962.03	\$1,062.00	\$27,699.33	\$27,699.33	\$31,535.00			
Grand Total:							\$6,492,855.65	\$4,218,377.00			

C. Implementation Plan

To address the Navajo Nation's long range transportation needs, this plan recommends planning and implementation strategies. These strategies should be adopted and meticulously followed by Navajo Indian Reservation Roads transportation decision-makers at all levels. Elected and administration decision makers should set long and short range road improvement goals and objectives to meet these needs. Long and short range road improvement planning and prioritization criteria must have the same

objective of meeting the transportation needs and goals. This plan also recommends seeking other sources of funds to supplement the Indian Reservation Roads Fund.

1. Long Range Goals and Objectives

To address the Navajo Nation's long range transportation needs and issues, the long range planning and implementation of the Navajo-BIA road improvements must address and include the long range goals and objectives as follows:

- To upgrade roads to meet design standards and management system requirements to correct deficiencies as well as to improve overall network connectivity, travel mobility and accessibility.
- To improve travel safety and reduce accidents on the Navajo-BIA roads.
- To meet existing and future transportation needs in order to promote community and economic vitality.

2. Funding Strategies

To meet the Navajo-BIA roads' long range transportation needs, the Navajo Nation's transportation decision-makers must explore all avenues to increase funding of Navajo-BIA road long range improvements. This LRTP recommends the following strategies:

- Seek to increase the Navajo IRR funding level through lobbying. Under the Federal Lands Highway Program, IRR Program funding needs are factored by population and development growth (through ADT) unlike other FLHP programs, (i.e., Park roads and Parkways, Public Lands Highway Discretionary, Forest Highway and Refuge Roads). These other FLHP roads do not carry the high levels of daily traffic that wear out roads at greater rate: their road miles and traffic volumes are relatively constant. Legislative formula should be established to allocate funds among FLHP programs based on actual needs, instead of each program's relative share.
- Seek funding from the IRR Nationwide Bridge Priority Program to help meet the Navajo IRR bridge improvement needs.
- Seek other funding sources such as the Indian Highway Safety Program (\$1.1 million annually), federal Hazard Elimination Program (\$550 million annually) which funds safety improvements on highways administered by State and the BIA.
- Seek other funding sources such as Public Land Highway Discretionary Funds for Navajo scenic byways projects and/or State Transportation Enhancement Fund for bicycle and pedestrian paths.
- Seek state/federal share of funding for improvement of Navajo-BIA routes to be used as detours during I-40 emergency closures.
- Use the Navajo Nation Fuel Excise Tax to supplement the IRR funds.
- Fund projects according to project/need priority.
- Taxing: Currently, Kayenta is the only primary growth center with a self imposed sales tax of 2.5 percent. It is recommended that the primary and secondary growth center communities work with the Division of Economic Development to identify and implement self funding mechanisms to aid in enhancing infrastructure investment, ultimately improving economic development opportunities for those that wish to invest within Navajo Nation.

The funding opportunities that are identified should be integrated into the ARCs and overall strategic Implementation Program for any recommended transportation improvements within the communities. This provides an opportunity for community, Agency, and ultimately Nation buy-in for ultimate investment and community growth.

3. Project Prioritization Criteria

Project prioritization becomes crucial when funding is inadequate. Priority should be given to projects in the order from the most needs/benefits to the least critical. Addressing these priority projects first will most effectively use limited resources to address the Navajo Nation's long range transportation needs. This plan recommends that Navajo Nation transportation decision-makers at the agency and Navajo Nation levels prioritize and implement road improvements according to the prioritization criteria described in Table VI-3 below: Each transportation project shall be rated based on the planning and engineering criteria by assigning points based on each engineering criterion. A project with the highest points will indicate that the

project has the most transportation needs or provide most benefits and also the most ready for construction thus should be given the highest priority.

Table VI-3 Long Range Transportation Planning Priority

Points assigned	Project Type
5-High Priority Projects	Immediate, core transportation needs and issues raised by local chapters, tribal programs, school, healthcare providers, housing programs, intermodal needs as well as BIA engineers.
	School bus routes
	NHA housing streets and access roads
	Class 1 & 2 road improvement needs
	Class 3 & 6 roads-pavement deficiencies
	Safety improvements, sidewalks
	Class 1,2 & 4 roads-pavement deficiencies
	Economic and community development access needs
	Bridge projects
3-Moderate Priority Projects	Transportation needs and issues that are recommended for action after the high priority needs have been met and if funds are available.
	Growth center proposed streets
	Class 4 & 5 roads-improvement upgrade
1-Low Priority Projects	Scenic byways and park access
	Important transportation issues and needs to be implemented last. If IRR funds are limited, should be funded from outside resources.
	Bicycle routes
0	Other transportation needs
	Not a 20-year need nor listed on the LRTP

D. Safety Improvements

Public safety on the Navajo Nation roadways was identified as a key concern of residents, survey respondents and public meeting participants. There are essential components of safety improvements that can improve the overall modal safety within Navajo Nation, including:

- Safety Improvement Program
- Open Range Policy
- Access Management
- Signing Program
- Striping Program
- Crash Data Coordination
- Data Organization Standardization
- Retrieval
- Analysis

1. Safety Improvement Program

An annual Safety Improvement Program should be established to develop a systematic approach for crash mitigation based on reported crash data. The crash data, coupled with the IRR Roadway Inventory database will provide the data necessary to understand the high crash location areas throughout the Navajo Nation transportation system.

The Safety Improvement Program should be based on two categories of safety analysis, including the calculated crash rate and the raw number of crashes based on three years of historic crash data. Projects that would be evaluated in the Safety Improvement Program would include those segments and spot locations/intersections that exhibit a higher than average number of crashes compared to similar types of facilities or throughout Navajo Nation.

Each crash location or segment within the Safety Improvement Program would be evaluated based on three years of historic crash data and a field review would be required. The crash data should be summarized in a crash diagram to identify travel direction, crash type, time of day, and severity. The crash diagram will help to identify trends. The field review would examine geometric issues such as pavement width, shoulder width, roadway curvature, lighting condition, roadway stripes (paint), speeds, traffic counts, signs and markers. Additionally, other factors such as open range cattle, pedestrian and/or bicycle use, and driveways should be noted.

After the office-based and field-based investigations are complete, documentation of the probable causes and safety issues would be developed and recommendations made. The recommendations would include immediate next steps or programmatic next steps which typically would include design and environmental clearance, particularly if geometric improvements are required.

The current TTIP shows that approximately \$1.0 million is dedicated for safety improvements annually. Based on the extent of the system and the increase in crashes experienced on the system, it is recommended that at least \$2.0 million be dedicated for safety improvements annually until the crash levels reach a level that is anticipated for the level of traffic and facility type.

2. Open Range Policy

The Open Range Policy adopted by the Navajo Nation and State of Arizona needs to be re-evaluated. Navajo Ranchers may be in favor of this policy but when human and animals life are in danger, policy makers need to come up with a better solution. Highway design such as ROW fencing and other innovations need to be implemented and enforced to improve safety to prevent animals on roadways and reduce animal related crashes on the Navajo Nation such as policies/regulations that make the livestock owner more responsible for their livestock.

3. Vendors in the ROW

Although there were few statistics on crashes related to vendors within highway ROW selling crafts, foods, etc., it is a real concern to State DOTs and need to be addressed by all stakeholders especially the Navajo Nation. Vendors say it is their livelihood and economic development. As a government, the Navajo decision makers need to partner with the States to jointly establish policy, legislation and enforcement guidelines to make the road safer while still provide a mean for local artists and support the needed tourism.

4. Access Management

Access management is defined in the TRB 2003 *Access Management Manual*, as the “systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway.” Application of the best practices of access management has benefits for motorists, bicyclists, pedestrians, transit riders, business people, government agencies, and communities.

The desired outcomes of access management are highways that:

- Are safer for vehicular and pedestrian traffic;
- Allow motorists to operate vehicles with fewer delays, less fuel consumption, and fewer emissions;
- Provide reasonable access to properties;
- Maintain their functional integrity and efficiency, helping to protect the investment of taxpayer dollars;
- Reflect coordination between land use and transportation decisions; and
- Are used for the purposes (functions) for which they are designed.

The Federal Highway Administration (FHWA) maintains an access management website, <http://www.accessmanagement.gov> and provides extensive documentation of current practice and benefits of access management for all functional levels of the roadway system. The FHWA defines access management as “a set of techniques that state and local governments can use to control access to highways, major arterials, and other roadways.” The techniques provide tools that increase roadway capacity, manage congestion and reduce crashes. In addition, the Center for Urban Transportation Research, College of Engineering at the University of South Florida developed “Ten Ways to Manage Roadway Access in Your Community” to help communities develop an understanding of the benefits of access management. This is provided as Appendix B.

5. Navajo Nation Access Management

The Navajo Nation currently does not have an access management policy or program in place. The Navajo Division of Transportation (Navajo DOT) and the Bureau of Indian Affairs - Navajo Regional Office

(BIA-NRO) agree that access management is an important transportation planning issue. Currently the Navajo DOT and BIA work with the State DOT district engineers to comply with the state highway access permitting policies and requirements. Access permitting agreements are negotiated between the State DOTs and Navajo Nation departments; and the BIA is required to be included in the communication with both parties. Furthermore, the BIA NRODOT has its own permitting process that is used to control facility access for the safety of the traveling public.

A major issue with regard to access management on the Navajo Nation is that although the Navajo DOT and BIA are following the BIA and State access management requirements, other Navajo departments do not always follow the procedures and do not communicate development plans. Therefore improved communication is needed between all Navajo Nation departments, ADOT and BIA on access issues regarding state highways and BIA routes.

During a meeting in 2008, the Arizona DOT (ADOT) Multimodal Planning Division met with both the Navajo DOT and BIA-NRO to discuss access management concerns. It was agreed that Memorandums of Understanding (MOUs) on Access Management should be pursued by the Navajo Nation, BIA-NRO and the State DOTs. These MOUs should also include reference to the various Navajo Nation departments that require access permits. It was also suggested that separate MOUs for access management be developed between BIA and the Navajo Nation.

6. BIA Access Management

The BIA NRODOT's access management includes control of over size and overweight vehicles as well as utility crossing and roadway access permitting as defined in 23 CFR Parts 500 & 645.

7. Arizona Access Management

Access permitting is currently carried out pursuant to ARS 28-7053 which prohibits unauthorized encroachments in state highways. For an encroachment to be lawful, it must be authorized by the State DOT Director. The Director has adopted administrative rules (regulations) governing encroachments. These rules are published as Arizona Administrative Code, R17-3-501 Highway Encroachments and Permits - which includes access connections to state highways. The rule states that each encroachment requires a permit. Permits for driveways (encroachments) onto a state highway may be granted by ADOT's Engineering Districts, a delegation from the Director. Further, in accordance with a policy of the Arizona State Transportation Board, ADOT has developed and is currently undertaking the implementation of a Statewide Access Management Program which has the intent of preserving the functional integrity of the State Highway System. The Program includes the development of an access management classification system for state highways, and a comprehensive manual to guide the uniform application of access management throughout the State. As of September 2009, ADOT is expected to move forward with implementation of the Program by including the establishment of revised Administrative Rules. Upon initiation of the formal rulemaking process, ADOT will then solicit public comment on the Program. The ADOT Intermodal Transportation Division, Traffic Engineering Group oversees the Arizona Access Management Program.

8. New Mexico Access Management

The New Mexico State Highway and Transportation Department (NMSHTD) has developed a State Access Management Manual to facilitate the management of access to and from the state highway system. It is the responsibility of the NMSHTD to regulate the location, design, and operation of public and private access streets and driveways along the state highway system, and to reconcile, to the extent feasible, the needs and rights of both property owners and roadway users. Under the Constitution and Laws of New Mexico, the State Highway Commission is charged with the duty of determining all matters of policy relating to the design of state highways and public roads. Rules and regulations governing the design, construction, and maintenance of access points and median openings along state highways have been established by the NMSHTD. These rules and regulations are contained in the New Mexico Administrative Code (NMAC) and are identified as 18.31.6 NMAC, State Highway Access Management Requirements. The Utah Access Management Program oversight is the responsibility of the NMSHTD Land Management Division, Right of Way Bureau.

9. Utah Access Management

The Utah Department of Transportation (UDOT) addresses access management under State Rule for the issuance of State Highway grant of access permits. The Utah State Highway Access Management Rule is contained within Rule 930-6, Chapter 7: State Highway Access Management. Rule 930-6 is also known as the Department document, "Accommodation of Utilities and the Control and Protection of State Highway Rights of Way. The code clarifies the permitting process, establishes access categories assigned to the State Highway system, and provides spacing standards for access points in relation to the categories. The development and application of standards for the spacing and location of access points is vital to ensuring that the Department continues to provide a system that enhances the mobility and economic vitality of the State. The Department recognizes the many benefits associated with the application of an access management program such as the reduction in potential accidents. The Utah Access Management Program is overseen by the UDOT Project Development Group, Right of Way Division.

10. Access Management Strategies

There are three main access management implementation mechanisms. Planning-based approaches typically develop functional classification, roadway system, or corridor based practices that specify access management characteristics. Regulatory methods apply permitting procedures to manage access development. Design-based approaches define engineering standards and methods. Each separate implementation mechanism is a piece of an overall strategy that makes a successful access management program. Various strategies have differing benefits. A successful Access Management Program may use measures from all three main implementation mechanisms.

A. Planning Based Access Management

Planning-based access management approaches develop access management programs using the transportation planning tools available. All of the following examples typically require adoption by the appropriate Commissions, Councils, and Boards to be used in planning decision making. Examples include:

- Integrating access management into the Comprehensive Land Use Plan and/or General Plan;
- Establishing a Major Roadway Plan that identifies and classifies the roadway network within a plan area;
- Developing an access classification system with standards that directly relate to the established roadway functional classification system;
- Defining the appropriate level of access for each classification to include property access, types of allowed movements and identifying potential traffic controls allowed;
- Establishing spacing criteria for intersections;
- Establishing spacing criteria for signalized intersections;
- Ensuring coordination with appropriate agencies for review authority; and
- Creating these planning mechanisms by involving the stakeholders and the public.

Planning based mechanisms create the base understanding where the public and policy makers establish and define how the system will develop (if undeveloped) or evolve (if developed). Once the community desires for access management are intertwined into the adopted plans and regulations, the connection between land use planning and access spacing occur. Also, by integrating access management strategies into adopted planning documents, then expectations can be understood by those desiring to develop or redevelop property.

B. Regulatory Based Access Management

A regulatory-based access management approach applies permitting procedures to best regulate corridor access. Examples include:

- Planning permits for driveways;
- Engineering permits for design standards;
- Engineering permits for traffic control by all affected agencies; and
- Creating a link between zoning and the adjacent and surrounding transportation system.

Permitting processes and trained staff to conduct the permitting activities, are critical for a successful access management program. The TRB Access Management Manual defines a permit as, "a legal document that grants approval to construct and operate a driveway or other access of a certain design at a

specified location on a given roadway for specific purposes.” The permitting process is based on a set of application requirements, a formal submittal, review by the permitting agency, and action by the agency to issue or deny the access. Typically, larger developments would be required to submit a site plan and an associated traffic impact study. Traffic study reporting requirements vary by permitting agency, but generally describe the driveway location, number of driveways, size and profile, and examine circulation patterns, safety, roadway capacity, intersection traffic control and projected traffic operating conditions.

A permitting process must have a method for applicant appeals and waivers. The desired practice, and cost effective method, would be to maintain an administrative level appeals process.

To ensure that the approved access location meets the agreed upon conditions and design standards, an inspection and enforcement program by the responsible agency is needed. Again, the staff responsible for inspection must be trained in materials and construction criteria.

C. Design Based Access Management

A design-based access management approach applies engineering standards that are to be met by all new developments and improvements. Examples include:

- Developing a roadway design manual that has engineering standards that address roadway geometry and access geometry standards;
- Integrating traffic impact studies as part of the design process;
- Developing design standards for turning lane geometry; and
- Developing design standards for median treatments.

There are nine key design criteria identified in the TRB Access Control Manual, including:

- Preserve the functional intent of the roadway to which access is to be provided;
- Minimize the difference in speed between turning vehicles and through traffic to produce a safe traffic environment;
- Eliminate encroachment of turning vehicles on adjacent lanes;
- Use a combination of throat width and return radii that will accommodate the intended exit and entry operations of the selected design vehicle;
- Provide adequate sight distance for drivers exiting a site;
- Provide sufficient storage within the driveway for traffic entering the site to prevent spill-back onto the abutting road;
- Provide sufficient queuing within the driveway to produce efficient traffic flow for vehicles leaving the site;
- Minimize the number of conflict points at the junction of the access connection with the abutting road; and
- Provide adequate storage for turn lanes and within access connections to accommodate peak traffic demand.

A successful Access Management strategy for Navajo Nation should include Planning, Regulatory and Design based strategies to fully protect the transportation infrastructure investments made on the system. It is highly recommended that a study be conducted to identify and develop the best components of an Access Management Program for Navajo Nation.

11. Signing Program

An annual signing program should be established to enhance on-road and roadside safety. The annual signing program would include all signs to regulate, warn or guide motorists. All signs should be developed consistent with the Manual of Uniform Traffic Control Devices. The signing program should include new signs as well as signs that need to be replaced due to damage or wear/reflectivity.

The signing program should be prioritized by roadway classification, focusing on the higher class roadways and higher volume roadways. The National Cooperative Highway Research Program (NCHRP) Report 162 and the Missouri Manual on Identification, Analysis and Correction of High Accident Locations identify that signing can help correct 20 to 40 percent of correctable crashes due to curves, intersections or sections of roadway that need advance warning.

The current TTIP does not dedicate any funds directly to a signing program. Based on the traffic mix, volumes and crash history, an annual signing program funded at \$500,000 per year is recommended, focused primarily on the paved system.

12. Striping Program

An annual striping program should be established to enhance on-road and roadside safety. The striping program would first focus on the highest traveled roadways to ensure that roadway stripes can be seen to help drivers navigate in daytime, nighttime and adverse weather conditions. According to the Missouri Manual on Identification, Analysis and Correction of High Accident Locations, pavement markings have found to reduce crashes by up to 40 percent. This reduction is based on the standards set up in the Manual of Uniform Traffic Control Devices and analysis for appropriate treatments according to sight distance and terrain.

The current TTIP does not dedicate funds directly to an annual striping program. To stripe all of the Navajo-BIA routes would cost approximately \$24 million. An annual program of at least \$5 million per year would allow approximately 300 miles of 2-lane roads to be striped annually. This strategy would allow for the highest volume roads to be painted annually or semi-annually with high quality, long lasting paint.

E. Transit

Navajo Transit System (NTS) provides transit service throughout Navajo Nation. The Navajo Transit System's services and priorities are providing safe and reliable charter and public transportation for the Navajo Nation. This is achieved through improving the quality of life for all citizens for the Navajo Nation by increasing the accessibility to services and resources of the public and private sectors, particularly in meeting the needs of health care, education, employment, recreation, entertainment and shopping.

The NTS provides public transportation services to 41 chapters out of 110 Navajo Chapter communities; many fixed routes operate along state highways. NTS buses pick up passengers at designated stops within the 41 chapters, and generally provide both long distance and some local service within select growth centers.

The demand for services exceeds the number of buses and routes because the Navajo Nation occupies a substantial land area with a large population, long driving distances between destinations. With the limited number of routes available now, and the confinements of buses to major highways, many people who want services are not able to reach locations where buses normally pick up passengers.

Because the demand for NTS service exceeds the capacity, some market areas are not served, and some growth centers do not have localized service, it is highly recommended that a 20-year Transit Plan be developed to identify:

- Expanded Service Needs
- Local
- Regional
- Park-n-Ride Locations

The 20-year Transit Plan should also be integrated into the appropriate plans within Arizona, New Mexico and Utah to enhance funding partnership opportunities.

F. Master Planning

Each Primary and Secondary Growth Center should develop a community 20-year plan that examines future land use, multi-modal transportation needs, infrastructure needs, environmental considerations and unique characteristics to the community.

The future land use should examine the type, density, distribution and locations of land uses throughout the growth center, and be balanced with the anticipated infrastructure/transportation needs to accommodate the additional growth. The layout of each growth center has a direct correlation to the amount of infrastructure investment, economic development potential, and ultimately the community context and livability that is equated to the quality of life for the growth center residents.

The LRTP currently is a needs-based plan. It considers the existing transportation system and facilities and identifies current and future needs based on socioeconomic and transportation projections. The process for analyzing the transportation needs is cumbersome and highly data intensive. The analysis process is currently being undertaken every five years by the Navajo DOT to update the LRTP.

Planning for the Navajo Nation transportation system is a monumental task and requires the efforts and skills of multiple agencies and the several communities that make up the Nation. Therefore, the LRTP encompasses recommendations and considerations from a variety of planning documents prepared by other agencies. With the contribution from these various groups, these plans should provide a consistent and accurate description of the transportation needs of the Navajo Nation and the opportunities for improvement.

In an effort to streamline the long-range transportation planning process and to provide increased flexibility, it is recommended that the Navajo Nation consider producing general plans at an Agency level, as well as at the Growth Center level. This would allow for bottom-up transportation planning that will build upon the efforts of the prior plan. The growth center plans would feed into the agency plans, and agency plans would feed into the LRTP.

Community plans would incorporate a land use element as well as a transportation element. There is a strong relationship between land use and transportation: they are directly related. The issue of population growth and resulting transportation needs should be addressed cooperatively to effectively identify and implement improvements.

Land use planning efforts are already being undertaken at many of the primary growth centers. These future land use plans are serving to accommodate the future growth trends of the communities. To support these plans, each will require an associated transportation system plan. The transportation and land use plans may be developed with close coordination from the public to specifically identify the needs of the community and capture the vision of that particular growth center.

Agency level planning would allow for the comprehensive planning of an entire Agency's land area, including the primary and secondary growth centers, and the supporting transportation system. The specific transportation needs and priorities of each agency could be highlighted within its plan. This would allow each Agency to develop its own vision for future development and focus its efforts on the needs it feels are most important to serving its communities and future needs. For example, one Agency could envision its strength is in serving future tourism needs and providing services that will promote and sustain those efforts; while another Agency will value community connectivity and wants to focus on the needs of all-weather access to its residents. Each agency would be able to develop a list of prioritized transportation projects that reflect their vision for the future.

The prioritized list of projects from each Agency plan's transportation element could then be provided to the ARC for incorporation into the nation-wide LRTP. In developing the Navajo Nation's prioritized list of transportation projects, the ARC would need to remain cognizant of the individual goals of each Agency and treat them as relatively important, based on the Agency's prioritization.

Other considerations that should be included in Master Planning efforts could include topics such as:

- Drainage improvements
- Energy corridors
- Freight movement
- Environmentally sensitive areas (cultural/historic/archeological, wildlife, etc...)

G. DOT Coordination

The Navajo Nation has 10,076 miles of roadway, including approximately 1,678 miles of state routes that provide the primary routes between growth center communities and Navajo Transit System routes. The Arizona, New Mexico and Utah departments of transportation must be true partners to invest in roadway and safety improvements on the state system within Navajo Nation. Understanding that the DOTs must balance the needs of the state highways within Navajo Nation with the needs outside of Navajo Nation, and with shrinking budgets, the need for additional coordination between the Navajo Division of

Transportation and the three state DOTs is essential to ensure the maximum investment on state highways within Navajo Nation.

Understanding the State Transportation Improvement Program cycles, each state’s process for project prioritization and areas of investment are crucial for a true partnership. Each state has individual goals, just like Navajo Nation. Based on agency and legislative direction, each state may weigh safety improvements, maintenance, freight, multi-modal or capacity improvements differently based on their programs. Because of this, common reoccurring coordination between the Navajo Division of Transportation and the state DOTs should occur, either in the form of semi-annual or quarterly meetings to ensure that the needs of the various Divisions within Navajo Nation and the state DOTs have a common understanding of needs, priorities and processes.

Additionally, state DOTs generally guide and prioritize projects that are community driven, plan and agency supported. These plan driven requests are those that are supported by Community Plans, programs such as the Safety Improvement Program mentioned above, the Long Range Transportation Plan and other planning processes that show redundancy based on broad-based adopted and accepted support.

H. Title VI and Environmental Justice Implications

Transportation projects that utilize United States federal aid are required to certify non-discrimination under the requirements of Title VI of the Civil Rights Act of 1964. Also, in 1997, the U.S. Department of Transportation issued *DOT Order to Address Environmental Justice in Minority Populations and Low-Income Populations* to summarize and expand upon the requirements of *Executive Order 12898 on Environmental Justice*. In accordance with the intent of these federal requirements, a preliminary assessment was completed for this plan to identify impacted minority and low-income populations within the Navajo Reservation area and any affects to those populations by proposed transportation improvements. The following outlines the generalized approach to a Title VI and Environmental Justice evaluation.

1. Racial Demographics

Racial demographics are shown in Table VI-3. According to a special 2007 Census, the Navajo Nation was comprised of 164,332 persons; the majority of the population (97%) was classified as American Indian. Those classified as White comprised 2.1% of the population. While the remainder of the population classifications totaled less than 1% for their population groups.

Table VI-4 2007 Racial Demographics

Area	Total Population	White (%)	Black or African American Percent (%)	American Indian and Alaska Native (%)	Asian (%)	Two or More Races (%)	Hispanic of any race (%)
Navajo Nation	164,332	2.1	0.2	97.0	0.4	0.3	0.9

Source: U.S. Department of Commerce, Bureau of the Census, 2007 American Community Survey 1-Year Estimate.

2. Socioeconomic Demographics

Socioeconomic demographics are summarized in Table VI-4. Identified is the median age of the population on the Navajo Nation and the number and percentages of persons 65 years and older, below poverty level, disabled and female head of household.

Table VI-5 2007 Socioeconomic Demographics

Area	Median Age	Age 65 Years and Over		Below Poverty Level		Disabled		Female Head of Household	
		No.	%	No.	%	No.	%	No.	%
Navajo Nation	29.5	16,105	9.8	60,474	36.8	33,031	20.1	20,364	12.4

Source: U.S. Department of Commerce, Bureau of the Census, 2007 American Community Survey 1-Year Estimate.

Based upon the Census data Navajo Nation has a population of young adults with the median age of the area at almost 30 years. Another significant Census figure shows that just over one-third (36.8%) of the Navajo Nation population is below the poverty level.

I. Overall Study Recommendations and Implications

Since the Navajo Nation Long Range Transportation Plan (LRTP) coverage area is totally situated within the Navajo Reservation, all areas have high percentages of impacted populations. It is anticipated that a number of the transportation improvement projects recommended through this plan may differentially affect those populations. Chapter Five of this plan identified potential positive effects that the recommended projects could have on Navajo Nation community members. A Title VI and Environmental Justice preliminary assessment of the plan's recommended projects indicates that several could potentially place disproportionate burdens on community members and other minority or low-income populations. The preliminary assessment also shows considerations that dictated the recommended projects over alternative actions according to this plan's need analysis.

During the planning process, consideration was also given to the Title VI and Environmental Justice factors to ensure that impacted populations were included in the plan's public participation process. Several public involvement efforts were conducted to reach minority and low-income populations when conducting the two public involvement meetings held during the planning process. As recommended projects are implemented additional effort will need to be conducted in order to detail activities that can avoid, minimize or mitigate the impacts. This is in addition to ensuring that the impacted population groups are provided the opportunity to participate in future project-specific public input processes. Details on this plan's public outreach efforts are included in the LRTP Public Participation Report.

Chapter Five of this plan identifies overall Navajo Nation roadway system issues and needs along with recommended improvements. Chapter Seven identifies transportation mobility improvement opportunities for each Growth Center. Specific project details are included in each Chapter's narrative, tables and maps. Table VI-6 below summarizes the overall long-range transportation improvements by category and possible adverse impacts and benefits of each recommendation. See also Chapter 5, Table V-39.

Table VI-6 Overall Long Range Transportation Improvement Needs and Impacts

Project Type	Project Description	Impacted Population(s)	Potential Disproportionate and/or Adverse Impact(s)	Consideration(s) Dictating Recommended Actions Over Alternative Actions
NEED 1: Highway Geometric Design Deficiencies				
Roadway	To meet highway design guidelines based on 20-Year ADT, 5,955.4 miles of Navajo-BIA roads need surface upgrade and roadway widening. (See Tables in Chapter 5.B. Need 1)	Minority and low-income including: Tribal Members Local Residents Area Visitors	Temporary constraint to street accessibility	Improved overall efficiency of the road network Improved road conditions Traffic crash reduction and severity
NEED 2: Network Connectivity				
Roadway	89.7 miles of Navajo-BIA Class 2 roads need to be paved, and 90.0 miles of Class 4 meet criteria for Class 2 definitions and need to be paved. (See Tables in Chapter 5.B. Need 2)	Minority and low-income including: Tribal Members Local Residents Area Visitors	Temporary constraint to street accessibility Decreased air quality Increased traffic through the project areas Increased traffic noise	Improved regional connectivity Improved overall efficiency of the road network Reduced travel time Conserved fuel Traffic crash reduction and severity Improved emergency response time
NEED 3: Pavement Deficiencies				
Roadway	1,313.8 miles of Navajo-BIA roads have severe pavement and need reconstruction. 27.6 miles have moderate pavement and need surface rehabilitation. (See Tables in Chapter 5.B. Need 3)	Minority and low-income including: Tribal Members Local Residents Area Visitors	Temporary constraint to street accessibility Decreased air quality Increased traffic through the project areas Increased traffic noise	Improved overall efficiency of the road network Traffic crash reduction and severity Improved emergency response time
NEED 4: Safety				
Safety Improvements and Access Control	To reduce traffic accidents Navajo-BIA roads: 33 miles and two specific intersections need further study for geometric/safety improvements. General safety improvements are needed including striping, signing, access management, animal fencing and sidewalks. (See Tables in Chapter 5.B. Need 4)	Minority and low-income including: Tribal Members Local Residents Area Visitors	Temporary constraint to street accessibility	Improved overall efficiency of the road network Promote safe mobility Relieve traffic congestion Traffic crash reduction and severity Improved pedestrian safety
NEED 5: Chapter House Access				
Roadway	16 Chapter houses lack paved access roads: 149.8 of Navajo-BIA roads and 15.0 miles of County roads need paving. (See Tables in Chapter 5.B. Need 5)	Minority and low-income including: Tribal Members Local Residents Area Visitors	Temporary constraint to street accessibility Decreased air quality Increased traffic through the project areas Increased traffic noise	Improved local connectivity Improved overall efficiency of the road network Reduced travel time Conserved fuel Traffic crash reduction and severity Improved emergency response time

NEED 6: Growth Center Streets				
Roadway	To meet future population and development needs: Seven primary growth centers need multi-modal system improvements to balance with current and future land uses. (See Tables in Chapter 5.B. Need 6)	Minority and low-income including: Tribal Members Local Residents Area Visitors	Temporary constraint to street accessibility Decreased air quality Increased traffic through the project areas Increased traffic noise	Improved local connectivity Improved overall efficiency of the road network Reduced travel time Conserved fuel Traffic crash reduction and severity Improved emergency response time Promote safe mobility Relieve traffic congestion Traffic crash reduction and severity Improved pedestrian safety
Mobility Improvements: Roadway Paving, New Roads, Pedestrian Facilities, Access Control	To meet the need for efficient and safe street networks to meet the demands of growing urbanization, to avoid traffic congestion and accidents, to promote economic development and meet future population growth. (See Maps in Chapter 7.E.)	Minority and low-income including: Tribal Members Local Residents Area Visitors	Temporary constraint to street accessibility Increased traffic through the project areas Increased traffic noise	Improved local connectivity Improved overall efficiency of the road network Reduced travel time Conserved fuel Traffic crash reduction and severity Improved emergency response time Promote safe mobility Relieve traffic congestion Traffic crash reduction and severity Improved pedestrian safety
NEED 7: Community/Economic Development				
Roadway	Healthcare Facilities: turn lanes; street lights; paving access roads; parking lot facilities; sidewalks. NHA Housing Projects: turn lanes; street lights; paving access roads; parking lot facilities; sidewalks. Schools: turn lanes; street lights; paving access roads; parking lot facilities; sidewalks. Economic Development: turn lanes; street lights; intersection control; paving access roads; parking lot facilities; sidewalks. CIP Projects: turn lanes; street lights; intersection control; paving access roads; parking lot facilities; sidewalks. (See Tables in Chapter 5.B. Need 7)	Minority and low-income including: Tribal Members Local Residents Area Visitors	Temporary constraint to street accessibility Increased traffic through the project areas Increased traffic noise	Improved Health, Community and Economic Opportunities Improved local connectivity Improved overall efficiency of the road network Reduced travel time Conserved fuel Traffic crash reduction and severity Improved emergency response time Promote safe mobility Relieve traffic congestion Traffic crash reduction and severity Improved pedestrian safety

NEED 8: Scenic Byways, Tourism & Recreation				
Roadway, Signage Improvements and Access Control	Install signage and implement access management on scenic byways and improve 67.5 miles of access roads providing access to park and recreation areas. (See Tables in Chapter 5.B. Need 8)	Minority and low-income including: Tribal Members Local Residents Area Visitors	Temporary constraint to street accessibility Increased traffic through the project areas	Improved regional connectivity Improved overall efficiency of the road network Reduced travel time Conserved fuel Traffic crash reduction and severity Improved emergency response time Promote safe mobility Relieve traffic congestion
NEED 9: Multimodal Transportation				
Roadway, Bicycle, Pedestrian Facility Improvements	Airport Development: 8.5 miles of new access roads need to be constructed. Transit Routes: Implement 5-year plan; expand and provide transit centers; local circulator service in Growth Centers. Bicycle Routes and Sidewalks need improvement, connectivity and new routes need to be constructed. (See Tables in Chapter 5.B. Need 9)	Minority and low-income including: Tribal Members Local Residents Area Visitors	Temporary constraint to street accessibility Transit Route and Schedule Change Travel time change	Conserved fuel Promote safe mobility Provide improved transit connections Improved pedestrian safety
NEED 10: Other Transportation				
Roadway	Rural Addressing, Snow and Mud Emergencies, Hazardous Material Transportation, Former Bennett Freeze Area and I-40 Detour: 4,436.8 miles of Navajo-BIA roads, 1,735.8 miles of County roads and 2,812.7 miles of Tribal roads need improvements. (See Tables in Chapter 5.B. Need 10)	Minority and low-income including: Tribal Members Local Residents Area Visitors I-40 Travelers	Temporary constraint to street accessibility Increased traffic through the project areas Increased traffic noise	Improved regional and local connectivity Improved overall efficiency of the road network Reduced travel time Conserved fuel Traffic crash reduction and severity Improved emergency response time Promote safe mobility Relieve traffic congestion Traffic crash reduction and severity
NEED 11: Cultural Environmental Considerations				
Roadway Planning & Engineering	To minimize environmental and cultural impacts of proposed transportation projects through implementation of necessary environmental assessments. (See Narrative in Chapter 5.B. Need 3)	Minority and low-income including: Tribal Members Local Residents Area Visitors	None identified.	Improved overall efficiency of the road network

J. Year 2009-2048 Navajo Nation Long Range Construction Priority Schedule

The Transportation and Community Development Committee of the Navajo Nation Council approved the Navajo Nation 40 -Year Roads Construction Priority Schedule for FY 2009 to FY 2048 on March 16, 2004. The plan is a culmination of road construction priorities based on recommendations from five Agency Roads Committees.

As a result of IRR Program funding constraints, the Fiscal Year 2009-2048 Navajo Nation Long Range Construction Priority Schedule total is averaged at \$53.58 million per annum. Compared to overall long range transportation needs (Table VI-2), the Navajo IRR Program funding addresses only one-fourth of the Navajo Nation's actual long range transportation needs.

The 2008 TCDC resolution and the Fiscal Year 2009-2048 Navajo Nation Long Range Construction Priority Schedule list is included in the following tables.

CHAPTER VII - GROWTH CENTER MOBILITY

The Navajo Nation's growth centers have been designated for economic and community development. They are also the Nation's major population centers. The following discussions explain transportation needs, planning considerations, and the proposed mobility improvements for the Navajo Nation Primary Growth Centers.

A. Population Projection

Population of the Navajo Nation's Primary Growth Center communities made up 21% of total Navajo Nation population (Census 2000). Based on projected growth rate of 2.5% (1.84% growth was Navajo reservation's overall growth rate from 1990 to 2000), Table VII-1 illustrates that more of these communities will become small urban communities. FHWA classifies a small urban area as one having over 5,000 population (FHWA Highway Functional Classification-Concepts, Criteria and Procedures). The new 2010 Census will provide an updated growth rate by Growth Center and enable Navajo Nation planners to better understand how development is changing the population in the Growth Centers.

Table VII-1. Growth Center Population Projections for Years 2000-2030

Growth Centers	2000*	2010	2020	2025	2030
Tuba City	8,225	10,529	13,478	15,249	17,253
Shiprock	8,156	10,440	13,365	15,121	17,018
Chinle	5,366	6,869	8,793	9,948	11,256
Kayenta	4,922	6,301	8,065	9,124	10,323
Window Rock/St. Michaels	4,354	5,574	7,135	8,073	9,133
Ft. Defiance	4,061	5,198	6,654	7,528	8,518
Crownpoint	2,630	3,367	4,310	4,876	5,517

Notes: *2000 Census data for Census Designated Place (CDP).

Projection was computed using formula:

$$P1 = P0 (1+r)^n$$

P0 = Base Year Population; P1 = Future Year Population; r = Growth Rate; n = Number of Years

B. Development Trends

The Primary Growth Center designation was a result of the Navajo Nation's economic development strategies. This policy is supported by Indian Health Services (IHS), Navajo Housing Authority (NHA), Bureau of Indian Affairs (BIA) and the Navajo Nation. The Navajo Nation Local Governance Act further supports the Primary Growth Center development concept by requiring a land use plan for these communities. More economic, community, and government services development is assumed for the Primary Growth Centers. Increased school enrollment, health care services, employment, and businesses generally occur in the Primary Growth Centers.

C. Transportation Issues

Current Navajo Nation infrastructure, particularly the transportation system is inadequate to support more development. Components of the present transportation system are already at capacity, resulting in transportation issues described below:

High Traffic Volume:

As population and development occurs, traffic increases in primary growth centers frequently resulting in traffic congestion and higher crash occurrences on most primary growth centers' main thoroughfares.

Traffic Congestion:

All primary growth centers have already experienced traffic congestion during rush hours and Navajo Nation Fair times. Limited paved roads results in traffic congestion on main streets and at development access locations.

Poor Access Management:

Limited paved roads led to ribbon development along the state and Navajo BIA roads in the primary Growth Center communities. Lack of alternate routes and access management to these development sites produced numerous access points on these main streets resulting in more congestion and decreased motorist and pedestrian/bicyclist safety.

High Traffic Accidents:

A high percentage of the Nation's traffic accidents occurred on road sections and intersections within the Growth Centers (See also Chapter V-Need 4: Safety). Highway safety has become a major concern for the primary growth center communities.

Discouraged Economic Development:

Transportation and infrastructure are crucial factors determining the success of economic development. The lack of transportation routes and limited paved streets in the Growth Centers result in limited economic development opportunities. This, in turn, makes it difficult to attract outside businesses. Lack of paved streets also limits developable sites.

As the seven Navajo Nation Primary Growth Centers defined within this Long Range Transportation Plan chapter continue to grow, the need for an efficient and safe street network to meet the demands of their growing urbanization, to avoid traffic congestion and accidents, and to promote economic development and meet future population growth is required.

D. Planning Methodology

The primary purpose for the Navajo Primary Growth Center Mobility Improvements is to provide a comprehensive street network that safely and efficiently serves the primary growth center communities. Federal transportation planning guidelines are used to address transportation issues while meeting the development goals. Street planning goals and guiding principles include:

Economic Vitality

Expand usable land for economic development: commercial, industrial, and agricultural according to land resources potential.

Safety

Increase safety by providing more alternative routes to avoid congestion. Install street lights and signalization at major intersections as warranted. Separate motorized and non-motorized users (bicycle paths and sidewalks). Control access to and from developments.

Accessibility & Mobility

Promote mobility for people and freight with an efficient network that enhances connectivity to regional transportation system.

Environment

Protect and enhance the natural environment by avoiding sensitive areas and providing recreational access to natural areas.

Multimodal

Improve modal choice and enhance connection between transportation modes.

Energy and Efficiency

Promote energy conservation through efficient transportation system planning.

Cultural/Community Values

Promote a community's cultural identity, values, and sense of a place. Meet cultural and community needs.

Land Use

Support use of land for existing and future development by providing necessary access.

E. Growth Center Mobility Improvements

The following sections describe existing transportation issues as identified during the planning process conducted for this Navajo LRTP Update. Also identified are transportation mobility improvement opportunities for each Growth Center to consider as development occurs.

Tuba City Mobility Improvements

Background

Tuba City is the most populated Navajo Nation Growth Center. In 2000 it had a population of 8,225 and it is projected to grow to 17,253 by 2030. It is located approximately 60 miles north of Flagstaff, Arizona. It is a major community in the Navajo Nation's northwestern region. Tuba City's land size is estimated at 37,556.5 acres consisting of grazing land surrounding housing sites and the administrative area. Tuba City was part of the Bennett Freeze Order, the 1977 Settlement Act (PL 93-531) amended by the PL. 96-305 in 1980, Navajo-Hopi land dispute. The Bennett Freeze restricted any construction of any kind but Tuba City was set aside as administrative area where some developments were allowed. However, the Bennett Freeze was lifted in 2007. It is a significant employment center in the region and culturally and historically significant to the Navajo as well as the Hopi Tribe and San Juan Paiute Tribe. The Tuba City Airport is located nine miles west of Tuba City on US160. It is a regional center for health care and community services, schools, public safety as well as banking, shopping, dining and other services.

Future Land Use

In 2007 the Tuba City Chapter was certified and changed its name to "To'Nanees'Dizi Chapter." That same year the Chapter adopted its land use plan, which was funded by a Native American Housing Assistance and Self Determination Act (NAHSDA) grant. The Chapter recognizes the importance of using land use planning for the housing site identification as well as commercial, industrial, recreational and other land use zoning to create a workable community.

The Chapter land use plan was developed with its vision statement in mind, it reads: "The To'Nanees'Dizi Chapter will be a chapter with both an urban and rural flavor. The rural area will continue to accommodate farming and the traditional Navajo way of life. The administrative area will be a community which is home to commercial activity and denser residential development. The community will have an approved land use plan which identifies the road network and delineates commercial and residential land uses. All residents of the chapter, be they Dine or non-chapter members, will have access to safe and affordable housing and all basic infrastructure."

Goals and Strategies

Improve infrastructure because they are crucial to future development.

Plan in-fill to take advantage of existing infrastructure and cut cost for new development then build new infrastructure.

Actively withdraw lands for development as planned.

Proposed Future Development

The plan identifies future development needs and proposed sites as follows:

Residential Development

- **Single Family Housing:**

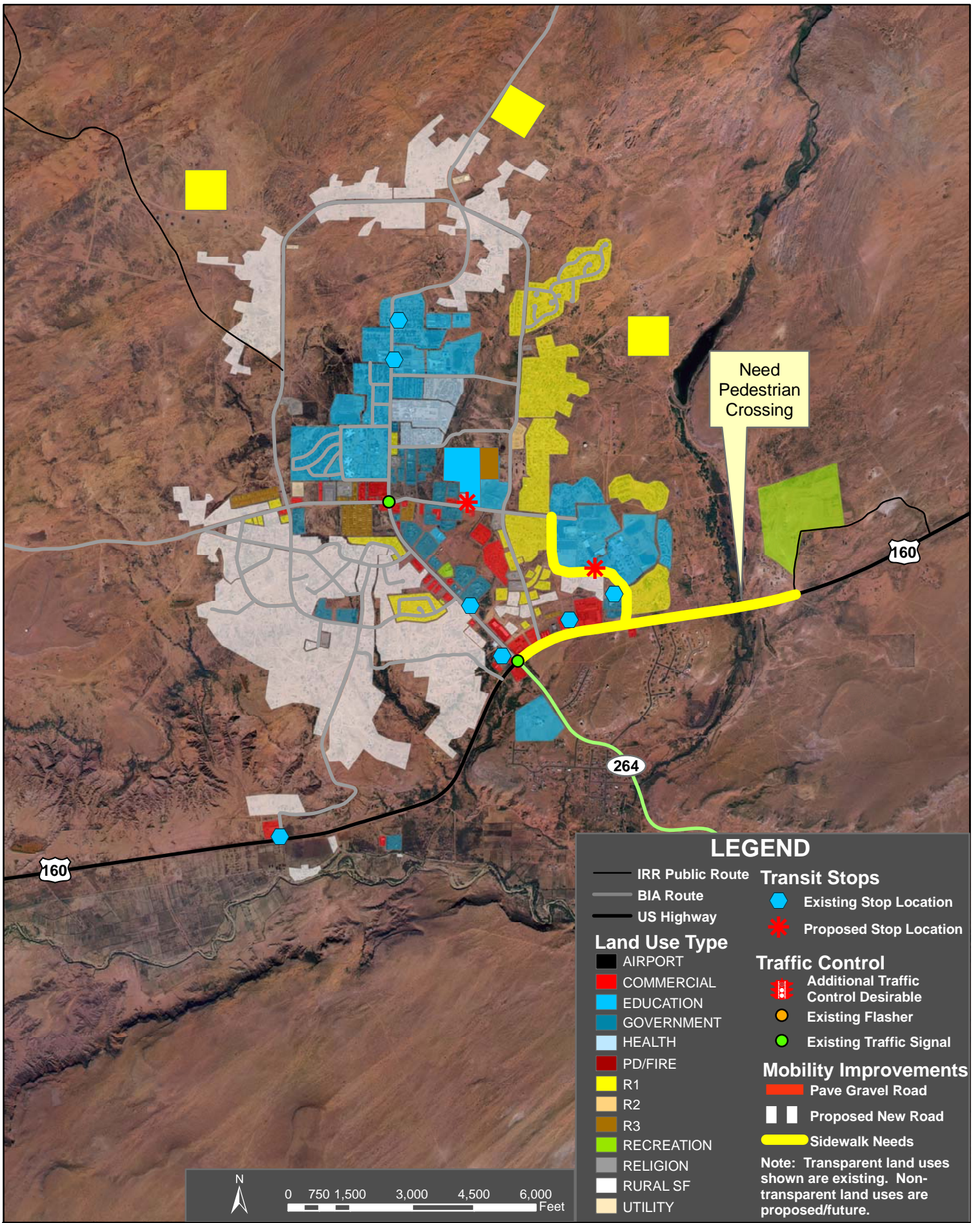
Three (3) Sites were proposed as shown on Map VII-1. These sites contain 10-acres each exclusively for housing development. Although one of the sites is not within the To'Nanees'Dizi community boundary, it is within the Chapter boundary.

- **Single Family Housing with Commercial Development:**

The Moenave Site is also outside of the To'Nanees'Dizi community but is still within the Chapter boundary. In addition to 10-acre housing development, its plan includes 3-acre commercial development, 4-acre recreation with a basketball court and 3-acre open space.

- **Trailer Park:**

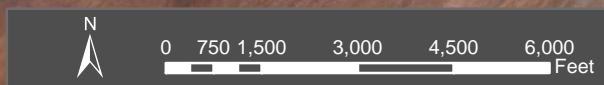
A 5-acre site is proposed near the future Dine College expansion, see Map VII-1.



Need
Pedestrian
Crossing

LEGEND

- IRR Public Route
 - BIA Route
 - US Highway
 - Land Use Type**
 - AIRPORT
 - COMMERCIAL
 - EDUCATION
 - GOVERNMENT
 - HEALTH
 - PD/FIRE
 - R1
 - R2
 - R3
 - RECREATION
 - RELIGION
 - RURAL SF
 - UTILITY
 - Transit Stops**
 - Existing Stop Location
 - ★ Proposed Stop Location
 - Traffic Control**
 - Additional Traffic Control Desirable
 - Existing Flasher
 - Existing Traffic Signal
 - Mobility Improvements**
 - Pave Gravel Road
 - Proposed New Road
 - Sidewalk Needs
- Note: Transparent land uses shown are existing. Non-transparent land uses are proposed/future.



TUBA CITY PROPOSED MOBILITY IMPROVEMENTS

Commercial Development

Dinosaur Tracks Business Site: Approximately 22 acres are proposed for commercial development next to the Dinosaur Tracks tourist attraction. The site is located along US 160 northeast of the US160/N23 junction.

US89/US160 Business Site: 21 miles west of To'Nanees'Dizi, approximately 60 acres are proposed for commercial development at the northeast corner of the intersection. This location is aimed at attracting tourists on US89 en route to Lake Powell. However, it needs waterline extension from Moenkopi or existing line on US160.

Industrial Development

There are no existing industrial sites in To'Nanees'Dizi, however, three sites are being considered for future development. These are as follows:

Dinosaur Track Business Site

There is a five-acre site west of To'Nanees'Dizi livestock pens adjacent to US160. Additionally, there is undetermined acreage west of the rodeo grounds adjacent to US160.

Education

Future expansion of Dine College: Future expansion of Dine College is planned within the existing college property.

In-fill Development

The plan recommends in-fill development for housing and commercial uses. Building from partially complete subdivisions first will reduce infrastructure cost before the Chapter begins building at the new sites, which require extension of infrastructure.

Town Center

The plan recommends To'Nanees'Dizi to undertake the development of a "Town Center" to create cohesiveness for the community.

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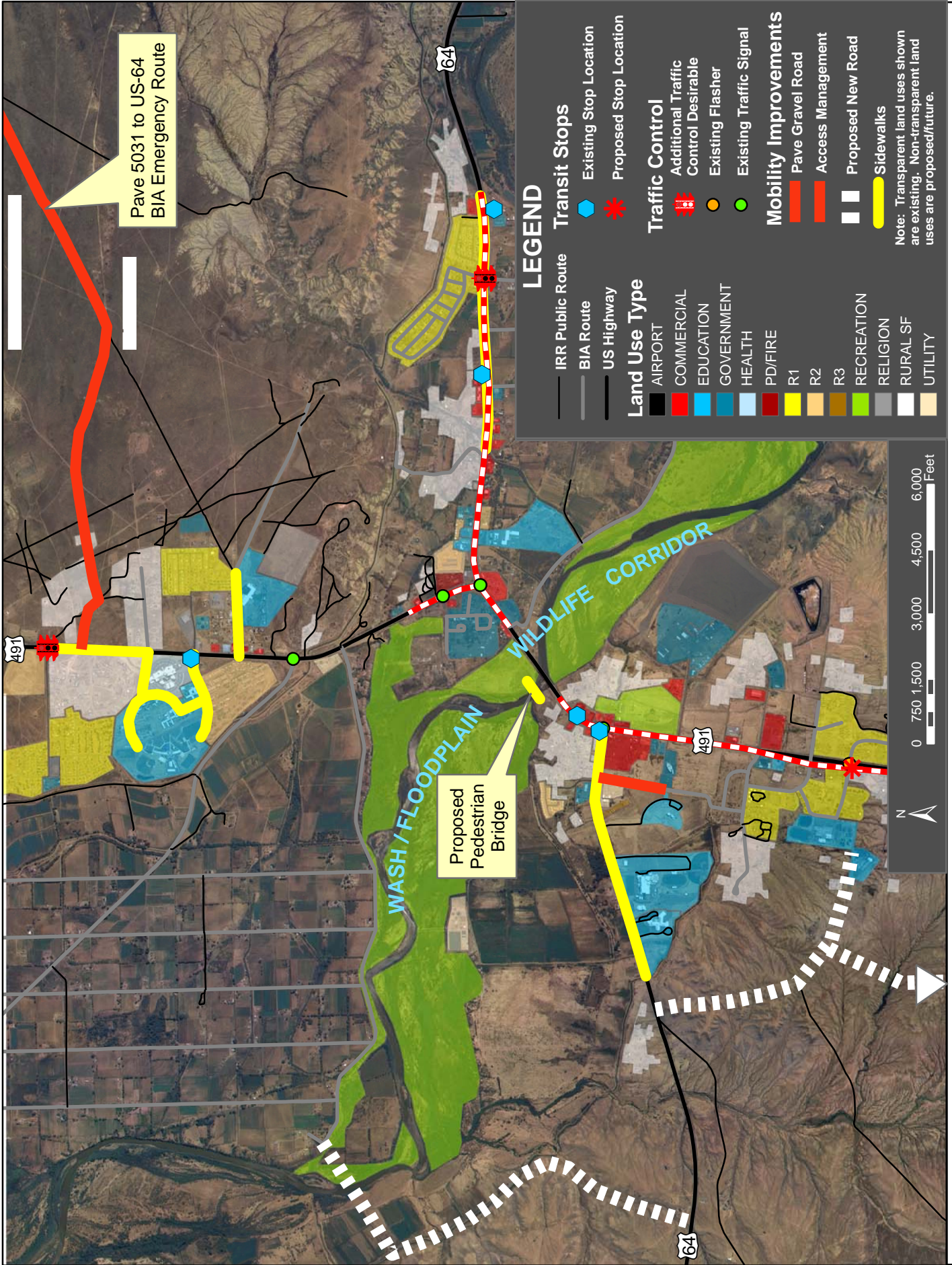
SHIPROCK MOBILITY IMPROVEMENTS

Existing Conditions and Transportation Issues

Shiprock, New Mexico is the second largest Navajo Nation Growth Center with a population of 8,156 according to the 2000 Census. Its population is expected to reach 17,018 by 2030. The Shiprock community is divided into two areas near the San Juan River, with government services in the north and a new commercial area in the south. Most development is concentrated along US491 and NM64, which merge to become the main thoroughfare collecting traffic from developments and access roads to housing, hospital, and government facilities. Shiprock is about a one-half hour drive from Farmington, New Mexico and Cortez, Colorado. These border towns provide employment opportunities for Shiprock residents. Commuter traffic to and from Shiprock contributes to rush hour traffic congestion in Shiprock. US491/NM64 between the south and north junctions experience traffic congestion and have the highest number of concentrated crashes on the Navajo Nation reservation. Demand for future development will certainly strain US491 and NM64. Commercial and industrial development has been proposed along US491 south of the San Juan River. As land develops, parallel streets are needed to support future growth, offer alternative routes and avoid further ribbon development adjacent to US491 and NM64 which will only expand upon currently congested areas.

Street Plan Goals & Objectives

- To create networks of streets to expand the use of land for the purpose of economic development towards the south and serve the government center.
- To create two street networks separated by the San Juan River, each providing an efficient distribution of traffic to reduce congestion and accidents.
- To provide an alternate crossing of the San Juan River towards the west.
- To create alternate routes and increase accessibility.
- To minimize environmental and cultural impacts by conserving areas adjacent to the San Juan River for recreation, and building new improved routes on existing dirt roads.
- To strengthen the historical sense of the place by creating a new government/town center upon old settlement area known as the Shiprock chapter house/BIA compound.
- To enhance multi-modal options and mobility by providing a pedestrian bridge across the San Juan River, safely linking the two primary development areas within Shiprock.



Pave 5031 to US-64
BIA Emergency Route

Proposed
Pedestrian
Bridge

WASH / FLOODPLAIN
WILDLIFE CORRIDOR

LEGEND

- IRR Public Route**
 - IRR Public Route
- BIA Route**
 - BIA Route
- US Highway**
 - US Highway
- Land Use Type**
 - AIRPORT
 - COMMERCIAL
 - EDUCATION
 - GOVERNMENT
 - HEALTH
 - PD/FIRE
 - R1
 - R2
 - R3
 - RECREATION
 - RELIGION
 - RURAL SF
 - UTILITY
- Transit Stops**
 - Existing Stop Location
 - Proposed Stop Location
- Traffic Control**
 - Additional Traffic Control Desirable
 - Existing Flasher
 - Existing Traffic Signal
- Mobility Improvements**
 - Pave Gravel Road
 - Access Management
 - Proposed New Road
 - Sidewalks

Note: Transparent land uses shown are existing. Non-transparent land uses are proposed/future.



CHINLE MOBILITY IMPROVEMENTS

Existing Conditions and Transportation Issues

Chinle is the third largest Navajo Nation Growth Center with 5,366 in population during 2000. Its population is expected to grow to 11,256 by 2030. Approximately 2 million tourists pass through Chinle annually, as it is the gateway to the Canyon de Chelly National Monument. Chinle is primarily accessible and connected to other regions by US191. N7 provides access from US191 and from the Fort Defiance Agency to the Canyon de Chelly National Monument. N64 provides access from Tsaile through the national park. These are the main paved roads in Chinle, other than the hospital and NHA access roads.

Nazlini Wash divides Chinle into two areas: the old settlement comprising the BIA compound and chapter government in the east, and commercial development, schools and hospital in the west. Land along N7 is very much developed and confined by the wash. US191 becomes a busy thoroughfare with high concentration of crashes from N102 to N7. High traffic volume and frequent points of access on US191 and N7 contribute to congestion and safety issues on both roads. Lack of alternate routes into Chinle also causes traffic congestion on N7. Due to the extent of access and traffic along N7, an examination of turn lanes and access management techniques should be explored to improve safety and mobility.

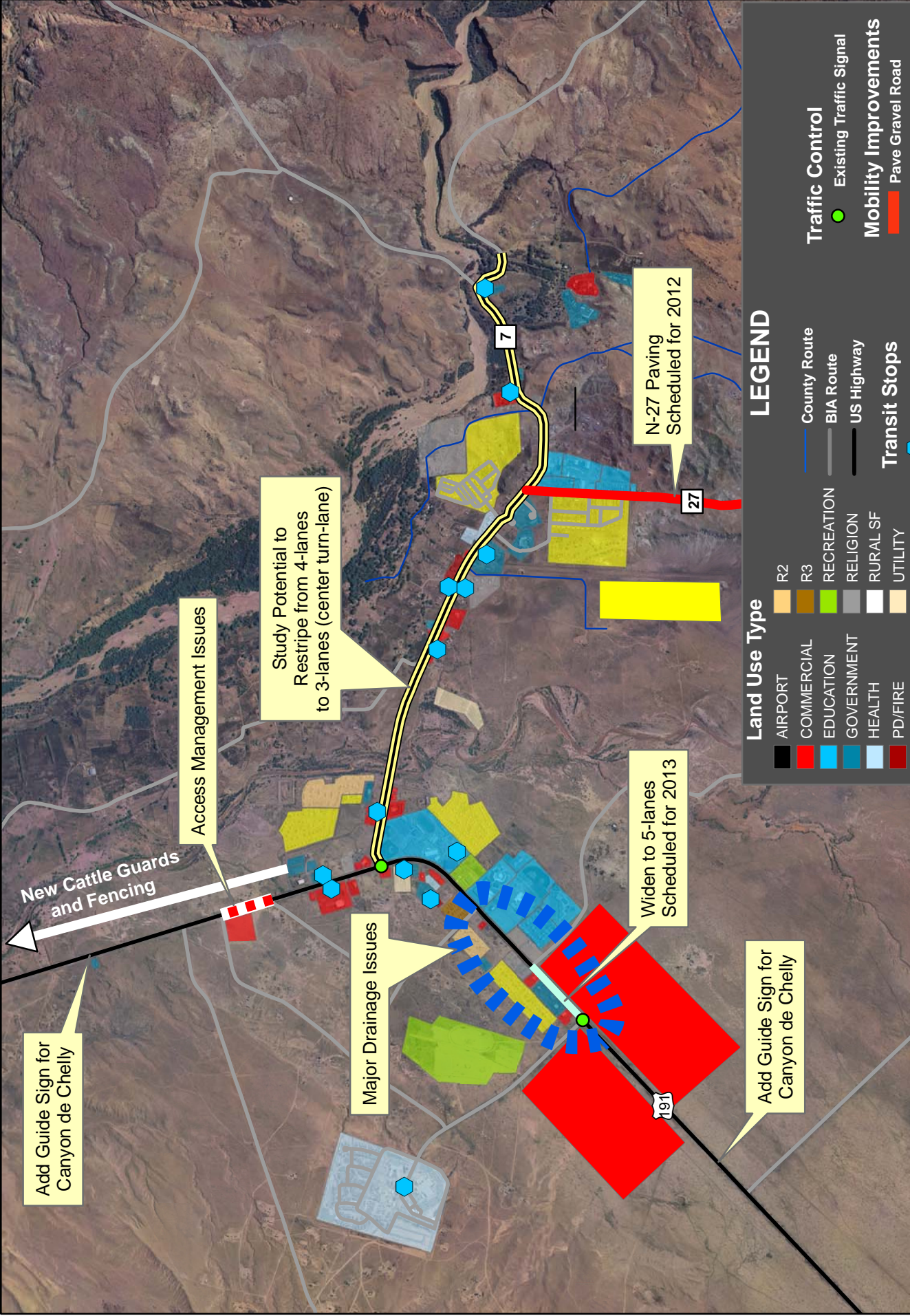
Tourism as well as population growth will promote the demands for more developable areas. Better links between Chinle's east and west sides are needed to improve transportation access to the hospital, the new airport, and tourist destinations. Residents are both concerned about their grazing rights and the need for economic development.

Street Plan Goals & Objectives

- To create a safe multi-modal street network that connects all parts of Chinle more effectively.
- To create ring roads/outer loops to accommodate new land use/development and divert through traffic from US191 and N7.
- To improve paved roads using existing dirt roads to avoid relocation and conflict with residents of existing built-up areas.
- To create a town center from the old settlement area to promote town history and attract tourists.
- To provide sufficient and efficient alternative routes, i.e., ring roads to bypass or cross town. Alternate routes should be examined to quantify time savings, safety improvement and congestion reduction. These loops connect south and north parts of town to the new Chinle Airport, and provide access to the new commercial and industrial centers, as well as new housing and schools. The improvements could potentially help improve traffic congestion on US191 and N7.

This plan keeps existing scattered housing sites as rural residential areas. It proposes to minimize road construction and land use within the 100-year flood prone areas. Some roads would also serve as dikes to protect nearby existing and new developments from flooding. Most areas along the 100-year flood prone area are proposed for recreation and agricultural uses. A drainage study should be completed to identify needed drainage improvements to alleviate the recurring flooding issues southeast of the US191/N7 intersection.

The plan proposes to expand US191 to 5 lanes with raised median, street lights, traffic signalization and landscaping from the airport exit to N8091. Bicycle paths and sidewalks are proposed along N7 from US191 to Canyon de Chelly and along the Nazlini Wash. Additionally, this portion of N7 should also be converted from a four-lane roadway to a two-lane roadway with a center two-way-left-turn lane to enhance corridor safety and capacity. Map VII-3 identifies needed transportation enhancements within this Growth Center.



LEGEND

AIRPORT	R2	Existing Traffic Signal
COMMERCIAL	R3	Pave Gravel Road
EDUCATION	RECREATION	Proposed New Road
GOVERNMENT	RELIGION	Sidewalk Needs
HEALTH	RURAL SF	
PD/FIRE	UTILITY	
R1		

Note: Transparent land uses shown are existing. Non-transparent land uses are proposed/future.

County Route	BIA Route	US Highway
Existing Stop Location	Proposed Stop Location	

Traffic Control

Mobility Improvements

Transit Stops

CHINLE PROPOSED MOBILITY IMPROVEMENTS
MAP VII-3

KAYENTA MOBILITY IMPROVEMENTS

Existing Conditions and Transportation Issues

Kayenta had a population of 4,922 in 2000 and is expected to grow to 10,323 by 2030. Kayenta is the only Navajo community that has become a township. Its economy is tied to Monument Valley, a national and international tourist destination. Kayenta collects its own sales tax, passes laws and enforces its land use plan and ordinances. The first Kayenta land use plan was developed and approved in 1986. The township covers approximately 5.5 acres of land.

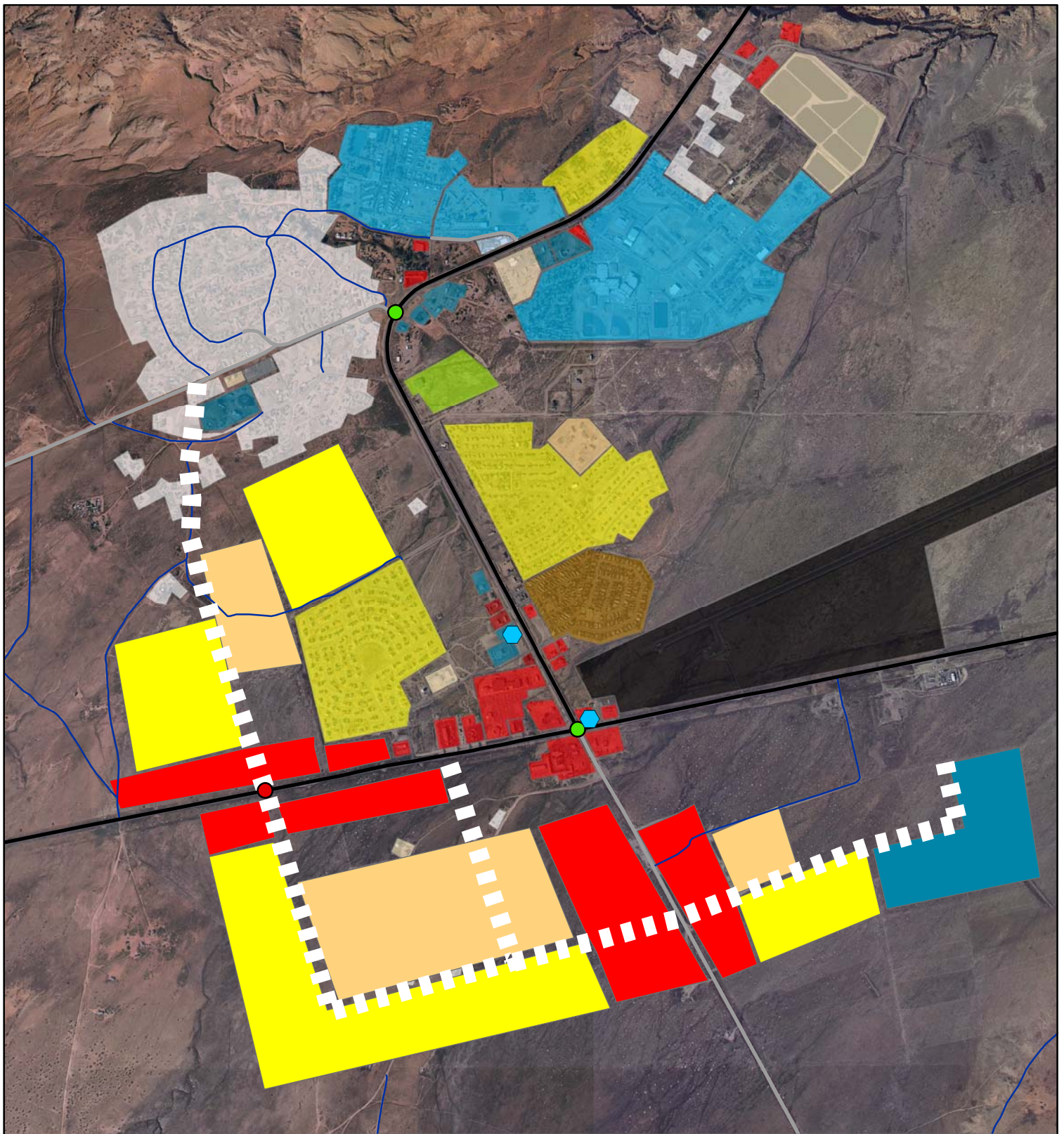
US160 and US163 are Kayenta's main thoroughfares. Other existing paved roads are NHA and school access. The junction of US160/US163 has experienced very high levels of crashes. US160 from US163 to N59 and US163 from N6485 to UT state line/Monument Valley also had a high number of crashes.

Kayenta Township has been progressive in establishing a township commission, administration and in planning for development. Land use regulations and development policies have been developed and enforced. With an independent revenue source from its sales tax, Kayenta is likely to be the fastest growing Navajo Nation Growth Center in economic development.

Street Plan Goals & Objectives:

- To create a multimodal network that supports the land use plan by providing managed access to different land areas/uses.
- To create an efficient street system that provides a comprehensive transportation network for effective connectivity, distribution of traffic and enhances pedestrian and bicycle mobility.

Map VII-4 illustrates the transportation mobility improvements desired for the region to support the stated goals and objectives.



Land Use Type		LEGEND		Traffic Control	
■ AIRPORT	■ R2	— County Route	● Existing Traffic Signal	● Monitor for Future Traffic Control	
■ COMMERCIAL	■ R3	— BIA Route	● Existing Stop Location	■ Pavement Improvements	
■ EDUCATION	■ RECREATION	— US/STATE Highway	● Proposed Stop Location	■ Sidewalk Needs	
■ GOVERNMENT	■ RELIGION				
■ HEALTH	■ RURAL SF				
■ PD/FIRE	■ UTILITY				
■ R1					

Note: Transparent land uses shown are existing. Non-transparent land uses are proposed/future.

KAYENTA PROPOSED MOBILITY IMPROVEMENTS

Fort Defiance Mobility Improvements

Existing Conditions and Transportation Issues

Fort Defiance's population was 4,061 in 2000 and is expected to increase to 8,518 by 2030. Fort Defiance was the first American military post in the region in 1851. Later it became the Bureau of Indian Affairs agency headquarters. It is the largest community in the Fort Defiance Agency.

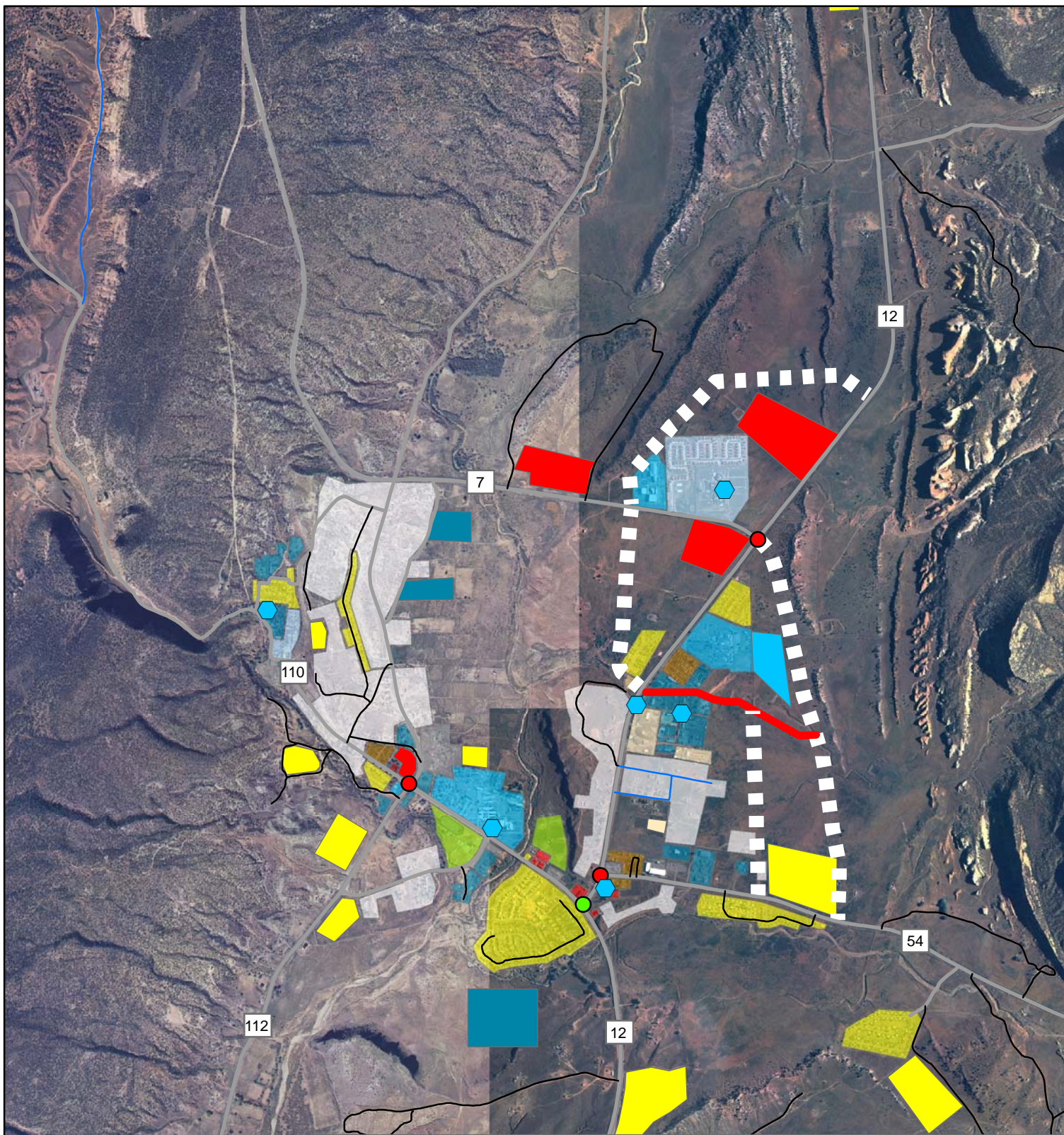
Several arterial (Class 2) roads provide access to Fort Defiance: N12 connects Fort Defiance with Window Rock and other parts of the Fort Defiance Agency; N7 provides access from Chinle Agency; N112 connects to St. Michaels and Navajo, New Mexico; and N54 connects Fort Defiance to NM264 in Eastern Agency. N110, a five-lane road is considered the main street in Fort Defiance. N110 from N12 to N112 had a high number of accidents.

Fort Defiance continues to be the federal government headquarters for the agency. Fort Defiance Hospital, schools, light industries, BIA and Navajo Nation offices are major employers. The community and the Navajo Nation continue to promote industrial development and attract more companies to Fort Defiance.

Street Plan Goals & Objectives:

- To create a growth center's street system that provides access and travel continuity as well as promotes new development.
- To create an efficient street system that promotes network connectivity, distribution of traffic and enhances pedestrian and bicycle mobility.

Map VII-5 illustrates the proposed transportation mobility improvements for the Fort Defiance Growth Center.



Land Use Type		LEGEND		Traffic Control	
■ AIRPORT	■ R2	— County Route	● Existing Traffic Signal	● Monitor for Future Traffic Control	
■ COMMERCIAL	■ R3	— BIA Route			
■ EDUCATION	■ RECREATION	— US/STATE Highway			
■ GOVERNMENT	■ RELIGION				
■ HEALTH	■ RURAL SF	Transit Stops			Mobility Improvements
■ PD/FIRE	■ UTILITY	● Existing Stop Location	■ Pave Gravel Road	■ Proposed New Road	■ Sidewalk Needs
■ R1		★ Proposed Stop Location			

Note: Transparent land uses shown are existing. Non-transparent land uses are proposed/future.



FORT DEFIANCE PROPOSED MOBILITY IMPROVEMENTS
MAP VII-5

Window Rock/St. Michaels Mobility Improvements

Background

The Window Rock community is located within the St. Michaels Chapter boundary. It is the capital of the Navajo Nation where the headquarters of all branches of the tribal government and Indian Health Services are located. Other major employers in Window Rock are State of Arizona MVD and Department of Economic Security, BLM, Dine College, Window Rock Elementary School, two grocery stores and various businesses. Window Rock and St. Michaels CDP population were 3,059 and 1,295 respectively (2000 Census). Most development extends along AZ264 and N12 corridors making St. Michaels-Window Rock into an urbanized area.

Future Land Use

The St. Michaels Chapter Land Use Plan developed in 2004 suggests few changes in land use categories for the Chapter in the next several years. Housing development is always in demand in Window Rock. The plan forecasts a demand for housing to meet the need of employees of the Navajo Nation and other employers and small commercial development for the Window Rock area.

Goals and Priorities

To provide development and land use opportunities to meet economic and housing needs.
To develop with environmental and cultural suitability

Residential Development

A 20-acre site is proposed for mixed residential and commercial development north of the Window Rock Post Office.

Commercial Development

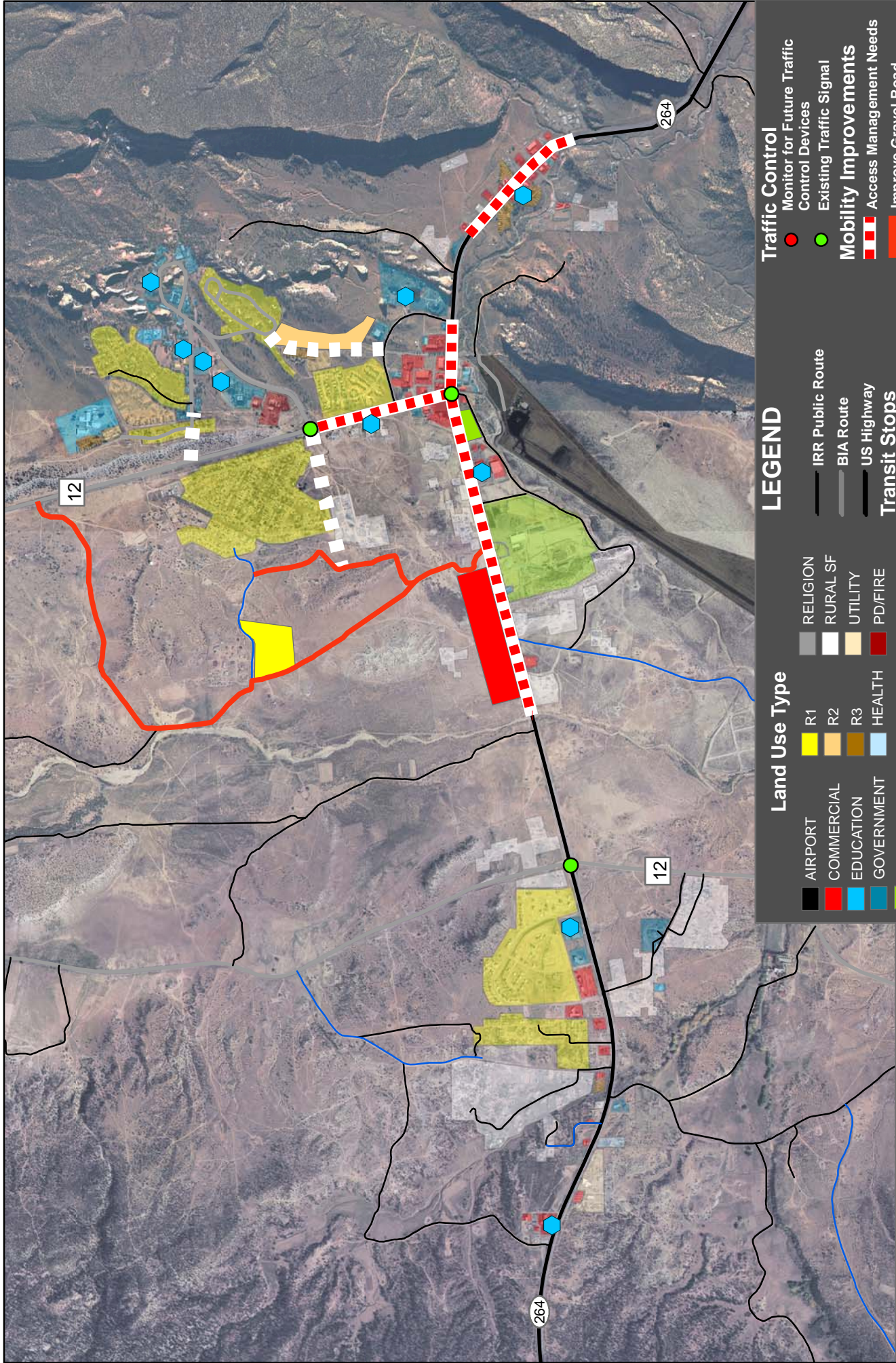
- 48-acre Black Creek Commercial Site north of AZ 264.
- Small neighborhood commercial development similar to the mixed residential and commercial development north of the Window Rock Post Office.

Education

Dine College is intending to develop a full-on campus within St. Michaels Chapter. The Chapter suggests that it purchases a 21-acre land parcel owned by St. Michaels Mission west of St. Michaels Housing area for the proposed future Dine College campus and student and staff housing.

Recreation

The Navajo Nation Fair Ground is planned to expand to a 14-acre site east of Church's Chicken. However, St. Michaels Chapter needs to clear this with the Federal Aviation Administration because of its proximity to the Window Rock Airport. FAA regulations restrict building height within the flight approach zone.



LEGEND

Monitor for Future Traffic Control Devices	Existing Traffic Signal	Access Management Needs	Improve Gravel Road	Proposed New Road	Sidewalk Needs
IRR Public Route	BIA Route	US Highway	Existing Stop Location	Proposed Stop Location	
AIRPORT	COMMERCIAL	EDUCATION	GOVERNMENT	RECREATION	
RELIGION	RURAL SF	UTILITY	HEALTH	PD/FIRE	

Note: Transparent land uses shown are existing.
Non-transparent land uses are proposed/future.

0 650 1,300 2,600 3,900 5,200 Feet

WINDOW ROCK/ST. MICHAELS PROPOSED MOBILITY IMPROVEMENTS

Crownpoint Mobility Improvements

Background

Crownpoint is the regional center for Eastern Navajo Agency in New Mexico. It is located approximately 24 miles north of Thoreau, New Mexico in McKinly County. Unlike other Navajo Nation Primary Growth Centers which are located entirely on the Navajo Nation Trust Land, Crownpoint is part of the Nation's "Checkerboard" area that dominates the Eastern Navajo Agency. Estimated land size of Crownpoint is approximately 71,604 acres. It consists mostly of Navajo Nation Trust Land (44%) and Indian Allotments (39%), while State, Tribal Fee, BLM, private and others make up the rest (17%). It is a major employment center and government services in the region. The Crownpoint Airport is located 3 miles west of Crownpoint on N9. It is a regional center for health care and community services, schools, and public safety, shopping, dining and other services.

Future Land Use

Crownpoint adopted its Land Use Plan in 2004. It envisioned a community where people who live and work there believe in the beauty, history, natural and cultural importance of the community and its viability; where members want to stay, work, shop, live, share, raise their families, and prosper in a self-sustaining way; where people value peacefulness and own strength in building and working together to continuously improve lives and preserve traditions.

Goals and Priorities

- To become a self-sustaining community. Promote economic and tourism development to create and sustain jobs, contribute to tax base, and share local traditions and customs.
- To balance land uses and development to strengthen community's vision, rural character and lifestyle.
- To create an attractive community while preserving the character of the community and protect traditional and cultural properties.
- To provide adequate community facilities and services to protect health, promote safety and welfare of general public.
- To identify areas for orderly development.
- To provide adequate infrastructure to meet current and future needs of Crownpoint while not exceeding its physical capacity and preserve water resources.
- To provide a variety of transportation modes for both pedestrian and vehicular traffic while keeping in mind the need for emergency access.

Residential Development

Single Family Housing: 20 new houses are proposed by IHS in central Crownpoint. 30 housing units are proposed by NHA in north Crownpoint. ARC, Inc. completed a study for the chapter and identified two sites: 165 acres located at N9/N11 junction and 473 acres near north NM371/N9 junction.

Commercial Development

The community recommended businesses such as restaurants, sport and auto stores. For tourism, the community recommended a paved flea market and art and crafts pavilion for local artists and a casino. Rental office spaces and a truck stop were also recommended.

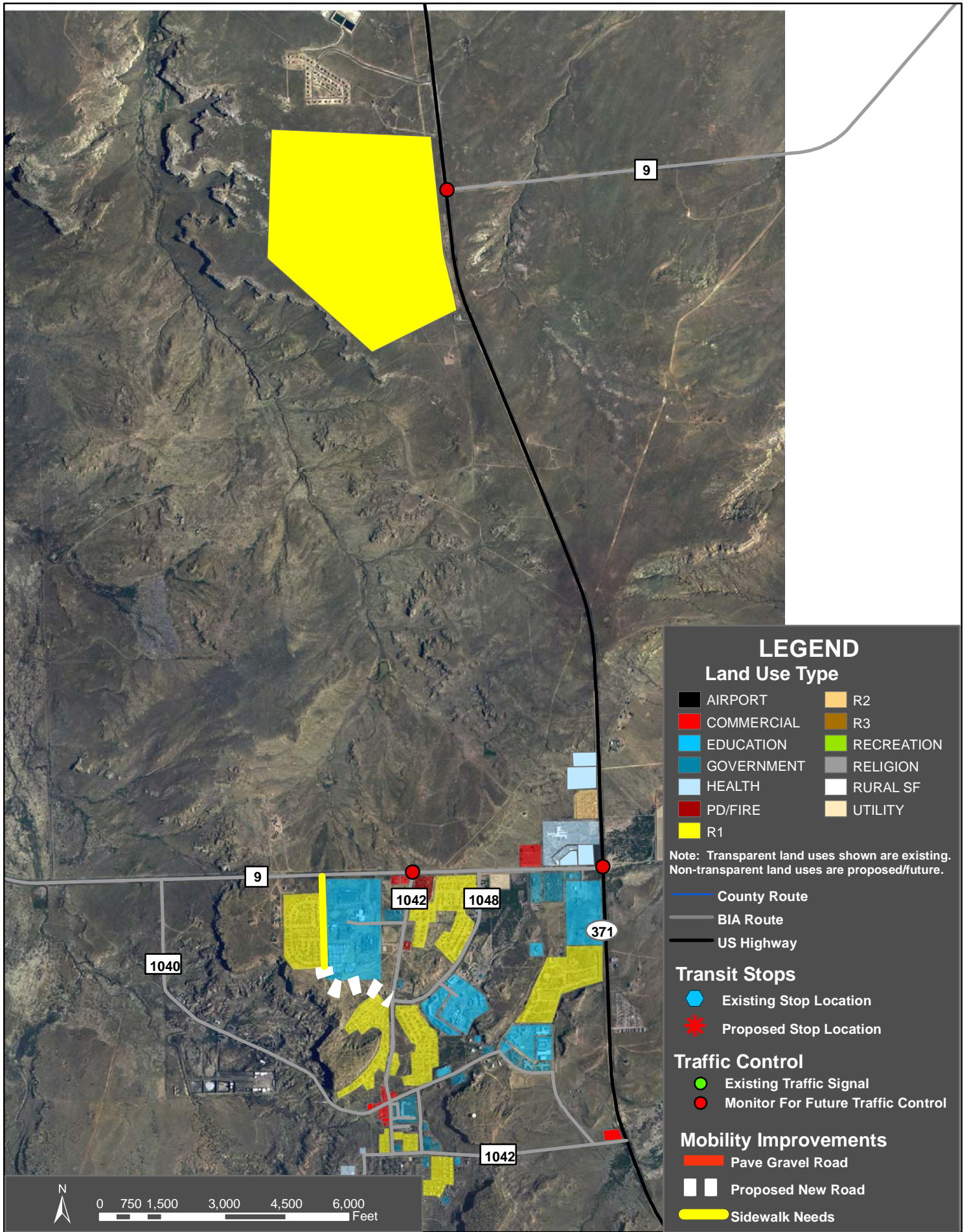
Industrial Development

Community members expressed a desire to encourage industrial development that does not negatively impact the health and welfare of the community members.

Recreation

The community desired to expand recreation to be enjoyed by the community members and tourists alike such as parks and a golf course.

Map VII-7 illustrates the proposed mobility improvements for the area.



LEGEND

Land Use Type

- | | |
|------------|------------|
| AIRPORT | R2 |
| COMMERCIAL | R3 |
| EDUCATION | RECREATION |
| GOVERNMENT | RELIGION |
| HEALTH | RURAL SF |
| PD/FIRE | UTILITY |
| R1 | |

Note: Transparent land uses shown are existing. Non-transparent land uses are proposed/future.

- County Route
- BIA Route
- US Highway

Transit Stops

- Existing Stop Location
- Proposed Stop Location

Traffic Control

- Existing Traffic Signal
- Monitor For Future Traffic Control

Mobility Improvements

- Pave Gravel Road
- Proposed New Road
- Sidewalk Needs



0 750 1,500 3,000 4,500 6,000 Feet

CROWNPOINT PROPOSED MOBILITY IMPROVEMENTS

MAP VII-7

Community Services

- Proposed public facilities to meet the needs of specific groups (e.g., children, youth, elderly, veterans, ranchers, etc.)
- Proposed office complex or multi-purpose facilities for centralization of BIA and Navajo Nation programs, NTUA, etc.
- Proposed cultural and civic facilities such as veteran's memorial, museum, rodeo hall of fame, boys & girls club, etc.
- Proposed common areas including a "plaza" for flea market, farmers market, arts & crafts, festival, etc.
- Restore old and historic buildings and sites to stimulate the community's quality of life and economic vitality. These are town hall, old school warehouse, superintendent's house, BIA Park, etc.

Crownpoint Indian Health Service Programs:

- Priority #1:
Expansion or additions of IHS Programs, southeast from hospital.
- Priority #2:
New Housing units with 7.92 acres (currently Ropes Course) of new housing. The Ropes Course has been turned over to the Navajo Department of Youth and will be moved to north of the new housing.
- Priority #3:
2.5 acres to be leased to NN Division of Health for Behavioral Health programs: Wellness Center, Outpatient Treatment & Detoxification Center.

CHAPTER VIII - NAVAJO NATION AIRPORT NEEDS

Air transportation is an important part of transportation services on the Navajo Reservation. Considering the size of the reservation, 26,600 sq. miles with an average density of 6.8 persons per square mile, aviation provides an efficient transportation connection to remote areas of the reservation and to the other part of the country. It becomes a crucial means of transportation for medical emergencies, for tribal official business, and for tourism.

The Federal Aviation Administration (FAA) funds airport and airfield development with aviation fuel excise tax. Congress enacted Vision 100 - Century of Aviation Reauthorization Act in 2003. Recognizing the important role of runways, the Vision 100 has increased the Airport Improvement Program (AIP) funding from \$3.4 billion in FY2004 with \$100 million increments over the next three fiscal years. AIP provides funding for airfield pavement projects. Vision 100 also includes a program for airport security upgrades to be funded separately. Under the legislation, non-primary airports will be allowed to pool their annual AIP funds. This will allow such airports to do higher-cost capital projects than they could individually. These annual AIP funds are only available if there have been qualified projects submitted under the Airport Capital Improvement Program (ACIP). Non-hub airports will now be able to use their AIP funds to carry out pavement maintenance activities. As of the date of this study, Congress is in the process of reauthorizing Vision 100 and FAA has been funded through a series of continuing resolutions.

The Navajo DOT has been receiving FAA funding for construction and improvements for its airports. As in the IRR program, FAA funds are not allowed to be used for maintenance. The Navajo Nation is required to provide 5% local match with FAA funds and the responsibility and funding of airport maintenance.

The Navajo DOT has had a few airport system plans developed since 1975. The Division has used them as guidelines for airport development. The 1992 Navajo Nation Aviation Systems Plan is the most current plan Navajo DOT has followed. This plan was approved by the TCDC in 1993. The FAA accepted the 1992 plan and incorporated eight of the Navajo Nation airports into the National Plan of Integrated Airport Systems (NPIAS).

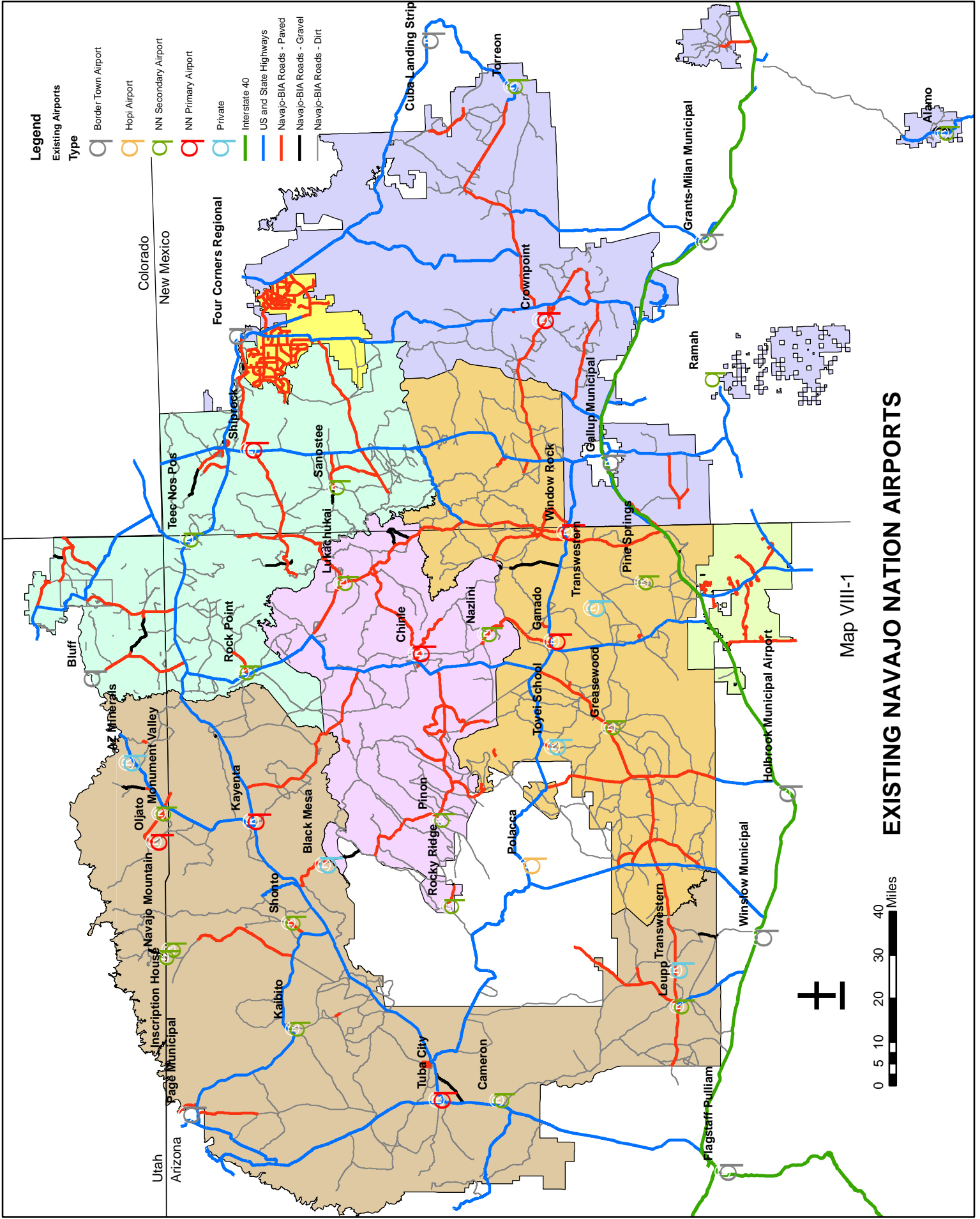
A. GOALS AND OBJECTIVES

The Navajo Nation has outlined its aviation goals and objectives as follows:

- To develop a system of safe, efficient airports which meet acceptable development standards of federal, state and local agencies, as well as the aviation industry.
- To plan for future growth of the aviation system consistent with national, state, and local air transportation needs through continuous updating of the Navajo Nation Aviation Systems Plan and to take actions to land bank and avoid operational restrictions at existing and new airports.
- To provide a system of airports, which will provide a minimum level of service and meet acceptable performance standards.
- To identify improvements needed to ensure adequate access to all system airports and users.
- To enhance opportunities for local economic development and improved employment consistent with local growth policies and plans.
- To finance aviation facility development to maximum feasible extent with innovative techniques taking full advantage of private sector initiatives and opportunities to assist in developing and operating facilities in the public aviation system.
- To establish operating procedures, budgets and an organizational structure to ensure proper maintenance of all Navajo Nation airports.
- To provide a framework for aviation planning and programming to meet needs in areas of airport development, airspace utilization and air navigation facilities and services.

B. EXISTING AIRPORTS AND INVENTORY

Navajo Nation airport system consists of approximately 32 airports/airstrips within the Navajo Reservation and the checkerboard area (Map VIII-1). Five are privately owned. Only six of the Navajo Nation airports are currently in use (shown with* in Table VIII-1). Only fourteen are registered or included in the NPIAS and state airport systems. They are Tuba City, Kayenta, Chinle, Window Rock, Ganado, Rock Point,



Shonto, Pinon, Lukachukai, Rocky Ridge, and Pine Springs Airstrips in Arizona; Shiprock and Crownpoint Airports in New Mexico; and Oljatoh Airstrip in Utah. These airports/airstrips are classified as Navajo Nation Primary and Secondary Airports as described below:

1. Navajo Nation Primary Airports

Eight (8) airports. They are owned and maintained by the Navajo Nation. Six have a paved single runway for small aircraft operations. Some have navigational aids and are equipped for night operations. They are located at the Navajo Nation Primary Growth Centers and open for public use. Most usage of these airports is for medical emergencies, secondarily by tribal business, with occasional uses by tourists. Construction work on Shiprock, Tuba City, Crownpoint, and Chinle airports was completed from 1998 to 2003. Window Rock Airport is being planned for an upgrade in 2009. Except for Window Rock Airport, none of the primary airports have a terminal building.

Kayenta Airport improvements included relocation of the runway and parking area and electrical upgrades between 1998 and 2003. Airport programming and operations are now administered by the Kayenta Township.

Ganado Airport mostly serves medical transportation to and from the Sage Memorial Hospital. Its dirt runway is too short. A master plan and initial design (2008) for a 6,600' x 75' paved runway has been completed.

Window Rock is operated by the Navajo Nation Air Transportation Services under the Division of General Services, which provides charter services to the Navajo Nation President and other tribal programs. Other private air transportation services are also available at Window Rock Airport.

2. Navajo Nation Secondary Airports

Nineteen (19) airports/airstrips. All are dirt airstrips without supporting facilities and receiving no maintenance. They are mostly closed, in poor condition, or unusable. Six of the Navajo Nation Secondary Airports are in the Arizona Airport System Plan (Rock Point, Shonto, Pinon, Lukachukai, Rocky Ridge, and Pine Springs). These airports/airstrips are necessary since they can be used for medical emergencies and emergency landings.

Private Airports

Five (5) are privately own and maintained airports.

3. Hopi Tribal Airport

The Polacca airport is located by the Hopi Health Center in Polacca. Currently this airport is considered a primary general aviation use airport in the Arizona DOT system. There are approximately \$11,000,000 budgeted for improvements to the runway and clearance of obstructions for this airport. This airport is used by governmental agencies accessing this region along with health related emergencies for both Hopi and Navajo tribal members in the region.

The existing Navajo Nation airport information identified above and in Tables VIII-1 and VIII-2 are based on latest FAA record, State airport plans and Navajo DOT survey. Table VIII-3 provides information on those airports that are owned and operated by others than the Navajo Nation but are generally within the confines of the Navajo Nation geographical area

Table VIII-1. Existing Navajo Nation Primary Airport Inventory

Airport Name	Runway Dimension	Runway Direction	Based Aircraft	Runway Data/ Conditions	Navigational Aids	Lighting	Other Facilities	Annual Operations	Performance and Capacity Needs
Shiprock*	4,840'x75'	02/20	Single Eng: 0 Multi Eng: 0	Asphalt/Poor. Poor markings. Broken glass & debris on rwy. Obstructions: 50 ft wide, 1225 ft fr rwy 02, 300 ft left of ctrln, 20:1 slope to clear 250' left at controlling point rwy 02.	None	None: Stolen (vandalism)	None	1,150 (Avg 22/week) 87% transient; 13% local	Recons rwy and paint. Clear obstacles. Deepen drainage ditch. Connect twy to rwy 20.
Tuba City*	6,230' 75'	15/33	Single Eng: 0 Multi Eng: 0	Asphalt/Good. Very uneven and cracked (1520' on S-Closed 1200' rwy 15). Brush on rwy. Fair markings. Obstructions: 34ft. hill fr rwy 15, 17:1 slope to clear. 1 ft ridge parallel to rwy 15; 280 ft fr rwy 33, 8:1 slope to clear. Livestock.	Rotating beacon; PAPI; windsock	Yes	Aircraft parking apron	6,500	Recons 1520 ft rwy. Weed maint.
Kayenta*	7,140'x75'	05/23	Single Eng: 3 Multi Eng: 0	Asphalt/Poor. Good markings. Holdline on twy fr tie-dn to rwy is 203 ft fr rwy ctrln. Unrestricted access to rwy fr US160. Plants on rwy & twy.	Segmented circle-rotating beacon; wind indicator	Yes	Apron w/ 8 tie-downs; 10 cars parking.	4,700 (Avg 90/week) 53% local 26% transient 21% air taxi	Recons rwy. Weed maint.
Oljetoh	3,950'x50'	14/32	Single Eng: 0 Multi Eng: 0	Asphalt/Poor (Closed). Has ruts and potholes. Deteriorating badly to bare earth. No markings. Obstructions: 1:1 slope to clear 4' fence 90'-100' fr rwy.	Wind indicator; segmented circle.	None	5,000 sq. ft apron w/ 6 tie-downs; 2 gas pumps; water; electricity. hangars	Avg 30/week 76% air taxi 22% transient 2% local	Unsafe runway, needs to relocate and construct new rwy.
Crownpoint*	5,820'x60'	18/36	Single Eng: 0 Multi Eng: 0	Asphalt /Poor. Loose gravel and cracked rwy. Fair markings. Obstructions: 43 ft hill, 1500 ft fr rwy 18, 30:1 slope to clear. 40 ft wide, 800 ft fr rwy 36, 15:1 slope to clear.	Radio controlled rotating beacon; wind indicator	MIRL	35,600 sq. ft paved apron w/ 9 tie-downs; 500 sq. ft trailer (poor cond.)	500 (Avg 42/month) 60% air taxi 40% transient	Runway rehabilitation. Needs crosswind runway fr westerly wind
Chinle*	6,149'x60'	18/36	Single Eng: 3; Multi Eng: 3	Asphalt/Good. Good markings.	Radio controlled rotating beacon; PAPI; windsock	Yes	Paved apron	2,400 (Avg 46/week) 67% transient; 17% local 17% com'ercial	
Window Rock*	7,000'x75'	02/20	Single Eng: 3; Multi Eng: 5	Asphalt/Poor runway. Good markings. Obstructions: 18 ft. hill fr rwy 2, 125 ft right of ctrln, 8 ft trees 400 ft fr rwy 20. 24:1 slope to clear 4 ft fence. Hill and cliffs all quadrants. Livestock. N Twy closed. Rwy 02/20 closed to aircrafts over 24,000 lbs.	Beacon; AWOS, PAPI; windsock	Yes	Apron, hangars, terminal	7,000 (Avg 134/week) 79% transient 21% local	Recons. Runway.

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Airport Name	Runway Dimension	Runway Direction	Based Aircraft	Runway Data/ Conditions	Navigational Aids	Lighting	Other Facilities	Annual Operations	Performance and Capacity Needs
Ganado	4500'x130'	18/36	None	Dirt/Fair (Closed). Rwy 175' wide except where sideslope up steeply. Ends and shoulders: scattered soft sandy-clay. AER 36 rocky. Obstructions: 3' fence, 60' fr rwy 36, 20:1 slope to clear. No line of sight btwn rwy ends. Water on rwy and gulleys after heavy rain. Livestock.	Windsock	None	None	700 (Avg 58/month) 100% transient general aviation	

Source: Arizona State Aviation Needs Study 2000; New Mexico Airport System Plan 2003; FAA Airport Master Record 2004; 2001 NDOT survey.

Notes: * Airports currently in use.

Table VIII-2. Existing Navajo Nation Secondary Airport Inventory

Airport Name	Runway Dimension	Runway Direction	Based Aircraft	Runway Data/ Conditions	Navigational Aids	Lighting	Other Facilities	Annual Operations
Shiprock*	4,840'x75'	02/20	Single Eng: 0 Multi Eng: 0	Asphalt/Poor. Poor markings. Broken glass & debris on rwy. Obstructions: 50 ft wide, 1225 ft fr rwy 02, 300 ft left of ctrln, 20:1 slope to clear 250' left at controlling point rwy 02.	None	None: Stolen (vandalism)	None	1,150 (Avg 22/week) 87% transient; 13% local
Sanostee	3,500'x45'		None	Dirt/Poor. No longer exists.	None	None	None	0
Rock Point**	3,700'x50'	01/19	None	Dirt/Poor. Steep hill is too close in the NE for takeoff. Inactive.	None	None	None	60
Teec Nos Pos	3,000'x80'		None	Dirt/Poor. No longer exists.	None	None	None	0
Shonto**	3,500'x75'	01/19	None	Dirt/Poor. Good location.	None	None	None	0
Chilchinbeto	1,850'x20'		None	Dirt. No longer exists. Poor location. Needs new location.	None	None	None	0
Leupp	1 mile		None	Old airstrip by N15 is vacant. Dirt runway is gone. Currently, planes land at Transwestern's Winslow Compressor Station 9 miles E. for medical emergencies: paved runway.	None	None	None	0
Inscription House	4,500'x75'		None	Dirt. Unsafe and unusable.	None	None	None	0
Navajo Mountain	3,600'x100'		None	Dirt/Poor. Good location	Wind indicator	None	None	0
Cameron	4,000'x75'		None	Dirt/Poor. No activity	None	None	None	0
Kaibeto	3,500'x75'		None	Dirt/Poor. Unsafe: encroached by residential dev. Needs new location.	None	None	None	0
Torreon	2,400'x50'		None	Dirt/Runway damaged beyond repairs. Not in use. No longer exists.	None	None	None	0
Pinon**	3,200'x60'	01/19	None	Dirt. Site has been encroached with storage buildings and power lines.	None	None	None	0
Lukachukai**	3,350'x75'	12/30	None	Dirt/Poor. No longer exists	None	None	None	60
Rocky Ridge**	2,500'x45'	03/21	None	Dirt	Wind indicator	None	None	0
Lower Greasewood	4,750'x50'		None	Dirt/Poor.	None	None	None	0
Pine Springs**	2,275'x100'	05/23	None	Dirt.	Wind indicator	None	None	60
Monument Valley	3000'x50'		None	Dirt runway with paved apron	Unknown	None	None	
Nazlini	200'x20'		None	Dirt runway	Unknown	None	None	
Alamo				No information				

Source: Arizona State Aviation Needs Study 2000; New Mexico Airport System Plan 2003; FAA Airport Master Record 2004; 2001 NDOT survey.

Notes: * Airports currently in use
 **Airports included in the AZ SASP.

Table VIII-3. Existing Airports within the geographic area not owned or operated by Navajo Nation

Airport Name	Runway Dimension	Runway Direction	Based Aircraft	Runway Data/ Conditions	Navigational Aids	Lighting	Other Facilities	Annual Operations
Goulding's	3,200'		Unknown	Private, serving tourists; runway locates half on private land and half on Navajo Nation (half paved/half dirt); apron w/ 2-3 tie-downs; hangar; office bldg. Severe down draft from mountain.	Unknown	Unknown	Unknown	Unknown
Thoreau			None	Private: Owned by Transwestern Pipeline. Not open to public. Asphalt runway.	None	None	None	0
Lake Valley	2,600'x60'		None	Private: Owned by La Vida Mission, Inc for transport of doctors. Gravel runway; no runway marking. Well maintained.	Windsock	None	None	0
Klagetoh			None	Private: Owned by Transwestern	Unknown	Unknown	Unk	0
Black Mesa	6000'x75'	18/36	Single Eng: 3	Private, Asphalt, Good Condition, Owned by Peabody Mining	AWOS PAPI Windsock	Yes	Unknown	Unknown
Polacca (Hopi)	4200'x50'	04/22	Single Eng: 1	Owned by Hopi Tribe and operated by BIA, runway paving is in fair condition	Windsock	No	None	900

C. PLANNING CONSIDERATIONS

1. Issues

Numerous issues are facing the Navajo Nation airport development. FAA funding criteria limit the number of airports qualified for funding. State funding and local matching are scarce, while airport maintenance funds are virtually non-existent. As a result, only the Navajo Primary Airports get funded. This makes the Navajo Nation airport system less efficient with limited coverage service areas leaving many remote areas without air transportation or usable airstrips for safety landing and medical evacuation.

Funding:

Development Funds: To be funded by FAA AIP, an airport must be included in the NPIAS. Only eight of the Navajo Nation airports are included in the national plan, and are eligible for funding. Funding all planned development to meet airport development goals and air transportation needs is an issue facing the Navajo Nation.

State Aviation Funds: New Mexico has a program which will fund eligible projects at one-half of the local share which would mean the Navajo Nation would then be responsible for the other 2.5% of the local share. Arizona and Utah have shown limited interest in assisting the Navajo Nation in funding the federal AIP program though Arizona has introduced legislation allowing the contribution of state funds to Native American airports. The state share in airport federal aid projects will normally be 2.5% with 2.5% contributed by the local sponsor, the Navajo Nation. The remaining 95% would be federal aid. Navajo DOT has not pursued the use of state funds in the past.

Maintenance Funds: FAA funds are not available for airport maintenance. However, airports constructed with FAA AIP funds must be maintained, requiring the use of local funding sources. In the past, the Nation's airport maintenance fund was scarce and inadequate. The Vision 100 provision regarding non-hub airports may change all that. It allows the Nation to acquire funds from FAA for airport maintenance. Navajo DOT needs to check whether its airports are qualified for maintenance funds under the new aviation legislation so that they can be used to supplement the Navajo Nation's new airport maintenance funding source, the Navajo Nation Fuel Excise Tax.

Matching Funds: With the availability of the Navajo Nation Fuel Excise Tax, the lack of local matching funds will be a thing of the past. However, the Transportation and Community Development Committee needs to make certain that the tribal matching funds requirement (Approximately 5% of total project cost) will be available to secure FAA funding through appropriation of the Navajo Nation Fuel Excise Tax.

Medical Evacuation:

Medical transportation is the primary use for the Navajo Nation airports. Only six Navajo Nation Primary Airports serve this purpose. Many clinics and healthcare facilities lack access to air transportation or are over 30 minutes drive from an airport. Although five of the IHS healthcare facilities have helipads (Chinle Hospital, Inscription House Clinic, Shiprock Hospital, Crownpoint Hospital, and Ft. Defiance Hospital which is planned to get one soon). These helipads are for licensed medevac flights only. IHS highly recommends development of more landing strips for medical and public uses, because there is a need for routine air transport of doctors and patients

Aviation Safety:

The Navajo Reservation is large and remote, availability of emergency landing strips is crucial for aviation safety. Many of the Navajo Nation Secondary Airports are unsafe or unusable. These airports need improvements as well as new airport development to meet the coverage radius of 25 miles to be used for emergency landings on the Navajo Reservation.

2. Planning Criteria

To address medical transportation and safety issues, aviation service coverage on the reservation must increase. To provide aviation safety and to qualify for the FAA funding, all airports must meet federal and aviation industry design standards. Aside from meeting medical and aviation safety needs, air transportation must also meet the needs for the Navajo Nation's economic development.

Service Coverage:

Geographic coverage of 25-mile radius for each airport is a nominal goal for the Navajo Nation airport system development. A 25 mile distance is a minimum 30-minute drive. It is assumed that any ground transportation time exceeding 30 minutes will discourage use of air transportation in rural areas. Currently only six Navajo Nation Primary Airports are developed, but their locations are spaced apart beyond the 25-mile radius. Therefore, more airports need to be developed to reduce the service coverage gap.

Airport Design Standards:

To make Navajo Nation Primary Airports safe and fully efficient and meet future operations forecasts (Table VIII-4), they need to meet standards for Airplane Design Group II, Approach Category B with full length taxiways. The future forecast is based on regional and local aviation demand studies by State aviation divisions and the 1992 Navajo Nation Airport System Plan's recommendation.

Tourism Needs:

The Navajo Nation air transportation has yet to expand to its full potential to meet tourism demand. Due to the enormous size of the Navajo Reservation, auto travel to many places takes most of a day. Air transportation can drastically cut travel time and becomes an alternate mode of touring of the Navajo Reservation to make it more attractive. Chaco Canyon National Historical Park is nationally known but presently has no usable airstrip close by. There have been reports that both the Chinle and Kayenta airports have seen increased usage in tourist traffic where tourists have been flown in to the area and then proceed to either Canyon De Chelly or Monument Valley via tour bus or van.

Community Needs:

There are communities within the Nation boundaries that have expressed interest in developing airports/airstrips for use by community members, commercial enterprises, and governmental entities. One such community is Pinon where the school district has expressed interest in assisting in developing some type of airport/airstrip for use by their staff and others in the community.

To create an efficient and safe airport system, the Navajo Nation long range transportation airport planning thus must address these issues and set to meet the planning criteria mentioned above. Below is a summary and specifics of the long range development goals and plans.

D. LONG RANGE DEVELOPMENT GOALS AND PLANS

1. Primary Airports

To increase aviation service coverage and maximize FAA funding, develop all eight primary airports. To upgrade all primary airports to meet Airplane Design Group II, Approach Category B standards and increase capacity to meet future operation forecasts. To meet airport design standards and capacity goals. The followings are recommended capacity goals for each primary airport:

VFR hourly capacity: 98 operations

IFR hourly capacity: 59 operations

Annual service volume: 230,000 operations

Annual projected demand: 8,000 -12,000 (Tuba City, Window Rock)
 4,000 - 6,000 (Shiprock, Chinle, Kayenta)
 1,000-3,000 (Oljetoh, Ganado, Crownpoint)

Average delay per operation: 0

Ultimate full length taxiways

Non-precision instrument approach

Table VIII-4 illustrates projected based aircraft and annual operation forecast based on state aviation needs studies and NDOT estimate.

Table VIII-4. Navajo Nation Airport Based Aircraft and Annual Operation Forecast

Airport	2000	2020	2000	2020
	Based Aircraft	Based Aircraft	Annual Operations	Annual Operations
Shiprock	0	2	1,150	4,100
Tuba City	0	0	6,500	**8,000
Kayenta	3	3	4,700	**6,000
Oljetoh	0	2	0	**1,000
Crownpoint	0	2	500	1,000
Chinle	6	6	2,400	**4,000
Window	8	16	7,000	**11,000
Ganado	0	1	700	**1,000

Source: Arizona State Aviation Needs Study 2000; New Mexico Airport System Plan 2003; and NDOT Estimate (**)

To meet the aviation goals and forecast described above, this plan recommends improvement of all existing primary airports and construct a new primary airport in Ramah Chapter to expand service coverage to this satellite Navajo community (Table VIII-5). These Navajo primary airports including Ramah are eligible for FAA funding.

Goulding's is a private airport. Its runway is only half paved on the private land and half dirt on the Navajo Nation's land (Table VIII-3). There is an obstruction close by to the south. Overall, the airport is unsafe. Navajo DOT, therefore, recommends constructing a new Oljetoh airport to replace Goulding's and the old Oljetoh Airports. The local community has rejected any plans for relocation of the Oljetoh airport and though considered to be a part of the Navajo Nation airport system it is not included in any future planning other than identifying that something in the area needs to be addressed.

Table VIII-5. Proposed 20-Year Improvement Plan for Primary Airports

Airport	Improvement Needs and Recommendations	FY	Estimated Construction Cost
Window Rock	Total 20-year Improvements:	2000-2020	\$7,250,000
	Taxiway reconstruction, navigational aid replacement, auto parking lot rehabilitation	2009	\$1,000,000
	Pavement maintenance	2010-2020	\$500,000
	Construct remaining partial parallel taxiway	2010-2020	\$800,000
	Acquire additional 142 acres	2010-2020	\$200,000
	Connect three connecting stubs	2010-2020	\$50,000
	Install ASOS	2006-2010	\$190,000
	Painting and striping runway	2010-2020	\$10,000
	Pavement maintenance	2010-2020	\$1,500,000
	Pavement maintenance	2010-2020	\$3,000,000
Chinle	Total 20-year Improvements:	2010-2020	\$6,415,000
	Parallel taxiway construction, apron expansion	2010-2020	\$1,000,000
	Install electrical, water, and phone	2010-2020	\$50,000
	Complete parallel taxiway construction	2000-2020	\$400,000
	Construct pilot waiting area	2010-2020	\$60,000
	Construct restroom	2010-2020	\$30,000
	Construct maintenance facility	2010-2020	\$100,000
	Pavement maintenance	2010-2020	\$500,000
	Install VISAIDS	2010-2020	\$100,000
	Extend Rwy 17-35 by 2930' (7,130'x 60')	2010-2020	\$1,000,000
	Construct full parallel taxiway: 7170'x25'	2010-2020	\$2,000,000
	Construct one connecting stub	2010-2020	\$20,000
	Pavement maintenance	2010-2020	\$100,000
	Install AWOS	2010-2020	\$120,000
	Upgrade AWOS	2010-2020	\$180,000
	AWOS-3	2010-2020	\$75,000
	Install NPI	2010-2020	\$80,000
Pavement maintenance	2010-2020	\$100,000	
Ganado	Total 20-year Improvements:	2000-2020	\$4,970,000
	New paved runway construction 18/36, 6,600' x 75'; runway lights	2010-2020	\$3,000,000
	Install VISAIDS	2010-2020	\$100,000
	Pavement maintenance	2010-2020	\$500,000
	Construct 250 sq. ft building	2010-2020	\$100,000
	Runway lighting, install MIEL, MIRL & PAPI	2010-2020	\$400,000
	Construct pilot waiting area	2010-2020	\$60,000
	Construct rest room	2010-2020	\$30,000
	Install electrical, water, phone	2010-2020	\$80,000
	Pavement maintenance	2010-2020	\$100,000
	Pave partial taxiway	2010-2020	\$250,000
	Pave apron	2010-2020	\$200,000
	Pavement maintenance	2010-2020	\$150,000
	Tuba City	Total 20-year Improvements:	2000-2020
Runway reconstruction 1,600'x75', drainage improvements		2010-2020	\$2,000,000
Painting and striping runway		2010-2020	\$10,000
Lighting improvements		2010-2020	\$100,000
Construct partial parallel taxiway		2010-2020	\$300,000
Construct taxiway parallel to runway		2010-2020	\$1,700,000
Construct pilot waiting area		2010-2020	\$60,000
Pavement maintenance		2010-2020	\$100,000
AWOS-3		2010-2020	\$100,000
Complete full parallel taxiway (6,230'x75')		2010-2020	\$1,500,000
Pavement maintenance	2010-2020	\$400,000	
Crownpoint	Total 20-year Improvements:	2000-2020	\$3,020,000
	Runway rehabilitation, turnaround rehabilitation	2010-2020	\$1,000,000
	Install security fencing/gates/lights	2010-2020	\$150,000
	Rehabilitate runway lighting (MIRL/electrical vault)	2010-2020	\$250,000
	Install guidance signs	2010-2020	\$30,000
	Rehabilitate runway (Crack seal/fog seal/restripe)	2010-2020	\$200,000
	Rehabilitate apron (Crack seal/fog seal/restripe/replace tiedowns)	2010-2020	\$90,000
	Remove/relocate obstruction (powerline)	2010-2020	\$150,000
	Conduct airport action plan/ALP Update	2010-2020	\$150,000
Rehabilitate automobile parking/access road	2010-2020	\$200,000	

2009 Navajo Nation Long Range Transportation Plan

Airport	Improvement Needs and Recommendations	FY	Estimated Construction Cost
	Acquire maintenance equipment (snow removal/mover)	2010-2020	\$150,000
	Construct maintenance equipment building	2010-2020	\$150,000
	Install weather reporting equipment (AWOS-3, P/T)	2010-2020	\$150,000
	Acquire/install emergency generator	2010-2020	\$50,000
	Annual maintenance	2010-2020	\$300,000
Shiprock	Total 20-year Improvements:	2000-2020	\$6,790,000
	Runway rehabilitation, reshape and marking; taxiway shoulders	2010-2020	\$1,500,000
	Maintenance	2010-2020	\$100,000
	Runway lighting, install MIEL, MIRL & PAPI, beacon and wind tower replacement	2010-2020	\$1,900,000
	Install security fencing/gates/lights	2010-2020	\$400,000
	Improve service roads	2010-2020	\$300,000
	Rehabilitate taxiway	2010-2020	\$1,200,000
	Extend taxiway to runway 20	2010-2020	\$300,000
	Rehabilitate apron	2010-2020	\$390,000
	Improve airport drainage	2010-2020	\$500,000
	Maintenance	2010-2020	\$200,000
Kayenta	Total 20-year Improvements:	2000-2020	\$14,855,000
	Construct Apron (1)	2010	\$1,000,000
	Construct Access Road (1)	2010	\$1,000,000
	Construct Storage Building for Maintenance Equipment (1)	2011	\$400,000
	Wildlife Perimeter Fencing (1)	2011	\$600,000
	Helicopter pads (1)	2011	\$500,000
	Parallel Taxiway, Grade and Drain (1)	2011	\$1,200,000
	Parallel Taxiway, Paving (1)	2012	\$1,800,000
	Install Taxiway Lighting (1)	2012	\$400,000
	Conduct Obstruction Survey (1)	2013	\$75,000
	Construct two tie-downs	2010-2020	\$5,000
	Construct restroom	2010-2020	\$60,000
	Install electrical, water and phone services	2010-2020	\$70,000
	Pavement maintenance	2010-2020	\$1,000,000
	Overlay runway w/ 2" asphaltic concrete	2010-2020	\$1,500,000
	Painting and striping	2010-2020	\$50,000
	Construct airport terminal	2010-2020	\$500,000
	On-site waste water disposal system	2010-2020	\$40,000
	Construct pilot waiting area	2010-2020	\$70,000
	Install REIL	2010-2020	\$70,000
	Install PAPI	2010-2020	\$70,000
	Install AWOS/VISAIDS	2010-2020	\$150,000
	Extend runway 05-23 by 30' (7,130'x75')	2010-2020	\$100,000
	Install ILS	2010-2020	\$1,800,000
	Install HIRL	2010-2020	\$500,000
	Purchase ARFF vehicle	2010-2020	\$400,000
	Pavement maintenance	2010-2020	\$1,500,000
Total			\$49,570,000

Notes: * Construction year contingent to local government/chapter approval.

Cost estimate does not include planning and engineering.

(1) Included in the ADOT Tentative Program, FY 2010 - 2014

PAPI - Precision Approach Path Indicator

REIL - Runway End Indicator Lights

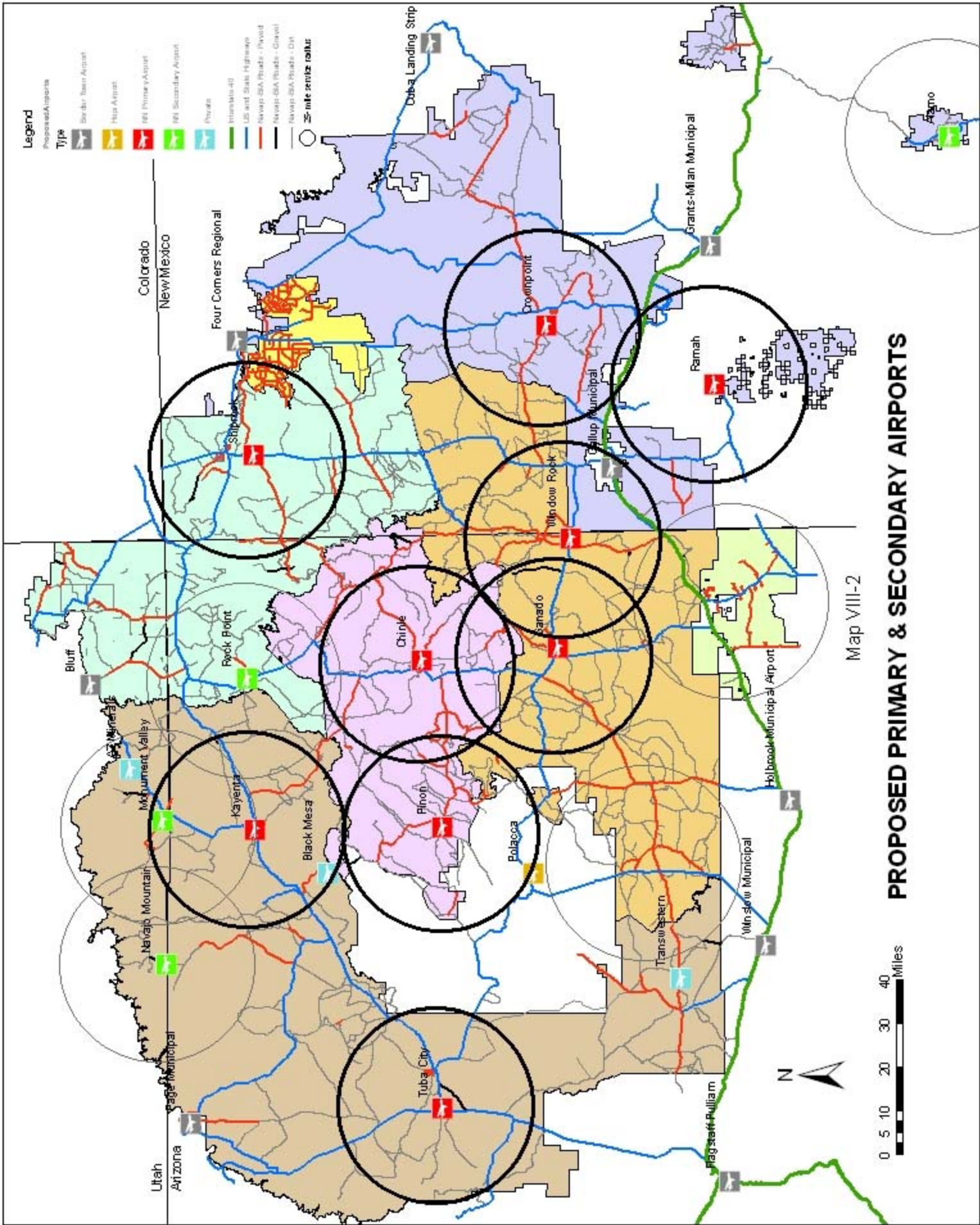
HIRL - High Intensity Runway Lights

MIRL - Medium Intensity Runway Lights

MITL - Medium Intensity Taxiway Lights

AWOS - Automated Weather Observing System

Map VIII-2 illustrates the proposed primary and secondary airport locations.



2. Secondary Airports

To increase airport service coverage within the Navajo Reservation; to provide air transportation services to healthcare facilities in remote areas; and to provide for emergency landings.

To upgrade secondary airports to make them usable, efficient, and safe; to improve and develop the secondary airports to meet design standards for Airplane Design Group I, Approach Category B standards.

This plan recommends improvements of Navajo Nation Secondary Airports at six locations (Map VIII-2). Table VIII-6 shows recommended improvements of these Navajo Secondary Airports to meet long range development goals described above. However, these Navajo secondary airports are not eligible for FAA funding, this plan recommends funding them with the Navajo Nation Fuel Excise Tax, State, and/or other funding sources.

Table VIII-6. Proposed 20-Year Improvement Plan for Secondary Airports

Airport	Service Coverage/Needs	Proposed Improvements	FY	Estimated Construction Cost
Rock Point	To serve Red Mesa and Rock Point clinics/areas	Grading, 8" Aggregate Base Course (ABC) to the surface	2010-2020	\$1,000,000
		Paving and navigational aids.	2010-2020	\$3,000,000
Navajo Mountain	To serve Navajo Mountain and Inscription House clinics/areas	Grading, 8" Aggregate Base Course (ABC) to the surface	2010-2020	\$1,000,000
		Paving and navigational aids.	2010-2020	\$3,000,000
Monument Valley		Grading, 8" Aggregate Base Course (ABC) to the surface	2010-2020	\$1,000,000
		Paving and navigational aids.	2010-2020	\$3,000,000
Dilcon	To serve Dilcon, Leupp, and Lower Greasewood areas.	Grading, 8" Aggregate Base Course (ABC) to the surface	2010-2020	\$1,000,000
		Paving and navigational aids.	2010-2020	\$3,000,000
New Lands	To serve Nahata Dził Community and economic development.	Grading, 8" Aggregate Base Course (ABC) to the surface	2010-2020	\$1,000,000
		Paving and navigational aids.	2010-2020	\$3,000,000
Alamo		Grading, 8" Aggregate Base Course (ABC) to the surface	2010-2020	\$1,000,000
Pinon		Grade and place Aggregate Base on runway surface	2010-2020	\$1,000,000
Ramah		Construct paved runway, navigational aids, apron, runway lights	2000-2010	\$3,700,000
		Paving and navigational aids	2010-2020	\$3,000,000
All		Airport Maintenance	2010-2020	\$360,000
Total				\$29,060,000

Table VIII-7. Total Estimated 20-Year Airport Improvement Costs

Funding Source	Airport Category	# of Airports	FY	Cost
FAA	Primary Airports	9	2000-2020	\$49,570,000
NNFET, State, Others	Secondary Airports	6	2000-2020	\$29,060,000
Total				\$78,630,000

CHAPTER IX - NAVAJO BRIDGE IMPROVEMENT NEEDS

A. BACKGROUND

The Indian Reservation Roads bridge system includes BIA owned and non-BIA owned bridges. IRR bridges must be on public roads within or providing access to an Indian reservation. They can be owned by states, counties, BIA, tribal, or local government. There are 745 bridges owned and maintained by the BIA in 30 states. Of these, 178 (approximately 24 percent) are bridges on the Navajo-BIA roads.

To identify bridge improvement needs, the BIADOT is required to develop a bridge inventory and inspect all BIA bridges every two years. To be included on the National Bridge Inventory (NBI), a bridge or multiple opening culvert must have a span length of at least 20 feet and be of a required configuration. The inspection identifies bridge rehabilitation and replacement needs for each region. The BIA bridge inspection data is forwarded to FLHO for inclusion in the NBI. FHWA maintains the NBI and inspection database and provides copies to BIA Regional Offices.

B. FUNDING

Section 1119 of the SAFETEA-LU authorizes \$14 million per year for fiscal years 2005 through 2009 from the Highway Trust Fund for the Indian Reservation Roads Bridge Program (IRRBP) to carry out preliminary engineering (PE), construction engineering (CE), and construction to replace or rehabilitate structurally deficient or functionally obsolete IRR bridges.

C. BRIDGE IMPROVEMENT NEEDS

SAFETEA-LU, Section 1115 requires an implementation of a Bridge Management System (BMS) in IRR transportation planning and improvement program. The BIA bridge inspection and database are used in identifying a sufficiency rating for each bridge.

The 2007 bridge inventory is used to identify bridge improvement needs in this plan. Of the total 178 bridges, 58 bridges were identified for deficiencies, including 33 bridges needing replacement (Table IX-1) and 25 bridges needing rehabilitation (

2009 Navajo Nation Long Range Transportation Plan

Table IX-2) by BIA-NRODOT Bridge Design Section. Map IX-1 shows locations of all bridges and those needing improvement. BIA-NRODOT Bridge Design Section estimates a total cost of \$23,804,000 (Table IX-3) to improve all 58 deficient bridges. These cost estimates are for replacement and rehabilitation of existing bridges only. They do not address any new or proposed bridge construction needs beyond any identified deficiencies or current capacity.

Criteria are used in the improvement needs assessment to identify bridge deficiencies for reasons of condition or function. These criteria are then used to develop an overall sufficiency rating. A bridge having sufficiency rating of less than 50 qualifies for replacement. A bridge having sufficiency rating between 50 and 80 qualifies for rehabilitation.

Table IX-1. Navajo Bridges Needing Replacement

Agency	Needs Priority	Bridge No.	Bridge Name	Route No.	Sufficiency Rating	Status	Length (meters)	Estimated Improvement Cost
FORT DEFIANCE	1	N617	SAND SPRING CREEK	N321	2.0	SD	23.8	\$350,000
FORT DEFIANCE	2	N628C	KIN LI CHEE WASH	N39	2.0	SD	16.0	\$331,000
SHIPROCK	3	N228	TOH-CHIN-LINI WASH	N5037	3.0	SD	18.2	\$380,000
SHIPROCK	4	N241	TOADLENA WASH	N5001	6.4	SD	13.6	\$295,000
SHIPROCK	5	N226	IR RIGATION CANAL	N5031	9.3	SD	9.9	\$225,000
FORT DEFIANCE	6	N642	SAGE WASH	N39	9.9	SD	9.0	\$195,000
FORT DEFIANCE	7	N619C	COAL MINE WASH	N541	13.8	SD	25.9	\$338,000
FORT DEFIANCE	8	N629	KIN LI CHEE WASH	N203	16.4	SD	14.1	\$352,000
FORT DEFIANCE	9	N666	RIO PUERCO RIVER	N00	16.4	SD	86.6	\$1,122,000
SHIPROCK	10	N214C	CAPTAIN TOM WASH	N5001	16.6	SD	27.0	\$337,000
FORT DEFIANCE	11	N660	FIQUERDO WASH	N9504	16.6	SD	27.2	\$450,000
FORT DEFIANCE	12	N667	CRYSTAL CREEK	N9603	17.5	SD	19.1	\$217,000
FORT DEFIANCE	13	N616	CRYSTAL CREEK	N321	18.2	SD	26.2	\$445,000
FORT DEFIANCE	14	N606	UPPER BONITO WASH	N9073	19.7	SD	15.0	\$253,000
FORT DEFIANCE	15	N649	WASH	N9660	20.5	SD	15.4	\$350,000
WESTERN NAVAJO	16	N307	MOENKOPI WASH	N6731	24.0	SD	22.1	\$485,000
FORT DEFIANCE	17	N651	WASH	N108	28.6	SD	32.6	\$530,000
WESTERN NAVAJO	18	N323	PIUTE CREEK	N6310	30.6	SD	27.4	\$112,000
SHIPROCK	19	N235	GARFIELD LOOP WASH	N132	35.7	SD	6.1	\$180,000
CHINLE	20	N517	TSE CHIZZI WASH	N67	35.8	SD	32.5	\$50,000
FORT DEFIANCE	21	N613	TODILITO WASH	N12	37.0	SD	74.3	\$2,100,000
CHINLE	22	N521	BIS LI AH WASH	N26	38.2	SD	55.1	\$810,000
WESTERN NAVAJO	23	N314	LAGUNA CREEK	N6486	39.7	SD	10.7	\$440,000
FORT DEFIANCE	24	N656	RIO PUERCO WASH	N9402	41.3	FO	124.7	\$1,800,000
SHIPROCK	25	N248	WALKER CREEK	N35	44.6	SD	27.3	\$510,000
WESTERN NAVAJO	26	N309	DINNEBITO WASH	N6720	45.4	FO	15.4	\$480,000
SHIPROCK	27	N230	KIT SILI WASH	N5045	45.5	SD	9.1	\$235,000
CHINLE	28	N507	CHINLE WASH	N8086	46.0	SD	134.9	\$412,000
FORT DEFIANCE	29	N636	WHITEWATER CREEK	N9402	48.1	FO	19.9	\$490,000
WESTERN NAVAJO	30	N320	DENNEBITO WASH	N6732	48.3	SD	19.9	\$350,000
FORT DEFIANCE	31	N645	STEAMBOAT WASH	N9054	48.8	SD	9.1	\$370,000
FORT DEFIANCE	32	N658	WIDE RUINS WASH	N28	48.9	FO	12.4	\$350,000
EASTERN NAVAJO	33	N487	WHITE ROCK WASH	N7057	49.6	SD	9.0	\$205,000
TOTAL			33 Bridges					\$15,549,000

Source: BIA-NRODOT Bridge Design Section, April 24, 2009.

Notes: SD = Structurally Deficient
FO = Functionally Obsolete

Table IX-2. Navajo Bridges Needing Rehabilitation

Agency	Needs Priority	Bridge No.	Bridge Name	Route No.	Sufficiency Rating	Status	Length (meters)	Estimated Improvement Cost
SHIPROCK	34	N225	IMMANUEL MISSION WASH	N5037	54.9	FO	9.1	\$145,000
SHIPROCK	35	N257	WASH	N33	55.7	SD	13.8	\$25,000
FORT DEFIANCE	36	N665	SLICK ROCK CREEK	N12	56.1	SD	12.1	\$46,000
WESTERN NAVAJO	37	N310C	KAIBETO WASH	N6331	60.4	SD	15.3	\$117,000
FORT DEFIANCE	38	N641	LONE TULE WASH	N39	63.7	FO	10.8	\$100,000
EASTERN NAVAJO	39	N488	INDIAN CREEK	N9652	64.3	SD	15.4	\$116,000
SHIPROCK	40	N231	MONTEZUMA CREEK	N5099	66.6	SD	56.4	\$154,000
CHINLE	41	N540	WEPO WASH	N4	66.7	SD	8.1	\$34,000
CHINLE	42	N516	TSE CHIZZI WASH	N65	68.8	SD	32.5	\$108,000
CHINLE	43	N504	WHEATFIELD CREEK	N12	70.7	FO	29.4	\$311,000
SHIPROCK	44	N255	WASH	N33	71.8	SD	8.7	\$18,000
WESTERN NAVAJO	45	N319	SAN FRANCISCO WASH	N6910	71.9	FO	19.9	\$102,000
WESTERN NAVAJO	46	N318	SAN FRANCISCO WASH	N6923	72.0	FO	19.5	\$107,000
WESTERN NAVAJO	47	N308	LAGUNA CREEK	N6486	72.2	FO	20.0	\$150,000
FORT DEFIANCE	48	N682	BLACK CANYON WASH	N15	72.6	SD	7.6	\$19,000
SHIPROCK	49	N213	CLAH WASH	N5001	74.2	FO	11.0	\$125,000
SHIPROCK	50	N252	CHINLE WASH	N8070	74.9	FO	182.9	\$1,700,000
WESTERN NAVAJO	51	N313	LAGUNA CREEK	N6461	75.8	FO	18.3	\$150,000
CHINLE	52	N512	TOHOTSO WASH	N133	75.8	FO	31.4	\$427,000
CHINLE	53	N503	WHISKEY CREEK	N12	79.3	SD	29.4	\$159,000
FORT DEFIANCE	54	N675	PEACH SPRINGS WASH	N9	79.6	FO	9.8	\$53,000
EASTERN NAVAJO	55	N486	CHURCH CAMP WASH	N7054	79.9	FO	18.3	\$201,000
FORT DEFIANCE	56	N623 *	COYOTE WASH	N60	86.2	SD	42.5	\$0
CHINLE	57	N532 *	EAST FORK DENNEBITO WASH	N41	95.7	FO	52.8	\$0
CHINLE	58	N538 *	COTTONWOOD WASH	N251	95.8	SD	24.4	\$0
TOTAL			25 Bridges					\$4,367,000

Source: BIA-NRODOT Bridge Design Section, April 24, 2009.

Notes: SD = Structurally Deficient

FO = Functionally Obsolete

* Bridges with sufficiency rating higher than 80 and status of Structurally Deficient or Functionally Obsolete. \$0 cost as defined by the Recording and Coding Guide were not necessary for these bridges.

Table IX-3. Total Funding Needs for Navajo Bridge Improvements

Total # of Bridges Needing Improvement	Total Estimated Design Cost*	Total Estimated Replacement Cost	Total Estimated Rehabilitation Cost	Total Funding Needs
58	\$3,888,000	\$15,549,000	\$4,367,000	\$23,804,000

Source: BIA-NRODOT Bridge Design Section, April 24, 2009.

* Design cost estimated as 25% of replacement cost.

CHAPTER X - NAVAJO-BIA ROADS MAINTENANCE

A. BACKGROUND

As a condition for the continuing use of Federal Lands Highway funds including IRR and in accordance with 23 USC 116, roads and projects constructed with the Highway Trust Fund (HTF) must be maintained to FHWA standards. If any projects or roads constructed with such funds are not properly maintained, the Secretary of Transportation may withhold approval of further FHWA projects. IRR roads and bridges are to be maintained to guarantee safe transportation for the traveling public. Prior federal transportation legislation requires the IRR road maintenance program to implement a Pavement Management System (PMS) and Maintenance Management System (MMS). Furthermore, road maintenance must also be performed in compliance with all applicable federal and tribal regulations and codes including the Clean Water Act, Cultural Resources Protection Act, Occupational Safety and Health Administration, Noxious Weeds, Resource Conservation and Recovery Act, and Endangered Species Act.

Since 1951, Congress has appropriated the Department of Interior funds for road maintenance annually under the Tribal Priority Allocations (TPA). Funds allocated for road maintenance are to be spent on BIA system roads and on other Indian Reservation roads when covered by an agreement. The BIA Regional Offices and Agencies are responsible for maintenance of roads and bridges on the BIA road inventory.

As of 1994, nationwide IRR roads maintained by BIA consisted of 25,700 miles of BIA and tribal owned roads (IRR Stewardship Plan, 1996). The national BIA road maintenance budget allocations have decreased with \$26.4 million being allocated in FY 2000 versus \$24.8 million in FY 2009. The Department of Interior (DOI) allocates road maintenance funds to BIA regional offices by formula (used for distributing TPA). This formula is outdated and does not reflect individual tribal needs (National Academy of Public Administration Study of the Bureau of Indian Affairs Management and Administration, September, 1999). Under Tribal Priority Allocations, road maintenance has low priority. After the allocation is made for road maintenance at the Department level, funds are distributed between the BIA Regional Offices based on mileage and the type of road surface. The BIA-NRODOT distributes road maintenance funds to BIA-NRODOT agency offices in a similar manner.

B. BIA NAVAJO ROAD MAINTENANCE PROGRAM

Funded by DOI road maintenance funds, the Navajo IRR Road Maintenance Program is a program within the BIA-NRODOT. It consists of engineers and technical employees at the Regional and Agency Offices including Shiprock and Crownpoint in New Mexico; Tuba City, Chinle, and Fort Defiance in Arizona; and other maintenance units at Farmington, New Mexico (Navajo Irrigation Industry Project) and Sanders, Arizona (New Lands).

The BIA Road Maintenance Program may only preserve, repair, or restore system roads to their original condition. The Road Maintenance Program may not expend maintenance funds to improve roads. Navajo road maintenance is accomplished mainly through force account operations, which is the use of BIA employees and equipment to complete the routine work. Some activities such as striping and chip sealing are contracted. Maintenance is under the authority and supervision of the NRO Road Engineer delegated to the Agency/unit Road Engineers and the Superintendent in the Eastern Navajo Agency in Crownpoint.

C. FUNDING

Prior to 1992, the Navajo road maintenance funds increased from \$1.57 million in FY1975 to \$9.86 million in FY1991, representing an average of 39.5% of funding requests or maintenance needs. However, since then funding for the Navajo Region Road Maintenance Program has declined with FY 2008 being funded at \$5.9 million. While road maintenance needs have increased in proportion to increasing road construction funding (roads/projects constructed with HTF must be maintained), Navajo road maintenance funds instead have declined steadily for the past several years.

According to the BIA-NRODOT the \$5.9 million FY 2008 road maintenance fund was allocated to all agencies as indicated in Figure X-1. While in FY 2007 \$6.5 million was spent on routine maintenance, bridge maintenance, snow and ice control, emergency maintenance, and program management as shown in Figure X-2.

Figure X-1 – 2008 Allocations

FY 2008 Allocations

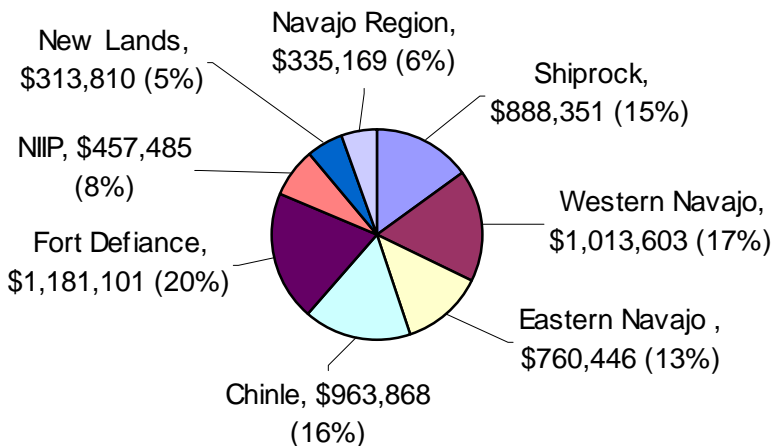
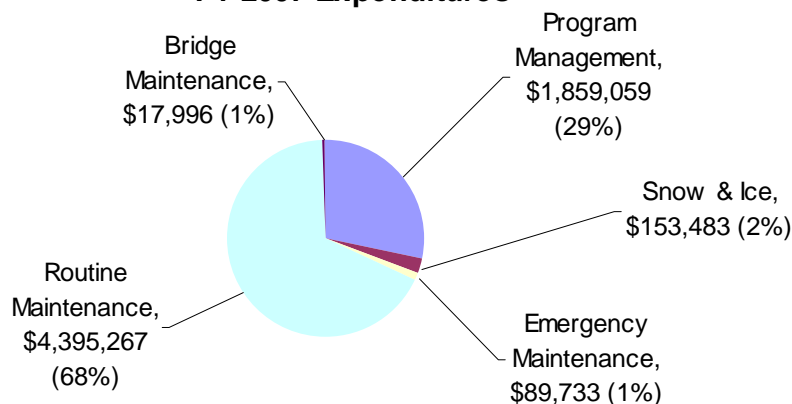


Figure X-2 2007 Allocations

FY 2007 Expenditures



D. NAVAJO ROAD MAINTENANCE NEEDS

The BIA-NRODOT reports that there is limited supporting statistical data to analytically verify the Navajo Nation’s backlog of road and bridge deferred maintenance needs due to the lack of MMS and PMS data. To address the need for data concerning deferred maintenance BIA-NRODOT has been using a combination of Level of Service (LOS) measurements and developing estimated road maintenance costs for the different classes and types of roadways.

BIA-NRODOT rates road maintenance conditions based on the LOS measurements outlined in Table X-1. Using the LOS, the Agency Roads Engineers and the Gallup office determine the roadway condition and serviceability. Since the goal is to maintain the roadway to the condition it was when constructed, there is an effort to maintain those roadways more recently improved while performing the work that is required to keep older roadways passable. This rating system is not correlated with any other system that is used to determine the roadway need for improvement.

Table X-1 – Level of Service

LOS	Description
1	This is a very high maintenance service in which the roadway and associated features are in excellent condition. All systems are operational and users experience no delays. At this maintenance service level, very few deficiencies are present and the overall appearance is pleasing. Preventive maintenance is practiced in all maintenance activities resulting in overall low life-cycle costs and pleasing appearance. Routine activities take place on a regular basis, requiring minimal corrective maintenance activities.
2	This is a high maintenance service level in which the roadway and associated features are in good condition. All systems are operational. User may experience occasional delays. At this maintenance service level, very few deficiencies are present in safety and investment protection activities, but moderate deficiencies exist in all other areas. Preventive maintenance is practiced for safety-related work, is deferred in other maintenance areas, resulting in additional routine and corrective maintenance measures. Corrective maintenance of all elements is handled in a timely manner. Life-cycle costs for maintenance activities are generally low.
3	This is a medium maintenance service leveling which the roadway and associated features are in fair condition. Systems may occasionally be inoperable and not available to users. Short-term delays may be experienced when repairs are being made, but would not be excessive. At this maintenance service level, very few deficiencies are present in safety related activities, but moderate deficiencies exist for investment protection activities and significant aesthetic related deficiencies. Preventive maintenance is deferred for most activities except safety-critical work. A backlog of deficiencies begins to build up that will have to be dealt with eventually at a higher cost. Some roadway structural problems begin to appear due to long-term deterioration of the system. There is a noticeable decrease in appearance.
4	This is a low maintenance service level in which the roadway and associated features are kept in generally poor condition. System failures occur regularly because it is impossible to react in a timely manner to all problems. Occasionally delays may be significant. At this maintenance service level, moderate deficiencies are present in safety related activities, and significant deficiencies for all other activities. Little preventive maintenance is accomplished. Maintenance has become very reactionary and places emphasis on correcting problems as they occur. A significant backlog of deficiencies will begin to build up that will have to be dealt with eventually, at a much higher cost. Safety problems begin to appear that increase risk and liability, and significant roadway structural deficiencies exist that accelerate the long-term deterioration of the system. The overall appearance is very poor.
5	This is a very low maintenance service level in which the roadway and associated features are kept in very poor to failing condition. A backlog of system failures would occur because it is impossible to react in a timely manner to all problems. Significant delays occur on a regular basis. At this maintenance service level, significant deficiencies are present in all maintenance activities. The overall appearance is not aesthetically pleasing. Preventive maintenance is not realistic for any maintenance activity. Maintenance is totally reactive, and places emphasis on correcting problems after they occur. Significant backlogs of maintenance treatments are not enough to correct the deficiencies that exist, necessitating additional high-cost remedial construction reservation projects in the future. Overall maintenance operations are at their highest life-cycle cost.

1. Pavement Maintenance

Miles of Paved Roads to be Maintained:

Out of 6,147.9 miles of the total Navajo-BIA roads, 1,494.4 miles or 24% are paved roads. Using service level rating system, approximately 478 miles of paved Navajo-BIA roads are rated at a level 1 or 2 (GPRA Road Maintenance, FY09, 3rd Quarter).

The maintenance of paved roads is a high priority since most paved roads on the Navajo-BIA road system are Class 2 or major or minor arterial highways serving traffic between population centers, Class 4 roads with high ADT collecting local traffic onto the arterial roads, and Class 3 roads or streets within community/population centers serving residential and commercial areas. The higher priority is also due to the policy in maintaining roads constructed using Federal Highway funds since the use of these funds require a commitment to maintenance by the user of these funds. Also, paved roads have substantially more investment per mile when constructed and require a significant effort to protect that investment.

Paved roads require routine maintenance such as snow plowing, roadside clean-up, mowing and striping. An inadequate road maintenance budget does not allow for sufficient equipment, personnel, and materials to adequately maintain all paved roads to acceptable standards. As a result, only main paved Navajo-BIA roads can be plowed in the winter leaving most community and residential streets covered with snow and ice. Roadside mowing and restriping cannot be done in a routine manner, as a result pavement marking is faded region wide, invisible at night and during bad weather. Roads in populated areas serving tribal government offices and housing are full of potholes. Major Class 2 and Class 4 roads are cracked and have become unsafe for heavy traffic.

Paved road maintenance includes:

Patching; crack sealing; ditch, culvert, and cattle guard clean-out; striping; guardrail, sign and delineator replacements; repair, and cleaning; fence and gate repair; roadside clean-up and mowing; sealing; oversize and encroachment permits; cooperation with other public road agencies.

NHA Street Maintenance:

The 1994 Memorandum of Agreement (MOA) between the BIA and NHA for the BIA-NRODOT to maintain NHA housing streets was cancelled by NHA and the BIA Contracting Officer never renewed it. Since the Navajo DOT has inventoried these housing streets as tribal roads, the NHA street maintenance thus falls under the Navajo DOT's responsibilities. It can be funded by the Navajo Nation or the IRR funds set aside for road maintenance (25% of IRR fund can be used for road maintenance).

Compound and Education Streets:

These roads were built by the BIA Branch of Facility Management and with education funds. However, the maintenance responsibility still lies with the BIA schools and BIA facility Management. The road maintenance of these roads should not to funded by IRR, DOI, or Navajo Nation funds.

2. Gravel and Dirt Road Maintenance:

Miles of Gravel and Dirt Roads to be Maintained:

Out of 6,147.9 miles of total Navajo-BIA roads, 105.7 miles are gravel roads, 4,203 miles are dirt roads, and 277 miles are considered primitive roads (see Chapter 3).

The maintenance of unpaved roads is typically at a lower priority than that of paved roads. However, 76% (4,600 miles) of the Navajo-BIA road system is unpaved. These are Class 4 and 5 roads collecting traffic for arterial roads and providing connections within the grid of the Navajo IRR road systems. They serve areas around Navajo population centers, farming areas, schools, tourist attractions and commercial areas. They may include forest roads, roads serving grazing areas, mines, recreation, and other purposes (e.g., school bus routes). Unpaved roads require labor intensive routine maintenance such as surface grading on a regular basis and after periods of inclement weather to make them passable. Navajo reservation soils are generally poor. Many miles of roads are on clay, sand and silt soils. In some areas monthly blading is still inadequate.

Earth road maintenance includes: Surface blading; ditch pulling; culvert and ditch clean-out, cattle guard clean-out; fence repair; rock outcrop removal; limited stretches of mud bridging; culvert installation when necessary to protect the existing road; sign replacement; rock raking; cooperation with other public road agencies, etc.

Additional Miles of Gravel and Dirt Roads to be Maintained:

BIA-NRODOT has a cooperative agreement with the BIA-Western Region Office (Phoenix) for maintenance of 650.5 miles of roads in the former Navajo-Hopi Joint Use Area. The road maintenance to be provided by the BIA-NRODOT Chinle, Fort Defiance, and Western agencies in number of miles is identified below:

Western Navajo Agency:	68.0 miles
Chinle Agency:	255.5 miles
Fort Defiance Agency:	101.0 miles
Hopi Agency:	226.0 miles

Other Responsibilities:

BIA-NRODOT Fort Defiance and Chinle Agencies have agreements with local chapters to supply fuel and other supplies for chapter graders in order for them to perform maintenance on BIA system roads.

3. Bridge Maintenance: See Chapter XI for bridge maintenance.

4. Airport Maintenance:

Number of Airports to be Maintained:

Seven (7) airports on the Navajo Nation are to be maintained by the BIA-NRODOT Agency Offices. They are the Shiprock, Crownpoint, Tuba City, Chinle, Pinon, Ganado, and Window Rock airports. Kayenta airport is maintained by the Kayenta Township. The 58BIAM manual includes airports as functional classification Class 7, entitled to be included in the road inventory and maintenance needs.

Due to inadequate road maintenance funding, maintenance of Navajo airports by the BIA-NRODOT is often reduced to emergency maintenance. The Navajo Division of Transportation provides small maintenance functions (e.g. weed control, runway light ball replacement, runway repairs) with in-house labor/staff when funds are available. Navajo DOT has no full airport maintenance program in place with a budget for crew and equipment to do a full scale airport maintenance.

Airport maintenance includes: Snow removal, surface grading and patching, fence repair, emergency maintenance services as determined by the Navajo Region Road Engineer.

5. Equipment Needs:

Most of the heavy equipment utilized by the Navajo road Maintenance program to maintain roads and bridges is old and in need of replacement. This includes graders, loaders, tractor/trailer combinations, and snow removal equipment. The current inventory shows heavy equipment is inadequate and in too poor condition to provide for sufficient road and bridge maintenance. New equipment such as rollers, dozers, brooms, and crack sealers is also needed. The basic road maintenance budget is inadequate to fund road maintenance operations; adequate equipment purchases are generally unattainable with the allocated funds. According to BIADOT–NRO maintenance records for FY 2007 the deferred minor and major repairs are equal to \$3.28 million for just over 190 pieces of equipment.

6. Personnel Needs:

The road maintenance program requires sufficient and skilled maintenance crews. Full-time professional, technical, administrative, and seasonal employees are all necessary. Currently, the BIA-NRODOT Road Maintenance Program does not receive enough funds to be staffed with necessary and sufficient crews to provide all necessary maintenance activities. Additional employees are needed.

7. Facilities Needs:

The BIA-NRODOT Road Maintenance Program must also provide a safe working environment for all employees in the form of buildings, equipment shops, and offices. The existing program has limited the maintenance of existing facilities and shops to safe standards for the employee working environment, and limited acquiring new facilities to replace cramped, inefficient, and environmentally hazardous facilities.

E. MAINTENANCE FUNDING NEEDS AND ESTIMATE

When the “2003 Navajo Nation LRTP” was completed, DOI had changed the method used for funding requests. Budget planning is based on base funding with a justification for an increase. The justification for increased amount is required in a narrative to identify specific program needs and request funding for them. The written justification is very important to highlight the program’s importance and the impact of not being a top TPA priority.

The BIA program manual for road maintenance (82 IAM), requires each BIA Regional Office to submit a Road Maintenance Budget Needs Report each year for two years in the future. The report is required to use a fixed cost per mile based on road type when preparing a funding request. The original cost per mile numbers are listed below.

- \$2,500/mile for paved road maintenance
- \$1,900/mile for gravel road maintenance
- \$1,300/mile for improved dirt road maintenance
- \$600/mile for unimproved dirt road maintenance

These road maintenance cost figures were formulated in 1988 and have not been updated. The budget request is also to be prepared only for once-a-year maintenance. To illustrate that the 82 IAM required road maintenance cost figures are unrealistic, BIA-NRODOT compares its road maintenance funding per mile and total miles of maintained roads with the county road maintenance program figures (Table X-2).

Table X-2. BIA and County Road Maintenance Data

Highway Agency	Average Funding Per Mile of All Roads (FY94 Dollars)	Total Miles Maintained
Apache County	\$2,175	1,716.0
Coconino County	\$7,842	848.0
Navajo County	\$10,821	437.0
San Juan County	\$1,378	300.0
McKinley County	\$3,057	19.5
BIA-NRODOT	\$1,311	9,430.0

Source: BIA-NRODOT 2000 Briefing

In the past few years the Navajo Region Office has not been instructed to request funds as outlined above, but receives funding as some percentage of what has been allocated in the past. The allocations received by BIA-NRODOT have varied from a low of \$5.5 million in FY 2004 to a high of \$6.7 million in FY 2007 with an allocation of \$5.9 million for FY 2008.

Secondly, the numbers listed above for calculating the average per mile maintenance costs have been updated and vary from a low of \$1,250 to \$22,400 per mile. Based on the information received from BIA-NRO, the unit mile cost is applied based on a combination of road surface type, traffic, and maintenance level of service. The method of determining the unit cost is unclear at this point.

FY2008 BIA-NRODOT road maintenance deferred maintenance costs and current allocations are shown in Table X-3. The calculated road maintenance cost has been done by BIA-NRODOT for each segment of BIA routes and the allocation shown is what has been allocated to each of the agencies for FY 2008.

Table X-3. Navajo Region Road Deferred Maintenance Program FY 2008

Agency	Allocation	Calculated Road Maintenance Cost	Deferred Maintenance
BIA-NRODOT	\$335,169	\$371,220	\$36,051
NIIP	\$313,810	\$2,195,802	\$1,881,992
New Lands	\$457,485	\$0	\$(457,485)
Shiprock	\$888,351	\$8,774,570	\$7,886,219
Western	\$1,013,603	\$7,967,674	\$6,954,071
Eastern	\$760,446	\$4,245,840	\$3,485,394
Chinle	\$963,868	\$6,838,720	\$5,874,852
Fort Defiance	\$1,181,101	\$7,974,390	\$6,793,289
Total	\$5,913,833	\$38,368,216	\$32,454,383

Source: Spreadsheet titled ROADS_def_maint_N_FY2008_Q4, BIA-NRODOT.

The 58BIAM required road maintenance cost figures can be considered low and make it difficult to get a reasonable funding estimate that will meet the Navajo Nation’s road maintenance needs. Should the TPA Navajo Road Maintenance continue to be funded at the base funding level as it has been for past decades, maintenance of Navajo roads will continue to be deferred.

Moreover, to keep within budget, less miles of roads will be maintained. Maintenance of unpaved BIA-Navajo roads (75% of the Navajo-BIA road system) will be most affected when funding is inadequate. Unpaved roads need more than once-a-year maintenance to be passable in winter and spring seasons.

F. COOPERATIVE AGREEMENTS

To compensate for insufficient road maintenance funding from DOI, BIA-NRODOT has several cooperative agreements and contracts with Counties and other local entities to acquire funds or their assistance for maintenance of BIA roads.

Since enactment of TEA-21, a School Bus Route Maintenance Fund [Section 1214 (d)(2)] has become an additional funding source for maintenance of county and Navajo-BIA routes used by school or Headstart buses. As of August 2009, the status of the road maintenance agreements and contracts that BIA-NRODOT entered into with various entities is as follows:

Apache County, AZ: Maintenance contract is expired.

Coconino County, AZ: IGA has expired. The original was for the county to provide maintenance of 218 miles of roads providing access to the Navajo Reservation including Navajo-BIA roads.

Navajo County, AZ: MOA is current, to fund heavy equipment (for loan to BIA-NRODOT), fund a temporary employee, and fund road maintenance materials and supplies for Fort Defiance, Chinle, and Western Navajo Agencies BIA for maintenance of Navajo-BIA routes.

San Juan County, NM: No current agreements.

San Juan County, UT: Maintenance contracts with Shiprock and Western BIA-NRODOT for BIA routes is currently under review.

Alamo Navajo, NM: P.L. 93-638 contract, to provide road maintenance services on Navajo-BIA routes within the Alamo reservation boundary.

Table X-4. Mileage of Roads Maintained Under Interagency Agreements

County	Miles of Roads Maintained Under MOU/IGA	\$ BIA Received From County
Apache, AZ	N/A	\$0
Coconino, AZ	N/A	\$0
Navajo, AZ	320 (by BIA)	Funds received on a per project basis
San Juan, NM	N/A	N/A
San Juan, UT	MOA under review by County	\$33,888 for Western Navajo Agency \$45,000 for Shiprock Agency

Source: BIA-NRODOT, 2009

G. NAVAJO DIVISION OF TRANSPORTATION PROGRAM

Navajo DOT has initially developed a maintenance program to complement the BIA program. Currently the program has 35 employees mostly classified as laborers and equipment operators. The Division now owns 20 motor graders, 4 front-end loaders, and 2 dump trucks along with various pickups and other miscellaneous vehicles. The program, at this point, complements both the BIA and county efforts in maintaining approximately 1,200 miles of existing dirt and gravel roadways and performing maintenance activities on transportation infrastructure not under BIA purview. There is an MOA between the BIA and Navajo DOT concerning the maintenance of BIA semi-improved roadways.

1. PL93-638 Proposals:

Navajo DOT is in the process of proposing to contract with BIA under PL93-638 and assume the road maintenance for the BIA roads within the boundaries of the Navajo Nation. This contract is designed to enable the Navajo DOT to receive the maintenance funding from BIA and do the work to maintain the BIA designated routes. Based on employee salaries and fringe benefits it is expected that Navajo DOT may be able to do more work for the same amount of funding that BIA now receives.

The proposal is expected to be forwarded to BIA-NRO in September 2009 with the intent to contract road maintenance beginning January 1, 2010.

2. Funding:

The Navajo DOT maintenance funding is a combination of Navajo Nation general funding and use of the Nation Fuel Excise Tax. The fuel excise tax is a result of a compact the Nation has entered into with the States of New Mexico and Arizona where the states collect the state fuel excise tax for fuel used within reservation boundaries and rebates the state tax amount to the Nation. This fund is used for both construction and maintenance activities on Nation roadways and other transportation infrastructure.

Navajo DOT has requested and programmed in the TTIP the funds available for maintenance activities from the funding formulas established under the last Federal Transportation Act titled SAFETEA-LU. Under the Act, the Nation can program up to 25% of its allocated federal funds for transportation construction. These funds are in addition to the BIA Road Maintenance Allocation that is distributed by the Department of the Interior.

CHAPTER XI - STATE HIGHWAY NEEDS

A. STATE ROAD MILEAGE

State roads are an important part of the Navajo IRR system. They are the main arterials connecting Navajo population centers to the Four Corners Area's regional road networks, off-reservation towns and major airports. They are part of the interstate, national (U.S.) and state highway systems. Most state routes on the Navajo Reservation are rural two-lane highways except in urbanized areas where they are four-lane with high traffic volume. Table XI-1 summarizes the state road mileage.

Table XI-1. State Roads (in miles)

Agency	Arizona State Highways	New Mexico State Highways	Utah State Highways	Agency Total
New Lands	89.3	0.0	0.0	89.3
Northern	70.2	113.8	41.7	225.7
Western	503.5		25.9	529.4
Eastern	0.0	413.2	0.0	413.2
Chinle	60.8	0.0	0.0	60.8
Ft. Defiance	213.3	48.6	0.0	261.9
NIIP	0.0	15.2	0.0	15.2
State Total	937.1	590.8	67.6	1,595.5

Source: 2008 Navajo Region Road Inventory

Arizona, New Mexico and Utah State Departments of Transportation have classified these state roads according to their own functional classification systems. However, under the IRR regulations, these state highways meet the IRR functional classification for: Class 1, Major Arterial Roads, providing an integrated network between large population centers and having average daily traffic of 10,000 vehicles per day with more than two lanes of traffic; and Class 2, Rural Minor Arterial Roads, providing an integrated network between large population centers and having average daily traffic less than 10,000 vehicles per day, may link smaller towns and communities to major resort areas and generally provide for at least in-county or inter-state service and are spaced at intervals consistent with population density.

1. Class 1 Roads:

I-40 connects Flagstaff-Gallup-Albuquerque. Class 1 four-lane state roads with 10,000 ADT are AZ 264 and NM 264 from Window Rock to US 491, and US 64 and US 491 in Shiprock.

2. Class 2 Roads in Arizona:

US 89 (Flagstaff-Page); US 89A (Bitter Springs-Fredonia); US 160 (Tuba City-Kayenta); US 163 (Kayenta-Monument Valley); US 191 (Chambers-Ganado-Chinle); AZ 61 (Zuni-Ramah); AZ 64 (Cameron-Grand Canyon); AZ 77 (Holbrook-Indian Wells-Keams Canyon Hopi Village); AZ 87 (Winslow-Second Mesa Hopi Village); AZ 98 (Page-Kaibeto-Shonto); AZ 99 (Leupp-Winslow); AZ 264 (Tuba City-Window Rock); and AZ 564 (Navajo National Monument access).

3. Class 2 Roads in New Mexico:

US 64 (Shiprock-Farmington); US 491 (Gallup-Shiprock); US 550 (Bloomfield-Nageezi-Cuba-Albuquerque); NM 6 (Correo-Los Lunas); NM 57 (Chaco Canyon National Historical Park access); NM 118 (Manuelito-Gallup-Church Rock); NM 122 (Thoreau-Baca); NM 134 (Sheepsprings-Crystal); NM 169 (Alamo-Magdalena); NM 197 (Torreon-Cuba); NM 264 (Window Rock-Gallup); NM 371 (Crownpoint-Farmington); NM 400 (Fort Wingate-McGaffey); NM 509 (Whitehorse Lake-Ambrosia Lake); NM 566 (Church Rock-Pinedale); NM 597 (Four Corners Monument access); and NM 602 (Gallup-Zuni-Ramah).

4. Class 2 Roads in Utah:

UT 163 (Monument Valley-Mexican-Hat); US 191 (Mexican Water-Bluff); UT 162 (Bluff-Aneth-Reservation line); UT 262 (US 191 – Montezuma Creek).

B. STATE ROAD IMPROVEMENT NEEDS

The following is a discussion of state road improvement needs situated within the Navajo Nation boundaries as identified by the Navajo Department of Transportation. Future development and plans, transportation issues, and recommended transportation facility improvements are described for the major state route corridors serving the Navajo Nation.

C. Arizona State Highways

1. I-40:

Interstate 40 from Flagstaff, AZ to New Mexico State line provides access to the Navajo Nation's main reservation and the Nahat'a' Dziil Chapter south of I-40 near Sanders, AZ

Future Development and Plans:

- Proposed Navajo Nation Casino at Twin Arrows Exit (approx. MP 230.4)
- Proposed Nation Casino in Navajo at Pinta Road Exit (approx MP 320.01)
- Nahat'a' Dziill Commercial Center, a 35,000 sq. ft. commercial center is a proposal to house a supermarket, laundromat, retail shops, cultural/visitor center, and gas station in Sanders, Arizona. The project is located on a frontage road off the I-40 T.I. in Sanders, AZ. The shopping center will serve travelers on I-40, US191 and local residents.
- Westbound I-40 Sanders Port of Entry (POE) construction in 2007.

Transportation Issues:

- I-40 Sanders Traffic Interchange needs a reconstruction to accommodate truck traffic to the new POE.
- Local school bus drivers and residents complained of speeding vehicles and difficulty when entering onto the busy I-40.

Recommendations:

- Construct a new traffic interchange at Sanders.
- Lengthen merging/entering lanes at interchanges.
- Lower speed limit to 70 mph or implement safety zone on I-40 from Sanders to New Mexico State line (MP 339 – MP 359.5).

2. US 89:

US 89 is Arizona's principal arterial linking I-40 in Flagstaff to Utah border. Of its entire 139 miles, 87 miles are on the Navajo Reservation.

Future Development and Plans:

	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
W8	2011	New Chapter House	Cameron	466.2	Access mgmt, street lights
W7	2010	Truck Stop	Gap	486.0	Access mgmt, street lights
W25	2012	Maintenance Yard	Gap	486.9	Access mgmt, at N23 Jct.
W26	2012	Residential Housing Complx.	Gap	488.6	Access mgmt
W4	2012	Youth Ctr.	Cedar Ridge	502.2	Access turn out
W5	2010	New Chapter House	Cedar Ridge	505.2	Access mgmt, street lights
W24	2012	Veteran Park	Cedar Ridge	505.2	Access Turn out
W27	2015	Multi-Purpose Bldg.	Bittersprings	523.6	Turn out Lane
W28	2015	Commercial Development	Bittersprings	524.0	Access mgmt, street lights at US89A Jct

Transportation Issues:

- US 89 from Cameron to Bittersprings had 10 fatal accidents from 1999 - 2006. One occurred at the AZ 64 intersection. One accident involved pedestrian (MP 498.4, Gap) possibly caused by vendor sales along roadway. Speeding, lane change, and following too close contributed to 40% of the traffic accidents.
- Accidents caused by animals occurred primarily between Cameron and Gap.
- Several Navajo BIA road improvements including N20 paving from Coppermine to Gap will collect and likely increase traffic on US 89.
- Many local residents ignore the daylight headlight implementation.
- Increased traffic due to future development along US 89 will require better access management design. Cameron Chapter, while supporting economic development in Cameron, has a safety concern for residents traveling to school and getting around on US 89. The casino project will increase traffic on US 89 and Cameron area.
- ADOT identifies Cameron Bridge (MP 467), Wash Bridge (MP 482) as structurally deficient, and Five Mile Wash Bridge (MP 471.43) and Moenkopi Wash Bridge (MP 477) as functionally obsolete and needing replacement.
- Lack of transit services between Flagstaff, Page and Tuba City.

Recommendations:

- Short Term Plans:
 - 4-lane roadway from AZ 64 to Cameron (MP 465 - MP 468) to mitigate increasing tourist traffic and development at Cameron and MP 549.5 to the Colorado River Bridge to mitigate Lake Powell tourist traffic.
 - Passing sight distance improvements at Gap (MP 498 - MP 504).
 - Passing and uphill lanes from Cameron to Page.
 - Passing and uphill lanes from MP 546 – MP 550.
 - Address transportation needs for future developments above.
- Long Term Plans:
 - 4-lane roadway from Cameron to US 160 and a traffic signal or new interchange at US 160 intersection.
 - Transit services between Flagstaff, Page and Tuba City.
 - Pedestrian and bicycle paths between AZ 64 and Cameron.
 - Traffic lights at the proposed Casino access on US 89.

3. US 89A:

Future Development and Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
W28	2015	Commercial Development	Bodaway	524.0	Access mgmt, street lights at US89A Jct (Bittersprings)
		Fredonia-Vermillion Cliffs Scenic Byway	Bodaway	523.9-546.5	Signs, access mgmt at scenic stops

Transportation Issues:

- None

Recommendations:

- Address transportation needs for future developments above.

4. US 160:

US 160 is an Arizona principal arterial connecting US 89 to the Four Corners and is identified by ADOT State Transportation Plan as a National Truck Route for trucks and hazardous materials.

Future Development and Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
W31	2010	Visitor Ctr/Artist Plaza/ Convenience store	Shonto	361.6	Access management, street lights
W12	2011	Baby Rock Commercial Ctr.	Dennehotso	407.5	Access Turn out
	2010	Convenience store	Dennehotso	417.7	Access mgmt, street lights
W30	2015	New School	Dennehotso	418.0	Access mgmt, street lights
N25	2014	Convenience store	Red Mesa	449.9	Access mgmt, street lights
N24	2010	Airstrip	Red Mesa	451.4	Access mgmt, street lights
N51	2010	Solid waste facility	Teec Nos Pos	459.6	Access management
N53	2013	Rodeo grounds	Teec Nos Pos	465.6	Access mgmt, street lights
N52	2012	16 Acres site development	Teec Nos Pos	465.5	Access mgmt, street lights

Transportation Issues:

- US 160 is a regional truck route connecting northern Arizona to Utah, New Mexico, and Colorado. The area is also a destination of fuel transportation to numerous local gas stations on and near US 160 corridor. Hazardous material transport incidents involving the release of gasoline, diesel, and oil have been reported. Sharing of relatively heavy truck and tourist traffic on a rural 2-lane road has become a safety issue.
- Tuba City: Traffic accident records from 1999-2006 show high accident ratings on US 160 in Tuba City from AZ 264 to Warrior Dr.; and at AZ 264 intersection.
- Kayenta: US 160 had high traffic volume and accident ratings at US 163 intersection; and on US 160 from MP 392.5 -MP 393.5 due to traffic congestion at shopping center and hotel development.
- US 160 have high traffic volume turning at US 89 and moderate traffic volume turning to N59 and US 64. Safety is a concern at these junctions.
- US 160 from US 163 intersection to N59 intersection had a high accident rate, with 33% caused by animal.
- US 160 at US 191 intersection had a high accident rate with 78.6% occurred after dark.
- Commuters are concerned that there are no passing lanes on US 160 between MP 361 to MP 371, and rolling hills from MP 381 to MP 384.
- MP 464 to MP 466 in Teec Nos Pos has a steep grade and with increasing development, the 2-lane highway with a passing lane will no longer be efficient.

Recommendations:

- Short Term Plans:
 - Tuba City – MP 321.8 - MP 322.5: Street lights, 5-lane widening, landscaping, bicycle paths and sidewalks from AZ 264 to the high school.
 - Kayenta: Street lights, raised medians, and limited access/turnoff between MP392-MP393.5.
 - Intersection lighting and warning signs at N59 (MP 402); US 191 (MP 434.8); US 64 (MP 465.4).
 - Address transportation needs for future developments above.
- Long Term Plans:
 - Passing and uphill lanes from MP 381 to MP 384.
 - Passing and climbing lanes between AZ 98 to AZ 564 intersections (MP 361 to MP 371).

5. US 163:

Future Development Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
W17	2010	Head Start	Kayenta	398.13	Access management
W18	2010	Detention Bldg.	Kayenta	398.17	Access management

Transportation Issues:

- Kayenta: US163 from MP 393.5 -MP 395 had high accidents at access to development (stores, hotel, tribal offices, and school).
- 120 accidents occurred from N6485 to Utah state line: 36% happened after dark, 22% caused by animals, 4% involved pedestrians, and 7 were fatal accidents.
- Tourist traffic to the Monument Valley Park includes those who stop to take pictures. Tourists often pull over even if no space/shoulder is available.

Recommendations:

- Short Term Plans:
 - Kayenta: Street lights, raised medians, and limited access/turnoffs between MP 393.5-MP 396.
 - Fencing and cattle guard maintenance from Kayenta to state line.
 - Address transportation needs for future developments above.
- Long Term Plans:
 - Pullouts for tourists for safe picture taking stops along US 163.

6. US 191:

All of the US 191 is designated as an Arizona major collector with the segment through Chinle designated a minor arterial and IRR Class 1.

Future Development and Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
F7	2010	Commercial Development	Ganado	417.3	Access mgmt, street lights
N31	2010	Wellness Center	Rock Point	495.3	Access mgmt, street lights
N32	2011	New Chapter House	Rock Point	495.3	Access mgmt, street lights
N33	2012	Elderly Group Home	Rock Point	495.3	Access mgmt, street lights
N34	2014	Transfer Station	Rock Point	495.3	Access mgmt
		Tse'nikani/Flat Rock Mesa Byway	Many Farms-Rock Pt	462-510.3	Signs, access mgmt at scenic stops

Transportation Issues:

- Chinle: traffic safety is the transportation issue of greatest concern due to lack of traffic signals at the hospital access road, and lack of access control to cope with increasing congestion caused by numerous developments (N102 to the shopping center/flea market). Other safety issues involve change in roadway width from 2 to 4 lane, and animals on the road.
- US191 from Wide Ruins to Round Rock (MP 387 – MP 482) had 25 fatal accidents (1999-2006). Driver inattention, speeding, failure to yield right of way, and drove left of centerline caused majority of these accidents.
- Limitation of developable land area will become an issue. Chinle is limited by a 100-year flood plain and mesa to the west. Future development is likely to extend along US 191.
- Burnside Junction with its future development will become a major stop for locals as well as travelers, increasing congestion. The present angled intersection layout will become an even greater problem.
- Many Farms already has congestion and access problems at the NHA housing site and hospital. Proposed future growth will add to the existing congestion problem.
- The US 191/N12 junction in Round Rock had frequent accidents involving animals, running stop sign, and running off road due to lack of visible intersection warning and poor intersection design.
- US 191 from N28 in Klagetoh to AZ264 (E Ganado junction) had high accident rating, 51% caused by animals on roadway.

Recommendations:

- Short Term Plans:
 - Chinle: Street lights at the hospital access road (N102).
 - MP 417.5 – MP 425.3: Pavement reconstruction
 - Fencing and cattle guard maintenance from Klagetoh to Ganado.
 - Address transportation needs for future developments above.
- Long Term Plans:
 - Chinle: 5-lane widening, access management design, roadway widening to the flea market for safety improvement: raised medians, and limited access/turnoffs between MP 446 – MP 449.
 - Street lights on US 191 from airport access to N8090.
 - Chinle: Amenities such as bicycle paths and sidewalks will support tourism and create a livable community atmosphere.
 - Many Farms: 5-lane widening from junction N59/US 191 to High School turnoff.
 - MP 378.6 – MP 385.3: Pavement reconstruction is needed.
 - Round Rock: Intersection warning lights, layout improvement, and fencing at US 191/N12 junction.

7. AZ 61:

AZ 61 turns into NM 53 in New Mexico, providing access to Ramah Chapter and Zuni Reservation from US 191.

Future Development Plans:

- None.

Transportation Issues:

- AZ 61 has high truck traffic of 12%.
- MP 416.6 – MP 430.3: Poor pavement condition.

Recommendations:

- MP 416.6 – MP 430.3: Pavement rehab is needed.

8. AZ 64:

Future Development Plans:

- The Navajo Department of Park and Recreation has proposed to develop the Little Colorado Gorge Overlook and an access road north of AZ 64 near Cameron.
- The Coalmine Canyon Chapter has proposed a 70-acre casino and hotel project with an expansion to include residential/commercial development, a golf course, and an airport east of US 89 and North of AZ 64 along the Little Colorado River.

Transportation Issues:

- The proposed Little Colorado Gorge Overlook access will require turning lanes and the casino project will increase traffic in AZ 64 and Cameron area.

Recommendations:

- Roadway widening and turn lanes at the Little Colorado Gorge Overlook access.
- Reduce speed on AZ 64 in Cameron area.

9. AZ 77:

AZ 77 is a school bus route for Navajo children attending schools in Holbrook. It is also a route used by delivery and gasoline trucks to Indian well, Lower Greasewood, White Cone and Jeddito Chapters. The route also provides access to Keams Canyon Village on the Hopi Reservation.

Future Development Plans:

- None.

Transportation Issues:

- AZ 77 has no shoulder.

Recommendations:

- MP 395.7 – MP 408.9: Widen/add shoulders to increase safety in winter time.

10. AZ 87:

AZ 87 is the main access to I-40 for Hopi villages and Dilcon Chapter, and to Winslow for shopping, school and medical care.

Future Development Plans:

- None.

Transportation Issues:

- There were 7 fatal accidents on AZ 87 from 1999-2006 in Dilcon between MP 365 – MP 380, one fatal accident happened at the AZ 87/N15 intersection. Of the total 39 accidents, 8 occurred at intersections: 3 at AZ 87/N15 (MP 375.5); 3 occurred at AZ 87/N60 (MP 365.7); 1 at AZ 87/N602 (MP 381.1); and 1 at AZ 87/N60 (MP 384.4, Seba Dalkai School access).

Recommendations:

- Reduced speed to 55 mph between MP 365.7 – MP 384.4 and install intersection warnings for N60 intersection (MP 365.7); N15 intersection (MP 375.3); and Seba Dalkai School access (MP 384.4).

11. AZ 98:

Future Development Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
W32	2010	Antelope Cyn Visitor Ctr	LeChee	299.5	Access mgmt, signage.
W31	2010	Visitor Ctr/Artist Plaza/Conv Store	Shonto	361.6	Access mgmt, street lights
		Naatsis'aaan/Navajo Mountain Byway	Lechee-Shonto	294-361.6	Signs, access mgmt at scenic stops

Transportation Issues:

- MP 298.2 – MP 300.9: Pavement condition is poor.

Recommendations:

- Short Term Plans :
 - MP 298.2 – MP 300.9: Pavement rehab is needed.
 - Address transportation needs for future developments above.
- Long Term Plans:
 - Long-term pavement management is recommended.

12. AZ 99:

AZ 99 provides access to local residents to go to Winslow, AZ for shopping, school and medical care.

Future Development Plans:

- None.

Transportation Issues:

- Sixty-three percent of traffic accidents on AZ 99 were caused by speeding. Twelve percent of total traffic is truck traffic.

Recommendations:

- MP 69 – MP 72.16: Reduce speed limit on AZ 99 and widen shoulders.
- MO 71.2 – MP 72.16: Surface rehab.

13. AZ 264:

The 157 mile-long highway is classified as an Arizona minor arterial linking Tuba City to Window Rock then turns into NM 264 at the Arizona/New Mexico State line.

Future Development Plans:

- Ganado Shopping Center at AZ 264/N5/US 191 intersection is a major future development on AZ 264.
- Ganado community development concentrates and extends along AZ 264 between Ganado high school and Burnside Junction. A feasibility study for runway extension and paving is being done (2001) for Ganado Airport, located approximately 1 mile east of the high school.
- Karigan Estates, St. Michaels is a mixed use planned development including residential (300 housing units), office and commercial areas. The project is located at northwest corner of AZ 264/N112 junction.
- Window Rock golf course is being proposed for recreational and tourism development purposes. The Franciscan Fathers of St. Michael Catholic Church is willing to lease 125 acres to the Navajo Nation for the project.

Transportation Issues:

2009 Navajo Nation Long Range Transportation Plan

- AZ 264 from N112 Junction to Port of Entry had a high traffic accident rate. Primary cause is congestion from Window Rock shopping centers and other surrounding development.
- Junctions AZ 264/N12 in Window Rock and AZ 264/N112 in St. Michaels had high accident rates.
- There were 52 fatal accidents (1999-2006) on AZ 264 from MP 412 – MP 475.5 (Jeddito to Window Rock), majority of these occurred between Burnside Junction and Window Rock.
- Ganado: AZ 264 had a high accident rate from N27 to Ganado/Hubble Trading Post.

Recommendations:

- Short Term Plans:
 - Window Rock: Raised medians and limited access/turnoffs between MP 474.5 to MP 476.5.
- Long Term Plans:
 - 5-lane widening from Burnside to Summit.

14. AZ 564:

AZ 564 is an access to the Navajo National Monument. Adequate maintenance is crucial.

Future Development Plans:

- None

Transportation Issues:

- None

Recommendations:

- Short Term Plans:
 - Routine maintenance and during inclement weather is recommended.
- Long Term Plans:
 - Long-term pavement management is recommended

ARIZONA HIGHWAY NEEDS 0-5 YEAR PRIORITY:

Priority	Route No.	Project Mileposts and Improvement Needs	Project Miles	ADT	Pavement Condition
1	I-40	MP 339-MP 359.5: Lower speed limits to 70 mph.	20.5	17345-18536	Moderate-Good
2	US163	MP 393.5-MP 395.7: Street lights, raised median, limited turn offs	2.2	13527	Moderate
2	US160	Kayenta-MP 392-MP 393.6: Street lights, raised median, limited access/turn off.	1.6	4914	Moderate
3	US89	MP 546-MP 550: Needs passing lanes.	4.0	5387-6964	Moderate-Good
4	US160	Tuba City-MP 321.8-MP 322.5: Street lights, 5-lane widening, and intersection layout redesign.	0.7	6147	Moderate
5	AZ264	Window Rock-MP474.5-MP 476.5: Raised median to limit turn offs	2.0	16477	Good
6	AZ98	MP 298.4-MP 300.9: Pavement rehab.	2.5	5289	Poor
7	US191	Chinle Hospital/N106 Jct-MP 446.7: Street lights	0	5237	Moderate
8	US191	MP 417.5-MP 425.3: Pavement reconstruction.	7.8	3505	Poor
9	US89	MP 498-MP 504: Passing sight distance improvements in Gap/Bodaway.	6.0	3488	Moderate
10	US160	N59 (MP 402); US 191 (MP 434.8); US 64 (MP 465.4): Intersection lightings and warning signs	0	2364 2944 4039	Moderate Good Good
11	I-40	MP 339.5/Sanders Exit: Lengthen exit merging/entering lanes	0.1	18000	Moderate
12	AZ64	Cameron-MP 294-MP 295.8: Reduce speed to 50 mph.	1.8	3289	Moderate
13	AZ87	MP 365-MP 385: Reduce speed to 55 mph.	20.0	1728	Moderate
14	AZ87	MP365.7; MP 375.5; MP 384.4: Install intersection warning signs.	0	1728	Moderate

ARIZONA HIGHWAY NEEDS 5-10 YEAR PRIORITY

2009 Navajo Nation Long Range Transportation Plan

Priority	Route No.	Project Mileposts and Improvement Needs	Project Miles	ADT	Pavement Condition
1	AZ264	Burnside-Summit (MP 441-MP 465.5): 5-lane widening	24.5	5308-7041	Moderate-Very good
1	US191	Burnside Junction-MP417.5: New Intersection design	0.01	3505	Poor
2	US191	Chinle-MP 446-MP 449: Raised median, widen; MP 448.3-449: Widen to 5-lane	3 0.7	9917	Poor
2	US191	Chinle-MP 446-MP 449: Bicycle path and sidewalks	3.0	9917	Poor
2	US191	MP 446.7 – MP 447.8: Pavement reconstruction.	1.1	9917	Poor
2	US191	MP 445.7/Chinle Airport access: Street lights	0	5237	Moderate
3	US89	Cameron-US180 Jct. MP 465-MP 480: Widen to 4-lane	15.0	7999	Moderate-Good
3	US89	US89/US160 Jct: Traffic signalization/Interchange	0	7999	Good
4	US160	MP 381-MP 384: Passing lane.	3.0	4914	Good
5	US160	MP 361-MP 371: Passing lane	10.0	4341	Moderate-Good
6	AZ64	Little ColoradoGorge Overlook MP 294.5: Roadway widening and turning lanes	0.1	3289	Moderate
7	US163	MP 396-MP 416.7/UT State line: Pullouts		2893	Good
8	AZ77	MP 395.7-MP 408.9: Widen/add shoulders to improve safety	13.2	1702	Moderate
9	US191	US191/N59-HS (MP 461.7-462.5): 3-lane widening	0.8	1597	Moderate
10	US191	Round Rock-US191/N12 Jct: Intersection warning lights, layout improvement and fencing	0.1	1597	Moderate
11	US191	MP 378.6 – MP 385.5: Pavement reconstruction.	6.9	1310	Poor
12	AZ99	MP 69-MP 71.2: Reduce speed limit and widen shoulders. MP 71.2-MP 72.2: Surface rehab.	2.2 1.0	630 630	Moderate Poor
13	AZ61	MP 416.6-MP 430.3: Pavement rehab.	13.7	238	Poor

D. New Mexico State Highways

1. I-40:

Approximately 140 miles of Interstate 40 extends from Arizona State line into New Mexico providing access to Navajo Nation residents from Nahat'a' Dziil/Sanders, AZ to the Navajo Nation's capital, Window Rock and connecting Navajo communities along I-40 (Manuelito, Church Rock, Iyanbito, Thoreau, Tohajilee and Alamo Chapters) to Gallup, NM and Albuquerque, NM.

Future Development and Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
N6	2010	New Senior Center	Beclabito	3.8	Access mgmt, street lights
N8	2012	Picnic ground	Beclabito	3.8	Access mgmt
N9	2010	Multi-Purpose building	Beclabito	3.8	Access mgmt, street lights
N7	2011	Skate Park	Beclabito	3.9	Access mgmt, street lights
N13	2010	Community cemetery	Cudeii	18.8	Access mgmt
N47	2010	Skate Park facilities	Shiprock	21.5	Access mgmt, street lights
N42	2014	Community library	Shiprock	23.15	Access mgmt, street lights
N43	2012	Visitor Center	Shiprock	23.16	Access mgmt, street lights
		Trail of the Ancients Byway	Tee Nos Pos-Farmington	0-60	Signs, access mgmt at scenic stops

Other planned developments include:

- Gadiihi-Tokoi Chapter land use plans include development of scenic view site of Shiprock "Rock with Wings" and Tribal Park at MP 17 and Navajo Route N-571 to become a State, Tribal or National Park.
- Hogback- Proposed economic and community development plans for Tse Daa Kaan (formerly known as Hogback) to western end of AZ state line.

Transportation Issues:

- I-40 between Church Rock and Iyanbito has been sometime flooded during heavy rain storms. Currently there is no direct access from I-40 to Fire Rock or Red Rock State Park.

Recommendations:

- A highway interchange on I-40 at Red Rock State Park access/NM566 to provide a direct access to the Fire Rock Casino is recommended in order for the casino to be successful.

2. US 64:

Future Development Plans:

- Future land use and development in Shiprock is likely to extend along US64 corridor to the east and west of US491 intersections in Shiprock.
- Beclabito Chapter land use plans includes development of community development at MP 6.
- Gadiihi-Tokoi Chapter land use plans includes development of scenic view site of Shiprock "Rock with Wings" and Tribal Park at MP 17 & Navajo Route N-571 to become a State, Tribal or National Park.
- Hogback- Proposed economic and community developments plans for Tse Daa Kaan (formerly known as Hogback) to western end of AZ Stateline.

Transportation Issues:

- There were a total of 18 fatal accidents on US64 from MP 18.0 - MP 31.0, three involved pedestrians (at MP 23.6, MP 23.7, and MP 26.8).
- Most frequent traffic accidents occurred between MP 21.8 – MP 23.1 (260 accidents from 1999 - 2006): 77% of these accidents were caused by driver inattention, speeding, failure to yield right of way, following too close and improper turn due to congestion from development along US64.
- US491/US64 SW and NE junctions also had high accident rating among road intersections. High turning traffic volume and poor intersection design may contribute to high accident number.
- Poor night visibility at entrances of Shiprock High School, Career Prep High School, Eva Stokely Elementary School, Dine College, Office Navajo Tribal Utility Authority and other tribal programs.
- NM 64 between US491/NM 64 SW to NE Junctions had the highest accident rate among all road sections on the Navajo Nation (1999-2007). Traffic congestion at access to commercial developments and several school establishments are contributed to traffic accidents in Shiprock.
- Gadiiahi Chapter House turn out road (N57) or highway 64 MP 17 is in need of traffic lights, turn out lane and accelerating and decelerating lanes.
- Tokoi community at the N571 and Highway 64 intersection is in need of street lights, turn out lanes and accelerating and decelerating lanes.
- Beclabito Chapter House, NM Highway 64, MP 4, is in need of street lights; turn out lanes at access to chapter house, housing subdivision, and commercial outlet stores.
- From Shiprock to AZ Stateline, the road needs to complete new overlaying of asphalt. The road has many cracks, narrow shoulders and some bridges are recommended for replacements.
- Shiprock Bridge over San Juan River is in dire need of replacement.

Recommendations:

- Short Term Plans:
 - Install street lights on NM64 from MP 20.0 (Shiprock High School) to MP 23.4.
 - Reduce speed limit from MP 20 – MP 24.
 - Widen U.S. 64 along the Shiprock High School zone, MP 20-22.
 - Address transportation needs for future developments above.
- Long Term Plans:
 - Install street lights, sidewalks, and complete US64 widening to 4-lanes from MP 20 to MP 24.6 to provide safety for future development including turning lanes at access road to Gadiiahi Chapter and Tokoi communities.
 - Redesign US491/US64 SW and NE intersections.
 - Recommended as Scenic Byways in the Four Corners Region. When recognized by the State, Navajo Nation, and Federal to create rest areas and other local scenic/overlook stops.

3. US 491:

Future Development Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
F20	2012	Multi Purpose Bldg	Twin Lakes	13.2	Street lights and sidewalks
N22	2012	Multi-Purpose building & Veterans Park	Newcomb	56.7	Access mgmt, street lights
N45	2012	Fair grounds	Shiprock	88.0	Access mgmt, street lights
N49	2011	Hotel & restaurant	Shiprock	90.8	Access mgmt, street lights
N50	2012	Hotel & Conference Center	Shiprock	90.8	Access mgmt, street lights
N46	2014	Multi-Purpose building	Shiprock	90.9	Access mgmt, street lights
		Trail of the Ancients Byway	Gallup-Shiprock	0-107	Signs, access mgmt at scenic stops

Transportation Issues:

- US491 has become a major north-south truck route. Passing and safety become problems on US491 due to high truck traffic volume.
- Nighttime visibility is very poor at access roads to Navajo communities, Chapter houses and schools along US 491.

Recommendations:

- Short Term Plans:
 - Install street lights at Twin Lakes Chapter House, N9, N30 (Mexican Springs), N108/N130 (Tohatchi Chapter House and schools), Nashitti School/Chapter House, N5001 (Newcomb school/Chapter House), N19/N5 (Two Grey Hills), N34 (Sanostee), and N13 (Red Valley/Cove) junctions.
 - Address transportation needs for future developments above.
- Long Term Plans:
 - 4-lane widening from Shiprock to Cortez, CO is recommended in distant future.

4. US 550:

Future Development Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
E23	2012	Fire Equip & Bldg	Counselor	97.1	Access mgmt, sidewalks, street lights
E26	2014	Commercial site development (11acres)	Counselor	97.1	Access mgmt, sidewalks, street lights
E21	2010	Senior Center	Counselor	97.9	Access mgmt, sidewalks, street lights
E22	2011	Computer Lab	Counselor	97.9	Access mgmt, sidewalks, street lights
E24	2013	Multi-Purpose Ctr	Counselor	97.9	Access mgmt, sidewalks, street lights
E25	2013	Transfer Station	Counselor	97.9	Access mgmt
E55	2011	Senior Ctr	Nageezi	115.4	Access mgmt, sidewalks, street lights
		Trail of the Ancients Byway	Nageezi-Bloomfield	123.1-150	Signs, access mgmt at scenic stops

Transportation Issues:

- Increased traffic due to the casino can become a safety issue.

Recommendations:

- Short Term Plans:
 - Address transportation needs for future developments above.
- Long Term Plans:
 - Traffic signal and lights at NM 197, and street lights in Cuba.

5. NM 57:

Future Development Plans:

- None.

Transportation Issues:

- NM57 provides access to the Chaco Canyon National Historic Park and Navajo residents in the area. However, the entire 40.1 miles is dirt surface and during wet weather it becomes impassable to the Park visitor and residents.

Recommendations:

- Gravel and partially pave NM57 with respect to the National Park’s need to minimize disturbance to the ruins.

6. NM 118:

Future Development Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
E54	2012	Economic dev	Manuelito	6.9	Turning lanes
E18	2011	Police Substation	Church Rock	28.9	Access mgmt, sidewalks, street lights
E20	2014	VA Memorial Park	Church Rock	29.2	Access mgmt, sidewalks, street lights
E19	2012	Multi-Purpose Center	Church Rock	29.5	Access mgmt, sidewalks, street lights
	2010	Convenience Store	Church Rock	29.5	Access mgmt, sidewalks, street lights

Transportation Issues:

- The Fire Rock Casino has dramatically increased traffic on NM118. NM118 was already collected traffic from Church Rock Chapter and vicinity, visitors to Red Rock State Park, and business and truck traffic to Church Rock Industrial Park.

Recommendations:

- Short Term Plans:
 - Widen NM118 to 4-lane road and acquire land to resolve roadway widening and drainage problem.
 - Address transportation needs for future developments above.
- Long Term Plans:
 - I-40 Interchange to provide access to Church Rock Chapter, industrial park and the Fire Rock Casino.

7. NM 122:

Future Development Plans:

- None

Transportation Issues:

- Safety for school bus traffic due to increased traffic.

Recommendations:

- Access management at school turn-off
- Routine maintenance of NM 122, especially during inclement weather

8. NM 134:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
N40	2014	Day Care Center/Visitor Ctr	Sheep Springs	0.4	Access management and street lights
		Trail of the Ancients Byway	Sheepsprings-Crystal	0-23	Signs, access mgmt at scenic stops

Transportation Issues:

- None.

Recommendations:

- Short Term Plans:
 - Install street lights and 3-lane widening of NM134 and US491 at Sheep Springs to improve safety and accommodate Sheep Springs Visitor Center, commercial store, day care and NHA housing traffic.
 - Address transportation needs for future developments above.
- Long Term Plans:
 - No recommendations.

9. NM 169:

NM169 provides access to Alamo Navajo Chapter residents to Socorro, NM and I-25 and links this Navajo Nation’s satellite community with the main reservation and Window Rock via N55 and I-40. NM169 is the main road through Alamo Chapter and the main school bus route.

Future Development and Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
E1	2011	Senior Center	Alamo	25.6	Turning lanes, street lights, sidewalks
E2	2013	Fire Station	Alamo	25.6	Turning lanes, street lights, sidewalks
E3	2013	Multi-Purpose Center	Alamo	25.6	Turning lanes, street lights, sidewalks

Transportation Issues:

- NM169 through Alamo is a winding road with some sharp curves. This road condition becomes challenging and dangerous at night. Traffic accidents occurred mostly between MP 24 – MP 36/End of NM169. 50% of the accidents occurred after sundown.

Recommendations:

- Short Term Plans:
 - Use highly reflective road paint/markers from MP 19 to MP 36 and reduce speed to 50 MPH from MP 24 to MP 30.
 - Address transportation needs for future developments above.

10. NM 197:

NM197 is the main road through Torreon Chapter and the main school bus route.

Future Development and Plans:

- The town of Cuba is likely to expand residential development and cattle ranching along NM197.

Transportation Issues:

- Most traffic accidents occurred between MP 23 – MP 30. Safety issues include animals in ROW and 60% of traffic accident occurred after sundown.

Recommendations:

- Needs reflective paint/stripping and reduce speed to 50 mph from MP 25-MP 30.
- Maintain fences and regularly clean cattle guards.

11. NM 264:

Future Development Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
		Trail of the Ancients Byway	Tse Bonito-Rock Springs	0-16	Signs, access mgmt at scenic stops

Transportation Issues:

- Tse Bonito has numerous commercial developments along NM264. Lack of street lights at night makes it hard to see the road and business turnoffs.
- Lack of cross drainage on NM264 between Black Hat and Yah-Ta-Hey causes flooding during heavy rain and icy road condition in the winter.
- Pavement condition from MP 7 – MP 14 is deteriorating, chipsealing no longer holds.

Recommendations:

- Short Term Plans:
 - Street lights from Arizona POE or AZ/NM state line to Hill Top School.
 - Pavement reconstruction and Improve roadway cross grading for better drainage between Black Hat and Yah-Ta-Hey (MP 7 – MP 14).
 - Address transportation needs for future developments above.
- Long Term Plans:
 - Better roadway design with good cross drainage.

12. NM 371:

Future Development Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
E70	2011	First Response	Thoreau	1.7	Access mgmt, street lights
E71	2011	Fitness Center	Thoreau	1.7	Access mgmt, street lights
	2010	Convenience store	Crownpoint	25.2	Access mgmt, street lights
		Business & Community Cmplx	White Rock	49.0	Access mgmt, street lights
		Trail of the Ancients Byway	Thoreau-Farmington	0-105	Signs, access mgmt at scenic stops

Transportation Issues:

- Pavement conditions are poor to fair throughout the entire route from Thoreau to Farmington.
- Crownpoint is a designated Navajo Primary Growth Center with increasing business and community development. Streets will become more congested. Highway safety will increasingly become an issue.
- Major intersections are safety concerns and should have street lighting.

Recommendations:

- Short Term Plans:
 - Pavement improvement where condition is severe.
 - Accelerate and decelerate lanes at Becenti NHA housing project entrance.
 - Accelerate and decelerate lanes at Whiterock Chapter access road
 - Accelerate and decelerate lanes at Lake Valley Chapter access road
 - Accelerate and decelerate lanes at Smith Lake Chapter access road and N49.
 - Address transportation needs for future developments above.
- Long Term Plans:
 - Roadway widening to five lanes to accommodate future development in Crownpoint.
 - Long-term pavement management is recommended.

13. NM 400:

NM400 is an access and school bus route to Fort Wingate Elementary and High Schools. It is also an access road from I-40 to the Cibola National Forest and recreation area. It connects to County Road 50, which extends from Ramah Navajo Chapter and Zuni Reservation.

Future Development and Plans:

- We have seen more and more use by bicyclists to the Cibola National Forest and recreation area.

Transportation Issues:

- Roadway width is narrow with 0-2 foot shoulders. Pavement condition is moderate with water damage and rough/poor from MP 5.6 – MP 10.6.

Recommendations:

- Short Term Plans:
 - Pavement reconstruction from MP 5.6 – MP 10.6.
- Long Term Plans:
 - MP 2.4 - MP 3.4: Roadway widening to add turning lanes and sidewalks from High School to housing development.
 - MP 0 - MP 10.6: Shoulder widening to Cibola National Forest recreation areas to accommodate bicycle traffic to park.

14. NM 509:

Future Development and Plans:

- None

Transportation Issues:

- Nighttime visibility issues at NM509/N9

Recommendations:

- Intersection light is needed to increase safety at night.

15. NM 566:

Future Development and Plans:

- The Fire Rock Casino will recreate a need for more housing developments along NM566.
- Proposed convenience store at NM118/NM566 intersection.

Transportation Issues:

- None, currently road is in good condition. However, pavement condition is moderate from MP 6.5 to end of road at the uranium mine entrance.
- Traffic accidents occurred mostly between MP 4 - MP 9.5, three occurred at the NM566/N11 Junction. Speeding and driver inattention are the causes of accidents. 50% of the traffic accidents occurred after dark.

Recommendations:

- Short Term Plans:
 - Warning sign and reduced speed are needed for the NM566/N118 intersection.
 - Street light and access management at NM118/NM566 intersection
- Long Term Plans:
 - MP 0 - MP 0.7: Roadway widening to accommodate turning lanes to housing developments.

16. NM 597:

Future Development and Plans:

- NM597 is the access road to Four Corners Monument

Transportation Issues:

- None

Recommendations:

- None

17. NM 602:

Future Development and Plans:

- Current development particularly at the gas station near MP 17 creates frequent traffic from the gas station to Breadsprings Road (N7062) on a steep slope.

Transportation Issues:

- Most traffic accidents on NM602 occurred between MP 15 (N7046 Junction, Jones Ranch road) and MP 18 (N7062 Junction, Breadsprings access) and they happened after dark.

Recommendations:

- Short Term Plans:
 - Install a Chevron sign for end of T-intersection on NM602 at the NM602/N7062.
 - Lights at the NM602/N7046 and NM602/N7062 Junctions.

Long Term Plans:

- Roadway widening to add turning lanes at the NM602/N7046 and NM602/N7062 Junctions.

NEW MEXICO HIGHWAY NEEDS 0-5 YEAR PRIORITY

NM Dist.	Priority	Route No.	Project Mileposts and Improvement Needs	ADT	Pavement Condition	Funding Source
6	1	US491	MP 17.5-MP 47.3 (NM134 Jct): Widening to 4-lane.	5749-9693	Poor-Moderate	08-10 GRIP 09 Econ Stimulus
5	2	US64	MP 20-MP 21.9:Reduce speed limit to 45 mph.	4672-23115	Moderate	Submitted PIF appl. Feb.2009
6	3	NM371	MP 1.4-MP 27.9: Pavement Reconstruction or Rehab	4192	Poor	Submitted PIF appl. Feb.2009
6	4	NM602	NM602/N7062 Jct: Install chevron to mark end of T-intersection.	8052	Good	
6	5	NM122	MP 9-MP 19: Pavement Reconstruction	1833	Poor	
5	6	US491	MP 47.3-MP 84.7: Widen to 4- Lane	3808-4471	Poor-Moderate	08-10 GRIP 09 Econ Stimulus
5	7	US64	MP 20-MP 21.9:Install street lights and sidewalks	4672-23115	Moderate	
6	8	NM264	MP 0-MP 0.6: Install street lights	10751	Good	
6	9	NM118	MP 25.8-MP 29.5 (NM566 Jct): Widening & Reconstruction.	5356	Poor	
5	10	NM134	MP 0- MP 0.5: Widening to 3-lane	1553	Moderate	
6	11	NM400	MP 5.6-MP 10.6: Pavement reconstruction	1380	Poor	
6	12	I-40	I-40 Interchange to provide access to Fire Rock Casino and Red Rock State Park	>24000	Moderate	

NEW MEXICO HIGHWAY NEEDS 5-10 YEAR PRIORITY

NM Dist.	Priority	Route No.	Project Mileposts and Improvement Needs	ADT	Pavement Condition	Funding Source
6	1	NM264	MP 7-MP 14: Pavement reconstruction w/ increased cross slope.	10751	Poor	
6	2	NM602	N7062 & N7046 Jcts: Intersection widening to add turning lanes and lights	8052	Good	
6	3	US550	US550/NM197 Jct: Traffic signal and street lights in Cuba.	8047	Good	
5	4	US491	US491/US64 SW&NE Jcts Shiprock: Redesign intersection layouts.	23115	Moderate	
6	5	NM566	NM566/N11 Jct: Warning sign and reduce speed.	4637	Moderate	
6	6	NM566	MP 0-MP 0.7: Roadway widening to add turning lanes	4637	Good	
6	7	NM197	MP 25-MP 30: Needs reflective paint/stripping and reduce speed to 50 mph.	1507	Moderate	
6	8	NM400	MP 0-MP 10.6: Shoulder widening	1380	Moderate	
6	9	NM169	MP 19-MP 36: Needs reflective paint/stripping MP 24-MP 30: Reduce speed to 50 mph.	661	Good	
6	10	NM371	MP 23.8-MP 25.6: Widening to 3-lane & Reconstruction.	3868	Poor	
6	11	NM400	MP 2.4-MP 3.4: Roadway widening to add turning lanes and sidewalks.	1380	Moderate	

E. Utah State Highways

1. UT 162:

Future Development and Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
N3	2013	Veteran Memorial Park	Aneth	22.3	Access management, street lights
N4	2013	Ball Park	Aneth	22.3	Access management, street lights
N5	2014	Warehouse	Aneth	22.5	Access management
N1	2011	Solid Waste facility	Aneth	22.6	Access management
		Trail of the Ancients Byway	Montezuma-Aneth	14.6-32.0	Signs, access mgmt at scenic stops

Recommendations

- Address transportation needs for future developments above.

2. US 163:

Future Development Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
		Kayenta-Monument Valley Scenic Byway	Kayenta	0-20.0	Signs, access mgmt at scenic stops

Transportation Issues:

- The proposed Monument Valley Gateway Welcome Center will have a positive impact by eliminating makeshift vendor stalls at the US163/N42 intersection.
- High tourist traffic to the Monument Valley Park, especially at the park turnoff, and overnight use of park camping area will require traffic lights and warning lights at the US 163/N42 intersection.
- Tourist traffic to the Monument Valley Park includes those who stop to take pictures. Tourists often pull over even if no space/shoulder is available.

Recommendations:

- Short Term Plans:
 - Fencing and cattle guard maintenance from state line to Mexican Hat.
 - Address transportation needs for future developments above.

- Long Term Plans:
 - Pullouts for tourists for safe picture taking stops along US 163.

3. UT 262:

Future Development and Plans:

NUM	Project Year	Project Name	Chapter	MP	Transportation Improvement Needs
N2	2011	Montezuma Shopping Ctr Clinic	Aneth	22.5	Access management, street lights
		Trail of the Ancients Byway	Montezuma	0-22.6	Signs, access mgmt at scenic stops

Recommendations

- Address transportation needs for future development above.

The following list identifies UDOT related improvement projects identified in the UDOT STIP, including:

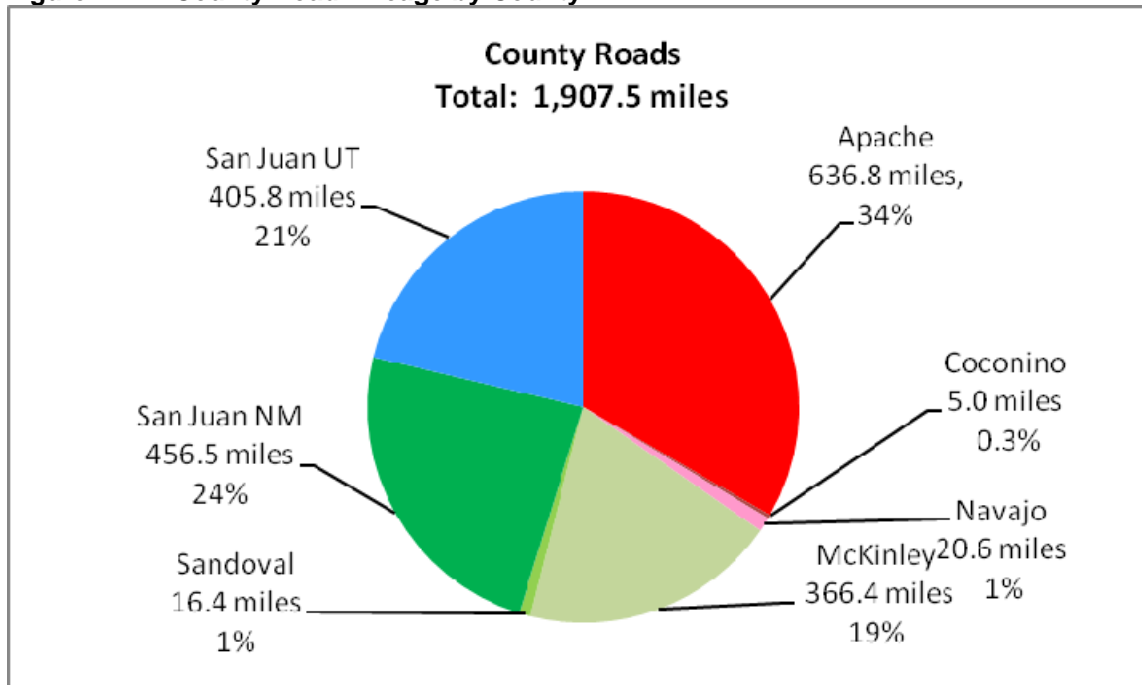
- US-191
 - Mile Post 12 to 21
 - Crack Repair
 - Concept Design in 2011
- SR-162
 - Over McElmo Creek
 - Design complete
- SR-162
 - Montezuma Creek to Aneth EIS
 - Record of Decision, July 2009
- 3 Bridge Preservation Projects in San Juan County
 - Preliminary Design
 - Montezuma Creek Sidewalk/Lighting Project
 - In Final Design
 - Halchita Bridge at Gypsum Wash
 - Environmental and Preliminary Design
- US-163 - Halchita to Mexican Hat
 - Intersection and Lighting Improvements
 - Final Design
- Highway 162 in Aneth
 - Lighting and Add Center Turn Lane
 - Final Design
- Navajo N-35 Resurfacing Project
- Bus Route Preservation within Navajo Nation
 - N5063
 - San Juan County Road 442
 - San Juan County Road 444
 - San Juan County Road 479

CHAPTER XII - COUNTY ROAD NEEDS

A. COUNTY ROAD MILEAGE

According to the 2008 road inventory, County roads make up 15.0% or 1,907.5 miles of all Navajo Indian Reservation Roads. The majority of Navajo Nation county-maintained IRR system roads are in New Mexico: 456.5 miles are in San Juan County; 366.4 miles in McKinley County; with 16.4 miles in Sandoval County. Arizona county-maintained IRR system roads include 636.8 miles in Apache County; 5.0 miles in Coconino County; and 20.6 miles in Navajo County. Utah's San Juan County maintains 405.8 miles of county roads. These county roads provide access to Navajo communities in the checkerboard areas in Eastern Agency and remote areas in Chinle, Shiprock, Western, Ft. Defiance, and NIIP Agencies. See Figure XII-1.

Figure XII-1. County Road Mileage by County



Source: 2008 Navajo Region Road Inventory

The majority of county roads on the Navajo Nation are unpaved. Of the total 1,907.5 miles of county roads, 79% or 1,511.1 miles are earth roads, 8% or 151.2 miles are primitive roads, 6% or 110.3 miles are graveled, and only 6% or 119.4 miles are paved, as summarized in Figure XII-2 and Table XII-1. The majority or 56% of county roads are Class 5 roads; 29% are Class 4 roads and 0.13% are Class 6 roads (Figure XII-3).

Figure XII-2. County Road Mileage by Surface Type

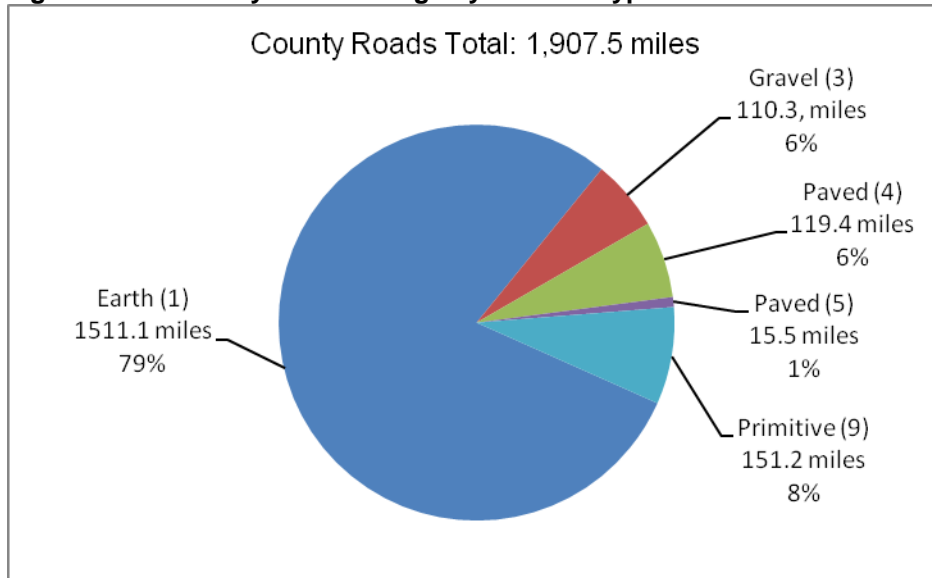
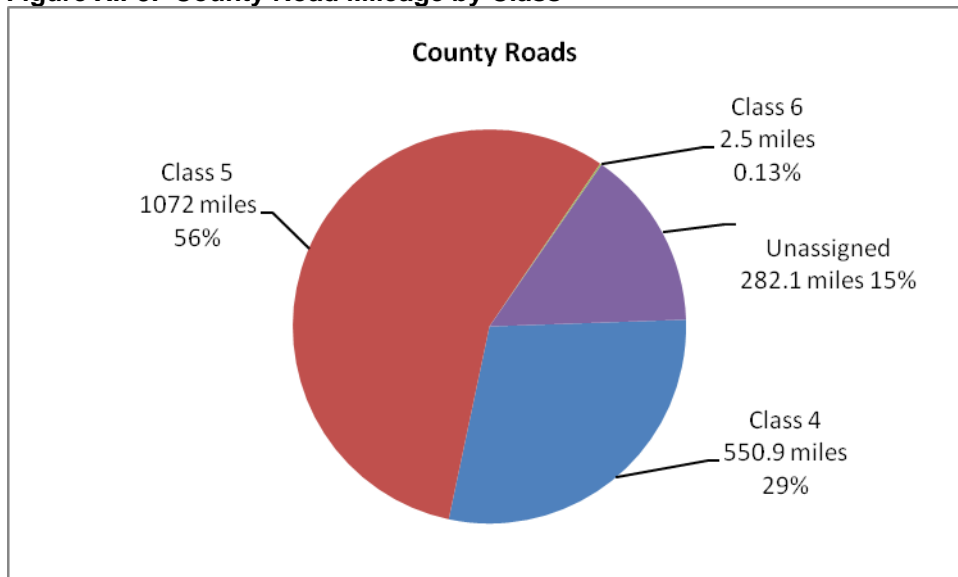


Table XII-1. County Roads by Surface Type (in miles)

Agency	Apache	Coconino	Navajo	McKinley	Sandoval	San Juan NM	San Juan UT	Surface Type Total
Earth (1)	617.9	0.0	0.0	249.0	0.0	263.2	381.0	1511.1
Gravel (3)	0.0	0.0	0.0	32.1	0.0	64.6	13.6	110.3
Paved (4)	0.4	5	20.6	58.4	11.3	17.0	6.7	119.4
Paved (5)	0.0	0.0	0.0	7.6	0.0	7.9	0.0	15.5
Primitive (9)	18.5	0.0	0.0	19.3	5.1	103.8	4.5	151.2
County Total	636.8	5.0	20.6	366.4	16.4	456.5	405.8	1907.5

Figure XII-3. County Road Mileage by Class



B. COUNTY ROAD IMPROVEMENT NEEDS

Of the total 1,907.5 miles of County roads, 1,620.4 miles of County Roads need surface improvement and roadway widening to safety meet the geometric design guidelines/IRR adequate standards by County as follows:

Table XII-2. Miles of County Roads with Geometric Design Deficiencies/Total 1,620.4 miles

ADS	CLASS	FADT	Apache	Navajo	McKinley	Sandoval	San Juan NM	San Juan UT
10	4-Rural Major Collector	>250						
10		50-250						
11		>250	7.8	10.3	95.1	11.3	49.4	5.3
11		50-250	87.3	10.3	18.7		30	220.4
11		<50						
12		>250						
12		50-250						
13		5-Rural Local	>400			3.8		3.6
13	50-400				198.1		224.2	
14	>400		13.1					
14	50-400		528.6			5.1		98
15	>400							
15	50-400							
			636.8	20.6	315.7	16.4	307.2	323.7
Grand Total:								1620.4

Table XII-3 shows total cost to bring County Roads to the Geometric Design Standards, \$1.4 billion.

Table XII-3. Cost to improve County Roads with Geometric Design Deficiencies

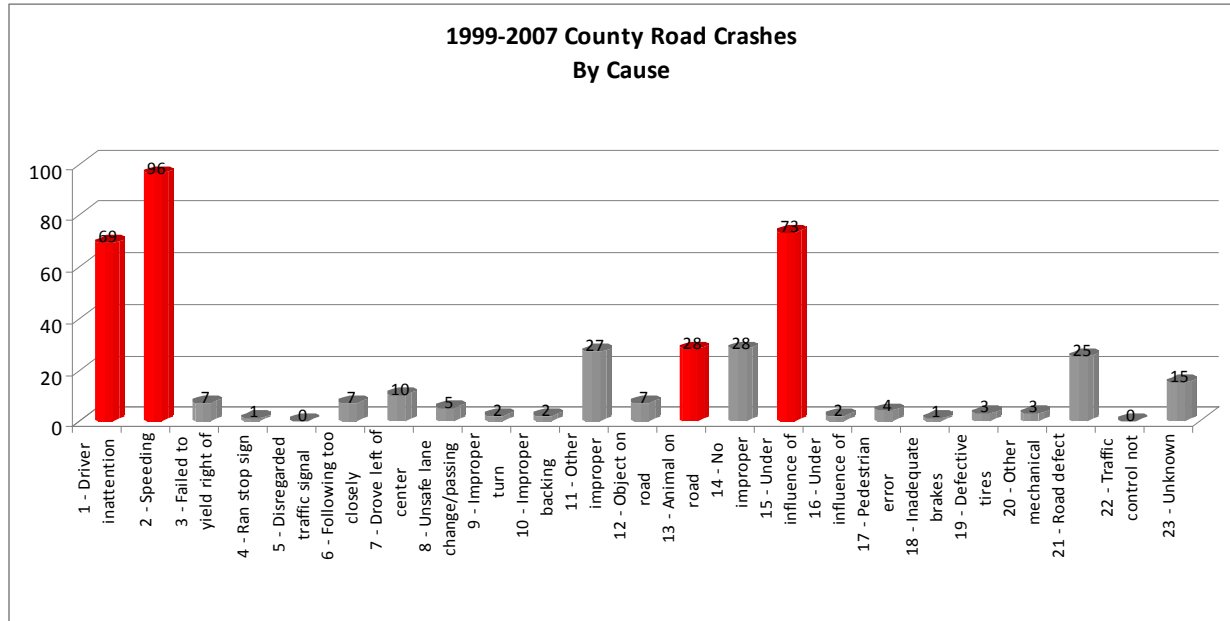
ADS	CLASS	FADT	Apache	Navajo	McKinley	Sandoval	San Juan NM	San Juan UT
10	4-Rural Major Collector	>250						
10		50-250						
11		>250	\$ 13,017.64	\$17,924.25	\$ 73,889.32	\$5,025.68	\$ 46,318.37	\$ 889.08
11		50-250	\$ 125,739.15	\$13,743.40	\$ 8,085.52		\$ 19,053.06	\$ 11,471.82
11		<50						
12		>250						
12		50-250						
13		5-Rural Local	>400			\$ 2,133.51		\$ 2,021.22
13	50-400				\$109,238.86		\$ 76,539.28	
14	>400		\$ 27,230.31					
14	50-400		\$ 865,378.30			\$2,074.05		\$ 6,574.99
15	>400							
15	50-400							
			\$1,031,365.40	\$31,667.64	\$193,347.20	\$7,099.72	\$143,931.93	\$ 18,935.89
Grand Total:								\$1,426,347.79

1. Safety Needs:

Of the total 11,273 traffic crashes that occurred between 1999-2007, 3.7% or 415 accidents occurred on county roads. 30.2% of these accidents occurred in McKinley, 29% in San Juan, UT; 25.3% in San Juan, NM; 13.6% in Apache, 0.6% each in Navajo, Sandoval, and Socorro Counties.

Of the crashes that occurred on County roads, 23.1% of the accidents were caused by speeding; 17.6% by DUI; 16.6% by driver's inattention; 6.7% by animal on roads; 6.5% by other improper driving; 6.0% by road defect; 2.4% by drove left of centerline; 1.7% each by failed to yield right of way, following too close, and object on road; 1.2% by unsafe lane change, 1.0% by pedestrian error; and less than 1% each by improper turn, improper backing, under influence of drug, defective tires, and other mechanical defects.

Figure XII-4. 1999-2007 County Road Crashes by Cause



The 415 crashes that occurred on County roads resulted in 264 property damage only crashes, 136 injury crashes, and 15 fatal crashes. Of the injury crashes, there were 93 one-person injury crashes, 27 two-person injuries, and 16 crashes where more than 2 persons were injured.

Majority of the accidents or 370 accidents happened during clear weather, 16 rainy, 18 snowy, and 6 during windy conditions.

Fatal Crashes: Of the total 415 crashes that have occurred between 1999 and 2007, 15 were fatal, of which 4 accidents were caused by DUI, 3 were due to driver inattention; 2 were caused by speeding; 2 were due to pedestrian error; and one each for failure to yield right or way, other improper driving, driving under the influence of drugs, and unknown circumstance.

Crashes By Road Conditions: 283 accidents happened on dry roads; 50 on loose sand; 39 on snow packed; 20 on wet; 6 on roads with potholes and 4 accidents happened at curve on roads.

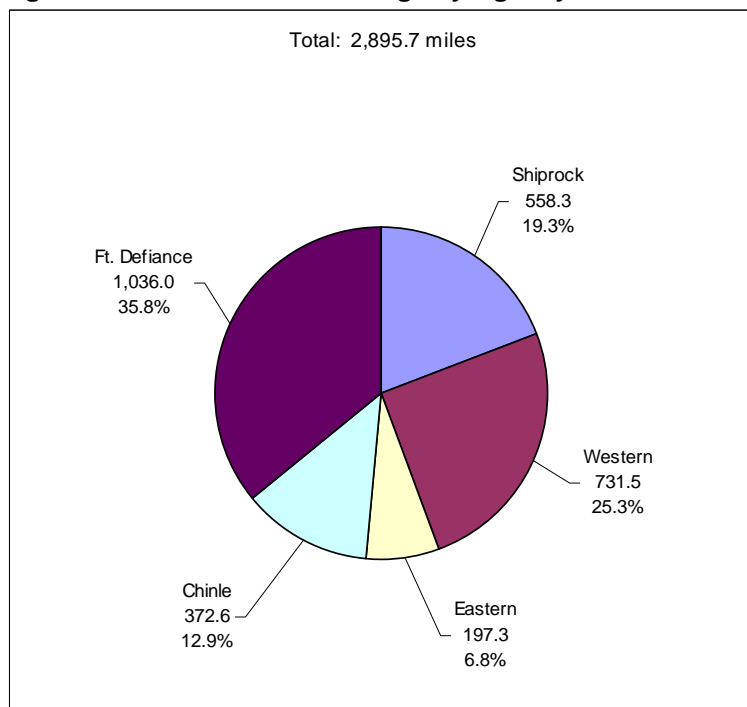
Recommendations: Because of the low volume characteristic of county roads [Due to a lack of traffic volume data (ADT) on county roads (except for CR6675), accident rate for county roads cannot be computed], even roads with low number of accidents may present a serious safety issue. Planning for county road improvements therefore should pay attention to safety issue of accident clusters.

CHAPTER XIII - TRIBAL ROAD NEEDS

A. TRIBAL ROAD MILEAGE

In 2008 the Navajo Division of Transportation inventoried 2,895.7 miles of public roads and added them to its total IRR system under the Tribal Road category. For the purpose of addressing the transportation needs of these Tribal Roads, the 2009 Navajo Nation Long Range Transportation Plan thus used the 2008 road inventory data to analyze the Tribal Roads' transportation needs. Of the total 12,772 overall mileage of the Navajo Nation IRR system in 2008, tribal roads make up 22.6% or 2,895.7 miles. The tribal roads consist mostly of minor public roads ranging from those serving tribal government facilities, housing, communities and commercial areas to rural collector and local roads. Figure XII-1 shows that the tribal roadways are distributed among the agencies: 1036.0 miles in Fort Defiance Agency, 731.5 miles in Western Agency, 558.3 miles in Shiprock Agency, 372.6 miles in Chinle Agency, and 197.3 miles in Eastern Agency.

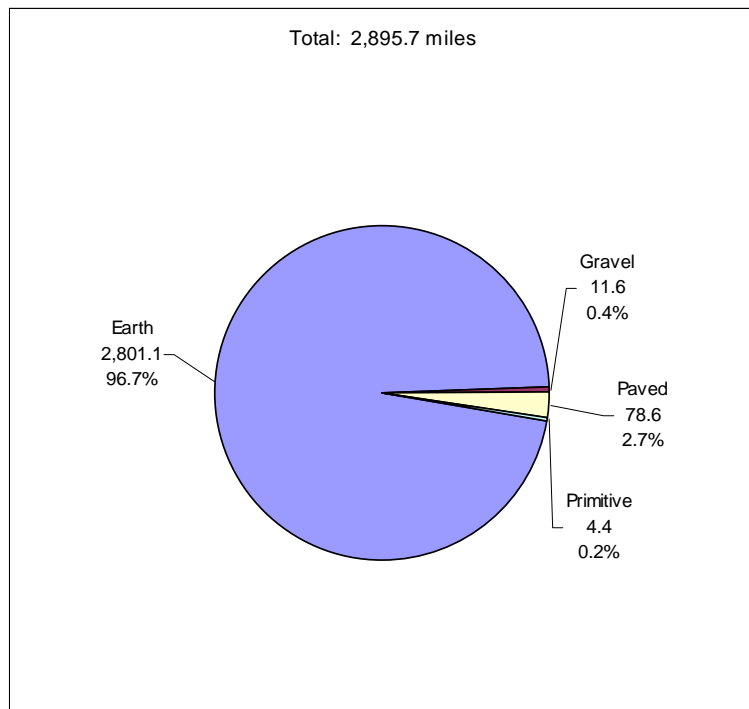
Figure XIII-1. Tribal Road Mileage by Agency



Source: 2008 Navajo Region Road Inventory

The majority of tribal roads on the Navajo Nation are unpaved. Of the total 2,895.7 miles of tribal roads, 96.7% or 2801.1 miles are earthen roads, 2.7% or 78.6 miles are paved roads, 0.4% or 11.6 miles are gravel roadways, and 0.2% or 4.4 miles are primitive roads, as summarized in Figure XIII-2 and Table XIII-1.

Figure XIII-2. Tribal Road Mileage by Surface Type



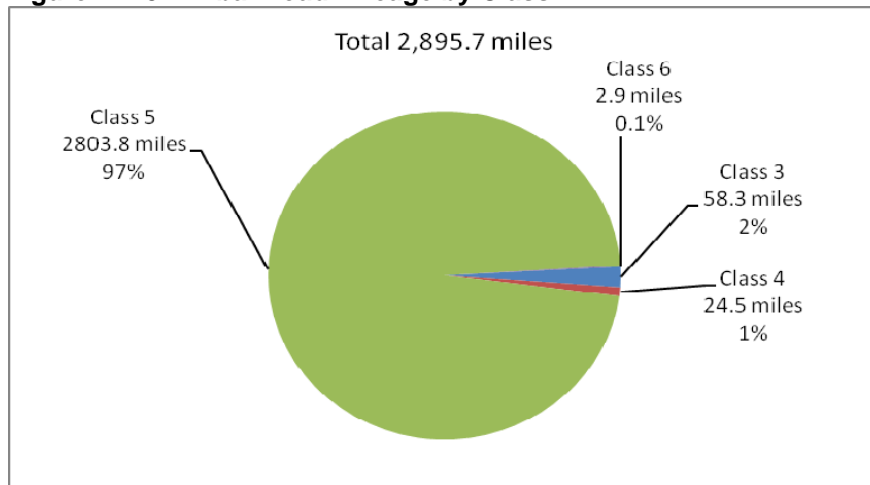
Source: 2008 Navajo Region Road Inventory

Table XIII-1. Tribal Roads by Surface Type (in miles)

Agency	Earth (1)	Gravel (3)	Paved (4, 5, & 6)	Primitive (9)	Total
Shiprock	551.1	0.0	7.2	0.0	558.3
Western	698.7	0.0	32.8	0.0	731.5
Eastern	191.6	0.0	1.3	4.4	197.3
Chinle	350.4	0.8	21.4	0.0	372.6
Ft. Defiance	1,009.3	10.8	15.9	0.0	1,036.0
NIIP	0.0	0.0	0.0	0.0	0.0
New Lands	0.0	0.0	0.0	0.0	0.0
Total	2,801.1	11.6	78.6	4.4	2,895.7

Figure XIII-3 illustrates that the Navajo Nation Tribal Roads consists of 2.9 miles of Class 6 (City Minor Arterial) and 58.3 miles of Class 3 (City Local) roads serving Navajo population centers, community and residential areas with 24.5 miles of Class 4 (Rural Major Collector) and the majority, 2,803.8 miles of Class 5 (Rural Local) roads serving the rural areas. See Figure XIII-3.

Figure XIII-3. Tribal Road Mileage by Class



Source: 2008 Navajo Region Road Inventory

B. TRIBAL ROAD IMPROVEMENT NEEDS

Based on the geometric design guidelines/IRR adequate standards, 2,831.0 miles of Tribal Roads need improvements by class as follows:

Table XIII-2. Miles of Tribal Roads with Geometric Deficiencies/ Total: 2,831.0 miles

ADS	CLASS	FADT	Miles of Roads Needing Only Surface Imp	Miles of Roads Needing Only Roadway Widening	Miles of Roads Needing Surface Imp & Roadway Widening	Sub-Total	Total By Class
10	4-Rural Major Collector	>250					24.5
10		50-250					
11		>250					
11		50-250		0.2	12.2	12.4	
11		<50					
12		>250			12.1	12.1	
12		50-250					
13		5-Rural Local	>400				
13	50-400						
14	>400				11.2	11.2	
14	50-400				2792.6	2792.6	
15	>400						
15	50-400						
16	6-City Minor	N/A	2.7			2.7	2.7
17		N/A					0.0
18		N/A					0.0
						Grand Total:	2831.0

Based on the BIA pavement rating standards, a total of 53.3 miles of Class 3 Tribal Roads need improvements (Table XIII-3).

Table XIII-3. Miles of Tribal Roads with Pavement Deficiencies/ Total: 53.3 miles

Road Class	PCI<40 and RB<5, Need Reconstruction for Geometric Design and Pavement Deterioration	RB<5, Need Reconstruction for Geometric Design	PCI<40, Need Reconstruction for Pavement Deterioration	PCI=40-50 and RB>=5, Need Rehabilitation	PCI=51-69 and RB>=5, Need Minor Rehabilitation	PCI>=70 and RB>=5, Need Maintenance Only
3	46.6	3.7	2.4			0.6
Total	46.6	3.7	2.4			0.6
Percent	87.4%	6.9%	4.5%	0.0%	0.0%	1.1%

Table XIII-4. Total Tribal Road Transportation Needs

Road Class	Total Miles Needing Improvements	Cost in \$1000
3	53.3	\$56,019.06
4	24.5	\$16,927.63
5	2,803.8	\$2,832,249.04
6	2.7	\$3,807.82
Total	2,884.3	\$2,909,003.55

Safety Needs

Of the total 11,273 traffic crashes that occurred between 1999 and 2007, only 17 accidents occurred on tribal roads.

Of the crashes that occurred on tribal roads, 35.3% of the accidents were caused by driving under the influence of alcohol; 17.6 % by driver's inattention; 11.7% by speeding; 11.7% had no improper driving; and 5.9% each for following too close, unsafe lane change, inadequate brakes, and other improper driving.

The 17 crashes that occurred on tribal roads resulted in 9 property damage only crashes, 7 injury crashes, and one fatal crash. The fatal crash resulted from a driver driving under the influence of alcohol during snowy weather.

The majority of the accidents or 10 accidents happened during clear weather, 4 during cloudy, 2 during snowy, and one during rainy conditions. Six accidents happened on dry roads; 3 on loose sand; 2 on snow packed; 2 on wet; 2 on roads with potholes; 1 with changing road width, and 1 on a road under construction.



2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

2. What are your priorities from high (8) to low (1)?

- | | |
|----------------------------|----------------------------------|
| _____ Road Improvements | _____ Bridge Improvements |
| _____ Transit Improvements | _____ Safety Improvements |
| _____ Airport Improvements | _____ Bicycle paths and sidewalk |
| _____ Road maintenance | _____ Other..... |

3. Road Improvement: What are your priorities from high (5) to low (1)?

- _____ To pave more dirt or gravel roads
- _____ To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- _____ To grade and improve drainage on dirt/gravel roads
- _____ To rehabilitate or replace bridges
- _____ Other.....

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- _____ Snow removal
- _____ Pothole repair of existing paved roads
- _____ Blading of dirt roads
- _____ Maintenance during emergencies
- _____ Bridge maintenance
- _____ Other.....

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- | | |
|---|-----------------------------|
| _____ Install sidewalks and bicycle paths | _____ Install street lights |
| _____ Install traffic signals | _____ Install cross walks |
| _____ Install guard rails | _____ Roadway striping |
| _____ Roadway signage | _____ Other..... |

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- _____ Improve travel safety
- _____ Support economic development
- _____ Connection to transit, airports, etc...
- _____ Connections for freight access/movement
- _____ Access to recreation
- _____ Other.....

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- _____ Cultural Preservation
- _____ Increased pollution of all types (noise, air)
- _____ Safety
- _____ Privacy
- _____ Others



2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

Route N-27 - the completion of survey another, only one bridge coming into Chulo, and we don't have any other access, Rt 191 - have more management planning - heavy congested, more accessible just have one road to accommodate the traffic

2. What are your priorities from high (8) to low (1)?

- | | |
|-------------------------------|-------------------------------------|
| <u>8</u> Road Improvements | <u>8</u> Bridge Improvements |
| <u>8</u> Transit Improvements | <u>8</u> Safety Improvements |
| <u>8</u> Airport Improvements | <u>8</u> Bicycle paths and sidewalk |
| <u>8</u> Road maintenance | <u>8</u> Other |

More politicians become aware of the needs people follow procedures community in an appropriate matter

3. Road Improvement: What are your priorities from high (5) to low (1)?

- 5 To pave more dirt or gravel roads
- 5 To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- 5 To grade and improve drainage on dirt/gravel roads
- 5 To rehabilitate or replace bridges
- 5 Other

Have the road committees share responsibilities and not say we don't have jurisdiction on that road.

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- 6 Snow removal
- 6 Pothole repair of existing paved roads
- 6 Blading of dirt roads
- 6 Maintenance during emergencies
- 6 Bridge maintenance
- 6 Other

The roads that are in due need - don't usually get maintenance because 1) equip prob - 2) not in their area 3) no one sign or give them okay to do the maintenance

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- | | |
|--|--------------------------------|
| <u>8</u> Install sidewalks and bicycle paths | <u>8</u> Install street lights |
| <u>8</u> Install traffic signals | <u>8</u> Install cross walks |
| <u>8</u> Install guard rails | <u>8</u> Roadway striping |
| <u>8</u> Roadway signage | <u>8</u> Other |

If these are not in place everyone is in danger.

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- 6 Improve travel safety
- 6 Support economic development
- 6 Connection to transit, airports, etc...
- 6 Connections for freight access/movement
- 6 Access to recreation
- 6 Other

All the above - the only attraction to Congondo Chully is the canyon, other than that we do need all the above.

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- 5 Cultural Preservation
- 5 Increased pollution of all types (noise, air)
- 5 Safety
- 5 Privacy
- 5 Others

have one grocery store, doesn't do justice for our people - no shopping mall, we travel 2-3 hours for other basic needs.



2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

Implement Road projects that are project ready, and use funds expeditiously. Keep Politic out of it.

2. What are your priorities from high (8) to low (1)?

- | | |
|-------------------------------|--|
| <u>5</u> Road Improvements | <u>5</u> Bridge Improvements |
| <u>2</u> Transit Improvements | <u>5</u> Safety Improvements |
| <u>1</u> Airport Improvements | <u>0</u> Bicycle paths and sidewalk |
| <u>2</u> Road maintenance | <u>10</u> Other... <u>Building Roads</u> |

3. Road Improvement: What are your priorities from high (5) to low (1)?

- 5 To pave more dirt or gravel roads
- 2 To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- 5 To grade and improve drainage on dirt/gravel roads
- 2 To rehabilitate or replace bridges
- Other... Improve Rds

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- 1 Snow removal
- 1 Pothole repair of existing paved roads
- 6 Blading of dirt roads
- 4 Maintenance during emergencies
- 1 Bridge maintenance
- 10 Other... pave dirt roads

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- | | |
|--|---|
| <u>1</u> Install sidewalks and bicycle paths | <u>1</u> Install street lights |
| <u>1</u> Install traffic signals | <u>1</u> Install cross walks |
| <u>3</u> Install guard rails | <u>1</u> Roadway striping |
| <u>1</u> Roadway signage | <u>10</u> Other... <u>pave dirt roads</u> |

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- 1 Improve travel safety
- 10 Support economic development
- 5 Connection to transit, airports, etc...
- 1 Connections for freight access/movement
- 1 Access to recreation
- 10 Other... pave dirt roads

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- 5 Cultural Preservation
- 2 Increased pollution of all types (noise, air)
- 3 Safety
- 2 Privacy
- 1 Others

Concerns Navajo Route 27,

Local School Districts, Aging Programs, Emergency, and public safety refuse or are not able to assist community members due to unsafe conditions. (Road)
There has been incidents where people have ^{been} stuck in the mud in the winter storms. They're were not ~~or~~ routed assistance for help due to the road condition. Emergency units are not able to respond as well as public safety to incidents.

This is detrimental to our Elders and youth who are our biggest concerns.

This Project has been on the back burner for at least 30 yrs. This is a Priority for the Communities of Chinle, Flatrock and Nazlini. We were informed by BIA road department and TCDC that N-27 is a priority project that will be completed. We want it to be completed for the safety and needs of our communities!

Place it back on the priority listing for FY 2010 !!!



2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

Completing the N27 road project is greatly needed and will benefit communities, and all resources are in China, where people have to travel to meet their needs.

2. What are your priorities from high (8) to low (1)?

- | | |
|-------------------------------|-------------------------------------|
| <u>8</u> Road Improvements | <u>8</u> Bridge Improvements |
| <u>8</u> Transit Improvements | <u>8</u> Safety Improvements |
| <u>8</u> Airport Improvements | <u>8</u> Bicycle paths and sidewalk |
| <u>8</u> Road maintenance | Other..... |

N27 Bridges needs to be reevaluated.

3. Road Improvement: What are your priorities from high (5) to low (1)?

- 4 To pave more dirt or gravel roads
- 8 To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- 8 To grade and improve drainage on dirt/gravel roads
- 8 To rehabilitate or replace bridges
- 8 Other.....

Road signs are not visible.

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- 6 Snow removal
- 6 Pothole repair of existing paved roads
- 6 Blading of dirt roads
- 6 Maintenance during emergencies
- 6 Bridge maintenance
- Other.....

The marking of the pave are phrasing off. Need N27 remarking for the safety of travelers, school busses, ambulance and so forth.

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- | | |
|--|--------------------------------|
| <u>8</u> Install sidewalks and bicycle paths | <u>8</u> Install street lights |
| <u>8</u> Install traffic signals | <u>8</u> Install cross walks |
| <u>8</u> Install guard rails | <u>8</u> Roadway striping |
| <u>8</u> Roadway signage | Other..... |

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- 6 Improve travel safety
- 6 Support economic development
- 6 Connection to transit, airports, etc...
- 6 Connections for freight access/movement
- 6 Access to recreation
- Other.....

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- 5 Cultural Preservation
- 5 Increased pollution of all types (noise, air)
- 5 Safety
- 5 Privacy
- Others





2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

1 Quality Construction with
Safety and future expansion
plans.

2. What are your priorities from high (8) to low (1)?

- 7 Road Improvements
- 6 Transit Improvements
- 2 Airport Improvements
- 4 Road maintenance
- 5 Bridge Improvements
- 8 Safety Improvements
- 3 Bicycle paths and sidewalk
- 1 Other.....

3. Road Improvement: What are your priorities from high (5) to low (1)?

- 4 To pave more dirt or gravel roads
- 3 To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- 5 To grade and improve drainage on dirt/gravel roads
- 2 To rehabilitate or replace bridges
- 1 Other.....

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- 3 Snow removal
- 6 Pothole repair of existing paved roads
- 5 Blading of dirt roads
- 4 Maintenance during emergencies
- 2 Bridge maintenance
- 1 Other.....

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- 5 Install sidewalks and bicycle paths
- 8 Install traffic signals
- 7 Install guard rails
- 2 Roadway signage
- 3 Install street lights
- 4 Install cross walks
- 6 Roadway striping
- 1 Other Wider turn lanes
in Right of way

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- 6 Improve travel safety
- 5 Support economic development
- 4 Connection to transit, airports, etc...
- 3 Connections for freight access/movement
- 2 Access to recreation
- 1 Other.....

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- 4 Cultural Preservation
- 5 Increased pollution of all types (noise, air)
- 6 Safety
- 3 Privacy
- 1 Others



2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

on reverse side

2. What are your priorities from high (8) to low (1)?

- | | |
|-------------------------------|-------------------------------------|
| <u>6</u> Road Improvements | <u>5</u> Bridge Improvements |
| <u>4</u> Transit Improvements | <u>8</u> Safety Improvements |
| <u>3</u> Airport Improvements | <u>2</u> Bicycle paths and sidewalk |
| <u>7</u> Road maintenance | <u>1</u> Other..... |

3. Road Improvement: What are your priorities from high (5) to low (1)?

- 5 To pave more dirt or gravel roads
- 3 To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- 4 To grade and improve drainage on dirt/gravel roads
- 2 To rehabilitate or replace bridges
- 1 Other.....

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- 1 Snow removal
- 6 Pothole repair of existing paved roads
- 2 Blading of dirt roads
- 4 Maintenance during emergencies
- 3 Bridge maintenance
- 6 Other... fence repairs/cattle guards

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- | | |
|--|---|
| <u>1</u> Install sidewalks and bicycle paths | <u>6</u> Install street lights |
| <u>3</u> Install traffic signals | <u>4</u> Install cross walks |
| <u>2</u> Install guard rails | <u>5</u> Roadway striping |
| <u>7</u> Roadway signage | <u>8</u> Other... <u>Mukatinena R.O.W</u> |

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- 6 Improve travel safety
- 4 Support economic development
- 1 Connection to transit, airports, etc...
- 3 Connections for freight access/movement
- 2 Access to recreation
- 5 Other... highway safety enforcement

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- 4 Cultural Preservation
- 3 Increased pollution of all types (noise, air)
- 5 Safety
- 1 Privacy
- 2 Others farmers & ranching

1. Many Farms Chapter Community is a commuter community that commutes to Chinle, 2 times a day there is an increase in traffic volume, here are some of the safety issues it has encountered;

a. Poor maintenance of fence and cattle guards result in alot of fatalities and loss of property to livestock owners. The state has advised through ADOT & NDOT that they corral their livestock.

b. installation of gates also has resulted in livestock vs. automobile accidents, where those that live close to to the roads most of the time do not own livestock and neglect to close these gates and are never given a citation for the violation, instead the livestock owner who consented are blamed for accidents, ADOT needs to stop installing gates.

c. The Many Farms Chapter has repeatedly requested a maintenance schedule and inspection schedules on State & BIA routes.

d. The Many Farms Public School crossing and school zone needs extra attention. ~~The~~ drivers often ignore the flashing lights, including staff and buses from the school itself.

e. The proposed 8086/8084 road improvement is very important the community of Many Farms and surrounding communities, currently college students from Many Farms, Rough Rock, Chidimbit and Kayenta often travel through Chinle or Lukachukai Ar. to attend classes, therefore this route is our priority.

b. There are alot of houses along 8084, and emergency response is slow due to the unimproved road. there are several washes that make it impassable during harsh weather conditions. there have been several vehicles that have washed away during floods.

c. approx 7 buses travel through this route every day

- 3 buses from the public school
- 1 bus from Many Farms High School
- 1 bus from Chinle Boarding School
- 2 busses from Navajo Headstart.

d. 8084/8086 is project ready.

3. Highway 191 is heavily traveled by tractor trailers at a high rate of speed during late hours and often leave animals dying along roadsides and not removed causing botulism to livestock nearby.

8086
8084
C507



2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

In Many Farm Chapter has a project 8084 to be pave and done

2. What are your priorities from high (8) to low (1)?

- | | |
|-------------------------------|--|
| <u>8</u> Road Improvements | <u>6</u> Bridge Improvements |
| <u>4</u> Transit Improvements | <u>5</u> Safety Improvements |
| <u>3</u> Airport Improvements | <u>3</u> Bicycle paths and sidewalk |
| <u>7</u> Road maintenance | <u>(9)</u> Other..... <i>Pave 8084</i> |

3. Road Improvement: What are your priorities from high (5) to low (1)?

- 5 To pave more dirt or gravel roads
- 4 To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- 3 To grade and improve drainage on dirt/gravel roads
- 2 To rehabilitate or replace bridges
- 6 Other..... *Pave 8084*

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- 6 Snow removal
- 4 Pothole repair of existing paved roads
- 5 Blading of dirt roads
- 3 Maintenance during emergencies
- 2 Bridge maintenance
- Other..... *P*

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- | | |
|--|--------------------------------|
| <u>6</u> Install sidewalks and bicycle paths | <u>7</u> Install street lights |
| <u>8</u> Install traffic signals | <u>4</u> Install cross walks |
| <u>2</u> Install guard rails | <u>5</u> Roadway striping |
| <u>3</u> Roadway signage | Other..... |

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- 6 Improve travel safety
- 5 Support economic development
- 3 Connection to transit, airports, etc...
- 2 Connections for freight access/movement
- 4 Access to recreation
- Other.....

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- 3 Cultural Preservation
- 2 Increased pollution of all types (noise, air)
- 5 Safety
- 4 Privacy
- Others



2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

roads unsafe

2. What are your priorities from high (8) to low (1)?

- | | |
|-------------------------------|-------------------------------------|
| <u>8</u> Road Improvements | <u>1</u> Bridge Improvements |
| <u>7</u> Transit Improvements | <u>4</u> Safety Improvements |
| <u>6</u> Airport Improvements | <u>5</u> Bicycle paths and sidewalk |
| <u>2</u> Road maintenance | _____ Other..... |

3. Road Improvement: What are your priorities from high (5) to low (1)?

- 3 To pave more dirt or gravel roads
- 4 To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- 2 To grade and improve drainage on dirt/gravel roads
- 1 To rehabilitate or replace bridges
- _____ Other.....

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- 4 Snow removal
- 3 Pothole repair of existing paved roads
- 5 Blading of dirt roads
- 2 Maintenance during emergencies
- 1 Bridge maintenance
- _____ Other.....

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- | | |
|--|--------------------------------|
| <u>7</u> Install sidewalks and bicycle paths | <u>6</u> Install street lights |
| <u>5</u> Install traffic signals | <u>1</u> Install cross walks |
| <u>4</u> Install guard rails | <u>2</u> Roadway striping |
| <u>3</u> Roadway signage | _____ Other..... |

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- 1 Improve travel safety
- 2 Support economic development
- 3 Connection to transit, airports, etc...
- 4 Connections for freight access/movement
- 5 Access to recreation
- _____ Other.....

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- 4 Cultural Preservation
- 3 Increased pollution of all types (noise, air)
- 1 Safety
- 2 Privacy
- _____ Others



2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?
Navajo Nation paved roads needs to be paved. Waiting + waiting years + years to see paved roads especially Many Farms 8084 + Chinle N27

2. What are your priorities from high (8) to low (1)? *Pave N# 8084*

<u>8</u> Road Improvements	<u>7</u> Bridge Improvements
<u>4</u> Transit Improvements	<u>6</u> Safety Improvements
<u>3</u> Airport Improvements	<u>2</u> Bicycle paths and sidewalk
<u>5</u> Road maintenance	Other... <i>Cattle guards animal passages</i>

3. Road Improvement: What are your priorities from high (5) to low (1)?

<u>5</u> To pave more dirt or gravel roads
<u>2</u> To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
<u>3</u> To grade and improve drainage on dirt/gravel roads
<u>4</u> To rehabilitate or replace bridges
Other.....

4. Road Maintenance: What are your priorities from high (6) to low (1)? *6 Paved N# 8084*

<u>2</u> Snow removal
<u>4</u> Pothole repair of existing paved roads
<u>6</u> Blading of dirt roads
<u>3</u> Maintenance during emergencies
<u>5</u> Bridge maintenance
Other... <i>Animals in ROW</i>

5. Safety Improvement: What are your priorities from high (8) to low (1)? *8 Pave # 8084*

<u>1</u> Install sidewalks and bicycle paths	<u>2</u> Install street lights
<u>4</u> Install traffic signals	<u>3</u> Install cross walks
<u>5</u> Install guard rails	<u>7</u> Roadway striping
<u>6</u> Roadway signage	<u>8</u> Other... <i>Animals in ROW</i>

6. What should be the transportation/road improvement goals from high (6) to low (1)?

<u>5</u> Improve travel safety
<u>4</u> Support economic development
Connection to transit, airports, etc...
Connections for freight access/movement
Access to recreation
<u>6</u> Other... <i>pave N 8084</i>

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

<u>?</u> Cultural Preservation
<u>?</u> Increased pollution of all types (noise, air)
<u>5</u> Safety
<u>?</u> Privacy
<u>?</u> Others

Construct + Pave N 8084, N 8084, C 507

pave & Construct roads
magnesium Chloride

Continue to strive for us to
pave all roads in New Zealand
especially Chinle & Many Farms.

Recommend for updates and
meet regularly to better
improve our roads &
address concern.

Maybe even a Task
force in addition to
Agency Roads Committee.

N27 ~ Residents have
suffered & continue to
suffer too long - Make
them / us happy by
Paving N27.



2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

N-12 from Round Rock to Arizon
state line - to I-40
(N27) Nazili to Chinte - 18 miles

2. What are your priorities from high (8) to low (1)?

- | | |
|-------------------------------|-------------------------------------|
| <u>1</u> Road Improvements | <u>3</u> Bridge Improvements |
| <u>4</u> Transit Improvements | <u>5</u> Safety Improvements |
| <u>6</u> Airport Improvements | <u>7</u> Bicycle paths and sidewalk |
| <u>2</u> Road maintenance | Other..... |

3. Road Improvement: What are your priorities from high (5) to low (1)?

- 1 To pave more dirt or gravel roads
- 2 To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- 3 To grade and improve drainage on dirt/gravel roads
- 4 To rehabilitate or replace bridges
- Other.....

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- 5 Snow removal
- 1 Pothole repair of existing paved roads
- 2 Blading of dirt roads
- 4 Maintenance during emergencies
- 3 Bridge maintenance
- Other.....

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- | | |
|--|--------------------------------|
| <u>7</u> Install sidewalks and bicycle paths | <u>4</u> Install street lights |
| <u>5</u> Install traffic signals | <u>6</u> Install cross walks |
| <u>1</u> Install guard rails | <u>3</u> Roadway striping |
| <u>2</u> Roadway signage | Other..... |

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- 1 Improve travel safety
- 2 Support economic development
- 5 Connection to transit, airports, etc...
- 4 Connections for freight access/movement
- 3 Access to recreation
- Other.....

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- 2 Cultural Preservation
- 4 Increased pollution of all types (noise, air)
- 1 Safety
- 3 Privacy
- Others





2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

2. What are your priorities from high (8) to low (1)?

- 7 Road Improvements
- 5 Transit Improvements
- 4 Airport Improvements
- 8 Road maintenance
- 6 Bridge Improvements
- 3 Safety Improvements
- 2 Bicycle paths and sidewalk
- Other.....

3. Road Improvement: What are your priorities from high (5) to low (1)?

- 5 To pave more dirt or gravel roads
- 4 To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- 3 To grade and improve drainage on dirt/gravel roads
- 2 To rehabilitate or replace bridges
- Other.....

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- 2 Snow removal
- 4 Pothole repair of existing paved roads
- 6 Blading of dirt roads
- 5 Maintenance during emergencies
- 3 Bridge maintenance
- Other.....

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- 2 Install sidewalks and bicycle paths
- 7 Install traffic signals
- 5 Install guard rails
- 6 Roadway signage
- 4 Install street lights
- 3 Install cross walks
- 8 Roadway striping
- Other.....

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- 6 Improve travel safety
- 5 Support economic development
- 4 Connection to transit, airports, etc...
- 3 Connections for freight access/movement
- 2 Access to recreation
- Other.....

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- 2 Cultural Preservation
- 3 Increased pollution of all types (noise, air)
- 5 Safety
- 4 Privacy
- Others





2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

N-27 - Martin Road - Need to pave
CHINLE TO FLAT AREA

2. What are your priorities from high (8) to low (1)?

- | | | | |
|---------------------------------------|----------------------|----------------------------|----------------------------|
| <input checked="" type="checkbox"/> 8 | Road Improvements | <input type="checkbox"/> 4 | Bridge Improvements |
| <input type="checkbox"/> | Transit Improvements | <input type="checkbox"/> 3 | Safety Improvements |
| <input type="checkbox"/> | Airport Improvements | <input type="checkbox"/> | Bicycle paths and sidewalk |
| <input checked="" type="checkbox"/> 2 | Road maintenance | <input type="checkbox"/> | Other..... |

3. Road Improvement: What are your priorities from high (5) to low (1)?

- To pave more dirt or gravel roads
- To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- To grade and improve drainage on dirt/gravel roads
- To rehabilitate or replace bridges
- Other... PAVE N-27

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- Snow removal
- Pothole repair of existing paved roads
- 1 Blading of dirt roads
- Maintenance during emergencies
- Bridge maintenance
- Other.....

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- | | | | |
|---------------------------------------|-------------------------------------|--------------------------|-----------------------|
| <input type="checkbox"/> | Install sidewalks and bicycle paths | <input type="checkbox"/> | Install street lights |
| <input type="checkbox"/> | Install traffic signals | <input type="checkbox"/> | Install cross walks |
| <input type="checkbox"/> | Install guard rails | <input type="checkbox"/> | Roadway striping |
| <input checked="" type="checkbox"/> 1 | Roadway signage | <input type="checkbox"/> | Other..... |

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- 1 Improve travel safety
- Support economic development
- Connection to transit, airports, etc...
- Connections for freight access/movement
- Access to recreation
- Other.....

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- Cultural Preservation
- Increased pollution of all types (noise, air)
- 1 Safety
- Privacy
- Others





2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

WE NEED N-27 PAVED
SOON AS POSSIBLE

2. What are your priorities from high (8) to low (1)?

- Road Improvements
- Transit Improvements
- Airport Improvements
- Road maintenance
- Bridge Improvements
- Safety Improvements
- Bicycle paths and sidewalk
- Other.....

3. Road Improvement: What are your priorities from high (5) to low (1)?

- To pave more dirt or gravel roads
- To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- To grade and improve drainage on dirt/gravel roads
- To rehabilitate or replace bridges
- Other.....

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- Snow removal
- Pothole repair of existing paved roads
- Blading of dirt roads
- Maintenance during emergencies
- Bridge maintenance
- Other.....

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- Install sidewalks and bicycle paths
- Install traffic signals
- Install guard rails
- Roadway signage
- Install street lights
- Install cross walks
- Roadway striping
- Other.....

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- Improve travel safety
- Support economic development
- Connection to transit, airports, etc...
- Connections for freight access/movement
- Access to recreation
- Other.....

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- Cultural Preservation
- Increased pollution of all types (noise, air)
- Safety
- Privacy
- Others



2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

- Highway 19 is narrow (too)
- NR8084 / NR8086

2. What are your priorities from high (8) to low (1)?

- 7 Road Improvements
- 6 Bridge Improvements
- 8 Safety Improvements
- 5 Transit Improvements
- 4 Bicycle paths and sidewalk
- 5 Airport Improvements
- Other.....
- 5 Road maintenance

3. Road Improvement: What are your priorities from high (5) to low (1)?

- 5 To pave more dirt or gravel roads
- 2 To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- 4 To grade and improve drainage on dirt/gravel roads
- 1 To rehabilitate or replace bridges
- 3 Other... Inventory the roads (BIA, County + State) For long range planning

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- 6 Snow removal
- 5 Pothole repair of existing paved roads
- 4 Blading of dirt roads
- 6 Maintenance during emergencies
- 3 Bridge maintenance
- 1 Other.....

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- 2 Install sidewalks and bicycle paths
- 7 Install street lights
- 5 Install traffic signals
- 4 Install cross walks
- 3 Install guard rails
- 8 Roadway striping
- 6 Roadway signage
- 1 Other.....

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- 6 Improve travel safety
- 5 Support economic development
- 3 Connection to transit, airports, etc...
- 4 Connections for freight access/movement
- 2 Access to recreation
- 1 Other.....

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- 5 Cultural Preservation
- 3 Increased pollution of all types (noise, air)
- 6 Safety
- 4 Privacy
- 2 Others



Highway 191 - reroute -

- too narrow
- needs resurfacing -
- bus stop -
- gets windy between Valley St to many farms
- too many roads to get on Highway: frontage roads -
- need children ^{crossing} ~~pass~~ from house to the schools. (overpass?)
- Bldgs on a lot close to road (highway 191)

N8084:

- Bridges -
- Culverts -
- maintenance
- emergency maintenance during inclement weather
Conditions: rain, snow + mud, etc.

Recommend: Conference -

- MIA, NDOT + ADOT
- Planning + zoning
- Chapter officials
- TRUC Committee
- Develop @ tool to consider the priority of roads -

Thank you,
Christina Celya,
M₂ Farms vice -
President



2009 LONG RANGE TRANSPORTATION PLAN QUESTIONNAIRE

1. What are your concerns regarding road and bridge improvements and where are they?

Need for pavement - Navajo Route 27

2. What are your priorities from high (8) to low (1)?

- | | |
|-------------------------------|-------------------------------------|
| <u>8</u> Road Improvements | <u>5</u> Bridge Improvements |
| <u>4</u> Transit Improvements | <u>7</u> Safety Improvements |
| <u>2</u> Airport Improvements | <u>3</u> Bicycle paths and sidewalk |
| <u>6</u> Road maintenance | <u>1</u> Other..... |

3. Road Improvement: What are your priorities from high (5) to low (1)?

- 5 To pave more dirt or gravel roads
- 3 To improve existing paved roads (i.e., rehab/chip seal, widen, etc.)
- 4 To grade and improve drainage on dirt/gravel roads
- 2 To rehabilitate or replace bridges
- 1 Other.....

4. Road Maintenance: What are your priorities from high (6) to low (1)?

- 3 Snow removal
- 4 Pothole repair of existing paved roads
- 6 Blading of dirt roads
- 5 Maintenance during emergencies
- 2 Bridge maintenance
- 1 Other.....

5. Safety Improvement: What are your priorities from high (8) to low (1)?

- | | |
|--|--------------------------------|
| <u>2</u> Install sidewalks and bicycle paths | <u>5</u> Install street lights |
| <u>4</u> Install traffic signals | <u>3</u> Install cross walks |
| <u>7</u> Install guard rails | <u>8</u> Roadway striping |
| <u>6</u> Roadway signage | <u>1</u> Other..... |

6. What should be the transportation/road improvement goals from high (6) to low (1)?

- 6 Improve travel safety
- 5 Support economic development
- 2 Connection to transit, airports, etc..
- 3 Connections for freight access/movement
- 4 Access to recreation
- 1 Other.....

7. What are your major development (economic, transportation) concerns from high (5) to low (1)?

- 4 Cultural Preservation
- 3 Increased pollution of all types (noise, air)
- 5 Safety
- 2 Privacy
- 1 Others

To Whom It May Concern:

4/23/09

Navajo Route 27 is lacking approximately 10 miles of Pavement.

During the winter months or inclement weather our road is impassible, We are in an isolated area with no cell phone signal or land line phones available, Naalini hill is impassible to climb with ice or sleet on it. There is 8016 off mite post 434 but is also impassible if flood water fills our washes, plus the hill is unpaved + slippery when muddy which in turn is dangerous - 20 plus drop offs.

We have no alternative but to use NR 27 N to Chinte, Last winter we slipped off the road due to mud, we spent the night in the mud which turned into snow. Chinte wrecker service refuses to go on this road to assist stuck vehicles in fear of getting their wreckers stuck, Also the Police can only take you home to Chinte, they cannot pull you out or call for help for you. This is a risk to all who drive that road - we don't know if we will be able to get home safely. Thank you Patralina Begay
PLS not to mention vehicle damage. (928) 674-9700 Flatrock, AZ

Page 2.

When the BIA grades our road they only get the dirt from the side with all the debris, dead animals & put it back onto the road. This makes it very dusty and at times visibility is poor. This only lasts maybe 3 days and the pot holes are exposed again.

Vehicle damages are tremendous, tires are wore out, parts fall off, we tend to leave the parts alone, avoid running over them - so the owners can pick them up on their way back. Insurance claims are denied when bumpers fall off or truck beds crack & eventually break apart & no longer will hold head lights, tail lights mirrors etc. and duct tape is getting expensive. Thank you for your time.

Pahalani Beyaz

Page 3.

Gravel onto roads - we have exhausted request for gravel to be put on our roads - we have been told that it was illegal, (BIA Roads)

We asked for crushed used asphalt - that also was denied - chemicals in asphalt.

Politics - we find that its not wheather your road is ready, clearances - but favortism.

NECA construction is very slow - but are awarded these bids because of Navajo Preferences + low bidder - Could the next highest bidder be considered - Delays in NECA causes more funding to leave a road for nearly a year partly graded then return + do the same process again thas paying their labors, skilled drivers etc ~~don't~~ to do the double work.

Appendix A

Returned Survey Questionnaires

Appendix B

Access Management Samples

Appendix C

Transportation Needs By Route

**Ten Ways to Manage
Roadway Access
in Your Community**





Ten Ways to Manage Roadway Access in Your Community

Costly improvements are not always the solution to safety and congestion problems. Roads, like other resources, also need to be carefully managed. Corridor access management strategies extend the useful life of roads at little or no cost to taxpayers. Following are ten ways that you can make the most out of your transportation system.

1

Lay the foundation for access management in your local comprehensive plan.

To assure that your roadways are managed properly, your comprehensive plan needs to address certain key issues. *First*, include goals, objectives, and policies related to access management in the plan. Tailor policy statements to advance the access management principles in this brochure. For example, a policy could be adopted promoting interconnection of adjacent developments along major roadways.

Second, make sure that your local transportation plan classifies roadways according to function and desired level of access control. This hierarchy of roadways is reinforced through roadway design and access standards in your land development code. For example, arterials require a much higher level of access control and different design standards than collectors or local streets. Some roadways require special attention because of their importance, the need for additional right-of-way, or due to significant access problems. These areas may be designated for special treatment in the comprehensive plan.

Third, provide for a greater variety of street types with varying design standards. Options could include access lanes, alleys, variations in on-street parking, and so on. This reduces development costs, promotes compact development, increases opportunities to interconnect streets, and helps save your major thoroughfare system. Many communities have only a few residential street design options that apply whether a subdivision has 8 homes or 80. Lack of design flexibility impedes infill development and results in a monotonous street layout. It can also cause a proliferation of substandard and inadequately maintained private streets.

2

Restrict the number of driveways per lot.

Establish a basic requirement that driveways are limited to one per parcel, with special conditions for additional driveways. Lots with larger frontages, or those with needs for separate right and left-turn entrances, could be permitted more than one driveway, in accordance with driveway spacing standards. Limitations on new driveways may be established using a "corridor overlay" approach, which adds new requirements onto the underlying zoning (see Figure 1). It is necessary to first identify and map the boundaries of all existing lots and parcels along the corridor. Then you could assign one driveway to each mapped parcel by right. This land may be further subdivided, but all new lots would need to obtain access from the existing access point.

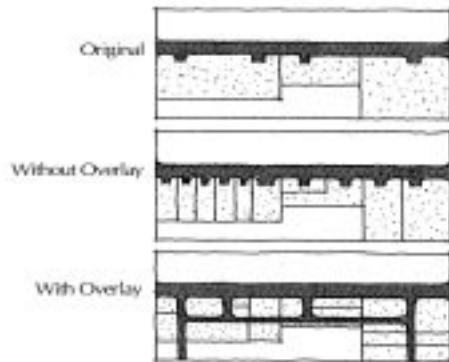


Figure 1. Corridor overlay

3

Locate driveways away from intersections.

Setting driveways and connections back from intersections reduces the number of conflicts and provides more time and space for vehicles to turn or merge safely across lanes. This spacing between intersections and driveways is known as corner clearance. Adequate corner clearance can also be



Figure 2. Inadequate corner clearance.

assured by establishing a larger minimum lot size for corner lots. You could impose conditional use limitations where adequate corner clearance cannot be obtained. This helps assure that corner properties do not experience access problems as traffic volumes grow.

4

Connect parking lots and consolidate driveways.

Internal connections between neighboring properties allow vehicles to circulate between businesses without having to re-enter the major roadway (see Figures 3 and 4). Joint and cross access requirements in your land development code can help to assure connections between major developments, as well as between smaller businesses along a corridor.

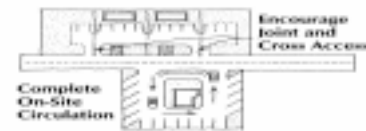


Figure 3. Joint and cross access. Cross access also needs to be provided for pedestrians. Sidewalks are typically placed far away from buildings on the right-of-way of major roadways, or are not provided at all. Pedestrians prefer the shortest distance between two points and will walk if walkways are provided near buildings. Joint and cross access strategies help to relieve demand on major roadways for short trips, thereby helping preserve roadway capacity. They also help to improve customer convenience, emergency access, and access for delivery vehicles.

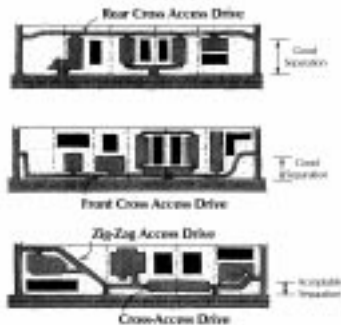


Figure 4. Cross access.

5

Provide residential access through neighborhood streets.

Residential driveways on major roadways result in dangerous conflicts between high-speed traffic and residents entering and exiting their driveway. As the number of driveways increase, the roadway is gradually transformed into a high speed version of a local residential street. Subdivisions should always be designed so that lots fronting on major roadways have internal access from a residential street or lane (also known as “reverse frontage”—see Figures 5 and 6). Minor land division activity can be managed by establishing a restriction on new access points and allowing land to be further subdivided, provided all new lots obtain access via the permitted access point. A variation of this approach is to allow lot splits on major roadways only where access is consolidated. Another step is to prohibit “flag lots” along major thoroughfares. Some property owners subdivide their



Figure 5. Shared access.

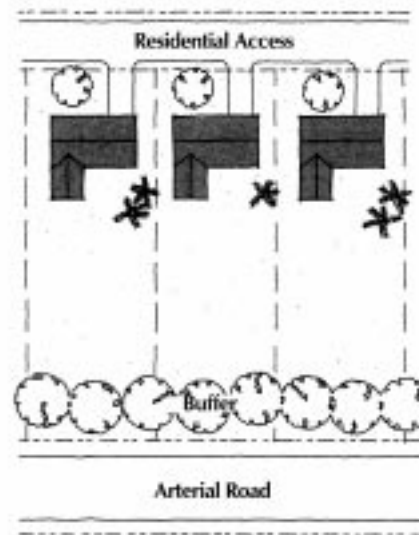


Figure 6. Reverse Frontage.

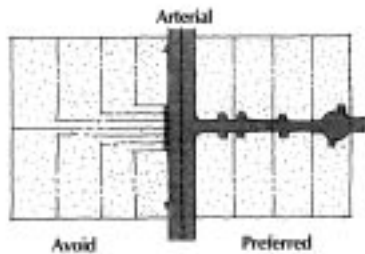


Figure 7. Avoid flag lots.

land into lots shaped like flags to avoid the cost of platting and providing a road. Instead, the flag lots are stacked on top of each other, with the “flag poles” serving as driveways to major roads (see Figure 7). This results in closely spaced driveways that undermine the safety and efficiency of the highway. Eventually, residents may petition for construction of a local public road passing the cost of providing a subdivision road onto the community.

6

Increase minimum lot frontage on major roads.

Minimum lot frontages need to be larger for lots that front on major roadways, than those fronting on local roads. Narrow lots are a problem on major roads because they result in closely spaced driveways. Lots need to be deeper and wider along arterials to allow adequate flexibility in site design and to increase separation of access points (see Figure 8). Assuring an adequate lot size also protects the development potential and market value of corridor properties.

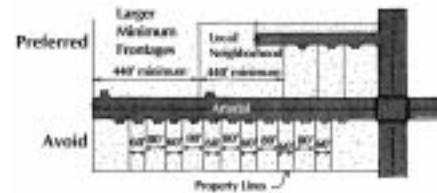


Figure 8. Lot frontage requirements.

7

Promote a connected street system.

As communities grow and land is subdivided for development, it is essential to assure continuation and extension of the existing local street system. Dead end streets, cul-de-sacs, and gated communities force more traffic onto collectors and arterials. Fragmented street systems also impede emergency access and increase the number and length of automobile trips. A connected road network advances the following growth management objectives:

- fewer vehicle miles traveled
- decreased congestion
- alternative routes for short, local trips
- improved accessibility of developed areas
- facilitation of walking, bicycling, and use of transit
- reduced demand on major thoroughfares
- more environmentally sensitive layout of streets and lots
- interconnected neighborhoods foster a sense of community
- safer school bus routes

Connectivity can be enhanced by a) allowing shorter blocks (600 ft.) and excluding cul-de-sacs from the definition of intersection; b) requiring stub streets to serve adjacent undeveloped properties; c) requiring street connec-

tions to nearby activity centers; d) requiring connections to or continuation of existing or approved public streets; and e) requiring bicycle/pedestrian access-ways at the end of cul-de-sacs or between residential areas and parks, schools, shopping areas or other activity centers. It is also important to allow a greater variety of street types.

8

Encourage internal access to outparcels.

Shopping center developments often include separate lots or "outparcels" fronting on the major roadway. The outparcels are leased or sold to businesses looking for highly valued corridor locations. Access to these outparcels should be incorporated into the access and circulation system of the principal retail center. This reduces the need for separate driveways on the major road, while maintaining overall accessibility to the site. To accomplish this, establish that development sites under the same ownership or those consolidated for development will be treated as one site for the purposes of access management. Then require a unified traffic circulation and access plan for the overall development site.

9

Regulate the location, spacing, and design of driveways.

Driveway *spacing* standards establish the minimum distance between driveways along major thoroughfares (see Figure 9). These standards help to reduce the potential for collisions, as travelers enter or exit the roadway. They also encourage the sharing of access for smaller parcels, and can improve community character by reducing the number of driveways and providing more area for pedestrians and landscaping. The *location* of driveways affects the ability of drivers to safely enter and exit a site. If driveways do not provide adequate sight distance, exiting vehicles may be unable to

see oncoming traffic. In turn, motorists on the roadway may not have adequate time to avoid a crash. Driveway *design* standards assure that driveways have an adequate design so vehicles can easily turn onto the site. Standards also need to address the depth of the driveway area. Where driveways are too shallow, vehicles are sometimes obstructed from entering the site causing others behind them to wait in through lanes. This blocks traffic and increases the potential for rear-end collisions.



Adopt minimum spacing standards for driveways

Reinforce with minimum lot frontage and joint access requirements

Figure 9. Driveway spacing standards.

10

Coordinate with the Department of Transportation.

The Florida Department of Transportation is responsible for access permits along state roadways. Local governments oversee land use, subdivision, and site design decisions that affect access needs. Therefore, State and local coordination is essential to effective access management. Lack of coordination can undermine the effectiveness of regulatory programs and cause unnecessary frustration for permit applicants.

Timely communication is key to an effective review procedure. Begin by establishing a coordinated process for review of access permits along state highways. The state per-

mitting official could have applicants send a copy of the complete permit application to the designated local reviewing official. Prior to any decision or recommendation, the state permitting official could then discuss the application with the local reviewing official.



Property owners also may be required to submit the necessary certificates of approval from other affected regulatory agencies, before a building permit is issued. In Florida, this should include a "notice of intent to permit" from the Florida Department of Transportation where access to the state highway system is requested.

An effective method of coordinating review and approval between developers and various government agencies is through a tiered process. The first stage is an informal meeting and "concept review" period, which allows officials to advise the developer about information needed to process a development application. This includes information on required state and local permits, and any special considerations for the development site.

The concept review provides the developer with early feedback on a proposal, before the preliminary plat or site plan has been drafted. Once the preliminary plan is drafted, it can be checked to determine if additional conditions are required for approval. The final plan that is formally submitted should then require only an administrative review.

Local governments could also request a response from the FDOT prior to approval of plats on the state highway system. Applicants could be required to send a copy of the subdivision application to the state access permitting official. This should occur early in the plat review process, pref-

erably during conceptual review. Early monitoring of platting activity would allow the Department of Transportation an opportunity to identify problems and work on acceptable alternatives.

Intergovernmental agreements or resolutions can facilitate coordination between the state and local governments on access management. These tools can be used to clarify the purpose and intent of managing access along major thoroughfares, roadways that will receive special attention, and state and local responsibilities for advancing access management objectives.

Additional References

- "Model Land Development Regulations that Support Access Management," Center for Urban Transportation Research, 1994.
- Williams, K., Marshall, M. "Managing Corridor Development," Center for Urban Transportation Research, 1996.
- Williams, K., Forrester, R., "NCHRP Synthesis 233: Land Development Regulations that Promote Access Management." Transportation Research Board, Washington, D.C.: National Academy Press, 1996.

Training Opportunities

- "Access Management: Site Planning," FDOT 1997 (A Training Unit), available through Gary Sokolow.
- "Land Development Regulations that Support Access Management," FDOT 1997 (A Training Unit), available through Gary Sokolow.

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Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS SHOULDER TYPE_CODE	MSRIS SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS1S	2008	33	1017	10	0.7	68	3	4	19554	1	1260.919
ADS1S	2008	35	7	10	0.2	68	3	4	18978	1	360.2625
ADS1S Total	ADS 1 needing only surface upgrad				0.9						1621.181
ADS1W	2008	35	7	15	0.1	60	4	5	18978	1	97.54595
ADS1W Total	ADS 1 needing only roadway wider				0.1						97.54595
ADS1SW	2008	33	1017	20	0.2	56	4	4	17645	1	191.9886
ADS1SW	2008	33	1017	25	0.1	56	4	4	15327	1	95.99428
ADS1SW Total	ADS 1 needing surface upgrade and				0.3						287.9828
ADS2S	2008	36	12	100	0.5	88	3	4	14849	2	900.6563
ADS2S	2008	36	12	105	0.4	88	3	4	14849	2	720.525
ADS2S	2008	36	12	110	0.3	78	3	4	14849	2	540.3938
ADS2S	2008	36	12	115	0.8	78	3	4	14849	2	1441.05
ADS2S Total	ADS 2 needing only surface upgrad				2.0						3602.625
ADS2W	2008	35	7	30	0.1	60	4	5	16761	2	13.40898
ADS2W	2008	35	7	40	0.7	60	4	5	15423	2	1004.005
ADS2W Total	ADS 2 needing only roadway wider				0.8						1017.414
ADS4	2008	36	12	160	0.2	66	4	5	14849	4	146.0678
ADS4	2008	36	12	165	1.1	66	4	5	14849	4	803.3726
ADS4	2008	36	110	40	0.1	39	4	5	12709	4	73.03388
ADS4	2008	36	110	43	0.1	39	4	5	8502	4	73.03388
ADS4	2008	36	110	46	0.1	39	4	5	8502	4	73.03388
ADS4	2008	36	12	180	0.2	68	3	5	7958	4	231.25
ADS4	2008	36	54	90	0.7	50	3	5	4706	4	35.65821
ADS4	2008	36	54	80	0.4	51	3	5	3776	4	0.84
ADS4	2008	36	9	20	0.6	36	3	5	3303	4	0
ADS4	2008	36	9	25	1.3	36	3	5	3190	4	0
ADS4 Total					4.8						1436.29
ADS4S	2008	36	12	150	0.4	78	4	4	14849	4	360.2415
ADS4S	2008	36	110	10	0.3	68	4	4	14849	4	270.1811
ADS4S	2008	36	110	30	0.2	68	4	4	14849	4	180.1208
ADS4S	2008	36	110	35	0.3	68	4	4	14849	4	270.1811
ADS4S	2008	36	15	200	0.5	46	3	4	3946	4	450.3019
ADS4S	2008	36	15	190	0.3	46	3	4	3144	4	270.1811
ADS4S	2008	36	15	210	0.5	46	3	4	3059	4	450.3019
ADS4S	2008	36	15	348	0.5	50	3	4	3053	4	450.3019
ADS4S	2008	33	15	110	2.5	36	3	4	1623	4	1086.821
ADS4S	2008	36	7	146	0.4	46	3	4	1538	4	173.8913
ADS4S Total	ADS 4 needing only surface upgrad				5.9						3962.523
ADS4W	2008	36	12	226	0.1	30	3	5	8684	4	115.625
ADS4W	2008	34	56	40	0.7	28	3	5	2303	4	1.47
ADS4W	2008	34	56	60	0.3	28	3	5	2303	4	0.63
ADS4W	2008	36	54	20	0.2	26	3	5	2193	4	0.42
ADS4W	2008	33	2	80	12.5	28	3	5	1798	4	6460.197
ADS4W Total	ADS 4 needing only roadway wider				13.8						6578.342
ADS4SW	2008	36	12	228	0.1	24		4	8684	4	134.725
ADS4SW	2008	32	364	80	0.4	24		4	5699	4	172.44
ADS4SW	2008	32	364	82	1.0	24		4	5699	4	431.1
ADS4SW	2008	32	364	84	0.5	24		4	5699	4	215.55
ADS4SW	2008	32	364	86	1.0	24		4	5699	4	431.1
ADS4SW	2008	36	112	50	0.2	32	3	4	5414	4	180.1208
ADS4SW	2008	36	112	60	0.2	34	3	4	4534	4	180.1208
ADS4SW	2008	36	7	150	0.2	34	3	4	3218	4	86.94566
ADS4SW	2008	36	15	270	6.4	34	3	4	3059	4	5763.864
ADS4SW	2008	36	15	346	0.3	24	3	4	3053	4	270.1811
ADS4SW	2008	36	12	250	1.8	24		4	2771	4	2425.05
ADS4SW	2008	36	7	140	0.6	32	3	4	2474	4	540.3623
ADS4SW	2008	34	56	10	2.3	28	3	4	2303	4	3098.675
ADS4SW	2008	34	56	20	2.5	28	3	4	2303	4	3368.125
ADS4SW	2008	34	56	30	2.1	28	3	4	2303	4	2829.225
ADS4SW	2008	36	15	165	1.6	32	3	4	2034	4	1440.966
ADS4SW	2008	33	2	70	2.2	24		1	1798	4	1943.972

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ADS4SW	2008	33	15	60	3.9	34	3	4	1623	4	3512.355
ADS4SW	2008	33	15	80	1.2	34	3	4	1623	4	521.674
ADS4SW	2008	33	15	115	3.0	34	3	4	1596	4	2701.811
ADS4SW	2008	33	15	120	7.6	34	3	4	1596	4	3303.935
ADS4SW	2008	36	15	160	0.9	32	3	4	1596	4	810.5434
ADS4SW	2008	33	2	60	14.0	28	3	4	1516	4	12608.45
ADS4SW Total	ADS 4 needing surface upgrade and				54.0						46971.29
ADS5	2008	35	7	42	0.5	60	4	5	13077	5	860.1115
ADS5	2008	35	7	44	0.2	60	4	5	13077	5	344.0446
ADS5	2008	35	7	46	0.5	60	4	5	10634	5	860.1115
ADS5	2008	35	7	48	0.1	60	4	5	10634	5	172.0223
ADS5	2008	36	12	224	0.3	76	4	5	8684	5	137.781
ADS5	2008	36	12	185	0.3	68	3	5	8362	5	137.781
ADS5	2008	36	12	190	4.9	40	3	5	8362	5	2250.423
ADS5	2008	36	12	195	0.8	40	3	5	8362	5	367.416
ADS5	2008	36	12	210	3.6	40	3	5	8362	5	1653.372
ADS5	2008	36	12	220	0.3	40	3	5	8362	5	137.781
ADS5	2008	36	12	222	0.8	76	4	5	8362	5	367.416
ADS5	2008	36	12	170	0.2	68	3	5	7958	5	344.0446
ADS5	2008	32	36	95	0.3	46	3	5	6583	5	179.3079
ADS5	2008	32	36	96	0.2	58	3	5	6583	5	119.5386
ADS5	2008	32	36	97	0.6	46	3	5	6583	5	358.6158
ADS5	2008	32	36	99	0.2	46	3	5	6583	5	119.5386
ADS5	2008	32	36	190	1.1	40	3	5	6583	5	505.197
ADS5	2008	34	9	183	0.5	56	3	5	4710	5	298.8465
ADS5	2008	34	9	186	0.3	56	3	5	4710	5	137.781
ADS5	2008	35	27	190	0.2	40	4	5	4238	5	344.0446
ADS5	2008	35	27	193	0.1	40	4	5	4238	5	172.0223
ADS5	2008	35	27	196	0.1	40	4	5	4238	5	172.0223
ADS5	2008	35	27	200	0.1	45	4	5	4238	5	172.0223
ADS5	2008	33	15	30	3.9	36	3	5	4137	5	4870.082
ADS5	2008	33	15	33	0.3	36	3	5	4137	5	53.96112
ADS5	2008	33	15	36	0.4	36	3	5	4137	5	71.94816
ADS5	2008	35	4	136	1.3	40	3	5	3338	5	2236.29
ADS5	2008	35	4	132	4.9	40	3	5	3332	5	8429.093
ADS5	2008	34	9	180	0.5	56	3	5	3328	5	229.635
ADS5	2008	36	9	10	3.4	36	3	5	3303	5	0
ADS5	2008	36	9	40	2.2	36	3	5	3190	5	0
ADS5	2008	36	9	45	1.5	36	3	5	3190	5	0
ADS5	2008	33	15	10	5.4	36	3	5	3179	5	6743.191
ADS5	2008	35	4	134	2.0	40	3	5	3010	5	3440.446
ADS5	2008	36	54	10	0.8	48	3	5	2565	5	42.2688
ADS5	2008	36	9	60	1.6	36	3	5	1743	5	0
ADS5	2008	36	9	70	3.8	36	3	5	1638	5	200.7768
ADS5 Total					48.2						36528.93
ADS5S	2008	36	12	130	2.8	78	3	4	20882	5	5702.74
ADS5S	2008	36	100	10	0.4	62	3	4	14849	5	387.1298
ADS5S	2008	36	100	15	0.1	62	3	4	14849	5	96.78244
ADS5S	2008	33	15	20	4.9	36	3	4	3084	5	9979.796
ADS5S	2008	36	7	90	0.5	56	4	4	1485	5	1018.347
ADS5S Total	ADS 5 needing only surface upgrad				8.7						17184.79
ADS5W	2008	36	12	80	0.3	28	3	5	7339	5	516.0669
ADS5W	2008	36	12	85	0.7	28	3	5	7339	5	1204.156
ADS5W	2008	32	36	100	4.6	34	3	5	6583	5	2749.388
ADS5W	2008	32	36	110	0.7	34	3	5	6583	5	321.489
ADS5W	2008	35	4	34	0.5	30	3	5	6056	5	860.1115
ADS5W	2008	35	4	36	0.4	30	3	5	6056	5	688.0892
ADS5W	2008	35	4	50	0.9	30	3	5	6056	5	1548.201
ADS5W	2008	35	59	245	0.5	34	3	5	5570	5	860.1115
ADS5W	2008	36	12	66	3.6	28	3	5	4406	5	6192.803
ADS5W	2008	32	36	94	3.4	34	3	5	4252	5	2032.156

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ADS5W	2008	35	4	53	3.5	30	3	5	4189	5	6020.781
ADS5W	2008	48	3003	90	0.3	34	3	5	4110	5	76.5018
ADS5W	2008	48	3003	95	2.1	34	3	5	4110	5	535.5126
ADS5W	2008	48	3003	110	0.1	34	3	5	4110	5	25.5006
ADS5W	2008	48	3003	130	2.8	34	3	5	4110	5	714.0168
ADS5W	2008	48	3003	135	2.0	34	3	5	4110	5	510.012
ADS5W	2008	34	9	125	0.5	34	3	5	3328	5	229.635
ADS5W	2008	34	9	140	2.3	34	3	5	3328	5	1056.321
ADS5W	2008	34	9	170	7.7	34	3	5	3328	5	4602.236
ADS5W	2008	35	13	10	0.7	30	3	5	3323	5	1204.156
ADS5W	2008	35	13	30	1.3	30	3	5	3323	5	2236.29
ADS5W	2008	35	4	56	0.2	30	3	5	3078	5	344.0446
ADS5W	2008	32	36	55	5.4	34	3	5	2862	5	2480.058
ADS5W	2008	32	36	60	0.6	34	3	5	2862	5	275.562
ADS5W	2008	32	36	80	0.6	34	3	5	2658	5	358.6158
ADS5W	2008	32	36	90	0.9	34	3	5	2658	5	537.9237
ADS5W	2008	35	4	130	0.1	24		5	2587	5	172.0223
ADS5W	2008	32	36	10	7.5	34	3	5	2541	5	4482.698
ADS5W	2008	32	36	20	0.4	34	3	5	2541	5	183.708
ADS5W	2008	32	36	40	0.6	34	3	5	2541	5	275.562
ADS5W	2008	32	36	50	3.0	34	3	5	2541	5	1377.81
ADS5W	2008	32	13	95	6.4	28	3	5	2487	5	13034.84
ADS5W	2008	35	59	205	1.9	34	3	5	2346	5	341.7538
ADS5W	2008	35	59	210	0.9	34	3	5	2346	5	1548.201
ADS5W	2008	35	59	213	6.5	34	3	5	2346	5	11181.45
ADS5W	2008	35	59	216	0.9	34	3	5	2346	5	1548.201
ADS5W	2008	35	59	230	4.2	34	3	5	2346	5	7224.937
ADS5W	2008	35	59	240	0.2	34	3	5	2346	5	344.0446
ADS5W	2008	36	12	35	0.4	34	3	5	2287	5	71.94816
ADS5W	2008	36	12	50	1.1	28	3	5	2287	5	1892.245
ADS5W	2008	36	12	55	0.8	28	3	5	2287	5	1376.178
ADS5W	2008	36	12	60	0.6	28	3	5	2287	5	1032.134
ADS5W	2008	36	12	63	0.9	28	3	5	2287	5	1548.201
ADS5W	2008	36	54	30	0.9	26	3	5	2193	5	47.5524
ADS5W	2008	33	59	40	0.1	34	3	5	1862	5	17.98704
ADS5W	2008	33	59	60	0.5	34	3	5	1862	5	89.9352
ADS5W	2008	33	59	70	1.2	34	3	5	1862	5	215.8445
ADS5W	2008	33	59	90	0.9	34	3	5	1862	5	161.8834
ADS5W	2008	33	59	110	2.2	34	3	5	1862	5	395.7149
ADS5W	2008	33	59	120	2.6	34	3	5	1862	5	467.663
ADS5W	2008	33	59	130	0.7	34	3	5	1862	5	1204.156
ADS5W	2008	33	59	140	1.3	34	3	5	1862	5	233.8315
ADS5W	2008	33	59	160	0.2	34	3	5	1862	5	35.97408
ADS5W	2008	35	59	170	2.0	34	3	5	1862	5	359.7408
ADS5W	2008	36	12	10	0.5	34	3	5	1801	5	0
ADS5W	2008	36	12	12	1.6	24	3	5	1801	5	0
ADS5W	2008	36	12	14	5.9	34	3	5	1801	5	0
ADS5W	2008	36	12	16	0.7	34	3	5	1801	5	125.9093
ADS5W	2008	36	12	30	0.2	34	3	5	1801	5	35.97408
ADS5W	2008	35	59	190	0.1	34	3	5	1789	5	17.98704
ADS5W	2008	35	59	195	1.6	34	3	5	1789	5	287.7926
ADS5W	2008	35	59	200	1.8	34	3	5	1789	5	323.7667
ADS5W	2008	33	59	10	11.5	34	3	5	1766	5	2068.51
ADS5W	2008	33	59	30	1.8	34	3	5	1766	5	323.7667
ADS5W	2008	36	9	90	1.4	34	3	5	1685	5	73.9704
ADS5W	2008	34	9	120	3.0	34	3	5	1638	5	1377.81
ADS5W	2008	36	9	110	0.3	34	3	5	1638	5	15.8508
ADS5W	2008	36	9	115	3.6	34	3	5	1638	5	190.2096
ADS5W	2008	34	9	200	4.9	34	3	5	1412	5	2250.423
ADS5W	2008	34	9	205	3.5	34	3	5	1412	5	1607.445
ADS5W	2008	34	9	220	1.3	34	3	5	1412	5	597.051

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ADS5W	2008	34	9	223	4.2	34	3	5	1412	5	1928.934
ADS5W	2008	34	9	226	0.4	34	3	5	1412	5	183.708
ADS5W	2008	34	9	230	6.2	34	3	5	1412	5	2847.474
ADS5W	2008	36	54	40	3.2	26	3	5	1124	5	169.0752
ADS5W	2008	35	27	60	1.4	32	3	5	1053	5	1748.235
ADS5W	2008	35	27	70	0.3	32	3	5	1053	5	374.6217
ADS5W	2008	35	27	80	0.8	32	3	5	1053	5	998.9912
ADS5W	2008	36	27	10	1.4	30	3	5	1016	5	2408.312
ADS5W	2008	36	27	30	4.9	30	3	5	1016	5	8429.093
ADS5W	2008	36	27	35	0.5	30	3	5	1016	5	860.1115
ADS5W	2008	36	27	40	1.3	30	3	5	1016	5	2236.29
ADS5W	2008	36	27	45	4.0	30	3	5	1016	5	6880.892
ADS5W	2008	36	27	50	0.6	30	3	5	1016	5	1032.134
ADS5W	2008	35	13	35	0.8	30	3	5	1002	5	1376.178
ADS5W	2008	35	13	50	1.1	30	3	5	1002	5	1892.245
ADS5W	2008	35	13	55	0.9	30	3	5	1002	5	1548.201
ADS5W	2008	35	27	40	2.2	32	3	5	875	5	2747.226
ADS5W	2008	35	27	83	1.0	32	3	5	716	5	1248.739
ADS5W	2008	35	27	86	2.8	32	3	5	716	5	3496.469
ADS5W	2008	32	13	90	1.3	28	3	5	541	5	2647.701
ADS5W	2008	36	54	50	4.0	29	3	5	429	5	211.344
ADS5W	2008	36	54	70	1.4	29	3	5	429	5	73.9704
ADS5W Total	ADS 5 needing only roadway wider				184.0						143682.4
ADS5SW	2008	36	100	20	0.1	26	3	4	14849	5	203.6693
ADS5SW	2008	36	100	25	0.1	26	3	4	14849	5	203.6693
ADS5SW	2008	35	7	50	0.4	22		4	10634	5	814.6772
ADS5SW	2008	36	12	240	1.8	24		4	8684	5	1075.847
ADS5SW	2008	35	7	52	0.7	22		4	7407	5	1425.685
ADS5SW	2008	35	4	32	0.2	30	3	4	6056	5	407.3386
ADS5SW	2008	32	364	65	1.3	24		4	5699	5	514.1799
ADS5SW	2008	33	20	90	1.6	32	3	4	5557	5	3258.709
ADS5SW	2008	36	112	10	3.4	32	3	4	5414	5	6924.756
ADS5SW	2008	36	112	30	2.3	32	3	4	5414	5	4684.394
ADS5SW	2008	36	112	35	0.3	32	3	4	5414	5	611.0079
ADS5SW	2008	35	64	10	5.3	24		4	5104	5	10794.47
ADS5SW	2008	35	64	15	6.5	24		4	5104	5	13238.5
ADS5SW	2008	35	64	20	2.2	24		4	5104	5	4480.725
ADS5SW	2008	33	20	80	12.7	32	3	4	4837	5	25866
ADS5SW	2008	35	41	10	0.6	28	3	4	4706	5	1222.016
ADS5SW	2008	35	41	12	1.0	28	3	4	4706	5	2036.693
ADS5SW	2008	48	3005	40	4.7	26	3	4	4391	5	2809.157
ADS5SW	2008	48	3005	45	0.3	26	3	4	4391	5	179.3079
ADS5SW	2008	35	64	24	0.6	24		4	4302	5	1222.016
ADS5SW	2008	35	64	25	0.4	24		4	4302	5	814.6772
ADS5SW	2008	35	64	26	0.1	24		4	4302	5	203.6693
ADS5SW	2008	33	15	50	0.4	34	3	4	4137	5	387.1298
ADS5SW	2008	48	3003	60	5.0	34	3	4	4110	5	2988.465
ADS5SW	2008	48	3003	80	0.7	34	3	4	4110	5	418.3851
ADS5SW	2008	36	112	63	0.9	34	3	4	3885	5	1833.024
ADS5SW	2008	36	112	66	0.2	34	3	4	3885	5	407.3386
ADS5SW	2008	48	3003	55	0.4	34	3	4	3813	5	239.0772
ADS5SW	2008	36	15	341	1.6	24	3	4	3689	5	3258.709
ADS5SW	2008	36	110	50	0.4	24		4	3610	5	814.6772
ADS5SW	2008	36	110	55	0.5	24		4	3610	5	1018.347
ADS5SW	2008	35	64	21	3.5	24		4	3598	5	7128.426
ADS5SW	2008	35	64	23	5.8	24		4	3598	5	11812.82
ADS5SW	2008	35	4	90	1.3	24		4	3427	5	2647.701
ADS5SW	2008	34	9	150	4.5	34	3	4	3328	5	2689.619
ADS5SW	2008	34	9	160	1.0	34	3	4	3328	5	597.693
ADS5SW	2008	35	4	110	4.1	24		4	3315	5	8350.441
ADS5SW	2008	35	12	450	2.6	22		4	3312	5	5295.402

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS SHOULDER TYPE_CODE	MSRIS SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS5SW	2008	35	12	455	1.4	22		4	3312	5	2851.37
ADS5SW	2008	35	12	470	2.9	22		4	3312	5	5906.41
ADS5SW	2008	35	4	100	1.8	24		4	3276	5	3666.047
ADS5SW	2008	35	4	70	0.3	24		4	3078	5	611.0079
ADS5SW	2008	35	4	73	3.1	24		4	3078	5	6313.748
ADS5SW	2008	36	15	230	3.6	28	3	4	3059	5	7332.095
ADS5SW	2008	36	15	342	0.6	24	3	4	3053	5	1222.016
ADS5SW	2008	36	15	344	0.4	24	3	4	3053	5	814.6772
ADS5SW	2008	35	4	25	1.3	24		1	3009	5	2569.757
ADS5SW	2008	35	4	30	0.3	30	3	4	3009	5	611.0079
ADS5SW	2008	35	4	120	6.0	24		4	2896	5	12220.16
ADS5SW	2008	36	12	245	4.4	24		4	2771	5	2629.849
ADS5SW	2008	36	12	260	1.8	24		4	2771	5	1075.847
ADS5SW	2008	36	12	280	1.7	24		4	2771	5	1016.078
ADS5SW	2008	36	12	285	4.9	24		4	2771	5	2928.696
ADS5SW	2008	36	12	290	0.2	24		4	2771	5	407.3386
ADS5SW	2008	36	15	290	1.7	25	3	4	2677	5	3462.378
ADS5SW	2008	36	15	295	1.4	25	3	4	2677	5	2851.37
ADS5SW	2008	36	15	300	0.9	24	3	4	2677	5	1833.024
ADS5SW	2008	36	15	305	4.2	24	3	4	2677	5	8554.111
ADS5SW	2008	36	15	310	1.5	24	3	4	2677	5	3055.04
ADS5SW	2008	36	15	315	1.0	24	3	4	2677	5	2036.693
ADS5SW	2008	36	15	320	2.8	24	3	4	2677	5	5702.74
ADS5SW	2008	36	15	325	1.2	24	3	4	2677	5	2444.032
ADS5SW	2008	36	15	330	1.6	24	3	4	2677	5	3258.709
ADS5SW	2008	36	15	340	2.4	24	3	4	2677	5	4888.063
ADS5SW	2008	36	6	63	3.3	28	3	4	2621	5	6721.087
ADS5SW	2008	35	12	473	6.6	22		4	2606	5	13442.17
ADS5SW	2008	35	12	476	0.6	22		4	2606	5	1222.016
ADS5SW	2008	35	4	76	3.9	24		4	2527	5	7943.103
ADS5SW	2008	35	4	95	1.1	24		4	2527	5	2240.362
ADS5SW	2008	36	7	120	0.4	32	3	4	2525	5	814.6772
ADS5SW	2008	32	13	100	0.9	24		4	2487	5	1833.024
ADS5SW	2008	32	13	120	1.0	24		4	2487	5	2036.693
ADS5SW	2008	32	13	130	3.2	24		4	2487	5	1912.618
ADS5SW	2008	32	13	140	1.1	24		4	2487	5	657.4623
ADS5SW	2008	32	13	160	0.5	24		4	2487	5	298.8465
ADS5SW	2008	32	13	170	4.3	24		4	2487	5	2570.08
ADS5SW	2008	32	13	190	0.1	24		4	2487	5	59.7693
ADS5SW	2008	32	13	210	0.1	24		4	2487	5	59.7693
ADS5SW	2008	32	13	230	5.7	24		4	2487	5	3406.85
ADS5SW	2008	32	13	240	4.5	24		4	2487	5	2689.619
ADS5SW	2008	34	56	70	0.4	20		1	2303	5	232.0324
ADS5SW	2008	35	12	420	7.7	22		4	2291	5	15682.54
ADS5SW	2008	35	12	440	2.2	22		4	2291	5	4480.725
ADS5SW	2008	36	6	70	4.4	28	3	4	2236	5	8961.449
ADS5SW	2008	36	15	180	2.3	32	3	4	2034	5	4684.394
ADS5SW	2008	36	6	10	8.3	28	3	4	1994	5	16904.55
ADS5SW	2008	36	6	20	2.4	26	3	4	1994	5	4888.063
ADS5SW	2008	36	6	40	1.7	28	3	4	1994	5	3462.378
ADS5SW	2008	36	6	50	3.5	28	3	4	1994	5	7128.426
ADS5SW	2008	36	6	60	0.5	28	3	4	1994	5	1018.347
ADS5SW	2008	48	3005	35	4.2	26	3	4	1919	5	2510.311
ADS5SW	2008	36	6	66	14.2	28	3	4	1847	5	28921.04
ADS5SW	2008	35	12	480	7.0	28	3	4	1746	5	14256.85
ADS5SW	2008	35	12	485	6.8	28	3	4	1746	5	13849.51
ADS5SW	2008	36	7	105	1.3	34	3	4	1639	5	2647.701
ADS5SW	2008	33	15	100	2.5	34	3	4	1623	5	2419.561
ADS5SW	2008	36	15	130	3.0	30	3	4	1596	5	6110.079
ADS5SW	2008	36	15	135	0.8	30	3	4	1596	5	1629.354
ADS5SW	2008	36	15	150	5.1	30	3	4	1596	5	10387.13

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NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS SHOULDER TYPE_CODE	MSRIS SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS5SW	2008	36	15	155	2.8	30	3	4	1596	5	5702.74
ADS5SW	2008	36	6	80	2.3	28	3	4	1592	5	4684.394
ADS5SW	2008	35	7	54	7.1	22		4	1521	5	14460.52
ADS5SW	2008	35	7	56	3.1	22		4	1521	5	6313.748
ADS5SW	2008	35	41	14	6.1	28	3	4	1497	5	12423.83
ADS5SW	2008	36	7	85	1.2	34	3	4	1485	5	2444.032
ADS5SW	2008	36	7	100	8.8	34	3	4	1485	5	17922.9
ADS5SW	2008	48	3003	50	3.2	34	3	4	1429	5	1912.618
ADS5SW	2008	34	9	240	4.3	30	3	4	1412	5	2570.08
ADS5SW	2008	34	9	242	4.8	30	3	4	1412	5	2868.926
ADS5SW	2008	34	9	244	1.6	30	3	4	1412	5	956.3088
ADS5SW	2008	34	9	246	4.8	30	3	4	1412	5	2868.926
ADS5SW	2008	34	9	250	1.0	34	3	4	1412	5	597.693
ADS5SW	2008	34	9	252	0.4	34	3	4	1412	5	239.0772
ADS5SW	2008	34	9	254	10.2	34	3	4	1412	5	6096.469
ADS5SW	2008	32	12	530	12.3	34	3	4	1320	5	2063.325
ADS5SW	2008	32	12	540	8.4	34	3	4	1320	5	1409.1
ADS5SW	2008	32	12	560	0.6	32	3	4	1320	5	100.65
ADS5SW	2008	48	3005	15	3.7	26	3	4	1249	5	2211.464
ADS5SW	2008	48	3005	30	0.6	26	3	4	1249	5	358.6158
ADS5SW	2008	35	27	180	0.6	22		1	1084	5	1186.042
ADS5SW	2008	35	27	183	2.3	22		1	1084	5	4546.493
ADS5SW	2008	35	27	186	0.1	22		1	1084	5	197.6736
ADS5SW	2008	32	12	520	5.1	34	3	4	1083	5	10387.13
ADS5SW	2008	34	9	256	0.5	34	3	4	974	5	298.8465
ADS5SW	2008	34	9	260	0.2	34	3	4	974	5	119.5386
ADS5SW	2008	34	9	262	0.4	34	3	4	974	5	239.0772
ADS5SW	2008	34	9	264	4.9	34	3	4	974	5	2928.696
ADS5SW	2008	34	9	266	4.8	34	3	4	974	5	2868.926
ADS5SW	2008	35	41	120	4.3	22		1	806	5	8499.966
ADS5SW	2008	35	41	140	2.4	22		1	806	5	4744.167
ADS5SW	2008	35	41	16	1.1	28	3	4	729	5	2240.362
ADS5SW	2008	35	41	30	1.3	28	3	4	729	5	2647.701
ADS5SW	2008	35	41	50	2.0	28	3	4	729	5	4073.386
ADS5SW	2008	35	41	60	0.9	28	3	4	729	5	1833.024
ADS5SW	2008	35	41	70	4.4	28	3	4	729	5	8961.449
ADS5SW	2008	35	41	90	2.5	28	3	4	729	5	5091.733
ADS5SW	2008	35	41	110	0.3	28	3	4	729	5	611.0079
ADS5SW	2008	34	56	72	2.0	20		1	695	5	1160.162
ADS5SW	2008	35	27	170	0.8	24		1	616	5	1581.389
ADS5SW	2008	35	13	60	2.1	22		1	549	5	4151.146
ADS5SW	2008	35	4	20	7.7	24		1	545	5	15220.87
ADS5SW	2008	35	27	90	2.5	20		1	408	5	4941.841
ADS5SW	2008	35	27	100	1.3	18		1	408	5	2569.757
ADS5SW	2008	35	27	120	0.1	24		1	408	5	197.6736
ADS5SW	2008	35	27	140	4.1	20		1	408	5	8104.618
ADS5SW	2008	35	27	150	2.6	20		1	408	5	5139.514
ADS5SW Total	ADS 5 needing surface upgrade and				397.1						613970.9
ADS6	2008	35	27	50	0.2	42	3	5	875	6	189.7926
ADS6	2008	35	27	55	1.0	42	3	5	875	6	948.963
ADS6 Total					1.2						1138.756
ADS6S	2008	36	7	115	2.1	44	3	4	1639	6	2805.583
ADS6S	2008	36	7	110	2.1	44	3	4	1485	6	2805.583
ADS6S	2008	35	41	65	1.1	40	3	4	729	6	1469.591
ADS6S Total	ADS 6 needing only surface upgrad				5.3						7080.758
ADS6W	2008	36	12	40	3.1	28	3	5	2287	6	825.9739
ADS6W	2008	36	12	43	2.7	28	3	5	2287	6	719.3966
ADS6W	2008	36	12	46	0.5	28	3	5	2287	6	133.2216
ADS6W	2008	32	13	80	5.2	28	3	5	541	6	1385.505
ADS6W Total	ADS 6 needing only roadway wider				11.5						3064.097
ADS6SW	2008	35	13	70	1.2	22		1	549	6	1496.613

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NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS SHOULDER TYPE_CODE	MSRIS SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS6SW	2008	35	13	75	1.5	22		1	549	6	1870.766
ADS6SW Total	ADS 6 needing surface upgrade and				2.7						3367.38
ADS7	2008	36	15	170	0.5	32	3	4	149	7	231.125
ADS7	2008	36	9	51	0.2	36	3	5	149	7	11.4324
ADS7	2008	36	9	53	0.1	36	3	5	149	7	0
ADS7 Total					0.8						242.5574
ADS8	2008	36	15	280	6.4	36	3	4	149	8	2958.4
ADS8 Total					6.4						2958.4
ADS8W	2008	34	474	60	0.1	26	3	4	391	8	122.3535
ADS8W	2008	34	474	65	0.1	26	3	4	391	8	122.3535
ADS8W	2008	34	474	70	0.6	26	3	4	391	8	734.1209
ADS8W	2008	34	474	90	0.4	26	3	4	391	8	489.4139
ADS8W	2008	34	474	95	0.4	26	3	4	391	8	489.4139
ADS8W	2008	34	474	110	1.0	26	3	4	391	8	1223.535
ADS8W	2008	34	474	30	3.9	26		4	376	8	2295.575
ADS8W	2008	34	474	35	0.1	26		4	376	8	58.86089
ADS8W	2008	34	474	40	1.2	26		4	376	8	706.3307
ADS8W	2008	34	474	50	3.1	26	3	4	376	8	3792.958
ADS8W	2008	34	474	53	0.9	26	3	4	376	8	1101.181
ADS8W	2008	34	474	56	0.1	26	3	4	376	8	122.3535
ADS8W	2008	0	2006	70	0.2	24	3	4	218	8	92.45
ADS8W	2008	35	4	114	0.2	24	3	4	149	8	92.45
ADS8W	2008	35	4	116	0.4	24		4	149	8	184.9
ADS8W	2008	35	12	471	0.2	22		4	149	8	92.45
ADS8W	2008	36	15	220	6.5	28	3	4	149	8	3004.625
ADS8W	2008	36	15	240	3.6	28	3	4	149	8	1664.1
ADS8W	2008	36	15	260	0.5	28	3	4	149	8	231.125
ADS8W	2008	48	3005	10	0.4	26	3	4	149	8	489.4139
ADS8W	2008	35	4	51	0.4	30	3	5	149	8	146.1
ADS8W Total	ADS 8 needing only roadway wider				24.3						17256.06
ADS8SW	2008	34	474	10	0.5	26		1	376	8	589.4947
ADS8SW	2008	34	474	20	1.7	26		1	376	8	2004.282
ADS8SW	2008	34	474	25	4.3	26		1	376	8	5069.655
ADS8SW	2008	35	7	60	0.2	22		1	358	8	92.15
ADS8SW	2008	35	4	15	9.2	24		1	346	8	4238.9
ADS8SW	2008	34	56	74	1.8	20		1	244	8	2122.181
ADS8SW	2008	35	4	10	1.3	24		1	184	8	598.975
ADS8SW	2008	33	20	60	0.4	24		9	169	8	184.3
ADS8SW	2008	34	56	76	2.7	20		1	149	8	3183.272
ADS8SW	2008	35	41	150	0.9	22		1	149	8	414.675
ADS8SW Total	ADS 8 needing surface upgrade and				23.0						18497.88
ADS9SW	2008	36	7	70	4.2	20		1	383	9	4984.35
ADS9SW	2008	35	7	63	9.5	22		1	358	9	11223.78
ADS9SW	2008	35	7	66	9.2	22		1	358	9	10869.34
ADS9SW	2008	36	7	75	1.4	18		3	149	9	1661.45
ADS9SW Total	ADS 9 needing surface upgrade and				24.3						28738.92
ADS10	2008	33	607	20	0.2	40	4	5	5841	10	152.5726
ADS10	2008	33	607	30	0.3	40	4	5	5841	10	228.8589
ADS10	2008	32	514	10	0.1	34	3	4	399	10	120.3649
ADS10	2008	34	55	10	7.5	40		5	107	10	6336.977
ADS10	2008	0	2025	10	0.7	32	3	4	74	10	401.7601
ADS10 Total					8.8						7240.533
ADS10S	2008	35	102	10	1.0	40	3	4	6151	10	1137.602
ADS10S	2008	34	11	50	1.2	36	3	4	3828	10	1444.379
ADS10S	2008	34	11	60	1.8	36	3	4	3828	10	2166.569
ADS10S	2008	34	11	70	1.8	36	3	4	3828	10	2166.569
ADS10S	2008	34	11	75	2.6	36	3	4	2787	10	3129.488
ADS10S	2008	32	34	60	9.0	34	3	4	2161	10	10832.84
ADS10S	2008	32	513	10	0.1	34	3	4	477	10	120.3649
ADS10S Total	ADS 10 needing only surface upgra				17.5						20997.81
ADS10SG	2008	32	368	40	0.1				74	10	91.9855

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ADS10SG	2008	32	368	44	0.7				74	10	643.8985
ADS10SG	2008	48	4164	20	1.0				74	10	919.855
ADS10SG Total	ADS 10 needing only surface upgra				1.8						1655.739
ADS10W	2008	33	607	10	0.1	28	4	5	5841	10	76.2863
ADS10W	2008	32	502	10	0.2	26	3	5	2294	10	152.5726
ADS10W	2008	32	502	20	0.2	26	3	5	2294	10	51.91232
ADS10W	2008	32	514	20	0.5	22	4	4	399	10	601.8246
ADS10W	2008	32	504	10	0.2	28	3	4	376	10	240.7299
ADS10W	2008	33	24	10	4.4	28	3	4	342	10	5005.449
ADS10W	2008	48	4069	10	0.1	22		4	334	10	120.3649
ADS10W	2008	48	4018	10	0.7	26	3	4	327	10	842.5545
ADS10W	2008	48	4056	10	1.5	26	3	4	315	10	1805.474
ADS10W	2008	48	4081	10	0.5	28	3	4	315	10	601.8246
ADS10W	2008	48	4089	10	0.1	26		4	315	10	62.30379
ADS10W	2008	33	42	60	2.6	26	3	4	294	10	2957.765
ADS10W	2008	48	4003	10	1.9	26	3	4	285	10	2286.934
ADS10W	2008	48	4005	10	2.0	26	3	4	285	10	2407.299
ADS10W Total	ADS 10 needing only roadway wid				15.0						17213.29
ADS10WG	2008	32	5080	10	0.6	26	3	4	163	10	0
ADS10WG	2008	32	5080	14	0.1	26	3	4	163	10	0
ADS10WG	2008	32	5080	16	0.7	26	3	4	163	10	0
ADS10WG	2008	34	706	10	0.4	28	3	4	74	10	337.9721
ADS10WG	2008	34	703	10	0.5	30	3	4	74	10	422.4651
ADS10WG	2008	34	704	10	0.5	24		4	74	10	422.4651
ADS10WG	2008	35	808	10	0.1	24		4	74	10	57.3943
ADS10WG	2008	35	809	10	0.1	24		4	74	10	57.3943
ADS10WG	2008	48	4043	20	2.2	26	3	4	74	10	1858.847
ADS10WG Total	ADS 10 (FADT 50-250) needing or				5.2						3156.538
ADS10SW	2008	36	110	70	0.1	24		4	3610	10	113.7602
ADS10SW	2008	36	113	30	0.3	22		4	3432	10	341.2806
ADS10SW	2008	36	108	65	0.4	22		4	2948	10	481.4597
ADS10SW	2008	36	108	10	0.3	22		4	2620	10	361.0948
ADS10SW	2008	36	108	20	0.1	28		4	2620	10	62.30379
ADS10SW	2008	36	108	25	0.2	28		4	2620	10	124.6076
ADS10SW	2008	36	9202	10	0.3	28	3	4	2517	10	341.2806
ADS10SW	2008	36	9202	30	1.0	28	3	4	2517	10	1137.602
ADS10SW	2008	33	221	10	1.8	28	3	4	1818	10	2047.684
ADS10SW	2008	33	221	15	2.7	28	3	4	1818	10	3071.525
ADS10SW	2008	35	133	10	0.2	30	3	4	1795	10	227.5204
ADS10SW	2008	35	133	30	0.2	30	3	4	1795	10	227.5204
ADS10SW	2008	36	157	25	2.2	18		1	1773	10	2450.921
ADS10SW	2008	35	8078	10	0.6	30		4	1734	10	682.5612
ADS10SW	2008	32	562	40	1.5	18		1	1675	10	1673.314
ADS10SW	2008	32	562	10	0.4	26	3	4	1675	10	481.4597
ADS10SW	2008	32	562	30	0.1	26	3	4	1675	10	120.3649
ADS10SW	2008	36	60	35	0.4	22		4	1666	10	455.0408
ADS10SW	2008	36	693	10	0.3	28	3	4	1527	10	361.0948
ADS10SW	2008	36	157	30	0.5	24		4	1497	10	568.801
ADS10SW	2008	35	172	20	0.1	30		1	1432	10	113.7602
ADS10SW	2008	36	108	30	0.1	18		1	1329	10	111.5543
ADS10SW	2008	35	65	40	0.7	30	3	4	1276	10	796.3214
ADS10SW	2008	36	153	30	0.5	18		4	1244	10	568.801
ADS10SW	2008	36	112	110	0.4	18		1	1221	10	446.2172
ADS10SW	2008	36	112	115	0.5	18		1	1221	10	557.7715
ADS10SW	2008	36	153	20	5.9	18		1	1135	10	6572.923
ADS10SW	2008	36	153	25	2.2	18		1	1135	10	2450.921
ADS10SW	2008	33	6460	60	0.3	20		1	998	10	341.2806
ADS10SW	2008	36	113	10	0.5	20		1	992	10	557.0274
ADS10SW	2008	33	6460	70	0.2	20		4	849	10	227.5204
ADS10SW	2008	35	60	30	1.6	28	3	4	836	10	1820.163
ADS10SW	2008	35	60	10	0.4	28	3	4	812	10	455.0408

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS SHOULDER TYPE_CODE	MSRIS SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS10SW	2008	35	60	20	1.7	28	3	4	812	10	1933.923
ADS10SW	2008	36	151	10	0.4	26	3	4	809	10	455.0408
ADS10SW	2008	36	151	30	0.4	26	3	4	809	10	455.0408
ADS10SW	2008	36	151	35	0.3	26	3	4	809	10	341.2806
ADS10SW	2008	36	60	60	0.5	20		4	800	10	568.801
ADS10SW	2008	36	60	65	0.1	20		4	800	10	113.7602
ADS10SW	2008	32	8070	30	0.3	24		1	783	10	334.2164
ADS10SW	2008	35	8090	80	0.4	24		1	783	10	445.6219
ADS10SW	2008	35	67	10	0.3	28	3	4	771	10	341.2806
ADS10SW	2008	35	67	30	1.7	28	3	4	771	10	1933.923
ADS10SW	2008	35	8095	10	0.5	20		1	661	10	557.0274
ADS10SW	2008	35	8095	30	0.9	20		1	661	10	1002.649
ADS10SW	2008	35	8095	33	1.4	20		1	661	10	1559.677
ADS10SW	2008	35	8095	36	1.0	20		1	661	10	1114.055
ADS10SW	2008	33	6460	50	1.3	20		1	652	10	1448.271
ADS10SW	2008	33	6460	40	0.7	20		3	652	10	796.3214
ADS10SW	2008	36	9402	105	0.3	18		1	646	10	334.2164
ADS10SW	2008	36	602	10	2.6	20		4	643	10	2957.765
ADS10SW	2008	34	7140	10	0.8	22		4	600	10	962.9194
ADS10SW	2008	32	5031	10	2.2	12		1	591	10	2454.194
ADS10SW	2008	32	5031	20	2.7	10		1	591	10	3011.966
ADS10SW	2008	32	5031	30	2.8	16		1	591	10	3123.52
ADS10SW	2008	32	5031	50	0.1	16		1	591	10	111.5543
ADS10SW	2008	34	7057	10	0.3	28	3	4	532	10	361.0948
ADS10SW	2008	34	7057	15	0.4	28	3	4	532	10	481.4597
ADS10SW	2008	36	9073	20	0.1	18		1	514	10	111.4055
ADS10SW	2008	35	673	10	0.5	24		1	512	10	557.0274
ADS10SW	2008	35	673	30	1.7	24		1	512	10	1893.893
ADS10SW	2008	32	368	20	0.5	15		1	508	10	557.7715
ADS10SW	2008	32	364	40	6.9	27		3	508	10	8305.18
ADS10SW	2008	32	34	50	3.4	24		3	499	10	4092.407
ADS10SW	2008	36	151	40	0.3	26	3	4	484	10	341.2806
ADS10SW	2008	48	4095	16	0.8	28	3	4	466	10	962.9194
ADS10SW	2008	35	25	60	2.0	26		1	441	10	2228.11
ADS10SW	2008	35	25	65	0.7	26		1	441	10	779.8384
ADS10SW	2008	36	31	13	1.2	16		9	423	10	1338.652
ADS10SW	2008	35	65	20	0.4	30	3	4	419	10	455.0408
ADS10SW	2008	0	2012	10	0.6	24	3	4	417	10	682.5612
ADS10SW	2008	48	4095	10	0.2	28	3	4	416	10	240.7299
ADS10SW	2008	48	4095	13	2.7	28	3	4	416	10	3249.853
ADS10SW	2008	0	2020	10	1.0	24	3	4	411	10	1137.602
ADS10SW	2008	32	192	20	0.7	13		1	408	10	780.8801
ADS10SW	2008	35	251	80	0.8	22		4	401	10	910.0816
ADS10SW	2008	36	9501	40	0.9	20		1	398	10	1003.989
ADS10SW	2008	33	61	30	2.6	16		1	389	10	431.73
ADS10SW	2008	34	7119	10	0.7	25		1	368	10	842.5545
ADS10SW	2008	34	7119	15	0.5	25		1	368	10	557.7715
ADS10SW	2008	36	9402	70	0.2	18		1	331	10	222.811
ADS10SW	2008	36	9402	40	0.2	20		3	331	10	227.5204
ADS10SW	2008	36	9402	60	0.1	20		3	331	10	113.7602
ADS10SW	2008	36	9402	65	0.2	20		3	331	10	227.5204
ADS10SW	2008	36	69	45	1.0	21		1	324	10	1115.543
ADS10SW	2008	36	69	50	3.1	20		1	324	10	3458.183
ADS10SW	2008	33	2	30	1.6	24		1	313	10	1782.488
ADS10SW	2008	33	2	40	12.9	24		1	313	10	14371.31
ADS10SW	2008	36	9003	10	13.6	18		1	313	10	15151.15
ADS10SW	2008	36	9003	15	1.0	18		1	313	10	1114.055
ADS10SW	2008	36	9003	20	9.6	18		1	313	10	10694.93
ADS10SW	2008	33	2	10	0.2	24	2	3	313	10	227.5204
ADS10SW	2008	33	2	20	1.4	24		9	313	10	1559.677
ADS10SW	2008	36	9003	25	0.7	18		1	287	10	779.8384

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS10SW	2008	36	9003	30	1.4	18		1	287	10	1559.677
ADS10SW	2008	36	9003	33	1.1	18		1	287	10	1225.46
ADS10SW	2008	36	9003	36	0.4	18		1	287	10	445.6219
ADS10SW	2008	36	9003	40	0.4	18		1	287	10	445.6219
ADS10SW	2008	36	9003	50	0.9	18		1	287	10	1002.649
ADS10SW	2008	35	8092	10	1.1	24		1	276	10	1225.46
ADS10SW	2008	32	5008	10	0.7	18		1	269	10	780.8801
ADS10SW	2008	36	9504	10	0.1	18		1	254	10	111.5543
ADS10SW	2008	36	9504	30	0.1	18		1	254	10	111.5543
ADS10SW	2008	36	9504	35	4.4	18		1	254	10	4908.389
ADS10SW	2008	36	9659	15	1.5	18		1	252	10	1673.314
ADS10SW Total	ADS 10 needing surface upgrade ar				138.2						153547.8
ADS10SWG	2008	32	369	10	0.2	18		1	249	10	183.971
ADS10SWG	2008	32	8014	10	2.7	16		1	242	10	2497.864
ADS10SWG	2008	32	5002	20	1.7	18		1	198	10	1563.753
ADS10SWG	2008	32	5002	40	1.6	18		1	198	10	1471.768
ADS10SWG	2008	32	5002	60	1.3	18		1	198	10	1195.811
ADS10SWG	2008	32	5002	80	1.7	18		1	198	10	1563.753
ADS10SWG	2008	36	37	20	1.1	18		1	193	10	1011.84
ADS10SWG	2008	33	6730	10	0.8	24		1	187	10	740.1078
ADS10SWG	2008	33	6730	20	15.0	24		1	187	10	13877.02
ADS10SWG	2008	32	557	10	1.1	20		1	183	10	1011.84
ADS10SWG	2008	36	69	30	1.8	21		1	171	10	1655.739
ADS10SWG	2008	36	9066	10	3.7	18		1	169	10	3422.999
ADS10SWG	2008	33	6812	10	4.1	24		1	168	10	3793.053
ADS10SWG	2008	36	9005	10	4.0	18		1	165	10	3700.539
ADS10SWG	2008	32	5080	20	6.8	24		1	163	10	6255.014
ADS10SWG	2008	32	5080	25	7.0	24		1	163	10	6438.985
ADS10SWG	2008	32	5080	30	0.1	24		1	163	10	91.9855
ADS10SWG	2008	32	5080	40	0.3	16		1	163	10	275.9565
ADS10SWG	2008	32	5080	50	0.3	30		1	163	10	275.9565
ADS10SWG	2008	34	7128	30	0.3	18		1	156	10	275.9565
ADS10SWG	2008	32	565	10	0.3	16		1	153	10	275.9565
ADS10SWG	2008	32	5017	10	7.1	24		1	144	10	6530.97
ADS10SWG	2008	33	6820	10	3.2	22		1	144	10	2960.431
ADS10SWG	2008	33	6820	20	2.2	24		1	144	10	2035.297
ADS10SWG	2008	33	6820	30	9.4	24		1	144	10	8696.267
ADS10SWG	2008	35	172	40	0.8	30		1	140	10	758.9456
ADS10SWG	2008	35	172	45	0.2	30		1	140	10	189.7364
ADS10SWG	2008	36	9652	10	1.2	18		1	137	10	1103.826
ADS10SWG	2008	36	9652	13	0.8	18		1	137	10	735.884
ADS10SWG	2008	32	8070	15	14.0	18		1	132	10	12951.89
ADS10SWG	2008	32	563	10	0.6	16		1	126	10	551.913
ADS10SWG	2008	36	9806	10	8.2	18		1	123	10	7586.105
ADS10SWG	2008	32	366	10	0.5	12		1	120	10	459.9275
ADS10SWG	2008	34	7059	10	4.7	20		1	120	10	4323.318
ADS10SWG	2008	34	7059	20	2.7	20		1	120	10	2483.608
ADS10SWG	2008	36	9654	10	3.1	16		1	120	10	2851.55
ADS10SWG	2008	36	28	10	0.5	22		1	113	10	462.5674
ADS10SWG	2008	32	566	10	0.3	24		1	110	10	275.9565
ADS10SWG	2008	36	9402	100	6.8	18		1	110	10	6290.917
ADS10SWG	2008	33	6720	10	2.0	24		1	105	10	1850.27
ADS10SWG	2008	32	561	10	0.1	30		1	101	10	91.9855
ADS10SWG	2008	32	5091	20	0.7	20		1	99	10	643.8985
ADS10SWG	2008	36	603	10	7.7	16		1	94	10	7123.538
ADS10SWG	2008	32	5018	10	1.1	19		1	92	10	1017.648
ADS10SWG	2008	32	353	10	4.7	14		1	88	10	4348.134
ADS10SWG	2008	32	353	20	2.0	14		1	88	10	1850.27
ADS10SWG	2008	32	5060	70	1.8	24		1	86	10	93.69
ADS10SWG	2008	36	9846	10	5.0	18		1	86	10	4625.674
ADS10SWG	2008	33	6920	10	1.8	24		1	85	10	1665.243

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS10SWG	2008	33	6920	20	2.1	24		1	85	10	1942.783
ADS10SWG	2008	33	6920	30	3.8	24		1	85	10	3515.512
ADS10SWG	2008	35	8085	10	4.9	20		1	80	10	4533.161
ADS10SWG	2008	36	37	25	0.2	18		1	80	10	183.971
ADS10SWG	2008	36	37	45	6.3	18		1	80	10	5795.086
ADS10SWG	2008	36	9103	10	3.1	18		1	80	10	2867.918
ADS10SWG	2008	36	9606	10	2.1	16		1	79	10	1942.783
ADS10SWG	2008	33	118	10	17.9	24		9	79	10	16559.91
ADS10SWG	2008	32	18	10	9.4	18		1	74	10	8696.267
ADS10SWG	2008	32	181	10	4.5	20		1	74	10	4163.107
ADS10SWG	2008	32	558	10	0.8	19		1	74	10	735.884
ADS10SWG	2008	32	559	10	0.6	22		1	74	10	551.913
ADS10SWG	2008	32	564	10	0.5	12		1	74	10	459.9275
ADS10SWG	2008	32	5007	10	6.7	22		1	74	10	6163.028
ADS10SWG	2008	32	5007	13	3.7	22		1	74	10	3403.463
ADS10SWG	2008	32	5007	16	1.4	22		1	74	10	1287.797
ADS10SWG	2008	32	5007	60	2.7	10		1	74	10	2483.608
ADS10SWG	2008	32	5007	80	0.3	16		1	74	10	275.9565
ADS10SWG	2008	32	5011	10	0.4	12		1	74	10	367.942
ADS10SWG	2008	32	5015	10	0.1	15		1	74	10	91.9855
ADS10SWG	2008	32	5023	10	7.7	12		1	74	10	7123.538
ADS10SWG	2008	32	5052	10	4.4	12		1	74	10	4070.593
ADS10SWG	2008	32	5057	10	4.4	22		1	74	10	4070.593
ADS10SWG	2008	32	8009	40	0.7	20		1	74	10	647.5944
ADS10SWG	2008	32	8009	60	7.4	20		1	74	10	6845.998
ADS10SWG	2008	32	8070	10	2.8	18		1	74	10	2590.377
ADS10SWG	2008	32	8081	10	5.8	22		1	74	10	5365.782
ADS10SWG	2008	33	215	20	8.4	30		1	74	10	7771.132
ADS10SWG	2008	33	1012	10	0.9	24		1	74	10	832.6213
ADS10SWG	2008	33	6710	20	4.7	24		1	74	10	4348.134
ADS10SWG	2008	33	6710	30	4.5	24		1	74	10	4163.107
ADS10SWG	2008	33	6710	40	3.8	24		1	74	10	3515.512
ADS10SWG	2008	33	6811	10	5.5	24		1	74	10	5088.241
ADS10SWG	2008	33	6811	20	1.8	24		1	74	10	1665.243
ADS10SWG	2008	33	6932	10	1.7	24		1	74	10	1572.729
ADS10SWG	2008	33	6933	10	4.4	24		1	74	10	4070.593
ADS10SWG	2008	33	8014	10	5.0	16		1	74	10	4625.674
ADS10SWG	2008	33	6033	10	4.8	22		1	74	10	4440.647
ADS10SWG	2008	33	6033	20	3.8	22		1	74	10	3515.512
ADS10SWG	2008	33	6710	10	5.1	24		1	74	10	4718.187
ADS10SWG	2008	34	9652	40	3.2	20		1	74	10	2943.536
ADS10SWG	2008	36	31	20	1.2	18		1	74	10	1103.826
ADS10SWG	2008	36	69	35	1.3	21		1	74	10	1195.811
ADS10SWG	2008	36	9004	10	3.7	16		1	74	10	3422.999
ADS10SWG	2008	36	9157	10	5.5	18		1	74	10	5088.241
ADS10SWG	2008	36	9652	16	7.9	18		1	74	10	7266.854
ADS10SWG	2008	36	9652	20	2.0	18		1	74	10	1839.71
ADS10SWG	2008	36	9652	30	5.4	16		1	74	10	4967.217
ADS10SWG	2008	36	9752	10	6.5	16		1	74	10	6013.376
ADS10SWG	2008	36	9854	10	1.2	16		1	74	10	1110.162
ADS10SWG	2008	36	9855	10	2.4	16		1	74	10	2220.324
ADS10SWG	2008	36	9858	10	2.3	16		1	74	10	2127.81
ADS10SWG	2008	32	5007	20	4.3	8		9	74	10	3955.376
ADS10SWG	2008	32	5007	30	4.5	8		9	74	10	4139.347
ADS10SWG	2008	32	5007	40	1.2	8		9	74	10	1103.826
ADS10SWG	2008	36	9657	10	5.0	18		9	74	10	4599.275
ADS10SWG Total	ADS 10 (FADT 50-250) needing su				365.8						336300.8
ADS11	2008	32	5114	10	0.4	40	4	5	2903	11	533.7241
ADS11	2008	32	5114	15	1.2	34	3	5	2903	11	1601.172
ADS11	2008	34	49	10	4.4	34	3	5	2787	11	1494.9
ADS11	2008	34	49	20	3.7	34	3	5	2787	11	1257.075

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS SHOULDER TYPE_CODE	MSRIS SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11	2008	34	49	45	0.2	34	3	5	2441	11	67.95
ADS11	2008	48	3003	15	2.9	34	3	5	1734	11	985.275
ADS11	2008	34	49	35	1.7	34	3	5	1596	11	577.575
ADS11	2008	34	49	40	2.0	34	3	5	1596	11	679.5
ADS11	2008	36	39	10	1.4	34	3	5	1414	11	2188.098
ADS11	2008	33	59	45	2.1	34	3	5	707	11	449.1289
ADS11	2008	36	39	13	1.0	34	3	5	570	11	1562.927
ADS11	2008	48	4055	15	3.2	32	3	4	399	11	1423.2
ADS11	2008	48	4055	20	1.4	32	3	4	399	11	622.65
ADS11	2008	48	3003	10	3.1	34	3	5	258	11	1053.225
ADS11	2008	0	2030	10	12.0	32	3	4	125	11	16011.72
ADS11	2008	48	4133	10	0.5	32		0	74	11	154.425
ADS11	2008	48	4135	10	1.6	32		0	74	11	494.16
ADS11	2008	48	4182	10	2.0	32		0	74	11	617.7
ADS11	2008	48	4188	10	3.5	32		0	74	11	1080.975
ADS11	2008	48	4190	10	0.9	32		0	74	11	277.965
ADS11	2008	0	2025	15	4.5	32	3	4	74	11	6004.396
ADS11	2008	48	4178	10	3.4	32	3	5	74	11	730.15
ADS11	2008	48	4178	30	0.6	32	3	5	74	11	128.85
ADS11	2008	48	4178	40	3.1	32	3	5	74	11	665.725
ADS11	2008	48	4178	60	0.1	32	3	5	74	11	21.475
ADS11 Total					60.9						40683.94
ADS11S	2008	35	8030	10	0.3	48	4	4	3971	11	0
ADS11S	2008	35	8030	12	0.3	48	4	4	3971	11	0
ADS11S	2008	36	112	70	0.3	34	3	4	3885	11	522.0655
ADS11S	2008	34	11	10	0.7	36	3	4	3828	11	311.325
ADS11S	2008	34	11	30	4.1	36	3	4	3828	11	1823.475
ADS11S	2008	33	619	10	1.5	32		1	2242	11	2503.392
ADS11S	2008	48	3002	95	4.0	34	3	4	1977	11	1779
ADS11S	2008	35	8030	14	0.4	48	4	4	1783	11	0
ADS11S	2008	34	48	76	0.6	34	3	4	1620	11	157.62
ADS11S	2008	34	48	80	1.7	34	3	4	1620	11	446.59
ADS11S	2008	34	48	90	1.3	34	3	4	1620	11	341.51
ADS11S	2008	34	49	30	0.4	34	3	4	1596	11	177.9
ADS11S	2008	48	3002	60	1.9	34	3	4	692	11	845.025
ADS11S	2008	48	3002	70	1.6	34	3	4	692	11	711.6
ADS11S	2008	48	3002	90	2.2	34	3	4	692	11	978.45
ADS11S	2008	34	48	60	2.5	34	3	4	585	11	656.75
ADS11S	2008	34	48	70	0.8	34	3	4	585	11	210.16
ADS11S	2008	34	48	73	1.4	34	3	4	585	11	367.78
ADS11S	2008	48	4066	10	1.0	32	3	4	451	11	444.75
ADS11S	2008	32	5	10	8.4	34	3	4	422	11	3735.9
ADS11S	2008	32	5	30	3.2	34	3	4	422	11	1423.2
ADS11S Total	ADS 11 needing only surface upgra				38.6						17436.49
ADS11SG	2008	33	591	30	6.0	36		1	193	11	8641.866
ADS11SG	2008	32	5020	10	0.3	38		1	74	11	432.0933
ADS11SG	2008	35	172	100	3.8				74	11	5473.182
ADS11SG	2008	35	8081	20	0.7				74	11	1008.218
ADS11SG	2008	35	8081	40	0.4				74	11	576.1244
ADS11SG	2008	35	8084	10	0.8				74	11	1152.249
ADS11SG	2008	35	8084	30	1.3				74	11	1872.404
ADS11SG	2008	35	8084	35	0.7				74	11	1008.218
ADS11SG	2008	48	4055	10	2.9				74	11	895.665
ADS11SG	2008	48	4055	77	0.3				74	11	92.655
ADS11SG	2008	48	4055	80	1.7				74	11	525.045
ADS11SG	2008	48	3002	10	3.0				74	11	926.55
ADS11SG	2008	48	3002	20	7.0				74	11	2161.95
ADS11SG	2008	48	3002	30	0.6				74	11	185.31
ADS11SG	2008	48	3002	50	0.9				74	11	277.965
ADS11SG	2008	48	4162	10	3.3				74	11	1019.205
ADS11SG Total	ADS 11 needing only surface upgra				33.7						26248.7

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS SHOULDER TYPE_CODE	MSRIS SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11W	2008	33	6331	60	0.7	28	3	5	3295	11	1094.049
ADS11W	2008	33	6331	70	0.3	28	3	5	3295	11	468.8782
ADS11W	2008	33	16	80	0.5	30	3	5	1718	11	870.1091
ADS11W	2008	33	16	100	3.5	30	3	5	1718	11	6090.764
ADS11W	2008	33	16	110	2.0	30	3	5	1718	11	3480.437
ADS11W	2008	33	16	120	5.4	30	3	5	1718	11	9397.179
ADS11W	2008	33	16	85	0.5	30	3	5	1651	11	870.1091
ADS11W	2008	33	222	10	0.8	30	3	5	1296	11	1250.342
ADS11W	2008	36	9101	10	0.9	28	3	5	1146	11	192.4838
ADS11W	2008	36	9101	13	1.3	28	3	5	1146	11	278.0322
ADS11W	2008	32	5068	20	5.1	26	3	5	849	11	768.825
ADS11W	2008	32	5068	30	0.3	26	3	5	849	11	45.225
ADS11W	2008	32	5068	35	3.7	26	3	5	849	11	557.775
ADS11W	2008	32	5068	40	1.5	26	3	5	849	11	226.125
ADS11W	2008	34	7120	20	0.6	26	3	5	587	11	19.62
ADS11W	2008	33	21	75	1.6	26	3	5	539	11	342.1934
ADS11W	2008	33	16	125	1.5	30	3	5	450	11	2610.327
ADS11W	2008	33	222	15	2.7	30	3	5	435	11	4219.904
ADS11W	2008	33	222	20	1.7	30	3	5	435	11	2656.976
ADS11W	2008	48	4156	10	0.1	30	3	5	428	11	33.975
ADS11W	2008	48	4156	20	1.0	30	3	5	428	11	339.75
ADS11W	2008	36	31	10	3.0	26	3	5	423	11	0
ADS11W	2008	32	5	40	5.8	28	3	5	422	11	1245.55
ADS11W	2008	48	4055	30	2.0	26	3	4	399	11	889.5
ADS11W	2008	48	4055	50	1.5	26	3	4	399	11	667.125
ADS11W	2008	48	4055	70	1.4	26	3	4	399	11	622.65
ADS11W	2008	48	4087	15	2.6	26	3	4	399	11	1156.35
ADS11W	2008	48	4040	10	2.6	26	3	4	399	11	1156.35
ADS11W	2008	48	4045	10	2.2	26	3	4	399	11	978.45
ADS11W	2008	48	4060	10	1.0	26	3	4	399	11	444.75
ADS11W	2008	33	16	130	6.9	26	3	4	391	11	4276.474
ADS11W	2008	0	2017	10	0.5	24	3	4	388	11	870.1091
ADS11W	2008	0	2017	20	0.1	24	3	4	388	11	174.0218
ADS11W	2008	0	2017	30	0.5	24	3	4	388	11	870.1091
ADS11W	2008	0	2017	40	0.2	24	3	4	388	11	348.0437
ADS11W	2008	0	2017	50	0.2	24	3	4	388	11	348.0437
ADS11W	2008	0	2017	60	0.2	24	3	4	388	11	348.0437
ADS11W	2008	0	2017	70	0.4	24	3	4	388	11	696.0873
ADS11W	2008	0	2017	80	0.1	24	3	4	388	11	174.0218
ADS11W	2008	0	2017	90	0.1	24	3	4	388	11	174.0218
ADS11W	2008	35	251	40	1.9	22	3	4	336	11	3306.415
ADS11W	2008	35	251	50	0.7	22	3	4	336	11	1218.153
ADS11W	2008	35	251	55	5.3	24	3	4	336	11	9223.157
ADS11W	2008	36	9402	35	0.1	20		4	331	11	174.0218
ADS11W	2008	48	4007	10	4.4	26	3	4	327	11	1956.9
ADS11W	2008	48	4011	16	1.6	28	3	4	327	11	711.6
ADS11W	2008	48	4043	10	2.4	26	3	4	327	11	1067.4
ADS11W	2008	48	4047	10	5.8	26	3	4	327	11	2579.55
ADS11W	2008	48	4059	10	2.5	28	3	4	319	11	1111.875
ADS11W	2008	48	4059	20	1.0	28	3	4	319	11	444.75
ADS11W	2008	48	4057	10	0.9	26	3	4	315	11	400.275
ADS11W	2008	0	2015	40	0.6	30	3	4	306	11	1044.131
ADS11W	2008	0	2015	45	0.2	30	3	4	306	11	348.0437
ADS11W	2008	0	2015	50	0.1	30	3	4	306	11	174.0218
ADS11W	2008	0	2015	60	0.1	30	3	4	306	11	174.0218
ADS11W	2008	32	57	15	6.3	26	3	4	303	11	2801.925
ADS11W	2008	48	4035	10	3.5	26	3	4	293	11	1556.625
ADS11W	2008	48	4035	15	5.2	26	3	4	293	11	2312.7
ADS11W	2008	0	2007	25	2.1	24	3	4	291	11	3654.458
ADS11W	2008	32	33	10	0.4	26	3	4	288	11	696.0873
ADS11W	2008	32	33	30	0.3	26	3	4	288	11	522.0655

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS SHOULDER TYPE_CODE	MSRIS SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11W	2008	32	33	40	1.5	26	3	4	288	11	2610.327
ADS11W	2008	32	33	50	1.5	26	3	4	288	11	2610.327
ADS11W	2008	48	4064	10	0.5	26	3	4	285	11	222.375
ADS11W	2008	48	4001	10	0.5	26	3	4	285	11	222.375
ADS11W	2008	48	4006	10	3.1	26	3	4	285	11	1378.725
ADS11W	2008	35	251	20	6.1	20		4	272	11	10615.33
ADS11W	2008	48	4022	10	0.3	28	3	4	270	11	133.425
ADS11W	2008	48	4022	15	1.1	28	3	4	270	11	489.225
ADS11W	2008	48	4022	30	0.1	28	3	4	270	11	44.475
ADS11W	2008	48	4022	50	1.9	28	3	4	270	11	845.025
ADS11W	2008	48	4022	60	0.6	28	3	4	270	11	266.85
ADS11W	2008	48	4022	70	2.4	28	3	4	270	11	1067.4
ADS11W	2008	48	4022	90	1.0	28	3	4	270	11	444.75
ADS11W	2008	0	2004	70	0.3	24	3	4	264	11	522.0655
ADS11W	2008	0	2004	80	0.1	24	3	4	264	11	174.0218
ADS11W	2008	32	5060	10	1.4	24		4	261	11	234.85
ADS11W	2008	32	5060	30	2.1	24		4	261	11	352.275
ADS11W Total	ADS 11 needing only roadway wid				136.9						108964.8
ADS11WG	2008	34	7030	20	0.6	18		3	245	11	191.85
ADS11WG	2008	35	25	40	0.3	20		4	233	11	400.2931
ADS11WG	2008	36	9345	30	0.1	28	3	4	220	11	21.38709
ADS11WG	2008	32	5069	10	2.7	16		3	218	11	145.125
ADS11WG	2008	48	4017	15	2.0	26	3	4	215	11	429.5
ADS11WG	2008	48	4017	20	2.3	26	3	4	215	11	493.925
ADS11WG	2008	48	4017	30	3.1	26	3	4	215	11	665.725
ADS11WG	2008	48	4055	75	0.3	26	3	4	214	11	64.425
ADS11WG	2008	0	2009	10	1.2	26	3	4	189	11	1601.172
ADS11WG	2008	32	5012	40	2.3	24		3	177	11	735.425
ADS11WG	2008	33	6731	10	7.4	24		3	135	11	11185.85
ADS11WG	2008	33	6731	20	0.7	24		3	135	11	1058.121
ADS11WG	2008	33	6731	40	1.3	22		3	135	11	1965.082
ADS11WG	2008	0	2003	10	0.4	26	3	4	129	11	533.7241
ADS11WG	2008	0	2007	10	5.6	24	3	4	120	11	7472.137
ADS11WG	2008	0	2007	20	1.2	24	3	4	120	11	1601.172
ADS11WG	2008	35	8080	10	4.2	20		3	114	11	6348.725
ADS11WG	2008	35	8080	20	0.5	20		3	114	11	159.875
ADS11WG	2008	35	8080	30	1.2	20		3	114	11	383.7
ADS11WG	2008	35	8080	40	0.4	20		3	114	11	604.6405
ADS11WG	2008	35	8080	50	4.4	20		3	114	11	6651.046
ADS11WG	2008	36	9010	50	12.0	18		3	114	11	18139.22
ADS11WG	2008	0	2002	10	0.2	26	3	4	114	11	266.8621
ADS11WG	2008	0	2002	20	0.2	26	3	4	114	11	266.8621
ADS11WG	2008	0	2002	30	0.2	26	3	4	114	11	266.8621
ADS11WG	2008	0	2005	10	0.3	24	3	4	105	11	400.2931
ADS11WG	2008	0	2018	35	0.3	24	3	4	92	11	400.2931
ADS11WG	2008	34	7034	10	3.0	24		3	91	11	959.25
ADS11WG	2008	32	63	95	0.2	28	3	4	80	11	266.8621
ADS11WG	2008	32	63	100	0.2	28	3	4	80	11	266.8621
ADS11WG	2008	0	2002	50	1.8	28	3	4	74	11	2401.758
ADS11WG	2008	36	28	60	0.2	26	3	4	74	11	266.8621
ADS11WG	2008	36	9345	50	0.2	28	3	4	74	11	42.77418
ADS11WG	2008	36	9402	26	0.3	24	3	4	74	11	400.2931
ADS11WG	2008	48	4065	50	1.3	26	3	4	74	11	279.175
ADS11WG	2008	48	4065	60	2.7	26	3	4	74	11	579.825
ADS11WG	2008	48	4087	10	0.9	26	3	4	74	11	193.275
ADS11WG	2008	48	4011	10	0.1	28	3	4	74	11	21.475
ADS11WG	2008	48	4011	13	0.1	28	3	4	74	11	21.475
ADS11WG	2008	48	4014	10	0.2	26	3	4	74	11	42.95
ADS11WG	2008	48	4014	15	1.9	26	3	4	74	11	408.025
ADS11WG	2008	48	4014	20	1.8	26	3	4	74	11	386.55
ADS11WG	2008	48	4014	25	0.5	26	3	4	74	11	107.375

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11WG	2008	48	4017	10	1.2	26	3	4	74	11	39.24
ADS11WG	2008	48	4017	35	1.1	26	3	4	74	11	236.225
ADS11WG	2008	48	4028	10	0.1	28	3	4	74	11	21.475
ADS11WG	2008	48	4028	15	1.0	28	3	4	74	11	214.75
ADS11WG	2008	48	4028	20	1.0	28	3	4	74	11	214.75
ADS11WG	2008	48	4028	40	1.4	28	3	4	74	11	300.65
ADS11WG	2008	48	4028	45	0.1	28	3	4	74	11	21.475
ADS11WG	2008	48	4030	20	0.4	28	3	4	74	11	85.9
ADS11WG	2008	48	4030	25	0.4	26	3	4	74	11	85.9
ADS11WG	2008	48	4047	20	2.2	26	3	4	74	11	472.45
ADS11WG	2008	48	4047	30	1.5	26	3	4	74	11	322.125
ADS11WG	2008	48	4078	10	0.8	30	3	5	74	11	26.16
ADS11WG Total	ADS 11 (FADT 50-250) needing or				82.0						71139.17
ADS11WE	2008	48	4055	12	1.1	30	3	5	10	11	236.225
ADS11WE Total	ADS 11 (FADT <50) needing only				1.1						236.225
ADS11SW	2008	33	42	38	1.9	22		4	4898	11	318.725
ADS11SW	2008	33	6485	13	1.7	24		1	4535	11	2958.371
ADS11SW	2008	33	6485	16	0.5	24		1	4535	11	834.464
ADS11SW	2008	36	110	60	0.1	22		1	3610	11	166.8928
ADS11SW	2008	36	110	80	0.6	24		1	3610	11	1001.357
ADS11SW	2008	33	42	40	1.7	22		4	3438	11	285.175
ADS11SW	2008	33	42	50	1.1	26	3	4	3196	11	184.525
ADS11SW	2008	36	108	60	0.1	22		4	2948	11	44.475
ADS11SW	2008	36	60	30	0.7	22		4	2894	11	1218.153
ADS11SW	2008	36	60	15	7.5	22		4	2790	11	13051.64
ADS11SW	2008	33	6410	20	2.8	22		1	2713	11	4672.998
ADS11SW	2008	33	6410	30	1.1	22		1	2713	11	182.655
ADS11SW	2008	33	6410	40	1.1	20		4	2713	11	184.525
ADS11SW	2008	35	8077	30	1.4	30	3	4	2609	11	2436.306
ADS11SW	2008	0	2011	10	0.5	24	3	4	2536	11	309.8895
ADS11SW	2008	0	2011	30	0.1	24	3	4	2536	11	61.97789
ADS11SW	2008	0	2011	31	1.9	24	3	4	2536	11	1177.58
ADS11SW	2008	0	2011	40	0.7	24	3	4	2536	11	433.8452
ADS11SW	2008	0	2011	50	0.1	24	3	4	2536	11	61.97789
ADS11SW	2008	0	2011	60	0.1	24	3	4	2536	11	61.97789
ADS11SW	2008	0	2011	70	0.2	24	3	4	2536	11	123.9558
ADS11SW	2008	0	2011	80	0.3	24	3	4	2536	11	185.9337
ADS11SW	2008	0	2011	90	0.2	24	3	4	2536	11	123.9558
ADS11SW	2008	0	2011	100	0.4	24	3	4	2536	11	247.9116
ADS11SW	2008	0	2011	110	0.2	24	3	4	2536	11	123.9558
ADS11SW	2008	0	2011	120	0.4	24	3	4	2536	11	247.9116
ADS11SW	2008	0	2011	130	0.1	24	3	4	2536	11	61.97789
ADS11SW	2008	0	2011	20	0.5	28	4	4	2536	11	309.8895
ADS11SW	2008	36	9202	40	1.0	18		1	2517	11	1668.928
ADS11SW	2008	36	30	20	0.4	22		1	2464	11	173.54
ADS11SW	2008	36	30	10	1.5	28	3	4	2464	11	667.125
ADS11SW	2008	36	30	15	1.5	28	3	4	2464	11	667.125
ADS11SW	2008	33	21	90	0.6	24		1	2443	11	1001.357
ADS11SW	2008	33	619	20	0.5	30		1	2242	11	834.464
ADS11SW	2008	33	619	30	0.2	30		1	2242	11	333.7856
ADS11SW	2008	33	619	40	0.5	30		1	2242	11	834.464
ADS11SW	2008	33	619	60	1.3	30		1	2242	11	2169.606
ADS11SW	2008	35	8066	130	1.1	28	3	4	1977	11	1914.24
ADS11SW	2008	35	8066	135	1.3	28	3	4	1977	11	2262.284
ADS11SW	2008	33	42	30	2.9	22		4	1947	11	486.475
ADS11SW	2008	33	42	36	5.4	22		4	1947	11	905.85
ADS11SW	2008	33	21	50	0.8	24		9	1795	11	1335.142
ADS11SW	2008	34	7046	33	1.7	22		4	1775	11	756.075
ADS11SW	2008	34	7046	36	4.8	22		4	1775	11	2134.8
ADS11SW	2008	34	7046	40	0.3	22		4	1775	11	133.425
ADS11SW	2008	48	3003	30	1.0	24	3	4	1734	11	444.75

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NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS SHOULDER TYPE_CODE	MSRIS SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SW	2008	33	16	60	0.3	30	3	4	1718	11	522.0655
ADS11SW	2008	0	2009	20	0.1	26	3	4	1570	11	174.0218
ADS11SW	2008	0	2009	30	0.2	26	3	4	1570	11	348.0437
ADS11SW	2008	0	2009	40	0.2	26	3	4	1570	11	348.0437
ADS11SW	2008	0	2009	50	6.2	26	3	4	1570	11	10789.35
ADS11SW	2008	32	19	20	12.2	26	3	4	1525	11	5425.95
ADS11SW	2008	35	65	60	6.5	30	3	4	1467	11	11311.42
ADS11SW	2008	35	172	10	0.2	24		4	1432	11	348.0437
ADS11SW	2008	48	3003	40	1.1	24	3	4	1429	11	489.225
ADS11SW	2008	36	60	10	5.4	22		4	1400	11	9397.179
ADS11SW	2008	36	108	50	0.1	18		1	1329	11	43.385
ADS11SW	2008	36	60	40	4.1	22		4	1328	11	7134.895
ADS11SW	2008	33	6220	30	0.6	20		1	1298	11	1001.357
ADS11SW	2008	33	6220	10	0.3	24		3	1298	11	522.0655
ADS11SW	2008	33	6220	20	0.1	24	3	4	1298	11	174.0218
ADS11SW	2008	34	7062	10	2.5	26		4	1247	11	1111.875
ADS11SW	2008	36	112	106	0.1	18		1	1221	11	166.8928
ADS11SW	2008	35	271	20	0.2	22		4	1081	11	348.0437
ADS11SW	2008	33	21	80	4.3	24		1	1047	11	7176.39
ADS11SW	2008	34	7046	10	1.3	22		4	1035	11	578.175
ADS11SW	2008	34	7046	20	2.9	22		4	1035	11	1289.775
ADS11SW	2008	34	7046	30	2.2	22		4	1035	11	978.45
ADS11SW	2008	34	7044	10	1.1	22		4	1019	11	489.225
ADS11SW	2008	34	7044	30	2.0	22		4	1019	11	889.5
ADS11SW	2008	35	8073	20	2.5	22		1	974	11	4350.546
ADS11SW	2008	36	9031	20	6.5	18		1	944	11	10848.03
ADS11SW	2008	36	9031	30	3.2	18		1	944	11	5340.569
ADS11SW	2008	36	9031	10	1.8	24		4	944	11	3132.393
ADS11SW	2008	36	9031	15	1.0	22		4	944	11	1740.218
ADS11SW	2008	35	29	30	7.0	28	3	4	921	11	12181.53
ADS11SW	2008	35	131	10	0.2	26	3	4	919	11	123.9558
ADS11SW	2008	0	2015	10	2.0	30	3	4	912	11	3480.437
ADS11SW	2008	0	2015	20	0.1	30	3	4	912	11	174.0218
ADS11SW	2008	0	2015	30	0.1	30	3	4	912	11	174.0218
ADS11SW	2008	32	57	10	0.9	26	3	4	897	11	236.43
ADS11SW	2008	32	5068	10	3.2	24		4	849	11	536.8
ADS11SW	2008	36	30	23	0.2	22		1	841	11	86.77
ADS11SW	2008	36	30	26	0.2	22		1	841	11	86.77
ADS11SW	2008	36	30	28	1.5	22		1	841	11	650.775
ADS11SW	2008	36	30	40	1.0	22		1	841	11	433.85
ADS11SW	2008	36	30	60	1.0	20		1	841	11	433.85
ADS11SW	2008	32	35	35	7.1	30		1	821	11	11849.39
ADS11SW	2008	32	35	40	2.8	24		4	821	11	4872.611
ADS11SW	2008	32	35	50	8.2	24		4	821	11	1375.55
ADS11SW	2008	33	20	10	0.2	24		1	817	11	333.7856
ADS11SW	2008	33	20	30	1.8	24		1	817	11	3004.07
ADS11SW	2008	34	46	10	0.3	24		1	809	11	130.155
ADS11SW	2008	34	46	15	4.1	24		1	809	11	1778.785
ADS11SW	2008	34	46	20	1.2	20		1	809	11	520.62
ADS11SW	2008	35	41	130	1.4	22		3	806	11	2436.306
ADS11SW	2008	35	41	135	3.1	22		3	806	11	5394.677
ADS11SW	2008	36	60	50	5.9	22		4	800	11	10267.29
ADS11SW	2008	35	8090	66	0.1	22		1	783	11	166.8928
ADS11SW	2008	33	6440	80	1.1	20		4	748	11	184.525
ADS11SW	2008	35	8078	20	1.2	24		4	744	11	2088.262
ADS11SW	2008	0	2018	10	0.1	24	3	4	732	11	174.0218
ADS11SW	2008	0	2018	20	0.1	24	3	4	732	11	174.0218
ADS11SW	2008	0	2018	30	0.9	24	3	4	732	11	1566.196
ADS11SW	2008	33	162	10	0.7	14		1	723	11	116.235
ADS11SW	2008	32	35	60	5.8	24		4	723	11	972.95
ADS11SW	2008	32	35	70	3.4	16		4	723	11	570.35

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SW	2008	32	35	80	1.8	30		4	723	11	301.95
ADS11SW	2008	32	35	90	0.9	24		4	723	11	150.975
ADS11SW	2008	36	9660	10	2.1	20		1	705	11	911.085
ADS11SW	2008	36	9660	30	2.0	18		1	705	11	867.7
ADS11SW	2008	36	9660	50	2.1	18		1	705	11	911.085
ADS11SW	2008	33	6530	10	1.0	22		1	701	11	1668.928
ADS11SW	2008	48	4067	10	3.9	26	3	4	688	11	1734.525
ADS11SW	2008	48	4067	20	1.8	26	3	4	688	11	800.55
ADS11SW	2008	34	11	80	4.0	24		1	686	11	1735.4
ADS11SW	2008	34	11	100	3.3	24		1	686	11	1431.705
ADS11SW	2008	48	4063	10	0.8	26	3	4	686	11	355.8
ADS11SW	2008	48	4063	30	3.1	26	3	4	686	11	1378.725
ADS11SW	2008	33	42	25	2.0	22		1	685	11	332.1
ADS11SW	2008	35	8086	70	0.7	26		1	676	11	1218.153
ADS11SW	2008	33	42	10	2.3	30		1	667	11	3838.534
ADS11SW	2008	33	42	20	1.9	22		1	667	11	315.495
ADS11SW	2008	0	2005	15	1.1	24	3	4	662	11	1914.24
ADS11SW	2008	0	2005	20	0.2	24	3	4	662	11	348.0437
ADS11SW	2008	0	2005	30	0.1	24	3	4	662	11	174.0218
ADS11SW	2008	0	2005	40	0.1	24	3	4	662	11	174.0218
ADS11SW	2008	0	2005	50	0.4	24	3	4	662	11	696.0873
ADS11SW	2008	0	2005	60	0.5	24	3	4	662	11	870.1091
ADS11SW	2008	0	2005	70	0.1	24	3	4	662	11	174.0218
ADS11SW	2008	0	2005	80	0.1	24	3	4	662	11	174.0218
ADS11SW	2008	0	2005	90	0.1	24	3	4	662	11	174.0218
ADS11SW	2008	36	9402	120	0.8	18		1	646	11	1335.142
ADS11SW	2008	32	63	10	4.0	28	3	4	640	11	6960.873
ADS11SW	2008	32	63	30	1.7	28	3	4	640	11	2958.371
ADS11SW	2008	32	63	50	0.4	28	3	4	640	11	696.0873
ADS11SW	2008	32	63	70	1.9	28	3	4	640	11	3306.415
ADS11SW	2008	32	63	90	2.2	28	3	4	640	11	3828.48
ADS11SW	2008	32	571	10	2.4	22		1	624	11	1041.24
ADS11SW	2008	33	21	15	5.7	24		9	612	11	9512.889
ADS11SW	2008	33	21	20	8.9	24		9	612	11	14853.46
ADS11SW	2008	33	21	30	1.2	24		9	612	11	2002.714
ADS11SW	2008	33	6486	35	6.6	22		1	610	11	11014.92
ADS11SW	2008	33	6486	50	0.5	20		1	610	11	834.464
ADS11SW	2008	33	6486	55	0.6	20		1	610	11	1044.131
ADS11SW	2008	35	8027	22	0.1	24	3	4	604	11	61.97789
ADS11SW	2008	35	8027	24	0.2	24	3	4	604	11	123.9558
ADS11SW	2008	33	619	65	0.3	30		1	603	11	500.6784
ADS11SW	2008	34	7140	30	3.0	22		4	600	11	1334.25
ADS11SW	2008	34	7140	50	2.2	22		4	600	11	978.45
ADS11SW	2008	34	7140	70	2.8	22		4	600	11	1245.3
ADS11SW	2008	34	7140	90	0.8	22		4	600	11	355.8
ADS11SW	2008	34	7140	110	0.3	22		4	600	11	133.425
ADS11SW	2008	32	367	10	1.9	22		1	598	11	845.025
ADS11SW	2008	32	367	20	1.2	22		1	598	11	520.62
ADS11SW	2008	32	367	15	1.6	22		3	598	11	711.6
ADS11SW	2008	33	16	140	5.0	26	3	5	598	11	1069.355
ADS11SW	2008	33	16	200	3.5	24	2	3	595	11	587.125
ADS11SW	2008	36	544	10	0.3	24		4	591	11	522.0655
ADS11SW	2008	36	544	30	0.1	26	3	4	591	11	174.0218
ADS11SW	2008	34	7120	10	0.1	26	3	4	587	11	26.27
ADS11SW	2008	0	2006	10	0.3	24	3	4	576	11	522.0655
ADS11SW	2008	0	2006	20	0.2	24	3	4	576	11	348.0437
ADS11SW	2008	0	2006	30	0.3	24	3	4	576	11	522.0655
ADS11SW	2008	0	2006	40	0.1	24	3	4	576	11	174.0218
ADS11SW	2008	0	2006	50	0.2	24	3	4	576	11	348.0437
ADS11SW	2008	0	2006	60	0.1	24	3	4	576	11	174.0218
ADS11SW	2008	35	67	45	0.3	24		1	570	11	500.6784

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SW	2008	35	67	50	5.5	24		1	570	11	9179.104
ADS11SW	2008	34	46	45	4.2	20		1	567	11	1822.17
ADS11SW	2008	34	48	10	2.4	28		1	566	11	1041.24
ADS11SW	2008	34	48	20	2.1	28		1	566	11	911.085
ADS11SW	2008	34	48	23	2.7	28		1	566	11	1171.395
ADS11SW	2008	34	48	30	0.3	28		1	566	11	130.155
ADS11SW	2008	32	5099	40	2.4	22		1	563	11	398.52
ADS11SW	2008	32	5099	10	3.0	24		4	563	11	503.25
ADS11SW	2008	32	5099	15	4.0	24		4	563	11	671
ADS11SW	2008	32	5099	30	0.6	24		4	563	11	100.65
ADS11SW	2008	32	5099	50	2.2	24		4	563	11	369.05
ADS11SW	2008	32	5099	53	7.5	24		4	563	11	1258.125
ADS11SW	2008	36	112	80	1.9	18		1	561	11	3170.963
ADS11SW	2008	36	112	82	1.3	18		1	561	11	2169.606
ADS11SW	2008	36	112	84	4.1	18		1	561	11	6842.605
ADS11SW	2008	36	112	86	1.6	18		1	561	11	2670.285
ADS11SW	2008	36	112	100	1.8	18		1	561	11	3004.07
ADS11SW	2008	36	112	102	0.2	18		1	561	11	333.7856
ADS11SW	2008	32	5099	56	0.3	24		4	554	11	50.325
ADS11SW	2008	35	8072	10	5.6	20		1	548	11	9745.222
ADS11SW	2008	32	5000	40	0.1	28	3	4	542	11	44.475
ADS11SW	2008	32	5000	60	2.8	28	3	4	542	11	1245.3
ADS11SW	2008	32	5000	80	0.7	28	3	4	542	11	311.325
ADS11SW	2008	34	7062	15	1.4	26		4	542	11	622.65
ADS11SW	2008	34	7062	20	2.5	24		4	542	11	1111.875
ADS11SW	2008	34	7062	25	1.1	24		4	542	11	489.225
ADS11SW	2008	33	21	77	4.5	24		1	539	11	7510.176
ADS11SW	2008	33	21	60	7.0	24		9	539	11	11682.5
ADS11SW	2008	33	21	65	2.3	24		9	539	11	3838.534
ADS11SW	2008	33	21	70	1.1	24		9	539	11	1835.821
ADS11SW	2008	36	9405	20	6.7	18		1	520	11	11181.82
ADS11SW	2008	36	9405	10	0.8	24		1	520	11	1335.142
ADS11SW	2008	32	5016	10	7.8	24		1	518	11	3384.03
ADS11SW	2008	32	5016	30	0.8	24		1	518	11	347.08
ADS11SW	2008	36	9073	10	1.3	18		1	514	11	2169.606
ADS11SW	2008	36	9073	15	0.6	18		1	514	11	1001.357
ADS11SW	2008	32	364	15	0.8	12		1	508	11	347.08
ADS11SW	2008	32	364	30	3.6	18		1	508	11	1561.86
ADS11SW	2008	32	368	10	1.6	30		1	508	11	694.16
ADS11SW	2008	32	364	50	2.0	24		4	508	11	525.4
ADS11SW	2008	32	364	60	0.9	24		4	508	11	236.43
ADS11SW	2008	32	34	30	0.7	12		1	499	11	311.325
ADS11SW	2008	32	34	40	2.3	24		1	499	11	997.855
ADS11SW	2008	32	5012	10	1.2	24		3	495	11	533.7
ADS11SW	2008	32	5012	30	2.1	24		3	495	11	933.975
ADS11SW	2008	35	8094	26	2.0	20		1	493	11	3337.856
ADS11SW	2008	32	33	70	0.3	26	3	4	490	11	522.0655
ADS11SW	2008	32	33	90	0.8	26	3	4	490	11	1392.175
ADS11SW	2008	32	33	110	1.6	26	3	4	490	11	991.6462
ADS11SW	2008	32	33	130	2.4	26	3	4	490	11	4176.524
ADS11SW	2008	32	33	150	0.7	26	3	4	490	11	1218.153
ADS11SW	2008	32	33	170	1.4	26	3	4	490	11	2436.306
ADS11SW	2008	32	33	190	1.5	26	3	4	490	11	2610.327
ADS11SW	2008	32	33	210	0.7	28	3	4	490	11	1218.153
ADS11SW	2008	34	7111	10	2.8	24		1	487	11	1214.78
ADS11SW	2008	33	16	150	2.5	18		1	486	11	4172.32
ADS11SW	2008	36	151	50	4.2	20		1	484	11	7009.497
ADS11SW	2008	36	151	55	4.7	20		1	484	11	7843.961
ADS11SW	2008	35	8029	10	0.1	20		1	480	11	174.0218
ADS11SW	2008	33	16	170	4.1	24		1	478	11	6842.605
ADS11SW	2008	36	9345	64	0.4	28	3	4	475	11	247.9116

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NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS SHOULDER TYPE_CODE	MSRIS SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SW	2008	36	9345	70	0.5	28	3	4	475	11	309.8895
ADS11SW	2008	36	321	80	0.2	18		4	471	11	88.95
ADS11SW	2008	35	8031	50	0.8	22		1	468	11	1335.142
ADS11SW	2008	35	8031	60	1.5	22		1	468	11	2503.392
ADS11SW	2008	35	8031	40	0.5	22		3	468	11	870.1091
ADS11SW	2008	35	8031	10	1.2	24	3	4	468	11	743.7347
ADS11SW	2008	35	8031	30	3.2	24	3	4	468	11	1983.292
ADS11SW	2008	35	8031	35	1.1	22		4	468	11	681.7568
ADS11SW	2008	34	7052	30	0.4	18		1	466	11	177.9
ADS11SW	2008	35	61	60	4.8	20		1	466	11	8353.048
ADS11SW	2008	33	71	10	0.7	29		3	466	11	1218.153
ADS11SW	2008	33	71	30	0.9	29		3	466	11	1566.196
ADS11SW	2008	48	4095	20	0.1	28	3	4	466	11	44.475
ADS11SW	2008	48	4095	30	0.4	28	3	4	466	11	177.9
ADS11SW	2008	48	4095	35	0.9	28	3	4	466	11	400.275
ADS11SW	2008	32	5049	10	3.6	12		1	465	11	6264.786
ADS11SW	2008	35	65	10	2.7	22		1	463	11	4506.105
ADS11SW	2008	32	5001	10	0.2	20		1	460	11	86.77
ADS11SW	2008	32	5001	15	0.1	20		1	460	11	43.385
ADS11SW	2008	33	6510	10	5.8	24		1	453	11	9679.782
ADS11SW	2008	33	6510	20	1.6	24		1	453	11	2670.285
ADS11SW	2008	33	6510	30	2.8	20		1	453	11	4672.998
ADS11SW	2008	33	6510	40	2.5	20		1	453	11	4172.32
ADS11SW	2008	48	4002	10	1.6	26	3	4	453	11	711.6
ADS11SW	2008	48	4002	13	0.6	26	3	4	453	11	266.85
ADS11SW	2008	48	4002	16	3.2	26	3	4	453	11	1423.2
ADS11SW	2008	48	4002	30	2.8	26	3	4	453	11	1245.3
ADS11SW	2008	33	61	10	1.4	22		4	448	11	234.85
ADS11SW	2008	0	2003	15	1.1	26	3	4	447	11	1914.24
ADS11SW	2008	0	2003	20	1.2	26	3	4	447	11	2088.262
ADS11SW	2008	0	2003	30	0.1	24	3	4	447	11	174.0218
ADS11SW	2008	0	2003	40	0.3	24	3	4	447	11	522.0655
ADS11SW	2008	0	2003	50	0.2	24	3	4	447	11	348.0437
ADS11SW	2008	0	2003	60	0.1	24	3	4	447	11	174.0218
ADS11SW	2008	0	2003	70	0.2	24	3	4	447	11	348.0437
ADS11SW	2008	0	2003	80	0.2	24	3	4	447	11	348.0437
ADS11SW	2008	0	2003	90	0.2	24	3	4	447	11	348.0437
ADS11SW	2008	33	6221	10	1.1	22		1	446	11	1835.821
ADS11SW	2008	33	6221	20	1.7	20		1	446	11	2837.178
ADS11SW	2008	32	556	10	1.2	18		1	441	11	520.62
ADS11SW	2008	35	25	45	2.0	20		4	441	11	3480.437
ADS11SW	2008	35	8073	30	4.3	22		1	440	11	7482.938
ADS11SW	2008	33	591	10	8.8	24		9	440	11	14686.57
ADS11SW	2008	36	9551	10	3.1	16		1	438	11	1344.935
ADS11SW	2008	33	71	50	2.8	29		3	434	11	4872.611
ADS11SW	2008	35	133	40	0.6	22		1	432	11	1001.357
ADS11SW	2008	35	133	45	1.7	22		1	432	11	2837.178
ADS11SW	2008	32	5010	90	2.2	30		1	429	11	954.47
ADS11SW	2008	32	5010	110	2.8	30		1	429	11	1214.78
ADS11SW	2008	32	35	10	4.9	30		1	428	11	8177.747
ADS11SW	2008	34	7034	20	1.9	24		3	428	11	845.025
ADS11SW	2008	0	2004	10	0.7	24	3	4	423	11	1218.153
ADS11SW	2008	0	2004	20	0.2	24	3	4	423	11	348.0437
ADS11SW	2008	0	2004	30	0.1	24	3	4	423	11	174.0218
ADS11SW	2008	0	2004	40	0.1	24	3	4	423	11	174.0218
ADS11SW	2008	0	2004	50	0.1	24	3	4	423	11	174.0218
ADS11SW	2008	0	2004	60	0.3	24	3	4	423	11	522.0655
ADS11SW	2008	35	26	10	8.6	20		1	420	11	14352.78
ADS11SW	2008	35	26	20	0.3	20		1	420	11	500.6784
ADS11SW	2008	35	60	40	1.4	22		1	420	11	2336.499
ADS11SW	2008	35	8078	40	4.1	26		1	420	11	7134.895

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NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SW	2008	36	9408	10	3.4	18		1	419	11	5674.355
ADS11SW	2008	0	2002	40	0.2	26	3	4	417	11	348.0437
ADS11SW	2008	48	4050	10	1.0	26	3	4	413	11	444.75
ADS11SW	2008	48	4050	20	5.3	26	3	4	413	11	2357.175
ADS11SW	2008	0	2021	10	1.0	24	3	4	411	11	1740.218
ADS11SW	2008	32	192	10	3.7	20		1	408	11	1605.245
ADS11SW	2008	0	2011	360	0.7	24		1	405	11	433.8452
ADS11SW	2008	0	2011	370	0.1	24		1	405	11	61.97789
ADS11SW	2008	0	2011	140	0.1	24	3	4	405	11	61.97789
ADS11SW	2008	0	2011	150	0.2	24	3	4	405	11	123.9558
ADS11SW	2008	0	2011	160	0.1	24	3	4	405	11	61.97789
ADS11SW	2008	0	2011	170	0.3	24	3	4	405	11	185.9337
ADS11SW	2008	0	2011	180	0.2	24	3	4	405	11	123.9558
ADS11SW	2008	0	2011	190	0.2	24	3	4	405	11	123.9558
ADS11SW	2008	0	2011	200	0.1	24	3	4	405	11	61.97789
ADS11SW	2008	0	2011	210	0.1	24	3	4	405	11	61.97789
ADS11SW	2008	0	2011	220	0.1	24	3	4	405	11	61.97789
ADS11SW	2008	0	2011	230	0.2	24	3	4	405	11	123.9558
ADS11SW	2008	0	2011	240	0.1	24	3	4	405	11	61.97789
ADS11SW	2008	0	2011	250	0.1	24	3	4	405	11	61.97789
ADS11SW	2008	0	2011	260	0.1	24	3	4	405	11	61.97789
ADS11SW	2008	0	2011	270	0.1	24	3	4	405	11	61.97789
ADS11SW	2008	0	2011	280	0.2	24	3	4	405	11	123.9558
ADS11SW	2008	0	2011	290	0.1	24	3	4	405	11	61.97789
ADS11SW	2008	0	2011	300	0.1	24	3	4	405	11	61.97789
ADS11SW	2008	0	2011	310	0.2	24	3	4	405	11	123.9558
ADS11SW	2008	0	2011	320	0.2	24	3	4	405	11	123.9558
ADS11SW	2008	0	2011	330	0.1	24	3	4	405	11	61.97789
ADS11SW	2008	0	2011	340	0.2	24	3	4	405	11	123.9558
ADS11SW	2008	0	2011	350	0.2	24	3	4	405	11	123.9558
ADS11SW	2008	36	321	83	0.5	18		1	404	11	216.925
ADS11SW	2008	36	321	86	1.9	18		1	404	11	824.315
ADS11SW	2008	35	8031	90	2.8	22		1	402	11	4672.998
ADS11SW	2008	35	8031	100	1.0	22		1	402	11	1668.928
ADS11SW	2008	35	8031	105	7.5	22		1	402	11	12516.96
ADS11SW	2008	35	8031	65	2.6	22		1	402	11	4339.213
ADS11SW	2008	35	8031	80	0.9	22		1	402	11	1502.035
ADS11SW	2008	34	1045	10	0.6	24		4	402	11	266.85
ADS11SW	2008	48	4065	10	7.6	30	3	4	402	11	3380.1
ADS11SW	2008	48	4065	30	0.9	26	3	4	402	11	400.275
ADS11SW	2008	48	4065	40	2.6	26	3	4	402	11	1156.35
ADS11SW	2008	35	251	60	8.5	22		4	401	11	14791.86
ADS11SW	2008	35	251	65	6.0	22		4	401	11	10441.31
ADS11SW	2008	36	9501	10	0.7	18		1	398	11	303.695
ADS11SW	2008	36	9501	30	1.7	18		1	398	11	737.545
ADS11SW	2008	36	9345	10	0.4	20		1	396	11	667.5712
ADS11SW	2008	36	9345	20	0.3	24		1	396	11	500.6784
ADS11SW	2008	36	9054	10	5.3	20		1	394	11	8845.318
ADS11SW	2008	36	9054	30	0.2	20		1	394	11	333.7856
ADS11SW	2008	33	16	10	0.5	28		1	391	11	834.464
ADS11SW	2008	33	16	30	2.0	28		1	391	11	3337.856
ADS11SW	2008	33	16	40	5.8	28		1	391	11	9679.782
ADS11SW	2008	33	16	50	6.5	30		1	391	11	10848.03
ADS11SW	2008	35	8087	10	0.8	20		1	391	11	1335.142
ADS11SW	2008	34	57	10	2.6	20		1	389	11	1128.01
ADS11SW	2008	34	57	20	2.0	14		1	389	11	867.7
ADS11SW	2008	33	61	20	5.6	30		3	389	11	939.4
ADS11SW	2008	32	366	30	0.9	24		1	380	11	390.465
ADS11SW	2008	32	366	40	1.4	22		1	380	11	607.39
ADS11SW	2008	33	6222	10	2.0	20		1	373	11	3337.856
ADS11SW	2008	33	16	160	1.4	24		1	371	11	2336.499

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SW	2008	33	16	180	1.7	24		1	371	11	2837.178
ADS11SW	2008	33	16	190	1.1	24	2	3	371	11	184.525
ADS11SW	2008	36	9402	10	1.6	20		1	364	11	2670.285
ADS11SW	2008	36	694	10	1.2	15		1	362	11	520.62
ADS11SW	2008	35	61	40	2.4	20		1	361	11	4176.524
ADS11SW	2008	35	8091	10	1.2	24		1	361	11	2002.714
ADS11SW	2008	35	8091	15	0.3	24		1	361	11	500.6784
ADS11SW	2008	35	8066	10	0.9	22		1	359	11	1566.196
ADS11SW	2008	35	8066	30	4.1	22		1	359	11	7134.895
ADS11SW	2008	32	362	40	1.5	18		1	356	11	650.775
ADS11SW	2008	32	362	50	1.7	22		1	356	11	737.545
ADS11SW	2008	36	9010	20	0.2	16		1	352	11	333.7856
ADS11SW	2008	33	6720	70	13.3	24		1	350	11	22196.74
ADS11SW	2008	35	67	55	2.9	24		1	350	11	4839.891
ADS11SW	2008	32	5012	65	2.2	24		1	347	11	954.47
ADS11SW	2008	32	5012	80	4.1	24		1	347	11	1823.475
ADS11SW	2008	32	5012	100	0.9	24		1	347	11	390.465
ADS11SW	2008	35	8027	40	4.1	20		1	340	11	7134.895
ADS11SW	2008	35	8073	10	10.8	22		1	336	11	18794.36
ADS11SW	2008	35	8027	20	2.4	20		1	333	11	4176.524
ADS11SW	2008	36	9402	80	1.0	18		1	331	11	1668.928
ADS11SW	2008	36	9402	30	0.1	20		3	331	11	174.0218
ADS11SW	2008	36	9062	40	4.6	20		1	330	11	7677.069
ADS11SW	2008	36	39	40	0.9	18		1	325	11	1502.035
ADS11SW	2008	32	68	10	11.1	22		1	318	11	18525.1
ADS11SW	2008	36	9065	15	13.3	18		1	318	11	22196.74
ADS11SW	2008	33	6331	10	1.0	30		1	316	11	1668.928
ADS11SW	2008	33	6331	20	0.4	30		1	316	11	667.5712
ADS11SW	2008	35	8087	30	0.1	20		1	316	11	166.8928
ADS11SW	2008	35	8087	34	0.1	20		1	316	11	166.8928
ADS11SW	2008	35	8087	36	1.8	20		1	316	11	3004.07
ADS11SW	2008	32	8008	10	0.8	30		1	315	11	1335.142
ADS11SW	2008	32	8008	30	3.9	18		1	315	11	6508.819
ADS11SW	2008	32	8008	50	0.8	18		1	315	11	1335.142
ADS11SW	2008	36	9010	10	9.8	24		1	312	11	16355.49
ADS11SW	2008	34	485	10	8.0	22		1	306	11	3470.8
ADS11SW	2008	33	6485	10	2.4	24		1	300	11	4176.524
ADS11SW	2008	35	8027	10	7.0	20		1	300	11	12181.53
ADS11SW	2008	36	9252	10	2.7	18		1	297	11	4506.105
ADS11SW	2008	0	2007	30	1.1	24		1	291	11	681.7568
ADS11SW	2008	0	2007	35	0.1	24		1	291	11	61.97789
ADS11SW	2008	0	2007	50	1.1	24		1	291	11	681.7568
ADS11SW	2008	36	9702	10	8.9	18		1	291	11	14853.46
ADS11SW	2008	36	9010	25	9.6	20		1	288	11	16021.71
ADS11SW	2008	36	9010	30	8.6	18		1	288	11	14352.78
ADS11SW	2008	34	471	10	3.9	20		1	287	11	1692.015
ADS11SW	2008	34	471	30	1.6	20		1	287	11	694.16
ADS11SW	2008	34	471	35	6.4	20		1	287	11	2776.64
ADS11SW	2008	35	8059	10	4.2	20		1	287	11	7308.917
ADS11SW	2008	35	8059	15	1.9	20		1	287	11	3306.415
ADS11SW	2008	36	39	20	0.1	18		1	287	11	166.8928
ADS11SW	2008	36	39	60	3.1	18		1	287	11	5173.677
ADS11SW	2008	36	39	80	0.7	18		1	287	11	1168.25
ADS11SW	2008	32	35	15	8.1	30		1	285	11	13518.32
ADS11SW	2008	32	35	30	8.3	30		1	285	11	13852.1
ADS11SW	2008	36	28	70	0.2	22		1	285	11	348.0437
ADS11SW	2008	36	28	73	0.2	20		1	285	11	348.0437
ADS11SW	2008	36	28	76	0.5	20		1	285	11	870.1091
ADS11SW	2008	33	21	103	2.1	24		1	281	11	3504.749
ADS11SW	2008	33	21	100	2.6	24		9	281	11	4339.213
ADS11SW	2008	36	9010	35	3.2	20		1	279	11	5340.569

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SW	2008	36	9010	40	0.3	24		1	279	11	500.6784
ADS11SW	2008	36	9010	45	0.6	24		1	279	11	1001.357
ADS11SW	2008	33	20	40	2.5	24		9	279	11	4172.32
ADS11SW	2008	35	8062	20	11.0	20		1	278	11	19142.4
ADS11SW	2008	35	8068	10	9.5	20		1	278	11	16532.07
ADS11SW	2008	35	8067	10	4.8	24		1	276	11	8010.854
ADS11SW	2008	34	7035	10	4.5	18		1	275	11	1952.325
ADS11SW	2008	35	8086	35	2.1	22		1	275	11	3504.749
ADS11SW	2008	35	8086	50	2.3	26		1	275	11	3838.534
ADS11SW	2008	34	59	10	5.4	20		1	273	11	2342.79
ADS11SW	2008	32	5000	90	0.5	21		1	270	11	216.925
ADS11SW	2008	32	5000	100	1.4	21		1	270	11	607.39
ADS11SW	2008	32	5000	120	1.6	21		1	270	11	694.16
ADS11SW	2008	32	5000	130	0.3	21		1	270	11	130.155
ADS11SW	2008	32	5000	135	0.2	21		1	270	11	86.77
ADS11SW	2008	32	5000	150	1.7	21		1	270	11	737.545
ADS11SW	2008	32	5000	170	3.0	21		1	270	11	1301.55
ADS11SW	2008	32	5000	190	1.3	21		1	270	11	564.005
ADS11SW	2008	32	5000	210	1.0	21		1	270	11	433.85
ADS11SW	2008	34	7049	10	5.1	20		1	269	11	2212.635
ADS11SW	2008	36	693	20	4.1	18		1	269	11	1778.785
ADS11SW	2008	32	364	10	1.5	12		1	264	11	650.775
ADS11SW	2008	35	8066	40	2.3	22		1	264	11	4002.502
ADS11SW	2008	35	8066	50	0.8	20		1	264	11	1392.175
ADS11SW	2008	35	8066	55	5.0	20		1	264	11	8701.091
ADS11SW	2008	35	8066	70	0.1	20		1	264	11	174.0218
ADS11SW	2008	33	6410	10	0.6	18		1	263	11	99.63
ADS11SW	2008	35	67	40	2.5	24		1	263	11	4172.32
ADS11SW	2008	32	5060	20	9.1	28		3	261	11	1526.525
ADS11SW	2008	32	56	10	3.4	24		1	260	11	1475.09
ADS11SW	2008	36	9052	10	10.8	18		1	258	11	18024.42
ADS11SW	2008	36	9201	10	5.8	18		1	258	11	9679.782
ADS11SW	2008	32	5066	10	8.7	18		1	255	11	1444.635
ADS11SW	2008	35	8068	50	9.3	20		1	252	11	16184.03
ADS11SW	2008	36	9659	10	5.6	18		1	252	11	2429.56
ADS11SW	2008	33	20	70	5.5	24		9	252	11	9179.104
ADS11SW	2008	34	52	10	1.5	20		1	251	11	650.775
ADS11SW	2008	34	52	15	0.6	20		1	251	11	260.31
ADS11SW	2008	34	52	20	1.1	20		1	251	11	477.235
ADS11SW	2008	34	52	30	1.0	20		1	251	11	433.85
ADS11SW	2008	34	52	35	0.2	20		1	251	11	86.77
ADS11SW	2008	35	8029	20	5.0	20		1	251	11	8701.091
ADS11SW	2008	35	8059	100	1.0	20		1	251	11	1740.218
ADS11SW	2008	35	8059	110	1.6	20		1	251	11	2784.349
ADS11SW	2008	35	8059	120	1.0	20		1	251	11	1740.218
ADS11SW Total	ADS 11 needing surface upgrade ar				988.7						1169257
ADS11SWG	2008	36	9503	10	4.2	18		1	247	11	1297.17
ADS11SWG	2008	32	5113	33	5.1	22		1	236	11	1575.135
ADS11SWG	2008	32	5113	36	0.1	22		1	236	11	30.885
ADS11SWG	2008	36	31	30	1.8	20		1	236	11	555.93
ADS11SWG	2008	35	25	20	4.5	21		1	233	11	6481.399
ADS11SWG	2008	35	25	30	4.7	21		1	233	11	6769.461
ADS11SWG	2008	36	25	10	9.3	18		1	233	11	13394.89
ADS11SWG	2008	36	153	10	7.4	18		1	233	11	10658.3
ADS11SWG	2008	36	9101	20	1.6	18		1	233	11	2304.498
ADS11SWG	2008	36	9101	30	4.0	18		1	233	11	5761.244
ADS11SWG	2008	36	9101	16	2.6	18		1	230	11	3744.808
ADS11SWG	2008	36	9101	40	3.6	18		1	230	11	5185.119
ADS11SWG	2008	36	9402	20	4.5	20		1	229	11	6481.399
ADS11SWG	2008	36	9402	23	4.6	20		1	229	11	6625.43
ADS11SWG	2008	33	6730	50	1.7	24		1	224	11	2448.529

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NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SWG	2008	32	5000	30	2.8	24		1	220	11	864.78
ADS11SWG	2008	33	6460	10	14.0	20		1	218	11	20164.35
ADS11SWG	2008	33	6460	15	7.3	20		1	218	11	10514.27
ADS11SWG	2008	33	6460	20	0.9	20		1	218	11	1296.28
ADS11SWG	2008	36	9402	15	1.2	20		1	212	11	1728.373
ADS11SWG	2008	33	6486	10	0.9	17		1	209	11	1296.28
ADS11SWG	2008	33	6486	30	1.3	22		1	209	11	1872.404
ADS11SWG	2008	35	8066	72	1.0	24		1	209	11	1511.601
ADS11SWG	2008	35	8066	75	3.5	22		1	209	11	5290.604
ADS11SWG	2008	35	8066	80	0.7	22		1	209	11	1058.121
ADS11SWG	2008	36	9000	40	0.7	18		1	206	11	1008.218
ADS11SWG	2008	36	9000	45	4.7	18		1	206	11	6769.461
ADS11SWG	2008	32	5003	10	1.8	12		1	205	11	555.93
ADS11SWG	2008	36	9901	10	9.9	24		1	203	11	14259.08
ADS11SWG	2008	32	5010	10	4.4	18		1	202	11	1358.94
ADS11SWG	2008	32	5010	20	0.1	18		1	202	11	30.885
ADS11SWG	2008	32	5010	65	0.3	12		1	202	11	92.655
ADS11SWG	2008	32	5010	80	1.1	12		1	202	11	339.735
ADS11SWG	2008	35	8029	30	3.6	20		1	202	11	5441.765
ADS11SWG	2008	36	28	52	4.4	18		1	202	11	6651.046
ADS11SWG	2008	36	28	54	0.4	18		1	202	11	604.6405
ADS11SWG	2008	36	28	56	1.7	20		1	202	11	2569.722
ADS11SWG	2008	36	28	57	0.7	22		1	202	11	1058.121
ADS11SWG	2008	36	28	58	0.2	24		1	202	11	302.3203
ADS11SWG	2008	36	28	59	0.2	26		1	202	11	302.3203
ADS11SWG	2008	32	5010	40	0.9	18		9	202	11	277.965
ADS11SWG	2008	32	5010	50	1.3	12		9	202	11	401.505
ADS11SWG	2008	32	5010	60	0.3	12		9	202	11	92.655
ADS11SWG	2008	35	271	10	2.0	22		1	199	11	2880.622
ADS11SWG	2008	35	271	15	1.4	22		1	199	11	2016.435
ADS11SWG	2008	32	5002	10	0.6	16		1	198	11	185.31
ADS11SWG	2008	36	692	10	2.1	23		1	196	11	648.585
ADS11SWG	2008	32	8009	10	6.5	10		1	195	11	9362.021
ADS11SWG	2008	33	591	20	2.4	24		1	193	11	3456.746
ADS11SWG	2008	36	37	15	2.1	18		1	193	11	648.585
ADS11SWG	2008	32	5001	30	3.0	20		1	189	11	926.55
ADS11SWG	2008	32	5001	35	1.1	20		1	189	11	339.735
ADS11SWG	2008	32	5001	50	0.4	20		1	189	11	123.54
ADS11SWG	2008	32	5001	70	0.4	20		1	189	11	123.54
ADS11SWG	2008	32	5001	71	0.3	20		1	189	11	92.655
ADS11SWG	2008	32	5001	72	0.6	20		1	189	11	185.31
ADS11SWG	2008	32	5001	73	1.3	20		1	189	11	401.505
ADS11SWG	2008	32	5001	74	1.7	20		1	189	11	525.045
ADS11SWG	2008	32	5001	75	3.3	20		1	189	11	1019.205
ADS11SWG	2008	33	6730	30	11.4	24		1	187	11	16419.54
ADS11SWG	2008	33	6730	40	14.8	24		1	187	11	21316.6
ADS11SWG	2008	36	9065	10	6.1	18		1	187	11	8785.897
ADS11SWG	2008	36	9401	10	10.7	18		1	187	11	15411.33
ADS11SWG	2008	32	5113	10	5.6	22		1	186	11	1729.56
ADS11SWG	2008	32	5113	30	1.1	22		1	186	11	339.735
ADS11SWG	2008	33	221	55	2.4	24		1	183	11	3456.746
ADS11SWG	2008	33	221	60	3.0	24		1	183	11	4320.933
ADS11SWG	2008	35	8017	10	0.5	20		1	183	11	720.1555
ADS11SWG	2008	36	9062	10	1.6	22		1	183	11	2304.498
ADS11SWG	2008	36	9062	30	4.9	20		1	183	11	7057.524
ADS11SWG	2008	36	9062	20	6.6	20		1	183	11	9506.052
ADS11SWG	2008	36	9062	25	3.5	20		1	183	11	5041.088
ADS11SWG	2008	33	221	70	1.6	24		9	183	11	2304.498
ADS11SWG	2008	32	30	260	0.6	18		1	181	11	864.1866
ADS11SWG	2008	35	8059	30	0.7	20		1	181	11	1058.121
ADS11SWG	2008	35	8066	110	1.0	20		1	181	11	1511.601

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NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SWG	2008	33	71	60	3.6	26		9	181	11	5185.119
ADS11SWG	2008	36	9355	10	14.6	18		1	180	11	21028.54
ADS11SWG	2008	36	9844	10	8.1	18		1	180	11	11666.52
ADS11SWG	2008	33	6450	40	8.7	10		1	178	11	12530.71
ADS11SWG	2008	33	6450	50	3.2	20		1	178	11	4608.995
ADS11SWG	2008	32	5012	60	1.6	24		1	177	11	494.16
ADS11SWG	2008	35	8079	10	5.9	22		1	174	11	8497.835
ADS11SWG	2008	36	69	10	3.5	20		1	171	11	1080.975
ADS11SWG	2008	33	20	50	13.1	24		1	169	11	18868.07
ADS11SWG	2008	35	251	10	2.0	20		1	169	11	2880.622
ADS11SWG	2008	33	20	45	3.4	24		9	169	11	4897.057
ADS11SWG	2008	33	20	65	3.0	24		9	169	11	4320.933
ADS11SWG	2008	36	9404	10	2.8	22		1	168	11	4032.871
ADS11SWG	2008	36	9404	20	3.3	18		1	168	11	4753.026
ADS11SWG	2008	36	9404	30	3.3	16		1	168	11	4753.026
ADS11SWG	2008	32	5005	10	1.7	24		1	166	11	525.045
ADS11SWG	2008	32	5005	20	0.5	24		1	166	11	154.425
ADS11SWG	2008	32	5005	40	6.6	24		1	166	11	2038.41
ADS11SWG	2008	35	8027	26	2.9	22		1	166	11	4383.644
ADS11SWG	2008	35	8027	28	6.3	20		1	166	11	9523.088
ADS11SWG	2008	35	8027	30	9.6	22		1	166	11	14511.37
ADS11SWG	2008	36	9005	20	4.9	18		1	165	11	7057.524
ADS11SWG	2008	36	9005	30	1.5	18		1	165	11	2160.466
ADS11SWG	2008	36	9205	10	3.9	18		1	163	11	5617.213
ADS11SWG	2008	36	9703	10	15.6	18		1	163	11	23580.98
ADS11SWG	2008	36	9840	10	4.9	18		1	163	11	7406.846
ADS11SWG	2008	35	29	10	4.7	22		1	160	11	6769.461
ADS11SWG	2008	35	29	20	19.1	23		1	160	11	27509.94
ADS11SWG	2008	36	9001	10	3.9	18		1	160	11	5617.213
ADS11SWG	2008	36	9001	15	9.9	18		1	160	11	14259.08
ADS11SWG	2008	33	71	70	4.3	22		9	159	11	6193.337
ADS11SWG	2008	34	7057	20	0.5	20		1	156	11	154.425
ADS11SWG	2008	34	7128	10	2.1	17		1	156	11	648.585
ADS11SWG	2008	34	7128	20	6.0	18		1	156	11	1853.1
ADS11SWG	2008	32	63	180	1.9	24		1	154	11	586.815
ADS11SWG	2008	32	5020	26	2.2	24		1	154	11	679.47
ADS11SWG	2008	32	5020	40	3.4	24		1	154	11	1050.09
ADS11SWG	2008	32	5020	60	9.5	24		1	154	11	2934.075
ADS11SWG	2008	36	9011	10	8.5	18		1	153	11	12242.64
ADS11SWG	2008	35	8074	10	1.7	22		1	151	11	2448.529
ADS11SWG	2008	35	8074	30	5.4	22		1	151	11	7777.679
ADS11SWG	2008	35	8074	40	3.0	22		1	151	11	4320.933
ADS11SWG	2008	35	8074	50	0.7	22		1	151	11	1008.218
ADS11SWG	2008	35	8074	20	0.7	22		1	151	11	1008.218
ADS11SWG	2008	35	8084	40	0.8	20		1	150	11	1209.281
ADS11SWG	2008	35	8084	60	0.1	22		1	150	11	151.1601
ADS11SWG	2008	35	8084	66	1.2	20		1	150	11	1813.922
ADS11SWG	2008	35	8084	80	1.6	20		1	150	11	2418.562
ADS11SWG	2008	35	8084	100	9.8	20		1	150	11	14813.69
ADS11SWG	2008	35	8084	105	2.0	18		1	150	11	3023.203
ADS11SWG	2008	35	8084	110	3.9	18		1	150	11	5895.245
ADS11SWG	2008	35	8043	10	10.8	20		1	147	11	16325.29
ADS11SWG	2008	35	8063	10	7.1	26		1	144	11	10732.37
ADS11SWG	2008	36	9055	10	9.5	18		1	143	11	13682.95
ADS11SWG	2008	36	9406	10	5.4	18		1	143	11	7777.679
ADS11SWG	2008	35	172	50	4.2	22		1	140	11	6348.725
ADS11SWG	2008	35	8068	30	1.9	20		1	140	11	2872.042
ADS11SWG	2008	36	30	80	0.9	20		1	140	11	277.965
ADS11SWG	2008	36	9053	10	6.9	18		1	138	11	9938.146
ADS11SWG	2008	35	8034	10	4.1	20		1	137	11	5905.275
ADS11SWG	2008	35	8034	20	3.6	20		1	137	11	5185.119

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SWG	2008	35	8066	140	4.5	22		1	134	11	6802.206
ADS11SWG	2008	35	8066	150	1.2	20		1	134	11	1813.922
ADS11SWG	2008	32	38	10	4.4	12		1	132	11	1358.94
ADS11SWG	2008	32	38	20	2.0	12		1	132	11	617.7
ADS11SWG	2008	34	46	25	5.4	20		1	132	11	1667.79
ADS11SWG	2008	34	46	30	4.0	20		1	132	11	1235.4
ADS11SWG	2008	34	46	40	0.6	20		1	132	11	185.31
ADS11SWG	2008	35	8090	60	7.3	22		1	132	11	10514.27
ADS11SWG	2008	35	8090	62	6.5	22		1	132	11	9362.021
ADS11SWG	2008	36	321	40	3.8	18		1	131	11	1173.63
ADS11SWG	2008	36	9051	10	3.7	18		1	131	11	5329.151
ADS11SWG	2008	36	9051	20	4.6	18		1	131	11	6625.43
ADS11SWG	2008	35	8065	10	9.4	22		1	129	11	14209.05
ADS11SWG	2008	35	8065	30	0.5	22		1	129	11	755.8006
ADS11SWG	2008	35	8077	20	16.2	20		1	129	11	24487.94
ADS11SWG	2008	36	203	10	17.8	18		1	129	11	25637.53
ADS11SWG	2008	33	213	10	1.7	24		1	123	11	2448.529
ADS11SWG	2008	35	8090	36	3.2	22		1	123	11	4608.995
ADS11SWG	2008	35	8090	40	5.2	22		1	123	11	7489.617
ADS11SWG	2008	35	8090	45	2.5	22		1	123	11	3779.003
ADS11SWG	2008	32	366	20	3.3	18		1	120	11	1019.205
ADS11SWG	2008	33	6810	10	4.7	28		1	120	11	6769.461
ADS11SWG	2008	33	6810	16	0.2	28		1	120	11	288.0622
ADS11SWG	2008	33	6810	20	5.0	28		1	120	11	7201.555
ADS11SWG	2008	35	8090	10	13.3	22		1	120	11	19156.14
ADS11SWG	2008	35	8090	30	4.7	22		1	120	11	6769.461
ADS11SWG	2008	35	8090	32	5.1	22		1	120	11	7345.586
ADS11SWG	2008	35	8090	34	6.0	22		1	120	11	8641.866
ADS11SWG	2008	32	5010	120	2.1	12		1	119	11	648.585
ADS11SWG	2008	32	5010	140	0.2	12		1	119	11	61.77
ADS11SWG	2008	33	70	40	0.5	24		1	119	11	720.1555
ADS11SWG	2008	33	70	42	0.9	24		1	119	11	1296.28
ADS11SWG	2008	33	70	44	0.2	24		1	119	11	288.0622
ADS11SWG	2008	33	70	46	0.3	24		1	119	11	432.0933
ADS11SWG	2008	33	70	60	0.1	24		1	119	11	144.0311
ADS11SWG	2008	36	9000	10	1.7	20		1	119	11	2448.529
ADS11SWG	2008	36	9000	30	0.6	18		1	119	11	864.1866
ADS11SWG	2008	33	70	70	0.6	24		9	119	11	864.1866
ADS11SWG	2008	33	70	80	3.0	24		9	119	11	4320.933
ADS11SWG	2008	35	8042	10	7.8	18		1	117	11	11790.49
ADS11SWG	2008	36	9002	10	8.6	18		1	117	11	12386.67
ADS11SWG	2008	36	9002	20	1.2	18		1	117	11	1728.373
ADS11SWG	2008	36	9411	10	3.1	20		1	117	11	4464.964
ADS11SWG	2008	36	9450	10	0.8	18		1	117	11	1152.249
ADS11SWG	2008	36	9860	10	21.9	18		1	117	11	31542.81
ADS11SWG	2008	36	9010	60	2.0	16		1	114	11	2880.622
ADS11SWG	2008	36	9074	10	1.1	18		9	114	11	1584.342
ADS11SWG	2008	33	70	10	3.6	24		1	113	11	5185.119
ADS11SWG	2008	33	6330	5	3.0	16		1	113	11	4320.933
ADS11SWG	2008	35	8086	10	6.8	22		1	113	11	9794.114
ADS11SWG	2008	35	8086	30	5.7	22		1	113	11	8209.772
ADS11SWG	2008	35	8088	10	4.8	24		1	113	11	6913.493
ADS11SWG	2008	36	28	30	0.4	20		1	113	11	604.6405
ADS11SWG	2008	36	28	40	1.0	22		1	113	11	1440.311
ADS11SWG	2008	36	28	43	4.6	18		1	113	11	6625.43
ADS11SWG	2008	36	28	46	4.4	18		1	113	11	6337.368
ADS11SWG	2008	36	28	50	0.5	18		1	113	11	755.8006
ADS11SWG	2008	35	8015	10	1.6	18		1	111	11	2304.498
ADS11SWG	2008	35	8015	30	5.5	18		1	111	11	7921.71
ADS11SWG	2008	36	9061	10	3.9	18		1	110	11	5617.213
ADS11SWG	2008	36	9402	85	1.4	18		1	110	11	2016.435

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SWG	2008	35	8074	60	0.1	20		1	108	11	144.0311
ADS11SWG	2008	32	5201	10	1.7	12		1	107	11	525.045
ADS11SWG	2008	34	55	20	16.7	20		1	107	11	5157.795
ADS11SWG	2008	34	55	30	7.0	20		1	107	11	2161.95
ADS11SWG	2008	35	8062	10	1.2	20		1	107	11	1728.373
ADS11SWG	2008	33	6720	20	12.4	24		1	105	11	17859.86
ADS11SWG	2008	33	6720	30	0.5	24		1	105	11	720.1555
ADS11SWG	2008	33	6720	50	3.8	22		1	105	11	5473.182
ADS11SWG	2008	33	6720	60	10.2	24		1	105	11	14691.17
ADS11SWG	2008	34	58	10	2.3	20		1	105	11	710.355
ADS11SWG	2008	34	58	20	4.1	20		1	105	11	1266.285
ADS11SWG	2008	35	171	10	3.2	24		1	102	11	4608.995
ADS11SWG	2008	32	5200	10	3.2	12		1	101	11	988.32
ADS11SWG	2008	33	6440	10	7.4	20		1	101	11	10658.3
ADS11SWG	2008	33	6440	30	5.0	30		1	101	11	7201.555
ADS11SWG	2008	33	6440	40	2.3	30		1	101	11	119.715
ADS11SWG	2008	33	6440	50	5.7	30		1	101	11	296.685
ADS11SWG	2008	33	6440	70	1.8	30		1	101	11	93.69
ADS11SWG	2008	33	6440	75	0.3	30		1	101	11	15.615
ADS11SWG	2008	34	753	10	1.9	20		1	101	11	586.815
ADS11SWG	2008	35	8017	30	1.9	20		1	101	11	2736.591
ADS11SWG	2008	35	8017	50	0.5	20		1	101	11	720.1555
ADS11SWG	2008	35	8017	70	1.0	20		1	101	11	1440.311
ADS11SWG	2008	32	5056	10	2.9	17		1	99	11	4176.902
ADS11SWG	2008	32	5056	30	2.5	17		1	99	11	3600.777
ADS11SWG	2008	32	5091	10	2.8	20		1	99	11	864.78
ADS11SWG	2008	32	5091	30	3.3	20		1	99	11	1019.205
ADS11SWG	2008	32	5091	40	7.1	10		1	99	11	2192.835
ADS11SWG	2008	32	5091	60	3.2	10		1	99	11	988.32
ADS11SWG	2008	32	5091	70	0.5	22		1	99	11	154.425
ADS11SWG	2008	32	5091	90	5.0	22		1	99	11	1544.25
ADS11SWG	2008	32	5091	110	4.5	22		1	99	11	1389.825
ADS11SWG	2008	32	5091	120	1.1	12		1	99	11	339.735
ADS11SWG	2008	32	5091	50	0.3	10		1	99	11	92.655
ADS11SWG	2008	35	26	40	1.7	20		1	99	11	2448.529
ADS11SWG	2008	35	26	60	1.0	20		1	99	11	1440.311
ADS11SWG	2008	35	26	80	3.3	20		1	99	11	4753.026
ADS11SWG	2008	33	6530	20	1.9	26		1	97	11	2736.591
ADS11SWG	2008	36	9857	10	12.0	20		1	97	11	17283.73
ADS11SWG	2008	35	8060	20	4.9	20		1	94	11	7057.524
ADS11SWG	2008	35	8060	10	0.7	20		1	94	11	1008.218
ADS11SWG	2008	35	8030	16	15.0	18		1	91	11	22674.02
ADS11SWG	2008	33	6830	10	3.8	24		1	89	11	5473.182
ADS11SWG	2008	33	6830	20	6.0	20		1	89	11	8641.866
ADS11SWG	2008	35	8008	10	1.4	22		1	89	11	2016.435
ADS11SWG	2008	35	8082	10	9.1	22		1	89	11	13755.57
ADS11SWG	2008	35	171	30	4.2	24		1	88	11	6049.306
ADS11SWG	2008	35	8059	40	3.4	20		1	88	11	5139.444
ADS11SWG	2008	35	8059	60	2.7	20		1	88	11	4081.323
ADS11SWG	2008	35	8059	70	1.6	20		1	88	11	2418.562
ADS11SWG	2008	35	8059	80	2.0	20		1	88	11	3023.203
ADS11SWG	2008	32	5060	40	8.6	24		1	86	11	447.63
ADS11SWG	2008	32	5060	50	2.0	18		1	86	11	104.1
ADS11SWG	2008	32	5060	80	5.2	24		1	86	11	7489.617
ADS11SWG	2008	36	9754	10	3.7	16		1	86	11	5329.151
ADS11SWG	2008	36	9811	10	8.3	16		1	86	11	11954.58
ADS11SWG	2008	32	191	10	2.5	20		1	85	11	772.125
ADS11SWG	2008	33	70	30	1.0	24		1	85	11	1440.311
ADS11SWG	2008	33	70	20	2.9	24		9	85	11	4176.902
ADS11SWG	2008	35	18	10	4.5	22		1	83	11	6481.399
ADS11SWG	2008	35	18	30	5.1	22		1	83	11	7345.586

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SWG	2008	35	18	40	7.8	22		1	83	11	11234.43
ADS11SWG	2008	32	362	10	3.8	20		1	82	11	1173.63
ADS11SWG	2008	32	362	15	1.3	20		1	82	11	401.505
ADS11SWG	2008	32	362	20	1.1	24		1	82	11	339.735
ADS11SWG	2008	32	5004	10	3.7	15		1	82	11	1142.745
ADS11SWG	2008	32	5004	20	1.5	10		1	82	11	463.275
ADS11SWG	2008	32	5054	10	5.8	12		1	80	11	8353.804
ADS11SWG	2008	32	5054	30	3.1	12		1	80	11	4464.964
ADS11SWG	2008	33	161	10	6.8	10		1	80	11	9794.114
ADS11SWG	2008	36	37	40	4.3	18		1	80	11	1328.055
ADS11SWG	2008	36	9068	10	6.1	18		1	79	11	8785.897
ADS11SWG	2008	36	9311	10	1.9	16		1	79	11	2736.591
ADS11SWG	2008	36	9606	20	13.8	16		1	79	11	19876.29
ADS11SWG	2008	36	9841	10	4.8	18		1	79	11	6913.493
ADS11SWG	2008	36	9864	10	6.5	16		1	79	11	9362.021
ADS11SWG	2008	33	21	10	7.6	24		9	79	11	10946.36
ADS11SWG	2008	32	5021	10	2.7	17		1	77	11	833.895
ADS11SWG	2008	32	5021	30	1.3	17		1	77	11	401.505
ADS11SWG	2008	34	57	23	0.6	14		1	77	11	185.31
ADS11SWG	2008	34	57	26	2.6	14		1	77	11	803.01
ADS11SWG	2008	34	57	30	2.6	16		1	77	11	803.01
ADS11SWG	2008	32	5040	10	12.8	24		1	76	11	18435.98
ADS11SWG	2008	32	5040	20	0.6	18		1	76	11	864.1866
ADS11SWG	2008	35	8061	10	2.4	18		1	76	11	3627.843
ADS11SWG	2008	35	61	10	0.3	18		1	76	11	453.4804
ADS11SWG	2008	35	61	30	1.1	18		1	76	11	1662.761
ADS11SWG	2008	32	5	45	9.7	16		1	74	11	2995.845
ADS11SWG	2008	32	57	20	1.0	20		1	74	11	308.85
ADS11SWG	2008	32	63	170	1.2	16		1	74	11	370.62
ADS11SWG	2008	32	133	10	0.5	18		1	74	11	720.1555
ADS11SWG	2008	32	133	30	0.7	18		1	74	11	1008.218
ADS11SWG	2008	32	133	50	0.1	18		1	74	11	30.885
ADS11SWG	2008	32	133	60	0.2	18		1	74	11	61.77
ADS11SWG	2008	32	334	10	3.3	18		1	74	11	4753.026
ADS11SWG	2008	32	334	20	1.0	18		1	74	11	1440.311
ADS11SWG	2008	32	334	35	1.8	18		1	74	11	2592.56
ADS11SWG	2008	32	5009	10	1.1	22		1	74	11	339.735
ADS11SWG	2008	32	5009	30	1.1	22		1	74	11	339.735
ADS11SWG	2008	32	5013	5	1.6	18		1	74	11	2304.498
ADS11SWG	2008	32	5013	10	0.3	18		1	74	11	92.655
ADS11SWG	2008	32	5013	30	1.0	18		1	74	11	308.85
ADS11SWG	2008	32	5014	20	1.6	12		1	74	11	494.16
ADS11SWG	2008	32	5019	10	2.0	22		1	74	11	2880.622
ADS11SWG	2008	32	5020	20	1.7	24		1	74	11	525.045
ADS11SWG	2008	32	5020	23	7.6	24		1	74	11	2347.26
ADS11SWG	2008	32	5048	10	2.0	14		1	74	11	2880.622
ADS11SWG	2008	32	5053	10	5.0	12		1	74	11	7201.555
ADS11SWG	2008	32	5055	10	3.2	12		1	74	11	4608.995
ADS11SWG	2008	32	5058	10	1.0	12		1	74	11	1440.311
ADS11SWG	2008	32	5058	20	2.1	12		1	74	11	109.305
ADS11SWG	2008	32	5058	30	5.1	12		1	74	11	7345.586
ADS11SWG	2008	32	5067	10	2.5	16		1	74	11	130.125
ADS11SWG	2008	32	5090	10	2.1	14		1	74	11	109.305
ADS11SWG	2008	32	5111	10	0.6	10		1	74	11	864.1866
ADS11SWG	2008	32	5111	30	3.0	16		1	74	11	4320.933
ADS11SWG	2008	32	5111	40	1.5	18		1	74	11	463.275
ADS11SWG	2008	32	5111	60	0.8	18		1	74	11	247.08
ADS11SWG	2008	32	5111	80	1.1	18		1	74	11	339.735
ADS11SWG	2008	32	8009	20	2.5	10		1	74	11	3600.777
ADS11SWG	2008	32	5	50	1.3	16		1	74	11	401.505
ADS11SWG	2008	33	70	90	3.0	24		1	74	11	4320.933

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SWG	2008	33	212	10	2.5	20		1	74	11	3600.777
ADS11SWG	2008	33	213	20	4.7	24		1	74	11	6769.461
ADS11SWG	2008	33	213	30	5.3	24		1	74	11	7633.648
ADS11SWG	2008	33	213	40	2.3	24		1	74	11	3312.715
ADS11SWG	2008	33	213	50	0.8	24		1	74	11	1152.249
ADS11SWG	2008	33	213	60	2.7	24		1	74	11	3888.84
ADS11SWG	2008	33	213	70	4.2	23		1	74	11	6049.306
ADS11SWG	2008	33	214	10	2.9	20		1	74	11	4176.902
ADS11SWG	2008	33	1012	20	5.6	16		1	74	11	8065.741
ADS11SWG	2008	33	5910	10	3.8	21		1	74	11	5473.182
ADS11SWG	2008	33	6329	10	1.1	16		1	74	11	1584.342
ADS11SWG	2008	33	6330	10	11.8	13		1	74	11	16995.67
ADS11SWG	2008	33	6330	20	3.0	18		1	74	11	4320.933
ADS11SWG	2008	33	6330	30	5.2	18		1	74	11	7489.617
ADS11SWG	2008	33	6330	40	7.9	22		1	74	11	11378.46
ADS11SWG	2008	33	6330	45	3.5	22		1	74	11	5041.088
ADS11SWG	2008	33	6331	40	2.4	24		1	74	11	3456.746
ADS11SWG	2008	33	6331	45	0.8	24		1	74	11	1152.249
ADS11SWG	2008	33	6541	10	5.7	30		1	74	11	8209.772
ADS11SWG	2008	33	6732	10	5.5	24		1	74	11	7921.71
ADS11SWG	2008	33	6732	30	15.5	24		1	74	11	22324.82
ADS11SWG	2008	33	6733	10	5.6	15		1	74	11	8065.741
ADS11SWG	2008	33	6910	10	6.4	18		1	74	11	9217.99
ADS11SWG	2008	33	6910	30	1.6	18		1	74	11	2304.498
ADS11SWG	2008	33	6910	35	0.5	18		1	74	11	720.1555
ADS11SWG	2008	33	6910	40	4.0	24		1	74	11	5761.244
ADS11SWG	2008	33	6910	45	7.9	24		1	74	11	11378.46
ADS11SWG	2008	33	6921	10	5.9	24		1	74	11	8497.835
ADS11SWG	2008	33	6922	10	2.4	18		1	74	11	3456.746
ADS11SWG	2008	33	6923	10	2.5	18		1	74	11	3600.777
ADS11SWG	2008	33	6923	20	3.7	18		1	74	11	5329.151
ADS11SWG	2008	33	6923	40	0.1	20		1	74	11	144.0311
ADS11SWG	2008	33	6930	10	0.3	18		1	74	11	432.0933
ADS11SWG	2008	33	6930	20	5.4	18		1	74	11	7777.679
ADS11SWG	2008	33	6930	30	5.9	20		1	74	11	8497.835
ADS11SWG	2008	33	6930	40	0.3	24		1	74	11	432.0933
ADS11SWG	2008	33	6931	10	5.7	24		1	74	11	8209.772
ADS11SWG	2008	33	8071	10	12.9	18		1	74	11	18580.01
ADS11SWG	2008	33	6910	10	2.8	18		1	74	11	4032.871
ADS11SWG	2008	33	6930	5	3.4	18		1	74	11	4897.057
ADS11SWG	2008	33	6250	10	4.9	15		1	74	11	7057.524
ADS11SWG	2008	33	6250	20	3.9	20		1	74	11	5617.213
ADS11SWG	2008	34	7031	10	0.5	18		1	74	11	154.425
ADS11SWG	2008	34	7057	22	2.3	20		1	74	11	710.355
ADS11SWG	2008	34	7057	24	2.8	20		1	74	11	864.78
ADS11SWG	2008	34	7057	30	1.1	20		1	74	11	339.735
ADS11SWG	2008	34	7057	40	7.7	20		1	74	11	2378.145
ADS11SWG	2008	34	7057	50	2.1	20		1	74	11	648.585
ADS11SWG	2008	34	7057	60	5.0	20		1	74	11	1544.25
ADS11SWG	2008	34	7057	80	1.4	20		1	74	11	432.39
ADS11SWG	2008	34	7057	90	0.8	18		1	74	11	247.08
ADS11SWG	2008	34	7057	110	5.2	18		1	74	11	1606.02
ADS11SWG	2008	35	172	70	2.4	18		1	74	11	3456.746
ADS11SWG	2008	35	172	90	3.5	18		1	74	11	5041.088
ADS11SWG	2008	35	8034	25	1.9	20		1	74	11	2736.591
ADS11SWG	2008	35	8034	30	15.3	20		1	74	11	22036.76
ADS11SWG	2008	35	8076	10	10.5	25		1	74	11	15871.81
ADS11SWG	2008	35	8083	10	4.0	22		1	74	11	5761.244
ADS11SWG	2008	35	8083	30	4.9	22		1	74	11	7057.524
ADS11SWG	2008	35	8083	50	1.5	22		1	74	11	2160.466
ADS11SWG	2008	35	8088	20	6.5	18		1	74	11	9362.021

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS11SWG	2008	35	8089	10	4.1	12		1	74	11	5905.275
ADS11SWG	2008	35	8089	20	6.1	22		1	74	11	8785.897
ADS11SWG	2008	35	8094	10	1.2	20		1	74	11	1728.373
ADS11SWG	2008	35	8094	20	0.3	20		1	74	11	432.0933
ADS11SWG	2008	35	8094	23	5.7	20		1	74	11	8209.772
ADS11SWG	2008	36	69	40	1.4	21		1	74	11	432.39
ADS11SWG	2008	36	152	10	0.8	16		1	74	11	1152.249
ADS11SWG	2008	36	152	20	0.5	16		1	74	11	720.1555
ADS11SWG	2008	36	155	10	8.4	16		1	74	11	12098.61
ADS11SWG	2008	36	601	10	4.2	16		1	74	11	6049.306
ADS11SWG	2008	36	9012	10	1.2	24		1	74	11	1728.373
ADS11SWG	2008	36	9014	10	5.2	18		1	74	11	7489.617
ADS11SWG	2008	36	9031	40	2.4	18		1	74	11	3456.746
ADS11SWG	2008	36	9057	10	12.5	18		1	74	11	18003.89
ADS11SWG	2008	36	9067	10	1.3	18		1	74	11	1872.404
ADS11SWG	2008	36	9101	18	3.2	18		1	74	11	4608.995
ADS11SWG	2008	36	9102	20	7.6	18		1	74	11	10946.36
ADS11SWG	2008	36	9304	10	6.7	18		1	74	11	9650.083
ADS11SWG	2008	36	9310	10	1.5	16		1	74	11	2160.466
ADS11SWG	2008	36	9345	25	0.8	18		1	74	11	1152.249
ADS11SWG	2008	36	9351	10	1.2	16		1	74	11	1728.373
ADS11SWG	2008	36	9351	20	4.1	14		1	74	11	5905.275
ADS11SWG	2008	36	9352	10	6.0	18		1	74	11	8641.866
ADS11SWG	2008	36	9353	10	2.8	18		1	74	11	4032.871
ADS11SWG	2008	36	9410	10	10.2	18		1	74	11	14691.17
ADS11SWG	2008	36	9502	10	2.9	18		1	74	11	895.665
ADS11SWG	2008	36	9653	10	9.5	18		1	74	11	2934.075
ADS11SWG	2008	36	9753	10	6.5	14		1	74	11	9362.021
ADS11SWG	2008	36	9801	10	2.7	16		1	74	11	3888.84
ADS11SWG	2008	36	9843	10	5.5	18		1	74	11	7921.71
ADS11SWG	2008	36	9845	10	3.9	18		1	74	11	5617.213
ADS11SWG	2008	36	9858	30	5.2	16		1	74	11	7489.617
ADS11SWG	2008	36	9859	10	2.2	18		1	74	11	3168.684
ADS11SWG	2008	36	9861	10	5.8	14		1	74	11	8353.804
ADS11SWG	2008	36	9863	10	1.4	16		1	74	11	2016.435
ADS11SWG	2008	36	9000	20	1.3	24		1	74	11	1872.404
ADS11SWG	2008	36	9102	10	0.5	18		1	74	11	720.1555
ADS11SWG	2008	32	63	110	1.3	8		9	74	11	1872.404
ADS11SWG	2008	32	63	130	2.8	8		9	74	11	864.78
ADS11SWG	2008	32	63	150	3.4	8		9	74	11	1050.09
ADS11SWG	2008	33	21	106	2.2	24		9	74	11	3168.684
ADS11SWG	2008	33	40	10	3.5	22		9	74	11	5041.088
ADS11SWG	2008	33	40	20	3.5	22		9	74	11	5041.088
ADS11SWG	2008	34	47	10	1.6	17		9	74	11	494.16
ADS11SWG	2008	34	47	20	4.3	16		9	74	11	1328.055
ADS11SWG	2008	35	8077	10	5.5	8		9	74	11	7921.71
ADS11SWG	2008	36	9655	10	9.7	18		9	74	11	2995.845
ADS11SWG	2008	36	9803	10	7.2	16		9	74	11	10370.24
ADS11SWG	2008	36	9812	10	1.2	8		9	74	11	1728.373
ADS11SWG Total	ADS 11 (FADT 50-250) needing su				1668.6						2036678
ADS12	2008	33	221	20	0.5	32	3	5	1476	12	0
ADS12	2008	33	221	25	0.1	32	3	5	1476	12	9.741
ADS12	2008	33	221	40	0.1	34	3	5	1476	12	0
ADS12 Total					0.7						9.741
ADS12S	2008	34	48	50	1.9	34	3	4	566	12	650.75
ADS12S Total	ADS 12 Needing only surface upgr				1.9						650.75
ADS12SW	2008	34	11	90	5.1	24		1	686	12	4405.125
ADS12SW	2008	32	364	20	0.5	12		1	508	12	431.875
ADS12SW	2008	36	125	10	3.7	20		1	487	12	2625.243
ADS12SW	2008	36	125	15	0.7	20		1	487	12	496.6675
ADS12SW	2008	36	30	170	7.5	26		1	486	12	6478.125

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS12SWG	2008	32	34	20	9.8	12		1	74	12	6837.95
ADS12SWG	2008	32	5000	10	3.6	24		1	74	12	2511.9
ADS12SWG	2008	32	5013	50	0.2	12		1	74	12	139.55
ADS12SWG	2008	32	5013	60	0.3	12		1	74	12	209.325
ADS12SWG	2008	32	5013	80	4.3	12		1	74	12	3000.325
ADS12SWG	2008	32	5013	90	6.3	12		1	74	12	4395.825
ADS12SWG	2008	32	5014	10	2.1	12		1	74	12	1465.275
ADS12SWG	2008	33	215	10	4.9	16		1	74	12	3085.633
ADS12SWG	2008	35	172	60	0.7	18		1	74	12	440.8047
ADS12SWG	2008	35	8030	20	4.7	18		1	74	12	3112.298
ADS12SWG	2008	35	8030	30	5.6	18		1	74	12	3708.27
ADS12SWG	2008	33	40	30	9.2	22		9	74	12	5793.433
ADS12SWG Total	ADS 12 (FADT 50-250) needing su				185.4						125286.1
ADS13	2008	48	4080	10	0.6	28	3	4	315	13	341.25
ADS13	2008	48	4083	10	0.3	28	3	4	315	13	170.625
ADS13	2008	36	123	20	0.6	28		3	146	13	488.55
ADS13	2008	48	4145	20	0.2	28	3	5	74	13	40.35
ADS13 Total					1.7						1040.775
ADS13S	2008	32	5050	10	0.1	28		1	465	13	90.835
ADS13S Total	ADS 13 needing only surface upgra				0.1						90.835
ADS13SG	2008	34	7114	10	5.3	13		1	144	13	1936.885
ADS13SG	2008	34	486	10	3.5	21		1	126	13	1279.075
ADS13SG	2008	32	5092	40	2.9	12		1	119	13	1059.805
ADS13SG	2008	32	5041	10	0.2	20		1	111	13	162.47
ADS13SG	2008	34	482	10	6.5	22		1	107	13	2375.425
ADS13SG	2008	32	5024	10	2.2	24		1	105	13	1787.17
ADS13SG	2008	33	594	10	9.4	26		1	105	13	7636.09
ADS13SG	2008	34	551	10	0.8	18		9	102	13	292.36
ADS13SG	2008	32	5205	10	3.7	12		1	101	13	1352.165
ADS13SG	2008	34	7077	10	0.8	20		1	101	13	292.36
ADS13SG	2008	34	7009	10	3.1	18		1	101	13	1132.895
ADS13SG	2008	34	7009	20	1.1	18		1	101	13	401.995
ADS13SG	2008	33	6110	20	1.0	18		1	99	13	812.35
ADS13SG	2008	36	691	40	1.5	14		1	99	13	548.175
ADS13SG	2008	34	7136	10	8.8	18		1	79	13	3215.96
ADS13SG	2008	32	132	10	0.5	18		1	74	13	182.725
ADS13SG	2008	32	132	30	0.7	10		1	74	13	255.815
ADS13SG	2008	32	132	40	2.3	24		1	74	13	840.535
ADS13SG	2008	32	546	20	0.6	22		1	74	13	219.27
ADS13SG	2008	32	547	10	1.8	22		1	74	13	657.81
ADS13SG	2008	32	548	10	2.2	22		1	74	13	803.99
ADS13SG	2008	32	549	10	1.9	16		1	74	13	694.355
ADS13SG	2008	32	550	10	1.9	16		1	74	13	694.355
ADS13SG	2008	32	5035	10	6.0	16		1	74	13	4874.1
ADS13SG	2008	32	5081	30	3.3	12		1	74	13	1205.985
ADS13SG	2008	32	5085	10	7.3	24		1	74	13	2667.785
ADS13SG	2008	33	6261	10	9.7	18		1	74	13	7879.795
ADS13SG	2008	33	6261	20	0.8	20		1	74	13	649.88
ADS13SG	2008	33	6261	30	0.7	15		1	74	13	568.645
ADS13SG	2008	33	6326	10	1.3	18	1	1	74	13	1056.055
ADS13SG	2008	33	6326	40	0.9	20	1	1	74	13	731.115
ADS13SG	2008	33	6822	10	4.9	18	1	1	74	13	3980.515
ADS13SG	2008	34	7036	10	0.7	18		1	74	13	255.815
ADS13SG	2008	34	7036	20	0.9	21		1	74	13	328.905
ADS13SG	2008	34	7038	10	1.0	20		1	74	13	365.45
ADS13SG	2008	34	7072	10	0.5	18		1	74	13	182.725
ADS13SG	2008	34	7073	10	1.4	18		1	74	13	511.63
ADS13SG	2008	34	7075	10	1.9	20		1	74	13	694.355
ADS13SG	2008	34	7021	10	4.3	18		1	74	13	1571.435
ADS13SG	2008	34	7141	10	0.3	20		1	74	13	109.635

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NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS13SG	2008	34	9652	60	0.4	20		1	74	13	146.18
ADS13SG	2008	34	9652	65	1.4	20		1	74	13	511.63
ADS13SG	2008	34	9652	70	0.4	20		1	74	13	146.18
ADS13SG	2008	34	9652	75	0.6	20		1	74	13	219.27
ADS13SG	2008	34	7043	30	0.1	20		1	74	13	37.275
ADS13SG	2008	34	7117	10	0.8	18		1	74	13	292.36
ADS13SG	2008	34	7130	10	0.8	14		1	74	13	292.36
ADS13SG	2008	34	7141	20	3.1	20		1	74	13	1132.895
ADS13SG	2008	36	9760	30	1.8	14		1	74	13	1462.23
ADS13SG	2008	36	9751	10	6.9	18		1	74	13	5605.215
ADS13SG	2008	48	101	10	0.1	22		1	74	13	37.275
ADS13SG	2008	32	5094	10	0.3	20		3	74	13	111.825
ADS13SG Total	ADS 13 needing only surface upgra				125.3						66262.56
ADS13W	2008	36	543	10	0.2	22	3	4	1466	13	113.75
ADS13W	2008	36	543	30	0.1	22	3	4	1466	13	56.875
ADS13W	2008	0	2016	10	0.8	24	3	4	402	13	728.2
ADS13W	2008	0	2016	20	0.2	24	3	4	402	13	182.05
ADS13W	2008	48	4085	10	1.4	26	3	4	315	13	796.25
ADS13W	2008	48	4103	10	1.3	26	3	4	315	13	739.375
ADS13W	2008	48	4068	10	0.3	26	3	4	285	13	170.625
ADS13W	2008	33	6150	40	1.2	24		4	272	13	1092.3
ADS13W Total	ADS 13 needing only roadway wid				5.5						3879.425
ADS13WG	2008	0	2316	12	0.2	18	3	4	74	13	150.65
ADS13WG	2008	32	546	10	1.7	22		4	74	13	342.975
ADS13WG	2008	32	551	10	0.8	24		4	74	13	161.4
ADS13WG	2008	32	552	10	2.7	24		4	74	13	544.725
ADS13WG	2008	32	553	10	1.0	24		4	74	13	201.75
ADS13WG	2008	35	803	10	0.2	24	3	4	74	13	150.65
ADS13WG Total	ADS 13 (FADT 50-400) needing or				6.6						1552.15
ADS13SW	2008	34	7054	20	0.2	24		1	1044	13	112.29
ADS13SW	2008	32	5073	10	0.6	14		1	887	13	336.87
ADS13SW	2008	48	101	20	0.4	22		1	689	13	227.5
ADS13SW	2008	36	691	30	0.3	14		1	386	13	168.435
ADS13SW	2008	36	541	10	0.1	24		1	350	13	56.145
ADS13SW	2008	36	541	30	0.2	24		1	350	13	112.29
ADS13SW	2008	34	481	10	4.8	24		1	334	13	2730
ADS13SW	2008	34	481	20	7.1	24		1	334	13	3986.295
ADS13SW	2008	34	481	30	1.7	24		1	334	13	954.465
ADS13SW	2008	34	481	35	4.8	24		1	334	13	2694.96
ADS13SW	2008	34	488	10	1.0	22		1	284	13	561.45
ADS13SW	2008	34	541	10	0.7	24		1	257	13	398.125
ADS13SW	2008	36	157	10	15.2	18		1	252	13	13806.92
ADS13SW	2008	36	157	20	6.0	18		1	252	13	5450.1
ADS13SW Total	ADS 13 needing surface upgrade ar				43.1						31595.85
ADS13SWG	2008	32	193	20	0.6	12		1	244	13	219.27
ADS13SWG	2008	32	193	30	1.4	20		1	244	13	511.63
ADS13SWG	2008	36	691	20	1.4	16		1	200	13	511.63
ADS13SWG	2008	36	9759	10	1.2	8		1	187	13	974.82
ADS13SWG	2008	33	6260	10	2.0	20		1	186	13	1624.7
ADS13SWG	2008	34	7135	10	3.0	16		1	181	13	1096.35
ADS13SWG	2008	36	9452	10	0.2	18		1	177	13	162.47
ADS13SWG	2008	32	5070	10	0.8	12		1	175	13	292.36
ADS13SWG	2008	36	9813	10	5.5	22		1	159	13	4467.925
ADS13SWG	2008	32	5022	10	0.7	24		1	150	13	255.815
ADS13SWG	2008	32	5022	20	1.3	18		1	150	13	475.085
ADS13SWG Total	ADS 13 (FADT 50-400) needing su				18.1						10592.06
ADS14	2008	32	365	60	1.2	30	3	4	2600	14	836.8929
ADS14	2008	48	4100	10	0.2	32	3	4	593	14	139.4822
ADS14	2008	48	4100	20	0.4	32	3	4	593	14	278.9643
ADS14	2008	48	4100	25	0.7	32	3	4	593	14	488.1875

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NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS SHOULDER TYPE_CODE	MSRIS SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS14	2008	48	4049	20	4.2	28	3	4	456	14	2929.125
ADS14	2008	35	291	10	0.7	28	3	4	441	14	1507.097
ADS14	2008	48	4145	10	2.1	30	3	5	404	14	445.1512
ADS14	2008	48	4146	10	0.1	32	3	5	404	14	21.19768
ADS14	2008	48	4146	20	1.9	32	3	5	404	14	955.1523
ADS14	2008	48	4154	10	0.7	30	3	5	399	14	351.8982
ADS14	2008	48	4154	20	3.4	30	3	5	399	14	1709.22
ADS14	2008	48	4155	10	0.7	30	3	5	399	14	148.3837
ADS14	2008	48	4155	20	1.1	30	3	5	399	14	233.1744
ADS14	2008	32	363	20	0.1	34	3	5	389	14	50.27118
ADS14	2008	48	4164	10	1.4	30	3	5	251	14	703.7965
ADS14	2008	48	4150	10	4.9	30	3	5	249	14	1038.686
ADS14	2008	48	4104	10	0.5	30	3	4	189	14	105.9884
ADS14	2008	48	4104	20	0.5	30	3	4	189	14	105.9884
ADS14	2008	48	4104	25	1.0	30	3	4	189	14	211.9768
ADS14	2008	48	4101	10	0.2	32	3	4	153	14	42.39535
ADS14	2008	48	4101	15	0.8	30	3	4	153	14	169.5814
ADS14	2008	48	4101	20	0.3	30	3	4	153	14	63.59303
ADS14	2008	32	332	10	1.8	30		3	151	14	3178.061
ADS14	2008	32	332	30	2.4	30		3	151	14	4237.414
ADS14	2008	32	332	35	1.0	30		3	76	14	1765.589
ADS14	2008	32	332	40	0.1	30		3	76	14	176.5589
ADS14	2008	32	332	60	0.1	30		3	76	14	176.5589
ADS14	2008	33	6470	10	2.0	30		3	74	14	107.5
ADS14	2008	36	391	10	0.5	34	3	4	74	14	781.8266
ADS14 Total					35.0						22959.71
ADS14S	2008	33	6150	30	2.9	30		1	272	14	6021.294
ADS14S Total	ADS 14 needing only surface upgra				2.9						6021.294
ADS14SG	2008	34	7113	15	0.9	28		1	134	14	347.813
ADS14SG	2008	33	6310	10	1.9	30		1	129	14	98.895
ADS14SG	2008	33	6310	15	2.1	30		1	129	14	109.305
ADS14SG	2008	33	6480	10	6.3	36		1	99	14	327.915
ADS14SG	2008	33	6135	10	14.0	30		9	99	14	23644.63
ADS14SG	2008	33	592	10	2.8	36		1	97	14	4728.926
ADS14SG	2008	33	6325	30	1.5	30		1	83	14	78.075
ADS14SG	2008	32	332	70	4.3	30		1	76	14	7262.279
ADS14SG	2008	33	6320	10	12.0	30		1	76	14	20266.83
ADS14SG	2008	32	5081	10	3.4	30		1	74	14	1313.96
ADS14SG	2008	33	593	10	3.9	30		1	74	14	6586.718
ADS14SG	2008	48	4049	10	2.3				74	14	888.8554
ADS14SG	2008	48	4126	10	4.1				74	14	1584.481
ADS14SG	2008	48	4131	10	4.5				74	14	1739.065
ADS14SG	2008	48	4134	10	1.4				74	14	541.0424
ADS14SG	2008	48	4145	30	3.1				74	14	1198.022
ADS14SG Total	ADS 14 needing only surface upgra				68.5						70716.81
ADS14W	2008	32	365	50	0.6	26	3	4	851	14	418.4465
ADS14W	2008	48	4061	10	0.1	26	3	4	423	14	69.74108
ADS14W	2008	48	4061	20	0.3	26	3	4	423	14	209.2232
ADS14W	2008	48	4070	10	1.1	26	3	4	423	14	767.1518
ADS14W	2008	48	4142	10	1.5	26	3	4	404	14	1046.116
ADS14W	2008	48	4146	30	1.0	26	3	4	404	14	697.4108
ADS14W	2008	48	4121	10	4.8	26	3	4	399	14	3347.572
ADS14W	2008	48	4140	10	2.1	26	3	4	399	14	1464.563
ADS14W	2008	48	4123	10	3.3	26	3	4	327	14	2301.455
ADS14W	2008	48	4062	20	1.6	26	3	4	322	14	1115.857
ADS14W	2008	48	4062	10	1.7	26	3	5	322	14	360.3605
ADS14W	2008	48	4111	10	2.5	26	3	4	319	14	1743.527
ADS14W	2008	48	4072	10	1.2	26	3	4	315	14	836.8929
ADS14W	2008	48	4073	10	2.0	26	3	4	315	14	1394.822
ADS14W	2008	48	4077	10	3.8	26	3	4	315	14	2650.161
ADS14W	2008	48	4082	10	0.2	26	3	4	315	14	139.4822

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS14W	2008	48	4109	10	0.4	26	3	4	285	14	278.9643
ADS14W	2008	36	542	10	0.3	24	3	4	270	14	209.2232
ADS14W Total	ADS 14 needing only roadway width				28.5						19050.97
ADS14WG	2008	48	4062	25	2.7	26	3	4	218	14	572.3372
ADS14WG	2008	32	5112	10	0.5	22		3	159	14	203.3379
ADS14WG	2008	32	331	10	0.6	24		3	116	14	1059.354
ADS14WG	2008	32	331	30	0.1	24		3	116	14	176.5589
ADS14WG	2008	32	333	10	1.4	24		3	74	14	2471.825
ADS14WG	2008	36	203	50	0.4	18		3	74	14	0
ADS14WG	2008	35	602	10	0.2	26	3	4	74	14	312.7307
ADS14WG	2008	35	806	10	0.1	24		4	74	14	156.3653
ADS14WG	2008	48	4093	10	0.7	28	3	4	74	14	148.3837
ADS14WG	2008	48	4093	20	0.5	28	3	4	74	14	105.9884
ADS14WG	2008	48	4093	22	4.4	28	3	4	74	14	932.6977
ADS14WG	2008	48	4093	24	2.1	26	3	4	74	14	445.1512
ADS14WG	2008	48	4093	26	0.8	26	3	4	74	14	169.5814
ADS14WG	2008	48	4093	28	0.2	26	3	4	74	14	42.39535
ADS14WG Total	ADS 14 (FADT 50-400) needing or				14.7						6796.706
ADS14SW	2008	32	5071	10	0.9	12		1	1228	14	609.4745
ADS14SW	2008	32	5071	20	1.2	16		1	1228	14	812.6326
ADS14SW	2008	34	7054	10	7.8	24		1	1044	14	5282.112
ADS14SW	2008	34	7037	20	0.8	22		1	979	14	541.7551
ADS14SW	2008	32	365	40	0.5	22		3	851	14	348.7054
ADS14SW	2008	35	136	10	0.5	22		1	809	14	1038.154
ADS14SW	2008	33	6461	10	0.7	20		1	745	14	1453.416
ADS14SW	2008	33	6461	30	2.7	24		1	745	14	5606.032
ADS14SW	2008	32	5065	10	6.0	22		1	551	14	996.3
ADS14SW	2008	32	361	10	2.0	18		1	474	14	1354.388
ADS14SW	2008	32	5059	10	2.1	12		1	402	14	4360.247
ADS14SW	2008	33	164	10	0.3	24		3	383	14	50.325
ADS14SW	2008	35	132	10	2.3	22		1	374	14	4775.509
ADS14SW	2008	33	6325	35	3.3	30		1	364	14	547.965
ADS14SW	2008	33	6325	40	3.4	30		1	364	14	564.57
ADS14SW	2008	33	6325	60	0.5	30		1	364	14	83.025
ADS14SW	2008	33	23	10	5.3	24		1	350	14	11004.43
ADS14SW	2008	35	136	30	2.4	22		1	350	14	4983.14
ADS14SW	2008	35	134	10	2.7	20		1	342	14	5606.032
ADS14SW	2008	32	365	10	0.3	22		1	321	14	203.1582
ADS14SW	2008	32	365	20	0.2	16		1	321	14	135.4388
ADS14SW	2008	32	365	30	0.7	20		1	321	14	474.0357
ADS14SW	2008	36	96	10	14.7	16		1	291	14	9954.75
ADS14SW	2008	36	203	20	2.8	20		1	278	14	5813.663
ADS14SW	2008	36	203	40	2.8	18		1	278	14	5813.663
ADS14SW	2008	36	26	10	2.8	20		1	276	14	5813.663
ADS14SW	2008	32	5037	10	0.2	18		1	257	14	415.2616
ADS14SW	2008	32	5037	30	0.5	12		1	257	14	1038.154
ADS14SW	2008	32	5037	50	1.3	12		1	257	14	2699.201
ADS14SW	2008	34	541	20	0.3	24		1	257	14	203.1582
ADS14SW Total	ADS 14 needing surface upgrade ar				72.0						82582.36
ADS14SWG	2008	34	7030	10	3.1	18		1	245	14	1198.022
ADS14SWG	2008	32	193	10	1.9	20		1	244	14	734.2718
ADS14SWG	2008	32	351	10	1.5	20		1	226	14	2533.353
ADS14SWG	2008	32	351	15	1.9	20		1	226	14	3208.914
ADS14SWG	2008	32	5045	10	10.4	14		1	209	14	17564.58
ADS14SWG	2008	33	23	15	2.5	24		1	206	14	4222.255
ADS14SWG	2008	35	135	10	0.2	24		1	202	14	337.7804
ADS14SWG	2008	35	135	30	0.7	24		1	202	14	1182.232
ADS14SWG	2008	32	342	20	1.2	22		1	199	14	463.7506
ADS14SWG	2008	33	6262	10	2.0	26		1	195	14	3377.804
ADS14SWG	2008	34	7124	10	6.4	20		1	193	14	2473.337
ADS14SWG	2008	34	7004	10	17.6	21		1	189	14	6801.676

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads

NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS14SWG	2008	34	7004	15	4.8	18		1	189	14	1855.002
ADS14SWG	2008	33	6260	40	3.0	18		1	186	14	5066.706
ADS14SWG	2008	33	6260	50	6.8	20		1	186	14	11484.53
ADS14SWG	2008	35	8069	10	3.2	22		1	186	14	5649.886
ADS14SWG	2008	35	8069	20	1.0	22		1	186	14	1765.589
ADS14SWG	2008	36	126	10	1.2	16		9	186	14	463.7506
ADS14SWG	2008	34	492	10	2.9	18		1	181	14	1120.731
ADS14SWG	2008	32	363	10	1.6	18		1	178	14	650.6812
ADS14SWG	2008	34	7005	10	1.6	19		1	178	14	618.3342
ADS14SWG	2008	36	372	10	2.2	18		1	177	14	850.2095
ADS14SWG	2008	32	5027	10	0.8	24		1	175	14	309.1671
ADS14SWG	2008	32	5027	30	0.4	24		1	175	14	154.5835
ADS14SWG	2008	32	5070	20	2.2	24		1	175	14	850.2095
ADS14SWG	2008	33	6312	10	5.7	22		1	169	14	9626.742
ADS14SWG	2008	33	6312	30	1.4	22		1	169	14	2364.463
ADS14SWG	2008	32	5063	10	3.5	24		1	166	14	182.175
ADS14SWG	2008	34	475	10	2.7	18		1	165	14	1043.439
ADS14SWG	2008	34	475	20	6.2	20		1	165	14	2396.045
ADS14SWG	2008	36	124	10	3.3	18		1	163	14	5573.377
ADS14SWG	2008	36	124	20	6.9	18		1	163	14	11653.42
ADS14SWG	2008	34	7101	10	2.7	20		1	160	14	1043.439
ADS14SWG	2008	34	7101	20	4.6	20		9	160	14	1777.711
ADS14SWG	2008	34	7122	10	2.2	20		1	156	14	850.2095
ADS14SWG	2008	36	154	10	6.3	16		1	156	14	10640.08
ADS14SWG	2008	36	371	10	4.0	18		1	156	14	1545.835
ADS14SWG	2008	32	354	10	0.7	16		1	150	14	1182.232
ADS14SWG	2008	32	354	30	3.8	16		1	150	14	6417.828
ADS14SWG	2008	32	5036	10	1.9	14		1	143	14	3208.914
ADS14SWG	2008	34	483	10	5.1	22		1	143	14	1970.94
ADS14SWG	2008	34	473	10	0.9	16		1	140	14	347.813
ADS14SWG	2008	34	473	20	5.5	16		1	140	14	2125.524
ADS14SWG	2008	34	7133	10	4.3	18		1	140	14	1661.773
ADS14SWG	2008	34	7113	10	3.3	22		1	134	14	1275.314
ADS14SWG	2008	34	7113	20	4.3	21		1	134	14	1661.773
ADS14SWG	2008	35	131	20	3.2	22		1	132	14	5404.487
ADS14SWG	2008	34	7032	10	2.9	16		1	128	14	1120.731
ADS14SWG	2008	32	5065	15	1.3	22		1	122	14	67.665
ADS14SWG	2008	32	5092	10	1.9	18		1	119	14	734.2718
ADS14SWG	2008	32	5092	30	0.9	18		1	119	14	347.813
ADS14SWG	2008	32	335	10	2.8	24		1	117	14	4728.926
ADS14SWG	2008	32	335	30	0.3	24		1	117	14	506.6706
ADS14SWG	2008	36	9451	10	0.9	18		1	117	14	1520.012
ADS14SWG	2008	36	9451	20	0.8	18		1	117	14	309.1671
ADS14SWG	2008	36	9856	10	3.1	18		9	117	14	5235.597
ADS14SWG	2008	32	5089	10	2.9	16		1	113	14	4897.816
ADS14SWG	2008	32	5089	20	4.2	16		1	113	14	218.61
ADS14SWG	2008	33	6270	10	3.2	20		1	113	14	5404.487
ADS14SWG	2008	33	6270	20	5.6	20		1	113	14	9457.852
ADS14SWG	2008	32	5087	10	0.7	18		1	110	14	270.5212
ADS14SWG	2008	32	5087	30	1.2	18		1	110	14	463.7506
ADS14SWG	2008	32	5087	50	2.1	18		1	110	14	811.5636
ADS14SWG	2008	32	5034	10	4.3	22		1	108	14	7262.279
ADS14SWG	2008	32	5034	30	1.1	18		1	108	14	1857.792
ADS14SWG	2008	32	5034	50	1.0	18		1	108	14	1688.902
ADS14SWG	2008	32	5034	60	5.9	12		1	108	14	9964.523
ADS14SWG	2008	33	6420	10	8.0	26		1	105	14	13511.22
ADS14SWG	2008	33	6240	20	4.2	18		1	104	14	7093.389
ADS14SWG	2008	34	7126	10	2.7	18		1	104	14	1043.439
ADS14SWG	2008	34	7053	10	1.9	20		1	102	14	734.2718
ADS14SWG	2008	32	5082	10	5.3	21		1	101	14	2048.232
ADS14SWG	2008	32	5082	15	8.1	21		1	101	14	3130.317

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NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS14SWG	2008	32	5204	10	2.0	12		1	101	14	772.9177
ADS14SWG	2008	32	5206	10	3.6	10		1	101	14	1391.252
ADS14SWG	2008	35	8018	10	2.8	20		1	101	14	4728.926
ADS14SWG	2008	35	8018	30	1.0	20		1	101	14	1688.902
ADS14SWG	2008	33	6110	30	7.0	22		1	99	14	11822.32
ADS14SWG	2008	33	6132	10	3.8	22		1	99	14	6417.828
ADS14SWG	2008	33	6140	20	14.9	10		1	99	14	25164.64
ADS14SWG	2008	34	7017	10	2.2	22		1	99	14	850.2095
ADS14SWG	2008	34	7029	10	1.0	20		1	99	14	386.4589
ADS14SWG	2008	33	6130	20	2.1	18		1	98	14	3546.695
ADS14SWG	2008	33	6130	30	3.4	18		1	98	14	5742.267
ADS14SWG	2008	33	6130	40	3.9	22		1	98	14	6586.718
ADS14SWG	2008	33	6011	10	1.7	26		1	97	14	2871.134
ADS14SWG	2008	33	6011	20	1.6	22		1	97	14	2702.243
ADS14SWG	2008	33	6131	10	4.8	22		1	97	14	8106.73
ADS14SWG	2008	34	489	10	1.6	18		1	97	14	618.3342
ADS14SWG	2008	36	123	30	2.5	14		1	97	14	4222.255
ADS14SWG	2008	36	691	10	2.0	18		1	97	14	772.9177
ADS14SWG	2008	36	9751	20	0.6	18		1	97	14	1013.341
ADS14SWG	2008	36	9760	10	2.0	14		1	97	14	3377.804
ADS14SWG	2008	36	9760	20	1.6	14		1	97	14	2702.243
ADS14SWG	2008	33	6211	10	8.7	18		1	95	14	14693.45
ADS14SWG	2008	34	7060	10	4.1	20		1	95	14	1584.481
ADS14SWG	2008	34	476	10	6.9	16		1	95	14	2666.566
ADS14SWG	2008	34	491	10	3.3	18		1	95	14	1275.314
ADS14SWG	2008	34	7013	10	1.1	18		1	95	14	425.1047
ADS14SWG	2008	34	7132	10	4.4	18		1	95	14	1700.419
ADS14SWG	2008	32	5047	10	3.3	24		1	94	14	5573.377
ADS14SWG	2008	32	5047	20	5.3	18		1	94	14	8951.181
ADS14SWG	2008	35	8032	10	9.9	18		1	92	14	17479.33
ADS14SWG	2008	34	98	10	0.9	20		1	91	14	347.813
ADS14SWG	2008	33	6240	10	1.2	14		1	89	14	2026.683
ADS14SWG	2008	35	8009	10	5.6	22		1	88	14	9457.852
ADS14SWG	2008	36	156	10	1.3	18		1	86	14	2195.573
ADS14SWG	2008	36	156	20	2.4	16		1	86	14	4053.365
ADS14SWG	2008	35	8033	10	2.5	22		1	79	14	4413.973
ADS14SWG	2008	35	8033	30	4.0	22		1	79	14	7062.357
ADS14SWG	2008	34	112	10	0.8	20		1	77	14	309.1671
ADS14SWG	2008	32	5042	10	3.5	14		1	76	14	5911.158
ADS14SWG	2008	32	5043	10	6.7	12		1	76	14	11315.64
ADS14SWG	2008	32	5043	30	2.8	12		1	76	14	4728.926
ADS14SWG	2008	32	121	10	5.4	14		1	74	14	281.07
ADS14SWG	2008	32	336	10	1.9	18		1	74	14	3208.914
ADS14SWG	2008	32	546	30	1.9	16		1	74	14	734.2718
ADS14SWG	2008	32	5025	10	2.3	12		1	74	14	3884.475
ADS14SWG	2008	32	5026	20	1.5	12		1	74	14	579.6883
ADS14SWG	2008	32	5028	10	0.8	18		1	74	14	1351.122
ADS14SWG	2008	32	5029	10	2.1	16		1	74	14	811.5636
ADS14SWG	2008	32	5030	10	13.7	18		1	74	14	5294.486
ADS14SWG	2008	32	5037	55	2.3	12		1	74	14	3884.475
ADS14SWG	2008	32	5037	70	2.7	12		1	74	14	4560.036
ADS14SWG	2008	32	5038	10	0.9	13		1	74	14	347.813
ADS14SWG	2008	32	5038	30	0.6	13		1	74	14	231.8753
ADS14SWG	2008	32	5039	10	2.9	16		1	74	14	4897.816
ADS14SWG	2008	32	5045	30	0.3	14		1	74	14	506.6706
ADS14SWG	2008	32	5059	30	0.8	12		1	74	14	1351.122
ADS14SWG	2008	32	5062	10	4.1	12		1	74	14	213.405
ADS14SWG	2008	32	5063	15	3.4	24		1	74	14	176.97
ADS14SWG	2008	32	5063	20	3.8	20		1	74	14	197.79
ADS14SWG	2008	32	5063	25	5.4	20		1	74	14	281.07
ADS14SWG	2008	32	5063	30	1.5	18		1	74	14	78.075

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS14SWG	2008	32	5072	10	2.5	22		1	74	14	966.1471
ADS14SWG	2008	32	5072	20	1.1	10		1	74	14	425.1047
ADS14SWG	2008	32	5072	30	1.1	15		1	74	14	425.1047
ADS14SWG	2008	32	5081	20	3.5	18		1	74	14	1352.606
ADS14SWG	2008	32	5081	25	11.1	18		1	74	14	4289.693
ADS14SWG	2008	32	5203	10	1.7	12		1	74	14	656.98
ADS14SWG	2008	32	5203	30	1.8	12		1	74	14	695.6259
ADS14SWG	2008	33	211	10	6.2	22		1	74	14	10471.19
ADS14SWG	2008	33	595	10	3.9	24		1	74	14	6586.718
ADS14SWG	2008	33	2121	10	2.6	20	1	1	74	14	4391.146
ADS14SWG	2008	33	6011	25	4.1	22		1	74	14	6924.499
ADS14SWG	2008	33	6120	20	8.6	22		1	74	14	14524.56
ADS14SWG	2008	33	6133	10	10.9	18		1	74	14	18409.03
ADS14SWG	2008	33	6133	20	11.8	20		1	74	14	19929.05
ADS14SWG	2008	33	6134	10	5.7	12		1	74	14	9626.742
ADS14SWG	2008	33	6134	20	7.1	18		1	74	14	11991.21
ADS14SWG	2008	33	6134	30	7.5	22		1	74	14	12666.77
ADS14SWG	2008	33	6135	20	2.8	24		1	74	14	4728.926
ADS14SWG	2008	33	6210	10	12.0	24		1	74	14	20266.83
ADS14SWG	2008	33	6210	20	0.6	24		1	74	14	1013.341
ADS14SWG	2008	33	6210	30	0.2	24		1	74	14	337.7804
ADS14SWG	2008	33	6210	40	0.2	24		1	74	14	337.7804
ADS14SWG	2008	33	6230	10	14.3	22		1	74	14	24151.3
ADS14SWG	2008	33	6231	10	9.5	22		1	74	14	16044.57
ADS14SWG	2008	33	6231	20	12.4	22		1	74	14	20942.39
ADS14SWG	2008	33	6310	40	12.3	14		1	74	14	640.215
ADS14SWG	2008	33	6310	50	10.4	17		1	74	14	17564.58
ADS14SWG	2008	33	6310	55	10.2	17		1	74	14	17226.8
ADS14SWG	2008	33	6310	60	8.1	20		1	74	14	13680.11
ADS14SWG	2008	33	6310	65	1.7	20		1	74	14	2871.134
ADS14SWG	2008	33	6315	10	4.1	14		1	74	14	213.405
ADS14SWG	2008	33	6321	10	8.2	20		1	74	14	13849
ADS14SWG	2008	33	6322	10	4.6	24		1	74	14	7768.95
ADS14SWG	2008	33	6326	20	1.0	20	1	1	74	14	1688.902
ADS14SWG	2008	33	6326	30	3.3	20	1	1	74	14	5573.377
ADS14SWG	2008	33	6430	10	5.7	24		1	74	14	9626.742
ADS14SWG	2008	33	6462	10	3.9	20		1	74	14	6586.718
ADS14SWG	2008	33	6463	10	5.5	20		1	74	14	9288.962
ADS14SWG	2008	33	6465	10	8.6	20		1	74	14	14524.56
ADS14SWG	2008	33	6465	20	1.0	24		1	74	14	1688.902
ADS14SWG	2008	33	6466	10	6.3	20		1	74	14	10640.08
ADS14SWG	2008	33	6471	10	3.4	20		1	74	14	176.97
ADS14SWG	2008	33	6487	10	10.8	20		1	74	14	18240.14
ADS14SWG	2008	33	6490	10	6.8	21		1	74	14	11484.53
ADS14SWG	2008	33	6491	10	8.0	16		1	74	14	13511.22
ADS14SWG	2008	33	6520	10	4.4	22		1	74	14	7431.169
ADS14SWG	2008	34	7033	10	1.9	16		1	74	14	734.2718
ADS14SWG	2008	34	7039	10	3.6	21		1	74	14	1391.252
ADS14SWG	2008	34	7041	10	2.0	18		1	74	14	772.9177
ADS14SWG	2008	34	7042	10	4.1	18		1	74	14	1584.481
ADS14SWG	2008	34	7071	10	1.0	20		1	74	14	386.4589
ADS14SWG	2008	34	7071	20	0.5	20		1	74	14	193.2294
ADS14SWG	2008	34	7074	10	0.8	18		1	74	14	309.1671
ADS14SWG	2008	34	7123	10	1.9	18		1	74	14	734.2718
ADS14SWG	2008	34	91	10	9.0	18		1	74	14	3478.13
ADS14SWG	2008	34	93	10	4.8	18		1	74	14	1855.002
ADS14SWG	2008	34	111	10	1.9	20		1	74	14	734.2718
ADS14SWG	2008	34	491	20	1.0	18		1	74	14	386.4589
ADS14SWG	2008	34	7008	10	2.3	20		1	74	14	888.8554
ADS14SWG	2008	34	7014	10	2.9	18		1	74	14	1120.731
ADS14SWG	2008	34	7043	10	0.4	20		1	74	14	154.5835

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NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS14SWG	2008	34	7043	13	4.5	20		1	74	14	1830.041
ADS14SWG	2008	34	7043	16	2.5	20		1	74	14	1016.689
ADS14SWG	2008	34	7043	50	3.4	20		1	74	14	1382.698
ADS14SWG	2008	34	7129	10	2.5	22		1	74	14	966.1471
ADS14SWG	2008	34	7134	10	2.0	20		1	74	14	772.9177
ADS14SWG	2008	35	641	10	2.7	20		1	74	14	4560.036
ADS14SWG	2008	35	672	10	2.1	20		1	74	14	3546.695
ADS14SWG	2008	35	672	20	3.3	20		1	74	14	5573.377
ADS14SWG	2008	35	8016	10	6.3	20		1	74	14	10640.08
ADS14SWG	2008	36	111	10	1.0	18		1	74	14	386.4589
ADS14SWG	2008	36	9452	20	2.0	18		1	74	14	772.9177
ADS14SWG	2008	33	201	10	12.4	20		9	74	14	20942.39
ADS14SWG	2008	33	6306	10	3.3	8		9	74	14	171.765
ADS14SWG	2008	34	542	10	0.8	18		9	74	14	309.1671
ADS14SWG	2008	34	561	10	3.6	20		9	74	14	1391.252
ADS14SWG	2008	34	7131	10	0.2	18		9	74	14	77.29177
ADS14SWG Total	ADS 14 (FADT 50-400) needing su				806.2						933346.9
ADS15SW	2008	34	7037	10	1.8	18		1	979	15	1262.07
ADS15SW	2008	33	164	5	0.1	24		3	383	15	21.075
ADS15SW	2008	36	26	15	6.5	20		1	276	15	7901.075
ADS15SW Total	ADS 15 needing surface upgrade ar				8.4						9184.22
ADS15SWG	2008	36	31	40	0.8	18		1	236	15	364.92
ADS15SWG	2008	36	31	50	2.5	20		1	236	15	1140.375
ADS15SWG	2008	32	342	10	6.4	22		1	199	15	2919.36
ADS15SWG	2008	36	9604	10	0.1	18		1	198	15	45.615
ADS15SWG	2008	36	9604	15	5.5	18		1	198	15	2508.825
ADS15SWG	2008	33	6260	20	1.0	20		1	186	15	1119.55
ADS15SWG	2008	33	6260	30	0.2	18		1	186	15	223.91
ADS15SWG	2008	36	126	60	7.9	18		1	186	15	3603.585
ADS15SWG	2008	36	126	20	4.3	18		9	186	15	1961.445
ADS15SWG	2008	36	126	30	5.0	18		9	186	15	2280.75
ADS15SWG	2008	36	126	40	5.5	18		9	186	15	2508.825
ADS15SWG	2008	36	31	55	1.1	18		1	163	15	501.765
ADS15SWG	2008	36	31	60	6.0	18		1	163	15	2736.9
ADS15SWG	2008	34	493	10	5.1	16		1	140	15	2326.365
ADS15SWG	2008	34	50	10	7.0	20		1	134	15	3193.05
ADS15SWG	2008	33	6310	20	2.6	14		1	129	15	170.69
ADS15SWG	2008	32	5034	20	1.8	12		1	108	15	2015.19
ADS15SWG	2008	32	5034	40	3.3	18		1	108	15	3694.515
ADS15SWG	2008	33	6110	10	7.0	12		1	99	15	7836.85
ADS15SWG	2008	33	6140	10	2.1	12		1	99	15	2351.055
ADS15SWG	2008	33	6130	10	4.1	12		1	98	15	4590.155
ADS15SWG	2008	33	6130	50	2.0	22		1	98	15	2239.1
ADS15SWG	2008	34	98	20	3.1	20		1	91	15	1414.065
ADS15SWG	2008	35	8028	10	8.7	20		1	80	15	9815.775
ADS15SWG	2008	35	8033	40	5.7	8		9	79	15	6431.025
ADS15SWG	2008	32	336	20	0.4	12		1	74	15	447.82
ADS15SWG	2008	32	336	50	8.9	12		1	74	15	9963.995
ADS15SWG	2008	32	681	10	10.0	22		1	74	15	11195.5
ADS15SWG	2008	32	5026	10	2.8	12		1	74	15	1277.22
ADS15SWG	2008	33	6120	10	3.0	22		1	74	15	3358.65
ADS15SWG	2008	33	6150	10	4.6	20		1	74	15	5149.93
ADS15SWG	2008	33	6150	20	13.7	20		1	74	15	15337.84
ADS15SWG	2008	34	7076	10	4.8	18		1	74	15	2189.52
ADS15SWG	2008	36	203	70	0.6	18		3	74	15	0
ADS15SWG	2008	32	336	40	2.5	12		9	74	15	2798.875
ADS15SWG	2008	32	5040	15	15.2	12		9	74	15	17017.16
ADS15SWG	2008	33	6305	10	1.5	8		9	74	15	98.475
ADS15SWG	2008	33	6305	20	3.2	8		9	74	15	210.08
ADS15SWG	2008	33	6325	10	4.6	8		9	74	15	301.99
ADS15SWG	2008	33	6325	20	12.9	8		9	74	15	846.885

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NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS15SWG	2008	36	126	50	3.5	18		9	74	15	3918.425
ADS15SWG	2008	36	203	80	4.8	18		9	74	15	5373.84
ADS15SWG	2008	36	203	90	6.4	21		9	74	15	7165.12
ADS15SWG Total	ADS 15 (FADT 50-400) needing su				202.2						154645
ADS16WG	2008	32	500	10	0.1	24		4	74	16	51.768
ADS16WG	2008	32	501	10	0.3	24		4	74	16	155.304
ADS16WG	2008	32	510	10	0.2	24	3	4	74	16	61.4
ADS16WG	2008	32	515	10	0.3	24	3	4	74	16	155.304
ADS16WG Total	ADS 16 (FADT 50-400) needing or				0.9						423.776
ADS16SW	2008	34	1042	32	0.5	40	4	4	6418	16	295
ADS16SW	2008	34	1042	34	0.4	40	4	4	6418	16	236
ADS16SW	2008	34	1042	36	0.1	40	4	4	6418	16	59
ADS16SW	2008	34	1042	40	0.1	40	4	4	6418	16	59
ADS16SW	2008	34	1048	20	0.2	32	3	4	5643	16	118
ADS16SW	2008	34	1042	10	0.4	36	3	4	3392	16	236
ADS16SW	2008	34	1042	15	0.2	28	3	4	3392	16	118
ADS16SW	2008	34	1042	20	0.4	40	4	4	3392	16	236
ADS16SW	2008	34	1042	25	0.2	40	4	4	3392	16	118
ADS16SW	2008	34	1042	30	0.1	40	4	4	3392	16	59
ADS16SW Total	ADS 16 needing surface upgrade ar				2.6						1534
ADS18	2008	33	608	5	0.1	34	4	5	8563	18	29.97
ADS18	2008	33	608	10	1.2	32	3	5	8563	18	359.64
ADS18	2008	33	608	15	0.1	32	3	5	8563	18	29.97
ADS18	2008	33	608	20	1.3	32	3	5	8563	18	389.61
ADS18	2008	34	1040	25	0.4	30	4	5	3359	18	171.2
ADS18	2008	34	1040	30	0.5	30	4	5	3359	18	214
ADS18	2008	34	1043	10	0.3	34	4	5	1241	18	128.4
ADS18	2008	32	530	10	0.1	28		1	37	18	29.26
ADS18	2008	32	530	20	0.3	21		1	37	18	87.78
ADS18	2008	32	545	20	0.1	25		1	37	18	29.26
ADS18	2008	32	545	30	0.2	25		1	37	18	58.52
ADS18	2008	32	545	40	0.6	25		1	37	18	175.56
ADS18	2008	32	570	30	0.6	24		1	37	18	175.56
ADS18	2008	33	1017	42	0.3	24		1	37	18	332.4141
ADS18	2008	35	300	10	0.1	26		1	37	18	110.8047
ADS18	2008	35	301	10	0.1	24		1	37	18	110.8047
ADS18	2008	35	810	10	0.1	24		1	37	18	120.7947
ADS18	2008	35	810	20	0.1	24		1	37	18	120.7947
ADS18	2008	36	133	10	0.1	24		1	37	18	110.8047
ADS18	2008	32	531	50	0.1	22		3	37	18	30.7
ADS18	2008	32	503	10	0.3	24		4	37	18	362.3841
ADS18	2008	32	509	10	0.6	22		4	37	18	184.2
ADS18	2008	32	509	40	0.1	24		4	37	18	30.7
ADS18	2008	32	509	50	0.7	22		4	37	18	214.9
ADS18	2008	32	509	60	0.3	24		4	37	18	92.1
ADS18	2008	32	509	70	0.2	30		4	37	18	61.4
ADS18	2008	32	512	10	1.0	24		4	37	18	307
ADS18	2008	32	512	20	0.1	24		4	37	18	30.7
ADS18	2008	32	531	20	0.4	22		4	37	18	122.8
ADS18	2008	32	545	10	0.3	25		4	37	18	92.1
ADS18	2008	33	601	10	0.1	24		4	37	18	120.7947
ADS18	2008	33	602	10	0.5	26		4	37	18	603.9735
ADS18	2008	33	602	20	2.2	24		4	37	18	2657.483
ADS18	2008	33	603	10	0.6	26		4	37	18	724.7682
ADS18	2008	33	604	40	0.1	24		4	37	18	120.7947
ADS18	2008	33	605	30	0.1	24		4	37	18	120.7947
ADS18	2008	33	610	10	0.3	38	4	4	37	18	362.3841
ADS18	2008	33	612	10	0.3	38	4	4	37	18	362.3841
ADS18	2008	33	613	10	0.3	38	4	4	37	18	362.3841
ADS18	2008	33	617	10	0.2	38	4	4	37	18	241.5894
ADS18	2008	33	618	10	0.2	38	4	4	37	18	241.5894

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NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS18	2008	33	1011	10	0.1	33	4	4	37	18	120.7947
ADS18	2008	33	1011	20	0.7	34	4	4	37	18	845.5629
ADS18	2008	33	1015	10	0.8	38	4	4	37	18	966.3576
ADS18	2008	33	1017	41	0.3	22		4	37	18	362.3841
ADS18	2008	33	6001	10	0.1	38	4	4	37	18	120.7947
ADS18	2008	33	6141	10	0.2	38	4	4	37	18	241.5894
ADS18	2008	34	716	10	0.5	24		4	37	18	153.5
ADS18	2008	34	701	10	1.2	26		4	37	18	368.4
ADS18	2008	34	705	10	0.5	28	3	4	37	18	153.5
ADS18	2008	34	705	30	0.4	28	3	4	37	18	122.8
ADS18	2008	35	101	10	0.2	24		4	37	18	241.5894
ADS18	2008	35	104	10	0.2	24		4	37	18	241.5894
ADS18	2008	35	105	10	0.2	24		4	37	18	241.5894
ADS18	2008	35	106	10	0.2	26	3	4	37	18	241.5894
ADS18	2008	35	200	10	0.1	26		4	37	18	120.7947
ADS18	2008	35	201	10	0.1	26		4	37	18	120.7947
ADS18	2008	35	202	10	0.1	26	3	4	37	18	120.7947
ADS18	2008	35	203	10	0.2	34		4	37	18	59.94
ADS18	2008	35	205	10	0.1	24		4	37	18	120.7947
ADS18	2008	35	206	10	0.1	26	3	4	37	18	120.7947
ADS18	2008	35	302	10	0.2	26		4	37	18	241.5894
ADS18	2008	35	400	10	0.1	28		4	37	18	120.7947
ADS18	2008	35	403	10	0.1	28	3	4	37	18	120.7947
ADS18	2008	35	405	10	0.1	24		4	37	18	120.7947
ADS18	2008	35	406	10	0.1	24	3	4	37	18	120.7947
ADS18	2008	35	601	10	0.1	24		4	37	18	120.7947
ADS18	2008	35	603	10	0.2	26	3	4	37	18	241.5894
ADS18	2008	35	800	10	0.1	24	3	4	37	18	120.7947
ADS18	2008	33	606	10	0.2	28	3	5	37	18	241.5894
ADS18	2008	33	1015	4	0.4	34	3	5	37	18	483.1788
ADS18	2008	33	1015	5	0.4	34	3	5	37	18	483.1788
ADS18	2008	35	100	10	0.1	42	4	5	37	18	120.7947
ADS18 Total					24.0						17855.72
ADS18S	2008	33	608	50	0.4	28	3	4	8563	18	713.178
ADS18S	2008	34	1044	10	0.1	40	4	4	5643	18	59
ADS18S	2008	34	1046	10	0.2	26	4	4	5643	18	118
ADS18S	2008	34	1047	20	0.3	30	3	4	5643	18	177
ADS18S	2008	34	1048	10	0.6	43	4	4	5643	18	354
ADS18S	2008	33	106	10	0.4	24		4	4805	18	713.178
ADS18S	2008	33	600	30	0.5	38	4	4	4056	18	891.4725
ADS18S	2008	33	600	40	0.4	38	4	4	4056	18	713.178
ADS18S	2008	33	614	30	0.4	38	4	4	3784	18	713.178
ADS18S	2008	33	600	10	0.1	35		4	2320	18	178.2945
ADS18S	2008	33	600	20	0.2	38	4	4	2320	18	356.589
ADS18S	2008	33	1017	45	0.5	24		1	1981	18	841.5225
ADS18S	2008	33	600	5	0.2	34	3	4	1972	18	174.9396
ADS18S	2008	33	609	10	0.3	36		1	1650	18	504.9135
ADS18S	2008	33	609	20	0.2	36		1	1650	18	336.609
ADS18S	2008	33	609	22	0.4	36		1	1650	18	673.218
ADS18S	2008	33	609	24	0.5	36		1	1650	18	841.5225
ADS18S	2008	33	609	26	0.2	36		4	1650	18	356.589
ADS18S	2008	35	597	10	0.1	28	3	4	1642	18	178.2945
ADS18S	2008	35	597	20	0.2	28	3	4	1642	18	356.589
ADS18S	2008	35	597	30	0.1	28	3	4	1642	18	178.2945
ADS18S	2008	33	614	5	0.2	34	3	4	999	18	174.9396
ADS18S	2008	33	614	10	0.1	38	4	4	999	18	178.2945
ADS18S	2008	33	614	20	0.4	38	4	4	999	18	713.178
ADS18S	2008	33	6003	10	0.1	38	4	4	958	18	178.2945
ADS18S	2008	36	100	50	0.4	24		4	799	18	713.178
ADS18S	2008	33	1017	40	0.3	24		1	777	18	504.9135
ADS18S	2008	33	616	5	0.2	34	4	4	677	18	356.589

Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS18S	2008	33	616	10	0.5	38	4	4	677	18	891.4725
ADS18S	2008	33	616	20	0.1	34	4	4	677	18	178.2945
ADS18S	2008	33	615	10	0.1	38	4	4	578	18	178.2945
ADS18S	2008	33	6002	10	0.1	38	4	4	459	18	178.2945
ADS18S Total	ADS 18 needing only surface upgra				8.8						13675.3
ADS18WE	2008	32	570	10	0.4	16		1	37	18	117.04
ADS18WE Total	ADS 18 needing only roadway wid				0.4						117.04
ADS18W	2008	32	531	40	0.1	12		3	37	18	30.7
ADS18W	2008	32	569	10	1.8	20		3	37	18	552.6
ADS18W	2008	0	2302	11	0.1	20	3	4	37	18	120.7947
ADS18W	2008	0	2302	12	0.4	20	3	4	37	18	483.1788
ADS18W	2008	0	2302	13	0.1	20	3	4	37	18	120.7947
ADS18W	2008	0	2302	14	0.2	20	3	4	37	18	241.5894
ADS18W	2008	0	2302	21	0.1	20	3	4	37	18	120.7947
ADS18W	2008	0	2302	31	0.1	20	3	4	37	18	120.7947
ADS18W	2008	0	2303	41	0.3	18	3	4	37	18	89.91
ADS18W	2008	0	2303	43	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2303	51	0.2	18	3	4	37	18	59.94
ADS18W	2008	0	2303	72	0.2	18	3	4	37	18	59.94
ADS18W	2008	0	2303	81	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2304	22	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2304	31	0.2	18	3	4	37	18	59.94
ADS18W	2008	0	2304	41	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2304	52	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2304	62	0.3	18	3	4	37	18	89.91
ADS18W	2008	0	2305	21	0.1	20	3	4	37	18	120.7947
ADS18W	2008	0	2305	62	0.1	20	3	4	37	18	120.7947
ADS18W	2008	0	2305	71	0.1	20	3	4	37	18	120.7947
ADS18W	2008	0	2305	82	0.2	20	3	4	37	18	241.5894
ADS18W	2008	0	2306	31	0.4	20	3	4	37	18	483.1788
ADS18W	2008	0	2306	41	0.1	20	3	4	37	18	120.7947
ADS18W	2008	0	2306	51	0.3	20	3	4	37	18	362.3841
ADS18W	2008	0	2306	52	0.2	20	3	4	37	18	241.5894
ADS18W	2008	0	2306	61	0.2	20	3	4	37	18	241.5894
ADS18W	2008	0	2309	11	0.3	20	3	4	37	18	362.3841
ADS18W	2008	0	2309	21	0.5	20	3	4	37	18	603.9735
ADS18W	2008	0	2309	31	0.1	20	3	4	37	18	120.7947
ADS18W	2008	0	2309	41	0.4	20	3	4	37	18	483.1788
ADS18W	2008	0	2311	41	0.3	18	3	4	37	18	89.91
ADS18W	2008	0	2311	52	0.2	18	3	4	37	18	59.94
ADS18W	2008	0	2311	71	0.4	18	3	4	37	18	119.88
ADS18W	2008	0	2311	81	0.2	18	3	4	37	18	59.94
ADS18W	2008	0	2311	91	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	101	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	122	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	141	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	162	0.3	18	3	4	37	18	89.91
ADS18W	2008	0	2311	181	0.3	18	3	4	37	18	89.91
ADS18W	2008	0	2311	182	0.2	18	3	4	37	18	59.94
ADS18W	2008	0	2311	191	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	202	0.5	18	3	4	37	18	149.85
ADS18W	2008	0	2311	204	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	212	0.5	18	3	4	37	18	149.85
ADS18W	2008	0	2311	214	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	216	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	218	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	221	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	222	0.2	18	3	4	37	18	59.94
ADS18W	2008	0	2311	231	0.2	18	3	4	37	18	59.94
ADS18W	2008	0	2311	241	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	252	0.2	18	3	4	37	18	59.94

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NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS SHOULDER TYPE_CODE	MSRIS SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
ADS18W	2008	0	2311	272	0.2	18	3	4	37	18	59.94
ADS18W	2008	0	2311	281	0.2	18	3	4	37	18	59.94
ADS18W	2008	0	2311	283	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	292	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	294	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	302	0.2	18	3	4	37	18	59.94
ADS18W	2008	0	2311	312	0.4	18	3	4	37	18	119.88
ADS18W	2008	0	2311	331	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2311	352	0.3	18	3	4	37	18	89.91
ADS18W	2008	0	2311	354	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2315	11	0.4	18	3	4	37	18	119.88
ADS18W	2008	0	2315	13	0.1	18	3	4	37	18	29.97
ADS18W	2008	0	2315	21	0.2	18	3	4	37	18	59.94
ADS18W	2008	0	2315	31	0.3	18	3	4	37	18	89.91
ADS18W	2008	0	2315	41	0.2	18	3	4	37	18	59.94
ADS18W	2008	0	2315	42	0.3	18	3	4	37	18	89.91
ADS18W	2008	0	2315	52	0.8	18	3	4	37	18	239.76
ADS18W	2008	0	2317	31	0.1	20	3	4	37	18	120.7947
ADS18W	2008	0	2317	52	0.2	20	3	4	37	18	241.5894
ADS18W	2008	0	2317	61	0.1	20	3	4	37	18	120.7947
ADS18W	2008	0	2317	62	0.2	20	3	4	37	18	241.5894
ADS18W	2008	0	2317	82	0.1	20	3	4	37	18	120.7947
ADS18W	2008	0	2318	11	0.6	18	3	4	37	18	724.7682
ADS18W	2008	0	2318	12	0.6	18	3	4	37	18	724.7682
ADS18W	2008	0	2318	13	0.7	18	3	4	37	18	845.5629
ADS18W	2008	32	509	20	0.2	20		4	37	18	61.4
ADS18W	2008	32	509	30	0.8	20		4	37	18	245.6
ADS18W	2008	32	512	30	0.4	20		4	37	18	122.8
ADS18W	2008	32	512	40	0.4	20		4	37	18	122.8
ADS18W	2008	32	512	50	1.7	12		4	37	18	521.9
ADS18W	2008	32	531	10	0.5	20		4	37	18	153.5
ADS18W	2008	32	531	30	0.1	14		4	37	18	30.7
ADS18W	2008	32	570	20	0.1	20		4	37	18	30.7
ADS18W Total	ADS 18 needing only roadway wid				23.1						12962.03
ADS18SW	2008	34	1040	10	0.5	18		1	1040	18	295
ADS18SW	2008	34	1040	20	0.7	18		4	1040	18	413
ADS18SW	2008	34	1041	10	0.6	18		4	5643	18	354
ADS18SW Total	ADS 18 needing surface upgrade ar				1.8						1062
	2008	0	2007	40		14					1089
	2008	32	5	20							0
	2008	32	13	110							0
	2008	32	13	150							0
	2008	32	13	180							0
	2008	32	13	200							124
	2008	32	13	220							124
	2008	32	33	20							0
	2008	32	33	60							0
	2008	32	33	80							0
	2008	32	33	100							0
	2008	32	33	120							0
	2008	32	33	140							0
	2008	32	33	160							0
	2008	32	33	180							0
	2008	32	33	200							0
	2008	32	34	35							309
	2008	32	34	45							386
	2008	32	35	20							348
	2008	32	36	30							0
	2008	32	36	70							0
	2008	32	36	98							0
	2008	32	63	20							0

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NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER TYPE_CODE	MSRIS_SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
	2008	32	63	40							0
	2008	32	63	60							0
	2008	32	63	80							0
	2008	32	63	120							309
	2008	32	63	140							386
	2008	32	63	160							1159
	2008	32	132	20							77
	2008	32	133	20							232
	2008	32	133	40							232
	2008	32	331	20							309
	2008	32	332	20							386
	2008	32	332	50							0
	2008	32	334	30							386
	2008	32	335	20							309
	2008	32	336	30							309
	2008	32	354	20							116
	2008	32	364	70							0
	2008	32	368	15							124
	2008	32	562	20							81
	2008	32	5000	50							0
	2008	32	5000	70							0
	2008	32	5000	110							154
	2008	32	5000	140							154
	2008	32	5000	160							154
	2008	32	5000	180							154
	2008	32	5000	200							0
	2008	32	5001	20							174
	2008	32	5001	40							139
	2008	32	5001	60							344
	2008	32	5002	30							154
	2008	32	5002	50							154
	2008	32	5002	70							154
	2008	32	5005	30							309
	2008	32	5007	50							154
	2008	32	5007	70							154
	2008	32	5009	20							154
	2008	32	5010	30							154
	2008	32	5010	70							232
	2008	32	5010	100							154
	2008	32	5010	130							154
	2008	32	5012	20							386
	2008	32	5012	50							154
	2008	32	5012	70							154
	2008	32	5012	90							232
	2008	32	5013	20							309
	2008	32	5013	70							309
	2008	32	5016	20							116
	2008	32	5020	30							309
	2008	32	5020	50							463
	2008	32	5021	20							309
	2008	32	5027	20							116
	2008	32	5031	40							124
	2008	32	5037	20							116
	2008	32	5037	40							232
	2008	32	5037	60							154
	2008	32	5037	80							154
	2008	32	5038	20							116
	2008	32	5043	20							386
	2008	32	5045	20							116
	2008	32	5049	20							232
	2008	32	5054	20							116

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NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER TYPE_CODE	MSRIS_SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
	2008	32	5056	20							154
	2008	32	5059	20							116
	2008	32	5063	27							1159
	2008	32	5080	12							0
	2008	32	5087	20							154
	2008	32	5087	40							154
	2008	32	5091	80							232
	2008	32	5091	100							116
	2008	32	5092	20							116
	2008	32	5099	20							0
	2008	32	5111	20							116
	2008	32	5111	50							116
	2008	32	5111	70							116
	2008	32	5113	20							232
	2008	32	5203	20							154
	2008	32	8008	20							386
	2008	32	8008	40							154
	2008	32	8009	30							309
	2008	32	8009	50							154
	2008	32	8070	20							2317
	2008	32	12	550							0
	2008	32	368	42							1159
	2008	33	15	40							0
	2008	33	15	70							0
	2008	33	15	90							0
	2008	33	16	20							328
	2008	33	16	70							0
	2008	33	16	90							0
	2008	33	20	20							772
	2008	33	59	20							0
	2008	33	59	50							0
	2008	33	59	80							0
	2008	33	59	100							0
	2008	33	59	150							0
	2008	33	70	50							1545
	2008	33	71	20							0
	2008	33	71	40							0
	2008	33	221	30							0
	2008	33	6310	30							0
	2008	33	6312	20							290
	2008	33	6325	50							0
	2008	33	6331	30							193
	2008	33	6440	60							386
	2008	33	6460	30							966
	2008	33	6461	20							232
	2008	33	6486	20							135
	2008	33	6486	40							255
	2008	33	6731	30							282
	2008	33	6732	20							251
	2008	33	6810	13							579
	2008	33	6910	20							251
	2008	33	6923	30							0
	2008	33	6720	40							197
	2008	34	56	50							0
	2008	34	9	130							0
	2008	34	7057	70							112
	2008	34	7057	100							193
	2008	34	9652	50							193
	2008	34	9	210							0
	2008	34	11	20							0
	2008	34	11	40							0

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NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER TYPE_CODE	MSRIS_SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
	2008	34	471	20							398
	2008	34	474	80							0
	2008	34	474	100							0
	2008	34	705	20							0
	2008	34	7043	20							765
	2008	34	7043	40							294
	2008	34	7044	20							0
	2008	34	7052	20							309
	2008	34	7054	30							232
	2008	34	7140	20							0
	2008	34	7140	40							81
	2008	34	7140	60							0
	2008	34	7140	80							0
	2008	34	7140	100							0
	2008	35	4	40							0
	2008	35	4	60							0
	2008	35	4	80							0
	2008	35	4	112							463
	2008	35	4	118							0
	2008	35	7	20							996
	2008	35	12	410							0
	2008	35	12	430							0
	2008	35	12	460							0
	2008	35	13	20							0
	2008	35	13	40							0
	2008	35	26	50							348
	2008	35	26	70							699
	2008	35	27	110							409
	2008	35	27	130							97
	2008	35	27	160							0
	2008	35	41	20							479
	2008	35	41	40							0
	2008	35	41	80							0
	2008	35	41	100							0
	2008	35	59	180							0
	2008	35	59	220							0
	2008	35	61	50							386
	2008	35	65	30							0
	2008	35	65	50							463
	2008	35	67	20							413
	2008	35	133	20							398
	2008	35	135	20							579
	2008	35	136	20							1545
	2008	35	171	20							348
	2008	35	172	30							0
	2008	35	172	80							386
	2008	35	251	70							0
	2008	35	673	20							695
	2008	35	8015	20							772
	2008	35	8015	50							579
	2008	35	8017	40							888
	2008	35	8017	60							1159
	2008	35	8018	20							888
	2008	35	8031	20							0
	2008	35	8033	20							309
	2008	35	8059	20							1004
	2008	35	8059	50							1545
	2008	35	8059	90							425
	2008	35	8065	20							1004
	2008	35	8066	20							232
	2008	35	8066	35							232

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NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER TYPE_CODE	MSRIS_SURFACE TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
	2008	35	8066	45							232
	2008	35	8066	51							232
	2008	35	8066	60							425
	2008	35	8068	20							386
	2008	35	8068	40							386
	2008	35	8081	30							3090
	2008	35	8083	20							1159
	2008	35	8083	40							772
	2008	35	8084	20							966
	2008	35	8084	50							966
	2008	35	8084	63							966
	2008	35	8084	70							309
	2008	35	8084	90							772
	2008	35	8086	20							888
	2008	35	8086	40							116
	2008	35	8086	60							1711
	2008	35	8087	20							1159
	2008	35	8087	32							1159
	2008	35	8090	20							463
	2008	35	8090	64							1159
	2008	35	8090	70							1159
	2008	35	8095	20							463
	2008	35	61	20							772
	2008	35	8031	70							463
	2008	36	6	30							0
	2008	36	7	130							0
	2008	36	9	30							0
	2008	36	9	50							0
	2008	36	9	52							0
	2008	36	9	55							0
	2008	36	9	80							0
	2008	36	9	100							0
	2008	36	12	20							560
	2008	36	12	70							0
	2008	36	12	120							0
	2008	36	12	140							154
	2008	36	12	200							0
	2008	36	12	230							942
	2008	36	12	270							0
	2008	36	15	140							0
	2008	36	15	185							0
	2008	36	15	215							0
	2008	36	15	235							0
	2008	36	15	250							0
	2008	36	27	20							0
	2008	36	28	20							657
	2008	36	28	80							158
	2008	36	30	30							541
	2008	36	30	50							309
	2008	36	30	70							386
	2008	36	30	90							541
	2008	36	30	110							309
	2008	36	30	130							386
	2008	36	31	16							850
	2008	36	37	30							270
	2008	36	39	30							201
	2008	36	39	50							120
	2008	36	39	70							135
	2008	36	54	60							0
	2008	36	60	20							0
	2008	36	69	20							116

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NEED 1: HIGHWAY GEOMETRIC DESIGN DEFICIENCIES

NEED 1	FISCAL YEAR	AGENCY CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	ROADWAY WIDTH	MSRIS_SHOULDER_TYPE_CODE	MSRIS_SURFACE_TYPE_CODE	MSRISD_FUTURE_AD T_COUNT	MSRISD_ADS_NUMBER	MSRISD_BIA_CTI
	2008	36	108	40							413
	2008	36	110	20							0
	2008	36	112	20							0
	2008	36	112	40							0
	2008	36	112	90							154
	2008	36	113	20							0
	2008	36	123	10							0
	2008	36	151	20							0
	2008	36	203	30							178
	2008	36	203	60							0
	2008	36	321	70							332
	2008	36	321	90							301
	2008	36	541	20							328
	2008	36	543	20							0
	2008	36	544	20							0
	2008	36	9054	20							116
	2008	36	9073	30							197
	2008	36	9202	20							0
	2008	36	9345	40							0
	2008	36	9345	65							0
	2008	36	9402	50							0
	2008	36	9402	90							251
	2008	36	9402	110							1580
	2008	36	9504	20							344
	2008	36	9603	20							243
	2008	36	9660	20							197
	2008	36	9660	40							406
	2008	48	3003	20							0
	2008	48	3005	20							0
	2008	48	4055	40							0
	2008	48	4055	60							0
	2008	48	4063	20							77
	2008	48	4065	20							0
	2008	48	3002	40							77
	2008	48	3002	80							0
	2008	48	3003	70							0
	2008	48	3003	100							0
	2008	48	3003	120							0
	2008	48	4002	20							0
	2008	48	4022	20							0
	2008	48	4022	40							0
	2008	48	4022	80							0
	2008	48	4028	30							0
	2008	48	4030	10							0
	2008	48	4178	20							0
	2008	48	4178	50							0
Grand Total					6147.9						6706062

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY_CODE	RESERVATION_CODE	ROUTE_NUMBER	SECTION_NUMBER	SECTION_LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRIS_BIA_CTI	TOTAL_COST
35	780	7	10	0.2	1	4	12	4	360.263	
36	780	12	110	0.3	1	4	24	4	540.394	
	Class 1 PCI<40andRB<5			0.5						900.6563
36	780	12	100	0.5	1	4	40	4	900.656	
36	780	12	105	0.4	1	4	40	4	720.525	
36	780	12	115	0.8	1	4	40	4	1441.05	
35	780	7	40	0.7	1	5	58	4	1004	
35	780	7	15	0.1	1	5	62	4	97.546	
33	780	1017	10	0.7	1	4	65	4	1260.92	
	Class 1 RB<5			3.2						5424.701
33	780	1017	20	0.2	1	4	65	7	191.989	
33	780	1017	25	0.1	1	4	65	7	95.9943	
35	780	7	30	0.1	1	5	66	7	13.409	
	Class 1 PCI=51-69andRB>=5			0.4						301.3918
35	780	4	32	0.2	2	4	0	3	407.339	
32	780	12	520	5.1	2	4	0	4	10387.1	
32	780	12	530	12.3	2	4	0	4	2063.33	
32	780	12	540	8.4	2	4	0	4	1409.1	
32	780	13	100	0.9	2	4	0	4	1833.02	
32	780	13	120	1	2	4	0	4	2036.69	
32	780	13	130	3.2	2	4	0	4	1912.62	
32	780	13	140	1.1	2	4	0	4	657.462	
32	780	13	160	0.5	2	4	0	4	298.847	
32	780	13	170	4.3	2	4	0	4	2570.08	
32	780	13	190	0.1	2	4	0	4	59.7693	
32	780	13	210	0.1	2	4	0	4	59.7693	
32	780	13	230	5.7	2	4	0	4	3406.85	
32	780	13	240	4.5	2	4	0	4	2689.62	
33	780	20	80	12.7	2	4	0	4	25866	
33	796	20	90	1.6	2	4	0	4	3258.71	
34	796	9	250	1	2	4	0	4	597.693	
34	796	9	252	0.4	2	4	0	4	239.077	
34	796	9	254	10.2	2	4	0	4	6096.47	
34	796	9	256	0.5	2	4	0	4	298.847	
34	796	9	260	0.2	2	4	0	4	119.539	
35	780	4	70	0.3	2	4	0	4	611.008	
35	780	4	73	3.1	2	4	0	4	6313.75	
35	780	4	76	3.9	2	4	0	4	7943.1	
35	780	4	90	1.3	2	4	0	4	2647.7	
35	780	4	95	1.1	2	4	0	4	2240.36	
35	780	4	100	1.8	2	4	0	4	3666.05	
35	780	4	110	4.1	2	4	0	4	8350.44	
35	780	4	114	0.2	2	4	0	4	92.45	
35	780	4	116	0.4	2	4	0	4	184.9	
35	780	4	120	6	2	4	0	4	12220.2	
35	780	7	50	0.4	2	4	0	4	814.677	
35	780	7	52	0.7	2	4	0	4	1425.69	
35	780	7	56	3.1	2	4	0	4	6313.75	
35	780	12	420	7.7	2	4	0	4	15682.5	
35	780	12	440	2.2	2	4	0	4	4480.72	
35	780	12	450	2.6	2	4	0	4	5295.4	
35	780	12	455	1.4	2	4	0	4	2851.37	
35	780	12	470	2.9	2	4	0	4	5906.41	
35	780	12	471	0.2	2	4	0	4	92.45	
35	780	12	473	6.6	2	4	0	4	13442.2	
35	780	12	476	0.6	2	4	0	4	1222.02	
35	780	64	10	5.3	2	4	0	4	10794.5	
35	780	64	15	6.5	2	4	0	4	13238.5	
35	780	64	20	2.2	2	4	0	4	4480.72	
35	780	64	21	3.5	2	4	0	4	7128.43	
35	780	64	23	5.8	2	4	0	4	11812.8	
35	780	64	24	0.6	2	4	0	4	1222.02	
35	780	64	25	0.4	2	4	0	4	814.677	
35	780	64	26	0.1	2	4	0	4	203.669	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY_CODE	RESERVATION_CODE	ROUTE_NUMBER	SECTION_NUMBER	SECTION_LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRIS_BIA_CTI	TOTAL_COST
36	780	6	80	2.3	2	4	0	4	4684.39	
36	780	7	85	1.2	2	4	0	4	2444.03	
36	780	7	100	8.8	2	4	0	4	17922.9	
36	780	7	105	1.3	2	4	0	4	2647.7	
36	780	7	110	2.1	2	4	0	4	2805.58	
36	780	7	115	2.1	2	4	0	4	2805.58	
36	780	7	120	0.4	2	4	0	4	814.677	
36	780	7	140	0.6	2	4	0	4	540.362	
36	780	110	55	0.5	2	4	0	4	1018.35	
34	780	9	160	1	2	4	3	4	597.693	
35	780	41	10	0.6	2	4	7	4	1222.02	
35	780	41	12	1	2	4	7	4	2036.69	
35	780	41	14	6.1	2	4	7	4	12423.8	
35	780	41	16	1.1	2	4	7	4	2240.36	
35	780	41	30	1.3	2	4	7	4	2647.7	
35	780	41	50	2	2	4	7	4	4073.39	
35	780	41	60	0.9	2	4	7	4	1833.02	
35	780	41	65	1.1	2	4	7	4	1469.59	
35	780	41	70	4.4	2	4	7	4	8961.45	
35	780	41	90	2.5	2	4	7	4	5091.73	
35	780	41	110	0.3	2	4	7	4	611.008	
35	780	7	54	7.1	2	4	9	4	14460.5	
34	796	9	240	4.3	2	4	12	4	2570.08	
34	796	9	242	4.8	2	4	12	4	2868.93	
34	796	9	244	1.6	2	4	12	4	956.309	
34	796	9	246	4.8	2	4	12	4	2868.93	
32	780	36	80	0.6	2	5	12	4	358.616	
32	780	36	90	0.9	2	5	12	4	537.924	
32	780	36	94	3.4	2	5	12	4	2032.16	
32	780	36	95	0.3	2	5	12	4	179.308	
32	780	36	96	0.2	2	5	12	4	119.539	
32	780	36	97	0.6	2	5	12	4	358.616	
32	780	36	99	0.2	2	5	12	4	119.539	
32	780	36	100	4.6	2	5	12	4	2749.39	
36	780	15	341	1.6	2	4	15	4	3258.71	
36	780	15	342	0.6	2	4	15	4	1222.02	
36	780	15	344	0.4	2	4	15	4	814.677	
36	780	15	346	0.3	2	4	15	4	270.181	
36	780	15	130	3	2	4	20	4	6110.08	
36	780	15	135	0.8	2	4	20	4	1629.35	
36	780	15	150	5.1	2	4	20	4	10387.1	
36	780	15	155	2.8	2	4	20	4	5702.74	
36	780	15	160	0.9	2	4	20	4	810.543	
36	780	15	165	1.6	2	4	20	4	1440.97	
36	780	15	170	0.5	2	4	20	4	231.125	
36	780	15	180	2.3	2	4	20	4	4684.39	
36	780	15	190	0.3	2	4	20	4	270.181	
36	780	15	200	0.5	2	4	20	4	450.302	
36	780	15	210	0.5	2	4	20	4	450.302	
36	780	15	260	0.5	2	4	20	4	231.125	
36	780	15	300	0.9	2	4	20	4	1833.02	
36	780	15	305	4.2	2	4	20	4	8554.11	
36	780	15	310	1.5	2	4	20	4	3055.04	
36	780	15	315	1	2	4	20	4	2036.69	
36	780	15	320	2.8	2	4	20	4	5702.74	
36	780	15	325	1.2	2	4	20	4	2444.03	
36	780	15	330	1.6	2	4	20	4	3258.71	
36	780	15	340	2.4	2	4	20	4	4888.06	
36	780	110	50	0.4	2	4	20	4	814.677	
34	724	56	10	2.3	2	4	22	4	3098.68	
34	724	56	20	2.5	2	4	22	4	3368.13	
34	724	56	30	2.1	2	4	22	4	2829.23	
34	796	474	95	0.4	2	4	24	4	489.414	
36	780	7	90	0.5	2	4	24	4	1018.35	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY CODE	RESERVATION CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRISD_BIA_CTI	TOTAL COST
36	780	15	220	6.5	2	4	25	4	3004.63	
36	780	15	230	3.6	2	4	25	4	7332.09	
36	780	15	240	3.6	2	4	25	4	1664.1	
36	780	15	270	6.4	2	4	25	4	5763.86	
36	780	15	280	6.4	2	4	25	4	2958.4	
36	780	15	290	1.7	2	4	25	4	3462.38	
36	780	15	295	1.4	2	4	25	4	2851.37	
34	796	474	60	0.1	2	4	27	4	122.353	
34	796	474	65	0.1	2	4	27	4	122.353	
34	796	474	70	0.6	2	4	27	4	734.121	
34	796	474	90	0.4	2	4	27	4	489.414	
34	796	474	110	1	2	4	27	4	1223.53	
36	780	6	10	8.3	2	4	29	4	16904.6	
32	780	36	10	7.5	2	5	31	4	4482.7	
34	796	9	170	7.7	2	5	36	4	4602.24	
34	796	9	183	0.5	2	5	36	4	298.847	
	Class 2 PCI<40andRB<5			325.3						464203.9
32	796	12	560	0.6	2	4	40	4	100.65	
34	796	9	262	0.4	2	4	40	4	239.077	
34	796	9	264	4.9	2	4	40	4	2928.7	
34	796	9	266	4.8	2	4	40	4	2868.93	
35	780	12	480	7	2	4	40	4	14256.9	
35	780	12	485	6.8	2	4	40	4	13849.5	
36	780	6	60	0.5	2	4	40	4	1018.35	
36	780	6	66	14.2	2	4	40	4	28921	
36	780	12	130	2.8	2	4	40	4	5702.74	
36	780	12	150	0.4	2	4	40	4	360.242	
36	780	110	10	0.3	2	4	40	4	270.181	
36	780	110	30	0.2	2	4	40	4	180.121	
36	780	110	35	0.3	2	4	40	4	270.181	
32	780	13	90	1.3	2	5	40	4	2647.7	
32	780	13	95	6.4	2	5	40	4	13034.8	
0	780	2006	70	0.2	2	4	41	4	92.45	
35	780	4	30	0.3	2	4	41	4	611.008	
36	780	6	20	2.4	2	4	41	4	4888.06	
36	780	6	40	1.7	2	4	41	4	3462.38	
36	780	6	50	3.5	2	4	41	4	7128.43	
36	780	6	63	3.3	2	4	41	4	6721.09	
36	780	100	20	0.1	2	4	41	4	203.669	
36	780	100	25	0.1	2	4	41	4	203.669	
35	780	4	34	0.5	2	5	41	4	860.112	
35	780	4	36	0.4	2	5	41	4	688.089	
35	780	4	50	0.9	2	5	41	4	1548.2	
35	780	4	51	0.4	2	5	41	4	146.1	
35	780	4	53	3.5	2	5	41	4	6020.78	
35	780	4	56	0.2	2	5	41	4	344.045	
48	796	3003	80	0.7	2	4	42	4	418.385	
48	796	3003	50	3.2	2	4	44	4	1912.62	
48	796	3003	55	0.4	2	4	44	4	239.077	
48	796	3003	60	5	2	4	44	4	2988.47	
36	780	112	10	3.4	2	4	45	4	6924.76	
36	780	112	30	2.3	2	4	45	4	4684.39	
36	780	112	35	0.3	2	4	45	4	611.008	
36	780	112	50	0.2	2	4	45	4	180.121	
32	780	36	20	0.4	2	5	45	4	183.708	
32	780	36	40	0.6	2	5	45	4	275.562	
32	780	36	50	3	2	5	45	4	1377.81	
32	780	36	55	5.4	2	5	45	4	2480.06	
32	780	36	60	0.6	2	5	45	4	275.562	
32	796	36	190	1.1	2	5	45	4	505.197	
32	780	36	110	0.7	2	5	49	4	321.489	
33	780	59	130	0.7	2	5	49	4	1204.16	
34	796	9	180	0.5	2	5	49	4	229.635	
34	796	9	186	0.3	2	5	49	4	137.781	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY CODE	RESERVATION CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRISD_BIA_CTI	TOTAL COST
34	796	9	200	4.9	2	5	49	4	2250.42	
34	796	9	205	3.5	2	5	49	4	1607.45	
34	796	9	220	1.3	2	5	49	4	597.051	
34	796	9	223	4.2	2	5	49	4	1928.93	
34	796	9	226	0.4	2	5	49	4	183.708	
34	796	9	230	6.2	2	5	49	4	2847.47	
35	780	13	10	0.7	2	5	49	4	1204.16	
35	780	13	30	1.3	2	5	49	4	2236.29	
35	780	13	35	0.8	2	5	49	4	1376.18	
35	780	13	50	1.1	2	5	49	4	1892.25	
35	780	13	55	0.9	2	5	49	4	1548.2	
36	780	12	220	0.3	2	5	49	4	137.781	
36	780	12	222	0.8	2	5	49	4	367.416	
36	780	12	224	0.3	2	5	49	4	137.781	
36	780	12	226	0.1	2	5	49	4	115.625	
36	780	12	228	0.1	2	4	50	4	134.725	
36	780	12	240	1.8	2	4	50	4	1075.85	
36	780	12	245	4.4	2	4	50	4	2629.85	
36	780	12	250	1.8	2	4	50	4	2425.05	
36	780	12	260	1.8	2	4	50	4	1075.85	
36	780	12	280	1.7	2	4	50	4	1016.08	
36	780	12	285	4.9	2	4	50	4	2928.7	
36	780	12	290	0.2	2	4	50	4	407.339	
36	780	15	348	0.5	2	4	54	4	450.302	
36	780	112	60	0.2	2	4	54	4	180.121	
36	780	112	63	0.9	2	4	54	4	1833.02	
36	780	112	66	0.2	2	4	54	4	407.339	
36	K80	6	70	4.4	2	4	54	4	8961.45	
35	780	4	130	0.1	2	5	54	4	172.022	
35	780	4	132	4.9	2	5	54	4	8429.09	
35	780	4	134	2	2	5	54	4	3440.45	
35	780	4	136	1.3	2	5	54	4	2236.29	
36	780	12	160	0.2	2	5	54	4	146.068	
36	780	12	165	1.1	2	5	54	4	803.373	
36	780	12	170	0.2	2	5	54	4	344.045	
36	780	12	180	0.2	2	5	54	4	231.25	
36	780	12	185	0.3	2	5	54	4	137.781	
36	780	12	190	4.9	2	5	54	4	2250.42	
36	780	12	195	0.8	2	5	54	4	367.416	
36	780	12	210	3.6	2	5	54	4	1653.37	
36	780	27	10	1.4	2	5	54	4	2408.31	
36	780	27	30	4.9	2	5	54	4	8429.09	
36	780	27	35	0.5	2	5	54	4	860.112	
36	780	27	40	1.3	2	5	54	4	2236.29	
36	780	27	45	4	2	5	54	4	6880.89	
36	780	27	50	0.6	2	5	54	4	1032.13	
36	780	110	40	0.1	2	5	54	4	73.0339	
36	780	110	43	0.1	2	5	54	4	73.0339	
36	780	110	46	0.1	2	5	54	4	73.0339	
48	780	3005	10	0.4	2	4	55	4	489.414	
48	780	3005	15	3.7	2	4	55	4	2211.46	
48	780	3005	30	0.6	2	4	55	4	358.616	
48	780	3005	35	4.2	2	4	55	4	2510.31	
48	780	3005	40	4.7	2	4	55	4	2809.16	
48	780	3005	45	0.3	2	4	55	4	179.308	
34	780	9	120	3	2	5	58	4	1377.81	
34	780	9	125	0.5	2	5	58	4	229.635	
34	780	9	140	2.3	2	5	58	4	1056.32	
35	780	7	42	0.5	2	5	58	4	860.112	
35	780	7	44	0.2	2	5	58	4	344.045	
35	780	7	46	0.5	2	5	58	4	860.112	
35	780	7	48	0.1	2	5	58	4	172.022	
35	780	27	190	0.2	2	5	58	4	344.045	
35	780	27	193	0.1	2	5	58	4	172.022	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY CODE	RESERVATION CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRISD_BIA_CTI	TOTAL COST
35	780	27	196	0.1	2	5	58	4	172.022	
35	780	27	200	0.1	2	5	58	4	172.022	
35	780	59	210	0.9	2	5	58	4	1548.2	
35	780	59	213	6.5	2	5	58	4	11181.4	
35	780	59	216	0.9	2	5	58	4	1548.2	
35	780	59	230	4.2	2	5	58	4	7224.94	
35	780	59	240	0.2	2	5	58	4	344.045	
35	780	59	245	0.5	2	5	58	4	860.112	
36	780	12	50	1.1	2	5	58	4	1892.25	
36	780	12	55	0.8	2	5	58	4	1376.18	
36	780	12	60	0.6	2	5	58	4	1032.13	
36	780	12	63	0.9	2	5	58	4	1548.2	
36	780	12	66	3.6	2	5	58	4	6192.8	
36	780	12	80	0.3	2	5	58	4	516.067	
36	780	12	85	0.7	2	5	58	4	1204.16	
34	780	9	150	4.5	2	4	62	4	2689.62	
34	796	474	50	3.1	2	4	62	4	3792.96	
34	796	474	53	0.9	2	4	62	4	1101.18	
34	796	474	56	0.1	2	4	62	4	122.353	
35	780	27	40	2.2	2	5	62	4	2747.23	
35	780	27	50	0.2	2	5	62	4	189.793	
35	780	27	55	1	2	5	62	4	948.963	
35	780	27	60	1.4	2	5	62	4	1748.23	
35	780	27	70	0.3	2	5	62	4	374.622	
35	780	27	80	0.8	2	5	62	4	998.991	
35	780	27	83	1	2	5	62	4	1248.74	
35	780	27	86	2.8	2	5	62	4	3496.47	
48	796	3003	95	2.1	2	5	62	4	535.513	
48	796	3003	110	0.1	2	5	62	4	25.5006	
48	796	3003	130	2.8	2	5	62	4	714.017	
48	796	3003	135	2	2	5	62	4	510.012	
33	780	2	60	14	2	4	65	4	12608.5	
33	780	15	20	4.9	2	4	66	4	9979.8	
33	780	15	10	5.4	2	5	66	4	6743.19	
33	780	15	30	3.9	2	5	66	4	4870.08	
48	796	3003	90	0.3	2	5	66	4	76.5018	
33	K80	2	80	12.5	2	5	75	4	6460.2	
33	780	15	60	3.9	2	4	90	4	3512.35	
33	780	15	115	3	2	4	90	4	2701.81	
		Class 2 RB<5		295.4						347734.6
36	780	9	70	3.8	2	5	66	5	200.777	
36	780	9	90	1.4	2	5	66	5	73.9704	
36	780	9	110	0.3	2	5	66	5	15.8508	
36	780	9	115	3.6	2	5	66	5	190.21	
		Class 2 PCI=51-69andRB>=5		9.1						480.8076
34	796	474	30	3.9	2	4	70	5	2295.57	
34	796	474	35	0.1	2	4	70	5	58.8609	
34	796	474	40	1.2	2	4	70	5	706.331	
33	780	59	10	11.5	2	5	70	5	2068.51	
33	780	59	30	1.8	2	5	70	5	323.767	
33	780	59	40	0.1	2	5	70	5	17.987	
33	780	59	60	0.5	2	5	70	5	89.9352	
33	780	59	70	1.2	2	5	70	5	215.844	
33	780	59	90	0.9	2	5	70	5	161.883	
33	780	59	110	2.2	2	5	70	5	395.715	
33	780	59	120	2.6	2	5	70	5	467.663	
33	780	59	140	1.3	2	5	70	5	233.832	
33	780	59	160	0.2	2	5	70	5	35.9741	
34	724	56	40	0.7	2	5	70	5	1.47	
34	724	56	60	0.3	2	5	70	5	0.63	
35	780	59	170	2	2	5	70	5	359.741	
35	780	59	190	0.1	2	5	70	5	17.987	
35	780	59	195	1.6	2	5	70	5	287.793	
35	780	59	200	1.8	2	5	70	5	323.767	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY CODE	RESERVATION CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRISD_BIA_CTI	TOTAL COST
35	780	59	205	1.9	2	5	70	5	341.754	
36	780	12	16	0.7	2	5	70	5	125.909	
36	780	12	30	0.2	2	5	70	5	35.9741	
36	780	12	35	0.4	2	5	70	5	71.9482	
36	780	12	40	3.1	2	5	70	5	825.974	
36	780	12	43	2.7	2	5	70	5	719.397	
36	780	12	46	0.5	2	5	70	5	133.222	
32	780	364	65	1.3	2	4	74	5	514.18	
32	780	364	80	0.4	2	4	74	5	172.44	
32	780	364	82	1	2	4	74	5	431.1	
32	780	364	84	0.5	2	4	74	5	215.55	
32	780	364	86	1	2	4	74	5	431.1	
36	780	7	146	0.4	2	4	74	5	173.891	
36	780	7	150	0.2	2	4	74	5	86.9457	
32	780	13	80	5.2	2	5	74	5	1385.5	
36	780	54	30	0.9	2	5	78	5	47.5524	
36	780	54	40	3.2	2	5	78	5	169.075	
36	780	54	50	4	2	5	78	5	211.344	
36	780	54	70	1.4	2	5	78	5	73.9704	
36	796	54	10	0.8	2	5	78	5	42.2688	
36	796	54	20	0.2	2	5	78	5	0.42	
36	780	9	45	1.5	2	5	82	5	0	
36	780	9	51	0.2	2	5	82	5	11.4324	
36	780	12	10	0.5	2	5	82	5	0	
36	780	12	12	1.6	2	5	82	5	0	
36	780	12	14	5.9	2	5	82	5	0	
36	780	9	53	0.1	2	5	84	5	0	
36	780	9	10	3.4	2	5	86	5	0	
36	780	9	20	0.6	2	5	86	5	0	
36	780	9	40	2.2	2	5	86	5	0	
36	780	9	60	1.6	2	5	87	5	0	
33	780	15	50	0.4	2	4	90	5	387.13	
33	780	15	80	1.2	2	4	90	5	521.674	
33	780	15	100	2.5	2	4	90	5	2419.56	
33	780	15	110	2.5	2	4	90	5	1086.82	
33	780	15	120	7.6	2	4	90	5	3303.94	
33	780	15	33	0.3	2	5	90	5	53.9611	
33	780	15	36	0.4	2	5	90	5	71.9482	
36	780	9	25	1.3	2	5	90	5	0	
	Class 2 PCI>=70 and RB>=5			97.8						22129.25
36	780	100	10	0.4	2	4	30	6	387.13	
36	780	100	15	0.1	2	4	30	6	96.7824	
		Class 2 PCI<40		0.5						483.9122
36	780	54	80	0.4	2	5	78	7	0.84	
36	780	54	90	0.7	2	5	78	7	35.6582	
	Class 2 PCI>=70 and RB>=5			1.1						36.49821
32	780	503	10	0.3	3	4	0	3	362.384	
32	780	509	10	0.6	3	4	0	3	184.2	
32	780	509	40	0.1	3	4	0	3	30.7	
32	780	509	60	0.3	3	4	0	3	92.1	
32	780	545	10	0.3	3	4	0	3	92.1	
34	796	1041	10	0.6	3	4	0	3	354	
32	780	509	20	0.2	3	4	0	4	61.4	
32	780	509	30	0.8	3	4	0	4	245.6	
32	780	509	50	0.7	3	4	0	4	214.9	
32	780	509	70	0.2	3	4	0	4	61.4	
32	780	512	10	1	3	4	0	4	307	
32	780	512	20	0.1	3	4	0	4	30.7	
32	780	512	30	0.4	3	4	0	4	122.8	
32	780	512	40	0.4	3	4	0	4	122.8	
32	780	512	50	1.7	3	4	0	4	521.9	
32	780	531	10	0.5	3	4	0	4	153.5	
32	780	531	20	0.4	3	4	0	4	122.8	
32	780	531	30	0.1	3	4	0	4	30.7	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY CODE	RESERVATION CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRISD_BIA_CTI	TOTAL COST
32	780	570	20	0.1	3	4	0	4	30.7	
33	780	601	10	0.1	3	4	0	4	120.795	
33	780	602	10	0.5	3	4	0	4	603.974	
33	780	602	20	2.2	3	4	0	4	2657.48	
33	780	604	40	0.1	3	4	0	4	120.795	
33	780	605	30	0.1	3	4	0	4	120.795	
33	780	609	26	0.2	3	4	0	4	356.589	
33	780	1017	41	0.3	3	4	0	4	362.384	
35	780	101	10	0.2	3	4	0	4	241.589	
35	780	104	10	0.2	3	4	0	4	241.589	
35	780	105	10	0.2	3	4	0	4	241.589	
35	780	200	10	0.1	3	4	0	4	120.795	
35	780	201	10	0.1	3	4	0	4	120.795	
35	780	205	10	0.1	3	4	0	4	120.795	
35	780	302	10	0.2	3	4	0	4	241.589	
35	780	400	10	0.1	3	4	0	4	120.795	
35	780	601	10	0.1	3	4	0	4	120.795	
35	780	405	10	0.1	3	4	8	4	120.795	
36	780	100	50	0.4	3	4	10	4	713.178	
35	780	206	10	0.1	3	4	19	4	120.795	
33	780	106	10	0.4	3	4	20	4	713.178	
34	796	705	10	0.5	3	4	22	4	153.5	
34	796	705	30	0.4	3	4	22	4	122.8	
33	780	614	10	0.1	3	4	27	4	178.295	
33	780	614	20	0.4	3	4	27	4	713.178	
33	780	614	30	0.4	3	4	27	4	713.178	
33	780	615	10	0.1	3	4	27	4	178.295	
33	780	616	10	0.5	3	4	27	4	891.473	
33	780	616	20	0.1	3	4	27	4	178.295	
33	780	6002	10	0.1	3	4	27	4	178.295	
33	780	6003	10	0.1	3	4	27	4	178.295	
35	780	106	10	0.2	3	4	29	4	241.589	
34	724	716	10	0.5	3	4	30	4	153.5	
0	780	2318	13	0.7	3	4	31	4	845.563	
33	780	610	10	0.3	3	4	31	4	362.384	
33	780	612	10	0.3	3	4	31	4	362.384	
33	780	613	10	0.3	3	4	31	4	362.384	
33	780	617	10	0.2	3	4	31	4	241.589	
33	780	618	10	0.2	3	4	31	4	241.589	
33	780	1011	10	0.1	3	4	31	4	120.795	
33	780	1011	20	0.7	3	4	31	4	845.563	
33	780	1015	10	0.8	3	4	31	4	966.358	
33	780	6141	10	0.2	3	4	31	4	241.589	
33	780	608	50	0.4	3	4	35	4	713.178	
35	780	406	10	0.1	3	4	38	4	120.795	
35	780	603	10	0.2	3	4	38	4	241.589	
	Class 3 PCI<40andRB<5			22.5						20269.23
0	780	2318	11	0.6	3	4	41	4	724.768	
0	780	2318	12	0.6	3	4	41	4	724.768	
34	796	1044	10	0.1	3	4	45	4	59	
33	780	600	10	0.1	3	4	46	4	178.295	
33	780	600	20	0.2	3	4	46	4	356.589	
33	780	600	30	0.5	3	4	46	4	891.473	
33	780	600	40	0.4	3	4	46	4	713.178	
33	780	6001	10	0.1	3	4	46	4	120.795	
35	780	202	10	0.1	3	4	46	4	120.795	
35	780	403	10	0.1	3	4	46	4	120.795	
35	780	800	10	0.1	3	4	46	4	120.795	
34	796	1046	10	0.2	3	4	49	4	118	
34	796	1047	20	0.3	3	4	49	4	177	
34	796	1048	10	0.6	3	4	49	4	354	
34	796	1040	25	0.4	3	5	49	4	171.2	
34	796	1040	30	0.5	3	5	49	4	214	
33	780	603	10	0.6	3	4	50	4	724.768	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY CODE	RESERVATION CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRISD_BIA_CTI	TOTAL COST
34	796	1040	20	0.7	3	4	54	4	413	
35	780	597	10	0.1	3	4	54	4	178.295	
35	780	597	20	0.2	3	4	54	4	356.589	
35	780	597	30	0.1	3	4	54	4	178.295	
34	796	1043	10	0.3	3	5	58	4	128.4	
34	796	701	10	1.2	3	4	60	4	368.4	
33	780	606	10	0.2	3	5	62	4	241.589	
35	780	100	10	0.1	3	5	62	4	120.795	
0	780	2302	11	0.1	3	4	66	4	120.795	
0	780	2302	12	0.4	3	4	66	4	483.179	
0	780	2302	13	0.1	3	4	66	4	120.795	
0	780	2302	14	0.2	3	4	66	4	241.589	
0	780	2302	21	0.1	3	4	66	4	120.795	
0	780	2302	31	0.1	3	4	66	4	120.795	
0	780	2305	21	0.1	3	4	66	4	120.795	
0	780	2305	62	0.1	3	4	66	4	120.795	
0	780	2305	71	0.1	3	4	66	4	120.795	
0	780	2305	82	0.2	3	4	66	4	241.589	
0	780	2306	31	0.4	3	4	66	4	483.179	
0	780	2306	41	0.1	3	4	66	4	120.795	
0	780	2306	51	0.3	3	4	66	4	362.384	
0	780	2306	52	0.2	3	4	66	4	241.589	
0	780	2306	61	0.2	3	4	66	4	241.589	
0	780	2309	11	0.3	3	4	66	4	362.384	
0	780	2309	21	0.5	3	4	66	4	603.974	
0	780	2309	31	0.1	3	4	66	4	120.795	
0	780	2309	41	0.4	3	4	66	4	483.179	
0	780	2317	31	0.1	3	4	66	4	120.795	
0	780	2317	52	0.2	3	4	66	4	241.589	
0	780	2317	61	0.1	3	4	66	4	120.795	
0	780	2317	62	0.2	3	4	66	4	241.589	
0	780	2317	82	0.1	3	4	66	4	120.795	
33	780	616	5	0.2	3	4	66	4	356.589	
33	780	1015	4	0.4	3	5	66	4	483.179	
33	780	1015	5	0.4	3	5	66	4	483.179	
		Class 3 RB<5		14.1						14875.88
35	780	203	10	0.2	3	4	6	5	59.94	
		Class 3 PCI<40		0.2						59.94
33	780	614	5	0.2	3	4	66	5	174.94	
0	780	2311	41	0.3	3	4	68	5	89.91	
0	780	2311	52	0.2	3	4	68	5	59.94	
0	780	2311	71	0.4	3	4	68	5	119.88	
0	780	2311	81	0.2	3	4	68	5	59.94	
0	780	2311	91	0.1	3	4	68	5	29.97	
0	780	2311	101	0.1	3	4	68	5	29.97	
0	780	2311	122	0.1	3	4	68	5	29.97	
0	780	2311	141	0.1	3	4	68	5	29.97	
0	780	2311	162	0.3	3	4	68	5	89.91	
0	780	2311	181	0.3	3	4	68	5	89.91	
0	780	2311	182	0.2	3	4	68	5	59.94	
0	780	2311	191	0.1	3	4	68	5	29.97	
0	780	2311	202	0.5	3	4	68	5	149.85	
0	780	2311	204	0.1	3	4	68	5	29.97	
0	780	2311	212	0.5	3	4	68	5	149.85	
0	780	2311	214	0.1	3	4	68	5	29.97	
0	780	2311	216	0.1	3	4	68	5	29.97	
0	780	2311	218	0.1	3	4	68	5	29.97	
0	780	2311	221	0.1	3	4	68	5	29.97	
0	780	2311	222	0.2	3	4	68	5	59.94	
0	780	2311	231	0.2	3	4	68	5	59.94	
0	780	2311	241	0.1	3	4	68	5	29.97	
0	780	2311	252	0.2	3	4	68	5	59.94	
0	780	2311	272	0.2	3	4	68	5	59.94	
0	780	2311	281	0.2	3	4	68	5	59.94	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY_CODE	RESERVATION_CODE	ROUTE_NUMBER	SECTION_NUMBER	SECTION_LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRIS_BIA_CTI	TOTAL_COST
0	780	2311	283	0.1	3	4	68	5	29.97	
0	780	2311	292	0.1	3	4	68	5	29.97	
0	780	2311	294	0.1	3	4	68	5	29.97	
0	780	2311	302	0.2	3	4	68	5	59.94	
0	780	2311	312	0.4	3	4	68	5	119.88	
0	780	2311	331	0.1	3	4	68	5	29.97	
0	780	2311	352	0.3	3	4	68	5	89.91	
0	780	2311	354	0.1	3	4	68	5	29.97	
0	780	2315	41	0.2	3	4	68	5	59.94	
0	780	2315	42	0.3	3	4	68	5	89.91	
0	780	2315	52	0.8	3	4	68	5	239.76	
	Class 3 PCI=51-69andRB>=5			7.9						2482.63
0	780	2303	41	0.3	3	4	72	5	89.91	
0	780	2303	43	0.1	3	4	72	5	29.97	
0	780	2303	51	0.2	3	4	72	5	59.94	
0	780	2303	72	0.2	3	4	72	5	59.94	
0	780	2303	81	0.1	3	4	72	5	29.97	
0	780	2304	22	0.1	3	4	72	5	29.97	
0	780	2304	31	0.2	3	4	72	5	59.94	
0	780	2304	41	0.1	3	4	72	5	29.97	
0	780	2304	52	0.1	3	4	72	5	29.97	
0	780	2304	62	0.3	3	4	72	5	89.91	
0	780	2315	11	0.4	3	4	74	5	119.88	
0	780	2315	13	0.1	3	4	74	5	29.97	
0	780	2315	21	0.2	3	4	74	5	59.94	
0	780	2315	31	0.3	3	4	74	5	89.91	
33	780	608	10	1.2	3	5	80	5	359.64	
33	780	608	15	0.1	3	5	80	5	29.97	
33	780	608	20	1.3	3	5	80	5	389.61	
33	780	600	5	0.2	3	4	85	5	174.94	
33	780	608	5	0.1	3	5	80	6	29.97	
	Class 3 PCI>=70 and RB>=5			5.6						1793.32
34	796	1045	10	0.6	4	4	20	3	266.85	
32	780	5	10	8.4	4	4	0	4	3735.9	
32	780	5	30	3.2	4	4	0	4	1423.2	
32	780	35	40	2.8	4	4	0	4	4872.61	
32	780	35	50	8.2	4	4	0	4	1375.55	
32	780	35	60	5.8	4	4	0	4	972.95	
32	780	35	70	3.4	4	4	0	4	570.35	
32	780	35	80	1.8	4	4	0	4	301.95	
32	780	35	90	0.9	4	4	0	4	150.975	
32	780	5060	10	1.4	4	4	0	4	234.85	
32	780	5060	30	2.1	4	4	0	4	352.275	
32	780	5068	10	3.2	4	4	0	4	536.8	
32	780	5099	10	3	4	4	0	4	503.25	
32	780	5099	15	4	4	4	0	4	671	
32	780	5099	30	0.6	4	4	0	4	100.65	
32	780	5099	50	2.2	4	4	0	4	369.05	
32	780	5099	53	7.5	4	4	0	4	1258.13	
32	780	5099	56	0.3	4	4	0	4	50.325	
33	780	42	30	2.9	4	4	0	4	486.475	
33	780	42	36	5.4	4	4	0	4	905.85	
33	780	42	38	1.9	4	4	0	4	318.725	
33	780	42	40	1.7	4	4	0	4	285.175	
33	780	61	10	1.4	4	4	0	4	234.85	
33	780	221	10	1.8	4	4	0	4	2047.68	
33	780	221	15	2.7	4	4	0	4	3071.53	
33	780	6410	40	1.1	4	4	0	4	184.525	
33	780	6440	80	1.1	4	4	0	4	184.525	
33	780	6460	70	0.2	4	4	0	4	227.52	
34	796	7062	10	2.5	4	4	0	4	1111.88	
34	796	7062	15	1.4	4	4	0	4	622.65	
34	796	7062	20	2.5	4	4	0	4	1111.88	
34	796	7062	25	1.1	4	4	0	4	489.225	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY CODE	RESERVATION CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRIS_BIA_CTI	TOTAL COST
34	796	7140	10	0.8	4	4	0	4	962.919	
34	796	7140	30	3	4	4	0	4	1334.25	
34	796	7140	50	2.2	4	4	0	4	978.45	
34	796	7140	70	2.8	4	4	0	4	1245.3	
34	796	7140	90	0.8	4	4	0	4	355.8	
34	796	7140	110	0.3	4	4	0	4	133.425	
35	780	172	10	0.2	4	4	0	4	348.044	
35	780	251	60	8.5	4	4	0	4	14791.9	
35	780	251	65	6	4	4	0	4	10441.3	
35	780	251	80	0.8	4	4	0	4	910.082	
35	780	271	20	0.2	4	4	0	4	348.044	
35	780	808	10	0.1	4	4	0	4	57.3943	
35	780	809	10	0.1	4	4	0	4	57.3943	
35	780	8077	30	1.4	4	4	0	4	2436.31	
35	780	8078	10	0.6	4	4	0	4	682.561	
35	780	8078	20	1.2	4	4	0	4	2088.26	
36	780	108	65	0.4	4	4	0	4	481.46	
36	780	602	10	2.6	4	4	0	4	2957.77	
36	780	9402	35	0.1	4	4	0	4	174.022	
48	780	4069	10	0.1	4	4	0	4	120.365	
48	796	3002	60	1.9	4	4	0	4	845.025	
48	796	3002	90	2.2	4	4	0	4	978.45	
48	796	3002	95	4	4	4	0	4	1779	
32	780	34	60	9	4	4	7	4	10832.8	
34	796	7046	30	2.2	4	4	10	4	978.45	
34	796	7046	33	1.7	4	4	10	4	756.075	
36	780	113	30	0.3	4	4	10	4	341.281	
36	780	321	80	0.2	4	4	10	4	88.95	
33	780	6220	20	0.1	4	4	12	4	174.022	
35	780	60	30	1.6	4	4	17	4	1820.16	
35	780	65	20	0.4	4	4	17	4	455.041	
35	780	65	60	6.5	4	4	17	4	11311.4	
35	K80	60	10	0.4	4	4	17	4	455.041	
35	K80	60	20	1.7	4	4	17	4	1933.92	
36	780	151	10	0.4	4	4	17	4	455.041	
36	780	151	30	0.4	4	4	17	4	455.041	
36	780	151	35	0.3	4	4	17	4	341.281	
36	780	151	40	0.3	4	4	17	4	341.281	
34	796	7044	10	1.1	4	4	20	4	489.225	
34	796	7044	30	2	4	4	20	4	889.5	
34	796	7046	36	4.8	4	4	20	4	2134.8	
36	780	60	10	5.4	4	4	20	4	9397.18	
36	780	60	15	7.5	4	4	20	4	13051.6	
36	780	60	30	0.7	4	4	20	4	1218.15	
36	780	108	60	0.1	4	4	20	4	44.475	
36	780	110	70	0.1	4	4	20	4	113.76	
36	780	112	70	0.3	4	4	20	4	522.065	
36	780	9031	10	1.8	4	4	20	4	3132.39	
36	780	9031	15	1	4	4	20	4	1740.22	
32	780	562	10	0.4	4	4	22	4	481.46	
32	780	562	30	0.1	4	4	22	4	120.365	
35	780	65	40	0.7	4	4	22	4	796.321	
35	780	67	10	0.3	4	4	22	4	341.281	
35	780	67	30	1.7	4	4	22	4	1933.92	
34	796	11	10	0.7	4	4	24	4	311.325	
34	796	11	30	4.1	4	4	24	4	1823.48	
34	796	11	50	1.2	4	4	24	4	1444.38	
34	796	11	60	1.8	4	4	24	4	2166.57	
34	796	11	70	1.8	4	4	24	4	2166.57	
34	796	11	75	2.6	4	4	24	4	3129.49	
48	796	4022	70	2.4	4	4	25	4	1067.4	
35	780	29	30	7	4	4	27	4	12181.5	
34	796	704	10	0.5	4	4	30	4	422.465	
34	796	7046	40	0.3	4	4	30	4	133.425	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY_CODE	RESERVATION_CODE	ROUTE_NUMBER	SECTION_NUMBER	SECTION_LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRIS_BIA_CTI	TOTAL_COST
36	780	60	35	0.4	4	4	30	4	455.041	
36	780	60	40	4.1	4	4	30	4	7134.89	
36	780	60	50	5.9	4	4	30	4	10267.3	
36	780	108	10	0.3	4	4	30	4	361.095	
48	796	4043	10	2.4	4	4	30	4	1067.4	
48	796	4043	20	2.2	4	4	30	4	1858.85	
0	780	2015	10	2	4	4	31	4	3480.44	
0	780	2015	20	0.1	4	4	31	4	174.022	
0	780	2015	30	0.1	4	4	31	4	174.022	
0	780	2015	40	0.6	4	4	31	4	1044.13	
0	780	2015	50	0.1	4	4	31	4	174.022	
0	780	2015	60	0.1	4	4	31	4	174.022	
32	780	63	10	4	4	4	31	4	6960.87	
32	780	63	30	1.7	4	4	31	4	2958.37	
32	780	63	50	0.4	4	4	31	4	696.087	
32	780	63	70	1.9	4	4	31	4	3306.41	
32	780	63	90	2.2	4	4	31	4	3828.48	
32	780	63	95	0.2	4	4	31	4	266.862	
32	780	63	100	0.2	4	4	31	4	266.862	
35	780	251	20	6.1	4	4	31	4	10615.3	
36	780	9202	10	0.3	4	4	31	4	341.281	
36	780	9202	30	1	4	4	31	4	1137.6	
33	780	16	80	0.5	4	5	31	4	870.109	
33	780	16	85	0.5	4	5	31	4	870.109	
33	780	16	100	3.5	4	5	31	4	6090.76	
36	780	9402	26	0.3	4	4	34	4	400.293	
36	780	157	30	0.5	4	4	35	4	568.801	
48	796	4006	10	3.1	4	4	35	4	1378.73	
48	796	4047	10	5.8	4	4	35	4	2579.55	
48	796	4047	20	2.2	4	4	35	4	472.45	
48	796	4047	30	1.5	4	4	35	4	322.125	
32	780	514	10	0.1	4	4	36	4	120.365	
35	780	25	40	0.3	4	4	36	4	400.293	
35	780	25	45	2	4	4	36	4	3480.44	
33	780	16	110	2	4	5	36	4	3480.44	
33	780	16	120	5.4	4	5	36	4	9397.18	
33	780	16	125	1.5	4	5	36	4	2610.33	
34	723	706	10	0.4	4	4	38	4	337.972	
	Class 4 PCI<40andRB<5			269.2						255653.2
32	780	19	20	12.2	4	4	40	4	5425.95	
32	780	514	20	0.5	4	4	40	4	601.825	
36	780	30	10	1.5	4	4	40	4	667.125	
36	780	30	15	1.5	4	4	40	4	667.125	
36	780	60	60	0.5	4	4	40	4	568.801	
36	780	60	65	0.1	4	4	40	4	113.76	
36	780	153	30	0.5	4	4	40	4	568.801	
48	780	4055	70	1.4	4	4	40	4	622.65	
48	780	4055	75	0.3	4	4	40	4	64.425	
48	780	4056	10	1.5	4	4	40	4	1805.47	
48	796	3002	70	1.6	4	4	40	4	711.6	
48	796	4045	10	2.2	4	4	40	4	978.45	
48	796	4060	10	1	4	4	40	4	444.75	
0	780	2002	10	0.2	4	4	41	4	266.862	
0	780	2002	20	0.2	4	4	41	4	266.862	
0	780	2002	30	0.2	4	4	41	4	266.862	
0	780	2002	40	0.2	4	4	41	4	348.044	
0	780	2003	10	0.4	4	4	41	4	533.724	
0	780	2003	15	1.1	4	4	41	4	1914.24	
0	780	2003	20	1.2	4	4	41	4	2088.26	
0	780	2003	30	0.1	4	4	41	4	174.022	
0	780	2003	40	0.3	4	4	41	4	522.065	
0	780	2003	50	0.2	4	4	41	4	348.044	
0	780	2003	60	0.1	4	4	41	4	174.022	
0	780	2003	70	0.2	4	4	41	4	348.044	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY CODE	RESERVATION CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRISD_BIA_CTI	TOTAL COST
0	780	2003	80	0.2	4	4	41	4	348.044	
0	780	2003	90	0.2	4	4	41	4	348.044	
0	780	2004	10	0.7	4	4	41	4	1218.15	
0	780	2004	20	0.2	4	4	41	4	348.044	
0	780	2004	30	0.1	4	4	41	4	174.022	
0	780	2004	40	0.1	4	4	41	4	174.022	
0	780	2004	50	0.1	4	4	41	4	174.022	
0	780	2004	60	0.3	4	4	41	4	522.065	
0	780	2004	70	0.3	4	4	41	4	522.065	
0	780	2004	80	0.1	4	4	41	4	174.022	
0	780	2005	10	0.3	4	4	41	4	400.293	
0	780	2005	15	1.1	4	4	41	4	1914.24	
0	780	2005	20	0.2	4	4	41	4	348.044	
0	780	2005	30	0.1	4	4	41	4	174.022	
0	780	2005	40	0.1	4	4	41	4	174.022	
0	780	2005	50	0.4	4	4	41	4	696.087	
0	780	2005	60	0.5	4	4	41	4	870.109	
0	780	2005	70	0.1	4	4	41	4	174.022	
0	780	2005	80	0.1	4	4	41	4	174.022	
0	780	2005	90	0.1	4	4	41	4	174.022	
0	780	2006	10	0.3	4	4	41	4	522.065	
0	780	2006	20	0.2	4	4	41	4	348.044	
0	780	2006	30	0.3	4	4	41	4	522.065	
0	780	2006	40	0.1	4	4	41	4	174.022	
0	780	2006	50	0.2	4	4	41	4	348.044	
0	780	2006	60	0.1	4	4	41	4	174.022	
0	780	2009	10	1.2	4	4	41	4	1601.17	
0	780	2009	20	0.1	4	4	41	4	174.022	
0	780	2009	30	0.2	4	4	41	4	348.044	
0	780	2009	40	0.2	4	4	41	4	348.044	
0	780	2009	50	6.2	4	4	41	4	10789.4	
0	780	2012	10	0.6	4	4	41	4	682.561	
0	780	2017	20	0.1	4	4	41	4	174.022	
0	780	2017	30	0.5	4	4	41	4	870.109	
0	780	2017	40	0.2	4	4	41	4	348.044	
0	780	2017	50	0.2	4	4	41	4	348.044	
0	780	2017	60	0.2	4	4	41	4	348.044	
0	780	2017	70	0.4	4	4	41	4	696.087	
0	780	2017	80	0.1	4	4	41	4	174.022	
0	780	2017	90	0.1	4	4	41	4	174.022	
0	780	2018	10	0.1	4	4	41	4	174.022	
0	780	2018	20	0.1	4	4	41	4	174.022	
0	780	2018	30	0.9	4	4	41	4	1566.2	
0	780	2018	35	0.3	4	4	41	4	400.293	
0	780	2020	10	1	4	4	41	4	1137.6	
0	780	2021	10	1	4	4	41	4	1740.22	
0	780	2030	10	12	4	4	41	4	16011.7	
0	796	2002	50	1.8	4	4	41	4	2401.76	
35	780	102	10	1	4	4	41	4	1137.6	
36	780	693	10	0.3	4	4	41	4	361.095	
48	780	3003	10	3.1	4	5	41	4	1053.23	
48	780	3003	15	2.9	4	5	41	4	985.275	
48	796	4018	10	0.7	4	4	42	4	842.554	
48	796	4022	10	0.3	4	4	42	4	133.425	
48	796	4022	15	1.1	4	4	42	4	489.225	
48	796	4022	30	0.1	4	4	42	4	44.475	
48	780	4057	10	0.9	4	4	44	4	400.275	
48	780	4059	10	2.5	4	4	44	4	1111.88	
48	780	4063	10	0.8	4	4	44	4	355.8	
48	780	4063	30	3.1	4	4	44	4	1378.73	
48	780	4064	10	0.5	4	4	44	4	222.375	
48	780	4065	30	0.9	4	4	44	4	400.275	
48	780	4065	40	2.6	4	4	44	4	1156.35	
48	780	4065	50	1.3	4	4	44	4	279.175	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY_CODE	RESERVATION_CODE	ROUTE_NUMBER	SECTION_NUMBER	SECTION_LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRIS_BIA_CTI	TOTAL_COST
48	780	4065	60	2.7	4	4	44	4	579.825	
48	780	4067	10	3.9	4	4	44	4	1734.53	
48	780	4067	20	1.8	4	4	44	4	800.55	
48	780	4081	10	0.5	4	4	44	4	601.825	
0	780	2007	10	5.6	4	4	45	4	7472.14	
0	780	2007	20	1.2	4	4	45	4	1601.17	
0	780	2007	25	2.1	4	4	45	4	3654.46	
0	780	2017	10	0.5	4	4	45	4	870.109	
32	780	513	10	0.1	4	4	45	4	120.365	
35	780	133	10	0.2	4	4	45	4	227.52	
35	780	133	30	0.2	4	4	45	4	227.52	
48	796	4014	10	0.2	4	4	45	4	42.95	
48	796	4014	15	1.9	4	4	45	4	408.025	
48	796	4014	20	1.8	4	4	45	4	386.55	
48	796	4014	25	0.5	4	4	45	4	107.375	
48	796	4017	15	2	4	4	45	4	429.5	
48	796	4017	20	2.3	4	4	45	4	493.925	
48	796	4017	30	3.1	4	4	45	4	665.725	
48	796	4017	35	1.1	4	4	45	4	236.225	
48	796	4028	10	0.1	4	4	45	4	21.475	
48	796	4028	15	1	4	4	45	4	214.75	
48	796	4028	20	1	4	4	45	4	214.75	
48	796	4028	40	1.4	4	4	45	4	300.65	
48	796	4028	45	0.1	4	4	45	4	21.475	
48	796	4030	20	0.4	4	4	45	4	85.9	
48	796	4030	25	0.4	4	4	45	4	85.9	
48	796	4035	10	3.5	4	4	45	4	1556.63	
48	796	4035	15	5.2	4	4	45	4	2312.7	
33	780	607	10	0.1	4	5	45	4	76.2863	
33	780	607	20	0.2	4	5	45	4	152.573	
33	780	607	30	0.3	4	5	45	4	228.859	
33	780	6331	60	0.7	4	5	45	4	1094.05	
33	780	6331	70	0.3	4	5	45	4	468.878	
0	780	2015	45	0.2	4	4	46	4	348.044	
48	780	3003	30	1	4	4	46	4	444.75	
48	780	3003	40	1.1	4	4	46	4	489.225	
48	780	4059	20	1	4	4	46	4	444.75	
34	796	49	40	2	4	5	48	4	679.5	
0	780	2025	10	0.7	4	4	49	4	401.76	
0	780	2025	15	4.5	4	4	49	4	6004.4	
48	780	4055	20	1.4	4	4	49	4	622.65	
32	780	5068	35	3.7	4	5	49	4	557.775	
32	780	5068	40	1.5	4	5	49	4	226.125	
48	780	4050	10	1	4	4	50	4	444.75	
48	796	4007	10	4.4	4	4	50	4	1956.9	
33	780	16	60	0.3	4	4	51	4	522.065	
48	780	4050	20	5.3	4	4	52	4	2357.18	
48	796	4001	10	0.5	4	4	52	4	222.375	
48	796	4002	10	1.6	4	4	52	4	711.6	
48	796	4002	13	0.6	4	4	52	4	266.85	
48	796	4002	16	3.2	4	4	52	4	1423.2	
48	796	4002	30	2.8	4	4	52	4	1245.3	
48	796	4003	10	1.9	4	4	52	4	2286.93	
48	796	4022	50	1.9	4	4	52	4	845.025	
48	796	4022	60	0.6	4	4	52	4	266.85	
48	796	4022	90	1	4	4	52	4	444.75	
32	780	5000	40	0.1	4	4	54	4	44.475	
32	780	5000	60	2.8	4	4	54	4	1245.3	
32	780	5000	80	0.7	4	4	54	4	311.325	
34	780	7057	10	0.3	4	4	54	4	361.095	
34	780	7057	15	0.4	4	4	54	4	481.46	
36	780	544	10	0.3	4	4	54	4	522.065	
36	780	544	30	0.1	4	4	54	4	174.022	
48	796	4005	10	2	4	4	54	4	2407.3	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY_CODE	RESERVATION_CODE	ROUTE_NUMBER	SECTION_NUMBER	SECTION_LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRIS_BIA_CTI	TOTAL_COST
32	780	5068	20	5.1	4	5	54	4	768.825	
32	780	5068	30	0.3	4	5	54	4	45.225	
33	780	222	10	0.8	4	5	54	4	1250.34	
33	780	222	15	2.7	4	5	54	4	4219.9	
33	780	222	20	1.7	4	5	54	4	2656.98	
36	780	39	10	1.4	4	5	54	4	2188.1	
36	780	39	13	1	4	5	54	4	1562.93	
48	780	4066	10	1	4	4	56	4	444.75	
34	796	703	10	0.5	4	4	58	4	422.465	
35	780	251	40	1.9	4	4	58	4	3306.41	
35	780	251	50	0.7	4	4	58	4	1218.15	
35	780	251	55	5.3	4	4	58	4	9223.16	
35	780	8066	130	1.1	4	4	58	4	1914.24	
35	780	8066	135	1.3	4	4	58	4	2262.28	
32	780	502	10	0.2	4	5	58	4	152.573	
34	796	49	10	4.4	4	5	58	4	1494.9	
34	796	49	20	3.7	4	5	58	4	1257.08	
34	796	49	35	1.7	4	5	58	4	577.575	
34	796	49	45	0.2	4	5	58	4	67.95	
48	796	4156	10	0.1	4	5	58	4	33.975	
48	796	4156	20	1	4	5	58	4	339.75	
33	780	42	50	1.1	4	4	60	4	184.525	
33	780	42	60	2.6	4	4	60	4	2957.77	
34	796	7046	10	1.3	4	4	60	4	578.175	
34	796	7046	20	2.9	4	4	60	4	1289.78	
48	796	4011	10	0.1	4	4	60	4	21.475	
48	796	4011	13	0.1	4	4	60	4	21.475	
48	796	4011	16	1.6	4	4	60	4	711.6	
48	796	4040	10	2.6	4	4	60	4	1156.35	
34	723	55	10	7.5	4	5	60	4	6336.98	
32	780	57	15	6.3	4	4	62	4	2801.93	
32	780	504	10	0.2	4	4	62	4	240.73	
34	796	49	30	0.4	4	4	62	4	177.9	
48	780	4055	30	2	4	4	62	4	889.5	
48	780	4055	50	1.5	4	4	62	4	667.125	
48	780	4065	10	7.6	4	4	62	4	3380.1	
48	780	4087	10	0.9	4	4	62	4	193.275	
32	780	5114	10	0.4	4	5	62	4	533.724	
32	780	5114	15	1.2	4	5	62	4	1601.17	
48	780	4095	10	0.2	4	4	65	4	240.73	
48	780	4095	13	2.7	4	4	65	4	3249.85	
48	780	4095	16	0.8	4	4	65	4	962.919	
48	780	4095	20	0.1	4	4	65	4	44.475	
48	780	4095	30	0.4	4	4	65	4	177.9	
48	780	4095	35	0.9	4	4	65	4	400.275	
32	780	33	10	0.4	4	4	66	4	696.087	
32	780	33	30	0.3	4	4	66	4	522.065	
32	780	33	40	1.5	4	4	66	4	2610.33	
32	780	33	50	1.5	4	4	66	4	2610.33	
32	780	33	70	0.3	4	4	66	4	522.065	
32	780	33	90	0.8	4	4	66	4	1392.17	
32	780	33	130	2.4	4	4	66	4	4176.52	
32	780	33	150	0.7	4	4	66	4	1218.15	
32	780	33	170	1.4	4	4	66	4	2436.31	
32	780	33	190	1.5	4	4	66	4	2610.33	
32	780	33	210	0.7	4	4	66	4	1218.15	
48	780	4055	15	3.2	4	4	66	4	1423.2	
48	780	4087	15	2.6	4	4	66	4	1156.35	
33	780	24	10	4.4	4	4	70	4	5005.45	
48	796	4178	10	3.4	4	5	75	4	730.15	
48	796	4178	30	0.6	4	5	75	4	128.85	
48	796	4178	40	3.1	4	5	75	4	665.725	
48	796	4178	60	0.1	4	5	75	4	21.475	
36	780	28	60	0.2	4	4	80	4	266.862	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY_CODE	RESERVATION_CODE	ROUTE_NUMBER	SECTION_NUMBER	SECTION_LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRISD_BIA_CTI	TOTAL_COST
48	780	4055	12	1.1	4	5	85	4	236.225	
32	780	5	40	5.8	4	5	86	4	1245.55	
		Class 4 RB<5		298.1						234089.1
48	780	4089	10	0.1	4	4	44	5	62.3038	
48	796	4017	10	1.2	4	4	45	5	39.24	
		Class 4 PCI=40-50andRB>=5		1.3						101.5438
32	780	502	20	0.2	4	5	58	5	51.9123	
32	780	33	110	1.6	4	4	66	5	991.646	
0	780	2011	10	0.5	4	4	68	5	309.889	
0	780	2011	30	0.1	4	4	68	5	61.9779	
0	780	2011	40	0.7	4	4	68	5	433.845	
0	780	2011	50	0.1	4	4	68	5	61.9779	
0	780	2011	60	0.1	4	4	68	5	61.9779	
0	780	2011	70	0.2	4	4	68	5	123.956	
0	780	2011	80	0.3	4	4	68	5	185.934	
0	780	2011	90	0.2	4	4	68	5	123.956	
0	780	2011	100	0.4	4	4	68	5	247.912	
0	780	2011	110	0.2	4	4	68	5	123.956	
0	780	2011	120	0.4	4	4	68	5	247.912	
0	780	2011	130	0.1	4	4	68	5	61.9779	
0	780	2011	140	0.1	4	4	68	5	61.9779	
0	780	2011	150	0.2	4	4	68	5	123.956	
0	780	2011	160	0.1	4	4	68	5	61.9779	
0	780	2011	170	0.3	4	4	68	5	185.934	
0	780	2011	180	0.2	4	4	68	5	123.956	
0	780	2011	190	0.2	4	4	68	5	123.956	
0	780	2011	200	0.1	4	4	68	5	61.9779	
0	780	2011	210	0.1	4	4	68	5	61.9779	
0	780	2011	220	0.1	4	4	68	5	61.9779	
0	780	2011	230	0.2	4	4	68	5	123.956	
0	780	2011	240	0.1	4	4	68	5	61.9779	
0	780	2011	250	0.1	4	4	68	5	61.9779	
0	780	2011	260	0.1	4	4	68	5	61.9779	
0	780	2011	270	0.1	4	4	68	5	61.9779	
0	780	2011	280	0.2	4	4	68	5	123.956	
0	780	2011	290	0.1	4	4	68	5	61.9779	
0	780	2011	300	0.1	4	4	68	5	61.9779	
0	780	2011	310	0.2	4	4	68	5	123.956	
0	780	2011	320	0.2	4	4	68	5	123.956	
0	780	2011	330	0.1	4	4	68	5	61.9779	
0	780	2011	340	0.2	4	4	68	5	123.956	
0	780	2011	350	0.2	4	4	68	5	123.956	
		Class 4 PCI=51-69andRB>=5		8.4						5134.099
34	796	48	50	1.9	4	4	70	5	650.75	
34	796	48	60	2.5	4	4	70	5	656.75	
34	796	48	70	0.8	4	4	70	5	210.16	
34	796	48	73	1.4	4	4	70	5	367.78	
34	796	48	76	0.6	4	4	70	5	157.62	
34	796	48	80	1.7	4	4	70	5	446.59	
34	796	48	90	1.3	4	4	70	5	341.51	
34	796	7120	10	0.1	4	4	70	5	26.27	
33	780	59	45	2.1	4	5	70	5	449.129	
34	796	7120	20	0.6	4	5	70	5	19.62	
36	780	9101	10	0.9	4	5	70	5	192.484	
0	780	2011	31	1.9	4	4	74	5	1177.58	
32	780	364	50	2	4	4	74	5	525.4	
32	780	364	60	0.9	4	4	74	5	236.43	
36	780	9345	30	0.1	4	4	75	5	21.3871	
35	780	8027	22	0.1	4	4	78	5	61.9779	
35	780	8027	24	0.2	4	4	78	5	123.956	
35	780	8031	10	1.2	4	4	78	5	743.735	
35	780	8031	30	3.2	4	4	78	5	1983.29	
35	780	8031	35	1.1	4	4	78	5	681.757	
33	780	16	130	6.9	4	4	80	5	4276.47	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY CODE	RESERVATION CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRISD_BIA_CTI	TOTAL COST
36	780	9345	50	0.2	4	4	80	5	42.7742	
36	780	9345	64	0.4	4	4	80	5	247.912	
36	780	9345	70	0.5	4	4	80	5	309.889	
33	780	16	140	5	4	5	80	5	1069.35	
36	780	31	10	3	4	5	80	5	0	
35	780	131	10	0.2	4	4	82	5	123.956	
33	780	221	20	0.5	4	5	82	5	0	
33	780	221	25	0.1	4	5	82	5	9.741	
33	780	221	40	0.1	4	5	82	5	0	
33	780	21	75	1.6	4	5	85	5	342.193	
32	780	57	10	0.9	4	4	86	5	236.43	
32	780	5080	10	0.6	4	4	86	5	0	
32	780	5080	14	0.1	4	4	86	5	0	
32	780	5080	16	0.7	4	4	86	5	0	
48	780	4078	10	0.8	4	5	86	5	26.16	
		Class 4 PCI>=70 and RB>=5		46.2						15759.06
36	780	108	20	0.1	4	4	30	6	62.3038	
36	780	108	25	0.2	4	4	30	6	124.608	
		Class 4 PCI<40		0.3						186.9114
0	796	2011	20	0.5	4	4	68	7	309.889	
		Class 4 PCI=51-69andRB>=5		0.5						309.8895
36	780	9101	13	1.3	4	5	70	7	278.032	
35	780	8030	10	0.3	4	4	98	7	0	
35	780	8030	12	0.3	4	4	98	7	0	
35	780	8030	14	0.4	4	4	98	7	0	
		Class 4 PCI>=70 and RB>=5		2.3						278.0322
32	780	546	10	1.7	5	4	0	3	342.975	
32	780	553	10	1	5	4	0	3	201.75	
32	780	551	10	0.8	5	4	0	4	161.4	
32	780	552	10	2.7	5	4	0	4	544.725	
33	796	6150	40	1.2	5	4	0	4	1092.3	
35	780	806	10	0.1	5	4	0	4	156.365	
48	780	4082	10	0.2	5	4	10	4	139.482	
35	780	803	10	0.2	5	4	19	4	150.65	
48	780	4103	10	1.3	5	4	20	4	739.375	
35	780	291	10	0.7	5	4	22	4	1507.1	
48	796	4140	10	2.1	5	4	22	4	1464.56	
48	796	4142	10	1.5	5	4	22	4	1046.12	
48	780	4083	10	0.3	5	4	30	4	170.625	
48	780	4093	28	0.2	5	4	30	4	42.3954	
0	780	2016	10	0.8	5	4	31	4	728.2	
0	780	2016	20	0.2	5	4	31	4	182.05	
48	780	4085	10	1.4	5	4	35	4	796.25	
48	780	4093	26	0.8	5	4	35	4	169.581	
36	780	542	10	0.3	5	4	36	4	209.223	
36	780	543	10	0.2	5	4	36	4	113.75	
36	780	543	30	0.1	5	4	36	4	56.875	
35	780	602	10	0.2	5	4	38	4	312.731	
		Class 5 PCI<40andRB<5		18						10328.48
48	780	4073	10	2	5	4	40	4	1394.82	
48	780	4093	10	0.7	5	4	40	4	148.384	
48	780	4093	20	0.5	5	4	40	4	105.988	
48	780	4093	22	4.4	5	4	40	4	932.698	
48	780	4093	24	2.1	5	4	40	4	445.151	
48	780	4111	10	2.5	5	4	40	4	1743.53	
48	796	4049	20	4.2	5	4	40	4	2929.13	
48	796	4101	10	0.2	5	4	40	4	42.3954	
48	796	4101	15	0.8	5	4	40	4	169.581	
48	796	4101	20	0.3	5	4	40	4	63.593	
48	780	4068	10	0.3	5	4	44	4	170.625	
48	780	4072	10	1.2	5	4	44	4	836.893	
48	780	4080	10	0.6	5	4	44	4	341.25	
48	780	4061	10	0.1	5	4	45	4	69.7411	
48	780	4061	20	0.3	5	4	45	4	209.223	

**Appendix C - Long Range Improvement Needs for Navajo-BIA Roads
NEED 3: PAVEMENT DEFICIENCIES**

AGENCY CODE	RESERVATION CODE	ROUTE NUMBER	SECTION NUMBER	SECTION LENGTH	MSRIS_CLASS_CODE	MSRIS_SURFACE_TYPE_CODE	MSRIS_PCI	MSRIS_ROADBED_CONDITION_CODE	MSRISD_BIA_CTI	TOTAL COST
48	780	4104	10	0.5	5		4	45	4	105.988
48	796	4146	30	1	5		4	45	4	697.411
32	780	363	20	0.1	5		5	45	4	50.2712
48	780	4070	10	1.1	5		4	46	4	767.152
48	780	4154	10	0.7	5		5	49	4	351.898
48	780	4164	10	1.4	5		5	49	4	703.796
48	796	4146	20	1.9	5		5	49	4	955.152
48	780	4062	20	1.6	5		4	50	4	1115.86
48	780	4062	25	2.7	5		4	50	4	572.337
48	780	4077	10	3.8	5		4	50	4	2650.16
48	780	4109	10	0.4	5		4	50	4	278.964
48	796	4100	10	0.2	5		4	50	4	139.482
48	796	4100	20	0.4	5		4	50	4	278.964
48	796	4100	25	0.7	5		4	50	4	488.188
48	796	4121	10	4.8	5		4	50	4	3347.57
48	796	4123	10	3.3	5		4	50	4	2301.46
36	780	391	10	0.5	5		4	54	4	781.827
48	780	4104	20	0.5	5		4	54	4	105.988
48	780	4104	25	1	5		4	54	4	211.977
48	780	4150	10	4.9	5		5	58	4	1038.69
48	780	4154	20	3.4	5		5	58	4	1709.22
48	780	4062	10	1.7	5		5	62	4	360.36
48	796	4146	10	0.1	5		5	65	4	21.1977
32	780	365	50	0.6	5		4	66	4	418.446
32	780	365	60	1.2	5		4	66	4	836.893
48	780	4155	10	0.7	5		5	66	4	148.384
48	796	4145	10	2.1	5		5	66	4	445.151
0	780	2316	12	0.2	5		4	69	4	150.65
48	780	4155	20	1.1	5		5	72	4	233.174
48	796	4145	20	0.2	5		5	75	4	40.35
		Class 5 RB<5		63						30909.95
32	780	501	10	0.3	6		4	24	3	155.304
32	780	500	10	0.1	6		4	0	4	51.768
34	796	1048	20	0.2	6		4	31	4	118
		Class 6 PCI<40andRB<5		0.6						325.072
32	780	515	10	0.3	6		4	45	4	155.304
32	780	510	10	0.2	6		4	58	4	61.4
34	796	1042	10	0.4	6		4	58	4	236
34	796	1042	15	0.2	6		4	58	4	118
34	796	1042	20	0.4	6		4	58	4	236
34	796	1042	25	0.2	6		4	58	4	118
34	796	1042	30	0.1	6		4	58	4	59
34	796	1042	32	0.5	6		4	58	4	295
34	796	1042	34	0.4	6		4	58	4	236
34	796	1042	36	0.1	6		4	58	4	59
34	796	1042	40	0.1	6		4	58	4	59
		Class 6 RB<5		2.9						1632.704
		Grand Total								1435885

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RESOLUTION OF THE
TRANSPORTATION AND COMMUNITY DEVELOPMENT COMMITTEE
OF THE NAVAJO NATION COUNCIL

21st NAVAJO NATION COUNCIL—Second Year, 2008

AN ACTION RELATING TO COMMUNITY DEVELOPMENT; SUPPORTING
AND APPROVING THE 43 YEAR PLAN-FINAL UPDATE OF THE
NAVAJO NATION UPDATED FY 2009 TRIBAL TRANSPORTATION
IMPROVEMENT PROGRAM

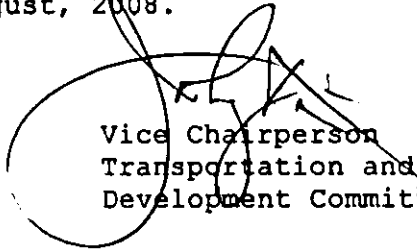
BE IT ENACTED:

1. The Transportation and Community Development Committee, a Standing Committee of the Navajo Nation Council, hereby supports and approves the 43 Year Plan-Final Update of the Navajo Nation Updated FY 2009 Tribal Transportation Improvement Program, attached as Exhibit "A".

2. The Transportation and Community Development Committee further approves N15 road project as a High Priority Project in the amount of \$8 Million. (New language per discussion by TCDC.)

CERTIFICATION

I hereby certify that the foregoing resolution was duly considered by the Transportation and Community Development Committee of the Navajo Nation Council at a duly called meeting at Window Rock, Navajo Nation, (Arizona), at which a quorum was present and the same was passed by a vote of 7 in favor and 0 opposed, this 5th day of August, 2008.



Vice Chairperson
Transportation and Community
Development Committee

Motion: Lorenzo Bedonie
Second: David Rico

RESOLUTION OF THE
TRANSPORTATION AND COMMUNITY DEVELOPMENT COMMITTEE
OF THE NAVAJO NATION COUNCIL

21st NAVAJO NATION COUNCIL—Third Year, 2009

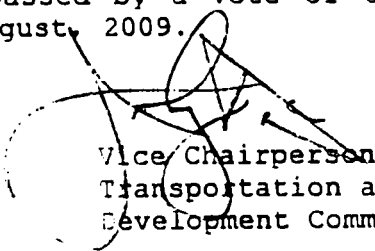
AN ACTION
RELATING TO TRANSPORTATION; SUPPORTING AND APPROVING THE
NAVAJO NATION TRIBAL TRANSPORTATION IMPROVEMENT PROGRAM (TTIP)
FISCAL YEAR 2009 AND FISCAL YEARS 2010–2014 FOR THE
INDIAN RESERVATION ROADS PROGRAM

BE IT ENACTED:

The Navajo Nation hereby supports and approves the Navajo Nation Tribal Transportation Improvement Program (TTIP) Fiscal Year 2009 and the Tribal Transportation Improvement Program (TTIP) Fiscal Years 2010–2014 for the Indian Reservation Roads Program as found at Exhibit "A" attached and made a part hereto.

CERTIFICATION

I hereby certify that the foregoing resolution was duly considered by the Transportation and Community Development Committee of the Navajo Nation Council at a duly called meeting at Window Rock, Navajo Nation, (Arizona), at which a quorum was present and the same was passed by a vote of 6 in favor and 0 opposed, this 18th day of August, 2009.



Vice Chairperson
Transportation and Community
Development Committee

Motion: Lorenzo Bedonie
Second: Leslie Dele

Navajo Nation Tribal Transportation Improvement Program (TIP)
 Fiscal Year 2009 REVISED
 Navajo Nation Council's Transportation and Community Development Committee
 40 Year Plain-INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A
 8/14/2009

Fiscal Year 2009
 Resolution: TCD CAP-XX-09

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Mileage	Cost Type	Cost Million (\$)	IRR FSI Funding	ARRA	IRBSP Funding	HPP Funding	PLUD Funding	Agency	Project in Inventory	ADT Current	Safety Need	Prevent Rating	NDOT Ranking	Final Sol for Cost	
N13	N13-214 *	US-893 to Red Valley Prevent Rehab	W	11.40	10.25	RC	\$4.48	partial				\$1.30	Northern	Yes	1878	Low	30	81	2021	
N4/N5	N4-31/N5-112-A *	Smart Clean Wash to Polacca Wash	HW	6.08	5.68	GRS	\$14.68	partial					Chula	Yes	1978	Low	27	65	2003	
N6/N9	N6-212/N9-212-A *	M-1 to Infill W/ N9 safety	W	7.40	11.51	GRS	\$15.88	partial					Chula	Yes	1147/1194	Low	N/A	34	2000	
N15/US151/2824	N15-112-A *	SR244/115/US151 Road-About	W	0.20	0.80	GRS	\$6.00	partial					Fort Def	Yes	1147/1194	Low	<50	N/A	2000	
N48	N48-112-A *	NY Potholes Problem to New School	HW	2.23	3.59	GRS	\$6.10	full			\$1.00		Eastern	Update	264	Low	N/A	16	2004	
N15/2	N15-212-A *	McClure Creek Bridge to 710 Channel Rehab by 7625 of Utah	W	0.61	0.62	GRS	\$6.00	N/A		0.2			Northern	Yes	1038	Low	64	N/A	2007	
N6/21	N6-212-A *	Integration Canal Bridge #223	H	0.10	0.16	GRS	\$5.47	Partial		\$0.45			Western	Yes	581	Low	N/A	67	2001	
N25	N25-112-A *	US-198 to Sheep Wash	HW	10.08	10.08	GRS	\$5.00	partial					Western	Update	422	Low	N/A	67	2000	
N25	N25-112-A *	New HRRS replacement	ABCD	0.21	0.22	GRS	\$6.00	partial		\$0.40		\$0.17	PL Def	Yes	7	Moderate	N/A	N/A	2000	
N106	N106-112-A *	Yuccah Maintenance Bridge #681	ADSBW	0.10	0.16	GRS	\$6.00	Partial		\$0.70			PL Def	Yes	614	High	60	N/A	2001	
N25	N25-112-A *	Yuccah Wash Bridge #623	AB	0.10	0.16	GRS	\$6.00	Partial		\$0.30			PL Def	Yes	235	High	40	N/A	2001	
N6/10	N6-112-A *	140 to New Springs	AB	1.83	1.83	GRS	\$24.28	partial		\$0.00	\$3.44		Fort Def	Yes	289	Low	N/A	65	2000	
N6/10	N6-112-A *	US-891, North to Sheep Wash	I	4.00	7.24	GRS	\$6.00	partial		\$0.40			Fort Def	Yes	>10000	High	70	N/A	2000	
N7007	N7007-112-A *	Water Rock Wash Bridge #487	AB	0.10	0.16	GRS	\$6.00	Partial		\$0.40			Eastern	YES	34	Low	N/A	47	2001	
N8064	N8064-112-A *	Henry Farms US191 to Whitfill	ABCD	15.00	20.62	GRS	\$6.00	N/A		\$2.00	\$0.48		Chula	Yes	339	Low	N/A	42	2011	
N4/5/N8031	N4-5/N8031-212-A *	Prison to Heart Rocks	ABCD	11.20	18.19	GRS	\$6.00	partial		\$2.00	\$0.76		Chula	Yes	7	Low	N/A	32	2012	
N16/N162/N164	N16-1/N162/N164-112-A *	Hempel Mountain w/ Chapter & School Access	AB	5.74	9.24	GRS	\$6.00	full		\$1.00			Western	Yes***	313	Low	N/A	87	2003	
N6/468	N6-468-112-A *	Lower Legume Creek Bridge Rehab - #306 & #314	ABCD	0.61	0.62	GRS	\$6.00	N/A		\$1.80			Western	Yes	475	Low	N/A	82	2013	
N7720	N7720-112-A *	Umancho Wash Bridge #389 replacement	ABCD	0.61	0.62	GRS	\$6.00	N/A		\$0.80			Western	Yes	43	High	N/A	50	2014	
N8223	N8223-112-A *	San Francisco Bridge Rehab - #219	ABCD	0.61	0.62	GRS	\$6.00	N/A		\$0.50			Western	Yes	14	Low	N/A	41	2015	
N8210	N8210-112-A *	Canyon Bridge Rehab - #219	ABCD	0.61	0.62	GRS	\$6.00	N/A		\$0.85			Western	Yes	29	Low	N/A	41	2015	
N20	N20-112-A *	Gap to Coopersville	ABCDU	9.20	14.97	GRS	\$1.90	full		\$0.00			Western	Yes	475	High	N/A	88	2015	
N2007	N2007-112-A *	New Lane Mid Point Bridge Repairs	A	1.10	1.77	GRS	\$1.90	full		\$3.00	\$0.72		Utah	Yes	168	High	N/A	50	2002	
N8	N8-112-A *	ABRA Prevent Rehab US-891 to #623/1	BH	12.00	19.31	R	\$6.00	full		\$4.00			Northern	Yes	N/A	High	N/A	N/A	2000	
N8	N8-112-A *	ABRA Prevent Rehab US-891 to #623/1	BH	11.60	18.87	R	\$6.00	full		\$4.64			Northern	Yes	N/A	High	N/A	N/A	2000	
N221	N221-112-A *	ABRA Prevent Rehab US-891 to #623/1	BH	4.50	7.24	R	\$6.00	full		\$2.56			Western	Yes	N/A	High	N/A	64	2000	
N15/N6	N15-112-A */N6-112-A *	ABRA Prevent Rehab US-891 to #623/1	BH	14.00	22.83	R	\$6.00	full		\$5.60			Fort Def	Yes	N/A	High	N/A	N/A	2000	
N42/811	N42-112-A */811-112-A *	ABRA Prevent Rehab South Loop	BH	19.40	31.22	R	\$6.00	full		\$7.76			Eastern	Yes	N/A	High	N/A	N/A	2000	
N9	N9-112-A *	ABRA Prevent Rehab Pueblo to Tarnon	BH	11.00	18.87	R	\$6.00	full		\$4.64			Eastern	Yes	N/A	Moderate	N/A	N/A	2000	
NDOT Maintenance		Maintenance Projects ** (2)	BC	N/A	N/A	M	\$0.00		\$4.10			Region	Yes	N/A	High	N/A	N/A	N/A	2009	
NDOT Maintenance		Maintenance Projects ** (4)	ABCD	0.00	0.00	M	\$6.00		\$6.00				Region	No	N/A	High	N/A	N/A	2008	
Transportation Planning		Transportation Planning - NDOT	TS	0.00	0.00	Ph	\$6.94	full					Region		N/A	N/A	N/A	N/A		
Area Wide		204(N) Transit *					\$6.00	full					Region		N/A	N/A	N/A	N/A		
Area Direct Service		NDOT Planning, Survey, Design, NEPA, V/PW																		
Area Direct Service		New project related Federal Easement					\$2.00													
Area Direct Service		NDOT Construction					\$6.50													
Area Direct Service		SHA Invoicing/Access					\$1.54													
Area Direct Service		SHA Construction Management					\$2.00													
P.L. 84-658		SHA Right-of-Way					\$2.00		\$2.50											
P.L. 84-658		SHA Right-of-Way					\$4.14													
P.L. 84-658		SHA Right-of-Way					\$4.78													
P.L. 84-658		SHA Right-of-Way					\$6.50		\$5.20	\$8.98	\$6.00	\$1.47								
		Trail Orders					\$6.50		\$47.00											
							\$6.00		\$4.30											
							\$6.00													

NDOT Ranking:
 N/A Not Applicable
 Yellow NDOT Ranking

GR Gravel and Drain Construction
 GRS Gravel, Drain, and Street Construction
 GRC Gravel, Drain, and Surfacing (Prevent) Construction
 RC Reconstruction
 R Prevent Rehabilitation
 CS Chip Sealing
 PI Prevent Interlocking
 PE Prevent Interlocking
 BR Bridge Reconstruction
 * Proposed Public Law 83-658 Project
 ** Proposed Pore Account Project
 CR Project Carry Over from Prior Year TIP
 S Buy-Indian Project
 S Project Designated by School Countdown, BIA perform Construction, ROW needs to be transferred to BIA.
 (1) Existing Funds from other sources
 (2) May be used to supplement Road Maintenance Funding as authorized by TDCS
 (3) Transportation Planning for Inventory Updates and other approved by TDCS
 M Road Maintenance Project
 ** Preliminary Engineering Work Only
 (3) Does not include the \$154K \$ for road maintenance activities

Projects Moved from FY-09 to 2010 TIP
 Special Funded Project, Moved up in Priority

Legend and Comments
 A ROW Needed
 B Environmental Assessment Needed
 C Anthropological Clearance Needed
 D Surveying Data Needed
 E Construction Estimate Needed
 F Design Completed
 G Design Plans Revision Needed
 H Design in Progress
 I Under Construction
 J Eligibility to be Determined
 K Funding Request for Proposal
 TS Transit Project
 U Utility Relocation Needed
 W Within Existing ROW
 X Major ROW, Utility, Antenna, etc., Problem
 Q Anthropological Clearance is Questionable
 (1) Partially Funded
 ** Critical Prevent Rehabilitation Work Needed
 QA Construction Work Quality Assurance

Navajo Nation Tribal Transportation Improvement Program (TTIP)
Fiscal Year 2011 Final Update
Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

Fiscal Year 2011

EXHIBIT A
8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length kilometers	Const Type	Est. Cost Million (1)	IRRFP Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const	
N35	N35(9)2,4 **	US 160 to Sweet Water	H	6.82	10.98	GDBG	\$3.31	full	Western	Update	422	Low	N/A	67	2003	
N35	N35(3)2 **	Alamo to I-40	ABH	9.78	15.74	GDBG	\$12.00	full	Eastern	Update	108	Low	N/A	30	2004	
N11	N11(2)2,4 *	S9 to Mariano Lake	ACH	6.20	9.98	GDS	\$10.32	full	Eastern	Yes	186	Moderate	55	26	2004	
N27	N27(2-2)1,2&4 **	Sizadin North to Chinle	DW	4.20	6.76	GDS	\$8.00	full	Chinle	Yes	466	Moderate	30	33	2002	
NG33/NG330	NG33(2)2&4/NG330(1)1,2,4 *	Trading Post Brdg Rehab - N310	ABG	2.29	3.69	GDBG	\$4.41	N/A	Western	Yes	26	Low	60.3	32	2004	
NG69	NG69(1)2,4 \$	Kerry Street Tuba City	ACHU	1.20	1.93	GDBG	\$2.05	full	Western	Update	1400	Moderate	40	47	2002	
N15	Maintenance Projects ** (2)	N15(4-1) pavement safety project	BD	N/A	N/A	M	\$8.00	full	Region	Yes	N/A	High	N/A	N/A	2006	
Area Wide	204(b) Transit *	Transit Facility Project	TS	0.00	0.00	S	\$0.00	full	Region	Yes	N/A	N/A	N/A	N/A	2006	
BIA Direct Service	SRDOT Planning, Survey, Design, NEPA, R/W	Project Development -A/E Contracts & In-house for all projects	BD	0.00	0.00	S	\$0.00	full	Region	Yes	N/A	N/A	N/A	N/A	2006	
BIA Direct Service	Non-project Related Transportation Planning	Non Project Inherent Federal Function	N/A	Varions			\$2.00									
BIA Direct Service	SRDOT Construction	Modifications & balances due on Previous Funded Projects for on-going construction	N/A	N/A			\$0.50									
BIA Direct Service	NHA Housing Access	Design & construction Access Roads		Varions			\$1.52									
BIA Direct Service	SRDOT Construction Monitoring	QA & Construction Management		Varions			\$3.00									
P.L. 93-638	NN Right-of-Way	Consents and ROW Document Processing		Varions			\$0.14									
P.L. 93-638	NN Archeology BPP (5)	Administration under 638		Varions			\$0.78									
P.L. 93-638	NN Archeology	Task Orders		Varions			\$1.00									
							Total Estimated Amount	\$570.03								
							Projected Funding Amount based on FY-2008 Funding	\$7.03								
							Balance	\$0.00								

NDOT Ranking:
N/A Not Applicable
NDOT Ranking

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Right of Way Document Needed
- F Design Completed
- G Design Plans Revisions Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- TS Transit Project
- U Utility Relocation Needed
- W Within Existing ROW
- V Major ROW, Utility, Archeological, etc., Problem
- Q Archeological Clearance is Questionable
- (1) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed
- QA Construction Work Quality Assurance

Projects Moved from FY-2010 TTIP
Special Funded Project, Moved up in Priority

- GD Grade and Drain Construction
- GDS Grade, Drain, and Surfacing (Pavement) Construction
- R Reconstruction
- RR Bridge Rehabilitation
- CS Chip Sealing
- GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
- PR Pavement Resurfacing
- BR Bridge Reconstruction
- ** Proposed Public Law 93-638 Project
- ** Proposed Force Account Project
- CY Project Carry Over from Prior Year TTIP
- \$ Buy-Indian Project
- £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other sources
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project
- (3) Does not include the \$134k for road maintenance activities

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Fiscal Year 2013

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Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost Million (\$)	IRR Funding	IRRB Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const
N35	N3515-14 §	US160 north to State Line	BD	2.80	4.51	R	\$1.80	full		Northern	Yes	318	Low	>50	25	2017
N11	N11(1)2.4 *	N9 to Mariano Lake	A/C/H	6.20	9.98	GDS	\$10.19	full		Eastern	Yes	415	Moderate	55	30	2003
NS8095/NS8081	NS8095/1/NS8081(1)1.2&3 §	Chinle Valley Road	ABCD	1.00	1.61	GDGB	\$2.14	full		Chinle	Yes	460	Low	N/A	43/22	2008
N26	N26(1)1.2 **	Nazlini N27 to US191 Bredg NS521	ABCD	7.00	11.27	GDGB	\$8.90	Partial	\$0.38	Chinle	Yes	114	High	37	26	2015
N9073	N9073(2)2.4 §	Blue Canyon Road w/brdg NS606	ABCDUQ	6.60	10.62	GDGB	\$12.66	Partial		Fl. Def.	Yes	452	Moderate	N/A	56	2012
N6810	N6810(1)1.2	Corn Creek Bridge	ABCD	0.15	0.24	GB	\$0.93	full		Western	Yes	67	Low	18	18	2006
NG485	NG485(1)2.4	Kavenia Access US163 to US160 Wetherill Rd	ABCD	1.70	2.74	GDS	\$2.79	full		Western	Yes	2685	Low	55	22	2006
NA4000/NS3000	NA4000 & NS3000 Series	Chip Sealing	DW	15.80	24.94	CS	\$1.10	full		NH/P	Yes	N/A	Low	>70	N/A	2002
Various	Maintenance Projects ⁽³⁾	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full		Region	Yes	N/A	High	N/A	N/A	2006
Area Wide	204(b) Transit *	Transit Facility Project under PJ.93-638	TS				\$0.00	full		Region	Yes	N/A	N/A	N/A	N/A	2002
N42	N42(1)-14 §	Monument Valley Chip Seal South	DW	3.7	5.95	CS	\$2.38	full		Western	Yes	2013	Low	40	52	2002
N7	N7(3-1)N7A(1-14	Chinle Streets Chip Seal	DW	2.46	3.96	CS	\$0.30	full		Chinle	Yes	17530	Low	>70	N/A	2002
N27	N27(4)-2.4	Chinle Streets Chip Seal	DW	0.45	0.72	CS	\$0.05	full		Chinle	Yes	2580	Low	>70	N/A	2002
N16	N16(1)-1/2-1/4	Chip Sealing	DW	12.00	19.31	CS	\$2.00	full		Western	Yes	N/A	NA	NA	39	2002
N12	N12(1)-14	Chip Sealing	DW	11.73	18.88	CS	\$2.14	full		Fort Def	Yes	N/A	N/A	N/A	N/A	2002
BIA Direct Service	NRDOT Planning, Survey, Design, NEPA, ROW	A/E Contracts & In-house for all projects		Various			\$2.00									
BIA Direct Service	Transportation Planning	Non-project Related		N/A			\$0.50									
BIA Direct Service	NRDOT Construction	Non Project Inherent Federal Function	N/A													
BIA Direct Service	NHA Housing Access	Modifications & Balances due on Previous Funded Projects for on-going construction		Various			\$2.22									
BIA Direct Service	NRDOT Construction Monitoring	Design & construction Access Roads		Various			\$0.00									
P.L. 93-638	NN Right-of-Way	NRDOT Construction Monitoring All Projects in construction, QA		Various			\$3.00									
P.L. 93-638	NN Archeology HPD ⁽³⁾	Consents and ROW Document Processing		Various			\$0.15									
P.L. 93-638	NN Archeology	Administration under 638		Various			\$0.78									
		Task Orders		Various			\$1.00									
							\$57.03									
							\$7.03									
							\$0.00									

Special Funded Project, Moved up in Priority

NDOT Ranking:

N/A Not Applicable, Project is on ARC List

NA Not Applicable, Project is not on ARC List

GD Grade and Drain Construction

GDG Grade, Drain, and Gravel Construction

GDS Grade, Drain, and Surfacing (Pavement) Construction

RC Reconstruction

R Pavement Rehabilitation

CS Chip Sealing

GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction

PR Pavement Resurfacing

BR Bridge Reconstruction

* Proposed Public Law 93-638 Project

** Proposed Force Account Project

CY Project Carry Over from Prior Year TTIP

§ Buy-Indian Project

£ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.

(1) Excluding Funds from other sources

(2) May be used to supplement Road Maintenance Funding as authorized by TCDC

\$\$ Transportation Planning for Inventory Updates and other approved by TCDC

M Road Maintenance Project

(3) Does not include the \$134k ± for road maintenance activities

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- TS Transit Project
- U Utility Relocation Needed
- W Within Existing ROW
- Y Major ROW, Utility, Archeological, etc., Problem
- Q Archeological Clearance is Questionable
- (1) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed
- QA Construction Work Quality Assurance

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost Million (I)	IRR Funding	IRRRP Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr. Cost	
NS001	NS001(1)2,4 w/NS241	Newcomb to Toadlena	ABDU	6.10	9.82	GDSB	\$11.73	full		Northern	Update	117	Low	N/A	43	2004	
N7	NT/7,2,4 *	Spider Rock Jct. to Agency Line	ABCD	8.40	13.52	GDS	\$5.78	full		Chiahe	Yes	190	Low	55	29	2005	
NS006	NS006(3)1,2,4	N41 to Kistsbill	ABCD	7.00	11.27	GDBP	\$13.43	full		Chiahe	Yes	97	Low	55	26	2009	
NS19	NS19(1)2,4 Y 8	Colorado Street Tuba City	ABCDU	2.00	3.22	GDS	\$3.96	full		Western	Update	842	Moderate	30	47	2002	
NS20	NS20(2)2,4	Gap to Coppenhime	ABCDU	4.65	7.48	GDBG	\$7.64	full		Western	Yes	475	Low	N/A	68	2013	
Various	Maintenance Projects (2)	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full		Region	Yes	N/A	High	N/A	N/A	2006	
NS12/NS1423	NS12/NS12(1)4	Chip Sealing	BDW	7.87	12.67	CS	\$0.94	full		Low		2017					
NS003	NS003(1)2(3)(4)(5)(6)4	Chip Sealing	BDW	24.00	38.62	CS	\$2.88	full		Low		2017					
Area Wide	2010) Transit *	Transit Facility Project under H193-638	TS				\$0.00	full		Region		N/A	N/A	N/A			
BIA Direct Service	NEPA, R/W	AE Contracts & In-house for all projects		Various			\$2.25										
BIA Direct Service	Non-project Related Transportation Planning	Non Project Indian Federal Function	N/A	N/A			\$0.50										
BIA Direct Service	NDOT Construction	Modifications & Balances due on Previous Funded Projects for on-going construction		Various			\$3.00										
BIA Direct Service	NHA Housing Access	Design & construction Access Roads		Various			\$0.00										
BIA Direct Service	NDOT Construction Monitoring	All Projects in construction		Various			\$3.00										
PL 93-638	NN Right-of-Way	Consents and ROW Document Processing		Various			\$0.14										
PL 93-638	NN Archeology HPD	Administration under 638		Various			\$0.78										
PL 93-638	NN Archeology	Task Orders		Various			\$1.00										
Total Estimated Amount							\$57.03										
Projected Funding Amount based on FY-2008 Funding							\$7.03										
Balance							\$0.00										\$0.00

Special Funded Project, Moved up in Priority

Legend and Comments

A ROW Needed
 B Environmental Assessment Needed
 C Archeological Clearance Needed
 D Surveying Data Needed
 E Construction Easement Needed
 F Design Completed
 G Design Plans Revision Needed
 H Design in Progress
 I Under Construction
 J Eligibility to be determined
 K Pending Request for Proposal
 TS Transit Project
 U Utility Relocation Needed
 W Within Existing ROW
 Y Major ROW, Utility, Archeological, etc., Problem
 Q Archeological Clearance is Questionable
 (2) Partially Funded
 ++ Critical Personnel Rehabilitation Work Needed
 QA Construction Work Quality Assurance

NDOT Ranking:
 N/A Not Applicable. Project is on ARC List
 N/A Not Applicable. Project is not on ARC List

GD Grade and Drain Construction
 GDS Grade, Drain, and Gravel Construction
 GDS Grade, Drain, and Surfacing (Pavement) Construction
 RC Reconstruction
 R Pavement Rehabilitation
 CS Chip Sealing
 GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
 PR Pavement Resurfacing
 BR Bridge Reconstruction
 * Proposed Public Law 93-638 Project
 ** Proposed Force Account Project
 CY Project Carry Over from Prior Year TTP
 § Buy-Judian Project
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 M Road Maintenance Project

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N7	N7(4)12.4	Sawmill to Fluted Rock	D	5.60	9.01	GDS	\$10.74	full		Fl. Def.	Yes	246	Low	N/A	25
N31	N31(3)2.4 *	Navajo to N30/N31 Jct.	ABHU	2.51	4.04	GDS	\$5.76	full		Fl. Def.	Yes	60	Low	N/A	30
N3002	N3002(1)2(1)3.4	Chip Sealing	BDW	7.85	12.63	CS	\$0.94	full		N/JP	Yes	2017	Low	70	N/A
N369	N369(1)1.2.4 *	Big Back US64 to N36	ABCD	2.90	4.67	GDSB	\$7.77	full		Northern	Yes	488	Low	N/A	21
N5001	N5001(1)1.2.4 w/N241	Newcom to Toadlena	ABDU	6.10	9.82	GDSB	\$11.73	full		Northern	Update	117	Low	N/A	43
N20	N20(4)2.4	Gap to Coppermine	ABCDU	4.65	7.48	GDS	\$7.64	full		Western	Yes	475	Low	N/A	74
N25	N25(4)2.4 \$	Cottonwood to Salina T.P.	ABCDU	3.20	5.15	GD	\$5.26	full		Chile	Yes	264	Low	55	18
Various		Region wide safety projects	BD	N/A	N/A	M	\$0.00	full		Region	Yes	N/A	High	N/A	N/A
Area Wide	204(10) Transit *	Transit Facility Project under PL93-638	TS				\$0.00	full		Region		N/A	N/A	N/A	
BIA Direct Service		NRDOT Planning, Survey, Design, NEPA, ROW					\$2.73								
BIA Direct Service		Non-project Related Transportation Planning		Various											
BIA Direct Service		NRDOT Construction	N/A	N/A			\$0.50								
BIA Direct Service		NIA Housing Access		Various			\$2.00								
P.L. 93-638		NRDOT Construction Monitoring		Various			\$4.00								
P.L. 93-638		NN Right-of-Way		Various			\$0.14								
P.L. 93-638		NN Archeology HPD		Various			\$0.78								
P.L. 93-638		NN Archeology		Various			\$1.00								
						Total Estimated Amount	\$61.00								
						Projected Funding Amount based on FY-2008 Funding	61.00								
						Balance	\$0.00								

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- TS Transit Project
- U Utility Relocation Needed
- W Within Existing ROW
- Y Major ROW, Utility, Archeological, etc., Problem
- Q Archeological Clearance is Questionable
- (c) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed

NDOT Ranking:

- N/A Not Applicable, Project is on ARC List
- N/A Not Applicable, Project is not on ARC List

GD Grade and Drain Construction

- GDG Grade, Drain, and Gravel Construction
- GDS Grade, Drain, and Surfacing (Pavement) Construction

RC Reconstruction

- R Pavement Rehabilitation
- CS Chip Sealing

GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction

- PR Pavement Resurfacing
- BR Bridge Reconstruction

** Proposed Public Law 93-638 Project

- ** Proposed Force Account Project
- CY Project Carry Over from Prior Year TTIP
- \$ Buy-Indian Project
- \$ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other sources
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est Cost Million (1)	IBR Funding	HIP Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const	
N74	N474(1),2,3	Apache Corner to N46	ADU	5.40	8.69	GDSB	\$7.68	full		Eastern	Yes	352	Low	<50	23	2001	
N662	N9652(1),2,3 *	SR371 to Whitecreek	ARC/D	12.90	20.76	GDBG	\$19.25	full		Eastern	Yes	143	Low	55	20	2002	
N507/N504/N351	N507/N51(1),2,4	Emmanuel Mission N28	AH	5.82	9.37	GDBS	\$11.16	Partial	\$0.80	Northern	Update	167	Low	111	26	2005	
N20	N20(5),2,4	Gap to Coopermine	ABC/DU	9.30	14.97	GDBG	\$17.84	full		Western	Yes	134	Low	N/A	29	2013	
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full		Region	Yes	N/A	High	N/A		2006	
Aves Wide	204(d) Transit *	Transit Facility Project under P193-638	TS				\$0.00	full				N/A	N/A	N/A			
BIA Direct Service	NRDOT Planning, Survey, Design, NEPA, ROW	A/E Contracts & In-house for all projects					\$1.00										
BIA Direct Service	Transportation Planning	Non-project Related					\$0.50										
BIA Direct Service	NRDOT Construction	Modifications & balances due on Previous Funded Projects for on-going construction	N/A				\$1.00										
BIA Direct Service	NHA Housing Access	Design & construction Access Roads					\$0.00										
BIA Direct Service	NRDOT Construction	All Projects in construction, QA					\$3.00										
P.L. 93-638	NN Right-of-Way	Consents and ROW Document Processing					\$0.14										
P.L. 93-638	NN Archaeology HRD	Administration under 658					\$0.78										
P.L. 93-638	NN Archaeology	Task Orders					\$0.50										
							Total Estimated Amount	\$62.95									
							Projected Funding Amount based on FY-2008 Funding	61.00									
							Balance	-\$1.95									

Special Funded Project, Moved up in Priority

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archaeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- TS Transit Project
- U Utility Relocation Needed
- W Within Existing ROW
- Y Major ROW, Utility, Archeological, etc., Problem
- Q Archeological Clearance is Questionable
- (1) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed

- NDOT Ranking:
- N/A Not Applicable Project is on ARC List
- N/A Not Applicable Project is not on ARC List

- GD Grade and Drain Construction
- GDG Grade, Drain, and Gravel Construction
- GDS Grade, Drain, and Surfacing (Pavement) Construction
- RC Reconstruction
- R Pavement Rehabilitation
- CS Chip Sealing
- GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
- PR Pavement Resturfacing
- BR Bridge Reconstruction
- * Proposed Public Law 93-638 Project
- ** Proposed Force Account Project
- CY Project Carry Over from Prior Year TTP
- \$ Buy-Indian Project
- £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other sources
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

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EXHIBIT A
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Fiscal Year 2017

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length kilometers	Const Type	Est. Cost Million (1)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const
N71	N71(3)2,8,3	Birdsprings to N15 & Little Singer Acc	ABCD	7.50	12.07	GDC	\$12.33	full	Western	Yes	54	Moderate	55	8	2006
N46	N46(2)2,4	N9 Pueblo Pintado to Councilor	ABCD	6.55	10.54	GDSB	\$10.77	full	Eastern	Update	204	Moderate	55	22	2004
N35	N35(7)1,2,4 *	US191 to Sweet Water	AD	6.96	11.19	GDSB	\$11.43	full	Northern	Update	218	Low	55	22	2002
N8084	N8084(1)2,3	Many Farms (US191 to Windmill	ABCD	6.50	10.46	GDC	\$9.75	full	Chinle	Yes	339	Low	N/A	38	2011
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High	N/A	N/A	2006
Area Wide	204(b) Transit *	Transit Facility Project	TS				\$0.00	full	Region	Yes	N/A	N/A	N/A	N/A	
	Chip Sealing	Various	BD	0.00	0.00	S	\$0.00	full							
BIA Direct Service	NRDOT Planning, Survey, Design, NEPA, R/W	A/E Contracts & In-house for all projects		Various			\$2.00								
BIA Direct Service	Non-project Related														
BIA Direct Service	Transportation Planning	Non Project Inherent Federal Function	N/A	N/A			\$0.50								
BIA Direct Service	NRDOT Construction	Modifications & balances due on Previous													
BIA Direct Service	NHA Housing Access	Funded Projects for on-going construction		Various			\$1.00								
BIA Direct Service	NRA Access	Design & construction Access Roads		Various			\$0.00								
P.L. 93-638	NRDOT Construction Monitoring	All Projects in construction		Various			\$3.00								
P.L. 93-638	NN Right-of-Way	Consents and ROW Document Processing		Various			\$0.14								
P.L. 93-638	NN Archeology HPD	Administration under 638		Various			\$0.78								
P.L. 93-638	NN Archeology	Task Orders		Various			\$0.50								
							Total Estimated Amount	\$52.20							
							Projected Funding Amount based on FY-2008 Funding	61.00							
							Balance	\$8.80							

Special Funded Project, Moved up in Priority

Legend and Comments

- A ROW Needed
 - B Environmental Assessment Needed
 - C Archeological Clearance Needed
 - D Surveying Data Needed
 - E Construction Easement Needed
 - F Design Completed
 - G Design Plans Revision Needed
 - H Design in Progress
 - I Under Construction
 - J Eligibility to be determined
 - K Pending Request for Proposal
 - TS Transit Project
 - U Utility Relocation Needed
 - W Within Existing ROW
 - ¥ Major ROW, Utility, Archeological, etc., Problem
 - Q Archeological Clearance is Questionable
 - (1) Partially Funded
 - ++ Critical Pavement Rehabilitation Work Needed
- GD Grade and Drain Construction
 GDC Grade, Drain, and Gravel Construction
 GDS Grade, Drain, and Surfacing (Pavement) Construction
 RC Reconstruction
 R Pavement Rehabilitation
 CS Chip Sealing
 GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
 PR Pavement Resurfacing
 BR Bridge Reconstruction
 * Proposed Public Law 93-638 Project
 ** Proposed Force Account Project
 CY Project Carry Over from Prior Year TTIP
 § Buy-Indian Project
 £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
 (1) Excluding Funds from other sources
 (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
 \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
 M Road Maintenance Project
- NDOT Ranking:
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List
 Project is already listed on prior year

Navajo Nation Tribal Transportation Improvement Program (TTIP)
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Fiscal Year 2019

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length kilometers	Const Type	Est. Cost Million (\$)	IRR F31 Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const
N46	N46(2)/N474 to Counselor			10.60	17.06	GDS	\$15.90	full	Eastern	Update	204	Moderate	55	18	2004
N8084	N8084(2)2.3	Many Farms US191 to Windmill	ABCD	6.50	10.46	GDG	\$9.75	full	Chile	Yes	339	Low	N/A		2011
N70/N6910	N70(1)1.2.3/N6910(1)2.3	Grandfalls Bridge toward N15	ABCD	2.35	3.78	GBG	\$6.53	full	Western	Yes	54	Moderate	10	22	2006
N221	N221(2)2.4 ***	Shonto to Betatakin	ABCD	7.80	12.55	GDS	\$14.96	full	Western	Yes	313	Low		41	2007
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High	N/A		2006
Area Wide	204(b) Transit *	Transit Facility Project	TS				\$0.00	full	Region	Yes	N/A	N/A	N/A		
	Chip Sealing	Various	BD	0.00	0.00	S	\$0.00	full							
BIA Direct Service	NRDOT Planning, Survey, Design, NEPA, R/W	A/E Contracts & In-house for all projects		Various			\$1.00								
BIA Direct Service	Non-project Related Transportation Planning	Non Project Inherent Federal Function	N/A	N/A			\$0.50								
BIA Direct Service	NRDOT Construction	Modifications & balances due on Previous Funded Projects for on-going construction		Various			\$0.50								
BIA Direct Service	NHA Housing Access	Design & construction Access Roads		Various			\$0.00								
BIA Direct Service	NRDOT Construction Monitoring	All Projects in construction, QA		Various			\$2.14								
P.L. 93-638	NN Right-of-Way	Consents and ROW Document Processing		Various			\$0.14								
P.L. 93-638	NN Archeology, HPD	Administration under 638		Various			\$0.78								
P.L. 93-638	NN Archeology	Task Orders		Various			\$0.00								
							Total Estimated Amount	\$52.20							
							Projected Funding Amount based on FY-2008 Funding	61.00							
							Balance	\$8.80							

Special Funded Project, Moved up in Priority

Legend and Comments

- A ROW Needed
 - B Environmental Assessment Needed
 - C Archeological Clearance Needed
 - D Surveying Data Needed
 - E Construction Easement Needed
 - F Design Completed
 - G Design Plans Revision Needed
 - H Design in Progress
 - I Under Construction
 - J Eligibility to be determined
 - K Pending Request for Proposal
 - TS Transit Project
 - U Utility Relocation Needed
 - W Within Existing ROW
 - Y Major ROW, Utility, Archeological, etc., Problem
 - O Archeological Clearance is Questionable
 - (!) Partially Funded
 - ++ Critical Pavement Rehabilitation Work Needed
- GD Grade and Drain Construction
 GDG Grade, Drain, and Gravel Construction
 GDS Grade, Drain, and Surfacing (Pavement) Construction
 RC Reconstruction
 R Pavement Rehabilitation
 CS Chip Sealing
 PR Pavement Resurfacing
 BR Bridge Reconstruction
 * Proposed Public Law 93-638 Project
 ** Proposed Force Account Project
 CY Project Carry Over from Prior Year TTIP
 § Buy-Indian Project
 £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
 (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
 \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
 M Road Maintenance Project
- NDOT Ranking:
 N/A Not Applicable. Project is on ARC List
 N/A Not Applicable. Project is not on ARC List

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EXHIBIT A

8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length kilometers	Const Type	Est. Cost Million (I)	IRR E31 Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const	
N103	N18R/74	Non P/C housing street	ARC/D	3.60	5.79	RC	\$5.40	full	Northern	No	250	Low	?	Not Available	2017	
N63	N862/12.3	20th Springs/Recreation Bridge	ARC/D	6.00	9.66	GRD/B	\$9.00	full	Northern	Yes	302	Low	30	28	2011	
N13	N13-3/4	US91 to Red Valley Pavement rehab	BDW	11.30	18.19	RC	\$7.28	full	Northern	Yes	1678	Moderate	30	53	2021	
N46	N46/5/2.4	N463/N474 to Counselor	ARC/D	5.27	8.48	GDS	\$7.91	full	Eastern	Update	204	Moderate	55	2003	2004	
N12	N1213-2/1.2&4	Agency Lane to Wheatfields	ARC/D	4.50	7.24	GDS	\$12.86	full	Chicla	Yes	1989	High	60	42	2003	
N8090	N8090/12.3	Region wide safety projects	ARC/D	7.50	12.07	GDG	\$11.25	full	Chicla	Yes	125	Low	N/A	16	2012	
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High	N/A	2006	2006	
Area Wide	204(b) Transit *	Transit Facility Project	TS	N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High	N/A			
	Chip Sealing	Various	BD	0.00	0.00	S	\$0.00	full			N/A	N/A	N/A			
	NRDDOT Planning, Survey, Design	A/E Contracts & In-house for all projects		Various			\$120									
	NEPA, ROW			Various			\$0.50									
	Non-project Related Transportation Planning	Non Project Interim Federal Function	N/A	N/A			\$0.50									
	NRDDOT Construction	Modifications & balance due on Previous Funded Projects for on-going construction		Various			\$1.56									
	BIA Direct Service	NHA Housing Access		Various			\$0.00									
	BIA Direct Service	NRDDOT Construction Monitoring		Various			\$3.00									
	P.L. 93-638	NN Right-of-Way		Various			\$0.14									
	P.L. 93-638	NN Archeology HPPD		Various			\$0.78									
	P.L. 93-638	NN Archeology		Various			\$0.50									
							Total Estimated Amount	\$6121								
							Projected Funding Amount based on FY-2008	\$100								
							Balance	-\$0.21								

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- TS Transit Project
- U Utility Relocation Needed
- W Within Existing ROW
- Y Major ROW, Utility, Archeological, etc.; Problem
- Q Archeological Clearance is Questionable
- (3) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed

- GD Grade and Drain Construction
- GDG Grade, Drain, and Gravel Construction
- GDS Grade, Drain, and Surfing (Pavement) Construction
- RC Reconstruction
- R Pavement Rehabilitation
- CS Chip Sealing
- GDSB Grade, Drain, Surfing (Pavement), & Bridge Construction
- PR Pavement Resurfacing
- BR Bridge Reconstruction
- * Proposed Public Law 93-638 Project
- ** Proposed Force Account Project
- CY Project Carry Over from Prior Year TTIP
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- M Road Maintenance Project

NDOT Ranking:

N/A Not Applicable; Project is on ARCLIST

N/A Not Applicable; Project is not on ARCLIST

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Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length kilometers	Const Type	Est. Cost Million (1)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const		
N15	N15(3-1)2&4	Cornfields to Greasewood	BCW	6.00	9.66	GDS	\$9.86	full	Ft. Def.	Yes	1412	Moderate	26	No Data	2006		
N12	N12(3-3)1,2&4	Agency Line to Wheatfields	BCDW	4.40	7.08	GDS	\$12.64	full	Chinle	Yes	1989	High	60	42	2003		
N7	N7(6)2&4	Spider Rock Jct. to Agency Line	ABCD	9.20	14.81	GDS	\$17.65	full	Chinle	Yes	134	Low	N/A	25	2007		
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High	N/A	N/A	2006		
Area Wide	204(b) Transit *	Transit Facility Project	TS				\$0.00	full	Region		N/A	N/A	N/A				
	Chip Sealing	Various	BD	0.00	0.00	S	\$0.00	full									
BIA Direct Service	NDOT Planning, Survey, Design, NEPA, ROW	A/E Contracts & In-house for all projects		Various			\$1.50										
BIA Direct Service	Non-project Related Transportation Planning	Non Project Inherent Federal Function	N/A	N/A			\$0.50										
BIA Direct Service	NDOT Construction	Modifications & balances due on Previous Funded Projects for on-going construction		Various			\$1.81										
BIA Direct Service	NHA Housing Access	Design & construction Access Roads		Various			\$0.00										
BIA Direct Service	NDOT Construction	All Projects in construction, OA		Various			\$3.00										
P.L. 93-638	NN Right-of-Way	Consents and ROW Document Processing		Various			\$0.14										
P.L. 93-638	NN Archeology	Administration under 638		Various			\$0.78										
P.L. 93-638	NN Archeology	Task Orders		Various			\$1.00										
							Total Estimated Amount										
							Projected Funding Amount based on FY-2008 Funding										
							Balance										

Legend and Comment:

- A ROW Needed
 - B Environmental Assessment Needed
 - C Archeological Clearance Needed
 - D Surveying Data Needed
 - E Construction Easement Needed
 - F Design Completed
 - G Design Plans Revision Needed
 - H Design in Progress
 - I Under Construction
 - J Eligibility to be determined
 - K Pending Request for Proposal
 - TS Transit Project
 - U Utility Relocation Needed
 - W Within Existing ROW
 - Y Major ROW, Utility, Archeological, etc., Problem
 - Q Archeological Clearance is Questionable
 - (1) Partially Funded
 - ++ Critical Pavement Rehabilitation Work Needed
- NDOT Ranking:**
N/A Not Applicable. Project is on ARC List
N/A Not Applicable. Project is not on ARC List
- GD Grade and Drain Construction
GDS Grade, Drain, and Gravel Construction
RC Reconstruction
R Pavement Rehabilitation
CS Chip Sealing
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BR Bridge Reconstruction
* Proposed Public Law 93-638 Project
** Proposed Force Account Project
CY Project Carry Over from Prior Year TTIP
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£ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
(1) Excluding Funds from other sources
(2) May be used to supplement Road Maintenance Funding as authorized by TCDC
\$\$ Transportation Planning for Inventory Updates and other approved by TCDC
M Road Maintenance Project

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Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length kilometers	Const Type	Est. Cost (Million \$)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Set for Const
N12	N12112.2,2.4	Sample to Whiskey Creek		7.40	11.91	GDS	\$14.19	full	Ft. Def.	Yes	2138	High	48	No Data	2007
N12	N1220/23/4	US160 north to State Line		5.10	8.21	RC	\$11.17	full	Northern	Yes	670	Moderate	46	30	2017
N63	N63211.2,3	Oak Springs/Beechto Bridge		6.00	9.66	GDS/B	\$9.04	full	Northern	Yes	302	Low	28	28	2011
N67/N673	N671/N673/11,2,4	Low Mountain to Nd Smoke Signal		7.20	11.59	GDS/B	\$0.00	full	Chinle	Yes	367/308	Low	50	35/20	2007
N12	N12119-41,2,4	Westfields to Lakashikai		10.00	16.09	GDS	\$19.18	full	Chinle	Yes	2517	High	N/A	53	2006
Various	Maintenance Projects	Region wide safety projects		N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High	N/A	N/A	2006
Aven Wide	204(d) Transit *	Transit Facility Project		N/A	N/A	TS	\$0.00	full	Region	Yes	N/A	High	N/A	N/A	2006
	Chinle Sealing	Various		0.00	0.00	S	\$0.00	full			N/A	N/A	N/A	N/A	
BIA Direct Service	NRDOT Planning Surveys; Design, NEPA, R/W	A/E Contracts & Bids for all projects		Various			\$1.50								
BIA Direct Service	Transportation Planning	Non-Project Inherent Federal Function		N/A	N/A		\$0.51								
BIA Direct Service	NRDOT Construction	Modifications & balances due on Previous Funded Projects for on-going construction		Various			\$1.00								
BIA Direct Service	NHA Housing Access	Design & construction Access Roads		Various			\$0.00								
BIA Direct Service	NRDOT Construction	All Projects in construction, QA		Various			\$3.00								
P.L. 93-638	NN Rehab-41-Away	Consents and ROW-Document Processing		Various			\$0.14								
P.L. 93-638	NN Archeology HRPD	Administration under GSR		Various			\$0.78								
P.L. 93-638	NN Archeology	Park Orders		Various			\$0.70								
				Total Estimated Amount			\$61.21								
				Projected Funding Amount based on FY-2008 Funding			61.00								
				Balance			-\$0.21								

Legend and Comments

- A ROW Need
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- TS Transit Project
- U Utility Redaction Needed
- W Within Existing ROW
- Y Major ROW, Utility, Archeological, etc., Problem
- Q Archeological Clearance is Questionable
- (I) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed

NDOT Ranking:

- N/A Not Applicable. Project is on ARC List
- N/A Not Applicable. Project is not on ARC List
- Project is already listed on prior year

- GD Grade and Drain Construction
- GDS Grade, Drain, and Gravel Construction
- GDS Grade, Drain, and Surfacing (Pavement) Construction
- RC Reconstruction
- R Pavement Rehabilitation
- CS Chip Sealing
- GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
- PR Pavement Resurfacing
- BR Bridge Reconstruction
- * Proposed Public Law 93-638 Project
- ** Proposed Force Account Project
- CV Project Carry Over from Prior Year TTIP
- \$ Bug-Indian Project
- £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Existing Funds from other sources
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$ T Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

Navajo Nation Tribal Transportation Improvement Program (TTIP)
 Fiscal Year 2023 Final Update
 Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

Fiscal Year 2023

EXHIBIT A
8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length kilometers	Const Type	Est. Cost Million(1)	IRR Funding	IRFBP Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const	
N55	N554(N/551)2&4	Alamo to L-40	ABCD	13.78	22.18	GDC	\$22.65	full		Eastern	Yes	108	Low	NA	18	2006	
N56	N562/2	Canoncito to Res. Line North	ABCD	7.40	11.91	GDC	\$4.17	full		Eastern	Yes	198	Low	55	38	2006	
N550	N5501/2&4	Hilltop Road	BCDQ	0.40	0.64	GDS	\$0.26	full		Northern	Yes	488	Low	40	24	2007	
N545	N5451/2&4	Northern Mesa School Road	BCDQ	0.4	0.64	GDS	\$0.26	full		Northern	Yes	1810	Low	55	39	2007	
N569	N5691/2&4	Indian Village Co-Op w/ NMDOT	ABCDU	1.6	2.57	GDS	\$1.03	full		Northern	Yes	1711	Low	30	28	2007	
N42	N421-1/4	Ojiteh Road North	BCD	14.40	23.17	S	\$6.60	full		Western	Yes	514	Moderate	44	25	2006	
N15	N152-2/2-3/2&4	Cornfields to Greasewood	BCW	5.10	8.21	GDS	\$8.38	full		Ft. Def.	Yes	1412	Moderate	26	No Data	2006	
N321	N32101.2-4	Crystal to Whiskey Creek / N616	ABCDU	6.15	9.90	GDS	\$10.11	Partial	\$1.20	Ft. Def.	Yes	278	Low	N/A	N/A	2006	
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full		Region	Yes	N/A	High	N/A	N/A	2006	
Area Wide	204(b) Transit *	Transit Facility Project	TS				\$0.00	full		Region	Yes	N/A	N/A	N/A	N/A		
		Chip Sealing	BD	0.00	0.00	S	\$0.00	full									
		NRDOT Planning, Survey, Design, NEPA, R/W		Various			\$1.20										
BIA Direct Service	Non-project Related	A/E Contracts & In-house for all projects		Various			\$0.50										
BIA Direct Service	Transportation Planning	Non Project Inherent Federal Function	N/A	N/A			\$1.13										
BIA Direct Service	NRDOT Construction	Funded Projects for on-going construction		Various			\$0.00										
BIA Direct Service	NHA Housing Access	Design & construction Access Roads		Various			\$3.00										
BIA Direct Service	Monitoring	All Projects in construction, QA		Various			\$0.14										
P.L. 93-638	NN Rights-of-Way	Consents and ROW Document Processing		Various			\$0.78										
P.L. 93-638	NN Archeology HPD	Administration under 638		Various			\$1.00										
P.L. 93-638	NN Archeology	Task Orders		Various			\$61.21		\$1.20								
							Total Estimated Amount	61.00									
							Projected Funding Amount based on FY-2008 Funding	61.00									
							Balance										

Spotted Owl Habitat, May Require 2 Years of Surveys

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- TS Transit Project
- U Utility Relocation Needed
- W Within Existing ROW
- Y Major ROW, Utility, Archeological, etc., Problem
- Q Archeological Clearance is Questionable
- (1) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed

- GD Grade and Drain Construction
- GDC Grade, Drain, and Gravel Construction
- GDS Grade, Drain, and Surfacing (Pavement) Construction
- RC Reconstruction
- R Pavement Rehabilitation
- CS Chip Sealing
- GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
- PR Pavement Resurfacing
- BR Bridge Reconstruction
- ** Proposed Public Law 93-638 Project
- ** Proposed Force Account Project
- CY Project Carry Over from Prior Year TTIP
- \$ Buy-Indian Project
- £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other sources
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

NDOT Ranking:
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List

Navajo Nation Tribal Transportation Improvement Program (TTIP)
 Fiscal Year 2024 Final Update
 Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

Fiscal Year 2024

EXHIBIT A
 8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Cost Type	Est. Cost (Million \$)	IRR Funding	IRRBP Funding	Agency	Project in Inventory	ADT Current	Safety Need	Payment Rating	NDOT Ranking	First Yr. Set for Cost	
NS12	NS12012.4	Nahant & Tse Bhat School Access	AB/CD	6.50	0.80	G/S	\$0.75	full		Northern	Yes	908	Low	40		2007	
NS09	NS09012&4	NW Shiprock Housing Access	BC/DQ	1.00	1.61	G/S	\$1.50	full		Northern	Yes	3265	Low	40	33	2007	
NS012	NS01212&3	NS130 NS14	AB/CD	13.80	22.21	G/DG	\$20.70	full		Northern	Yes	229	Low	N/A	10	2012	
NS010	NS01022&3	NS1 South	AB/CD	6.70	10.78	G/DG	\$5.63	full		Northern	Yes	283	Low	N/A	22	2006	
NS079	NS07901.2	Lower Whitefields Road	AB/CD	5.90	9.49	G/D	\$3.80	full		Chinle	No	32	Low	50	21	2017	
NS21	NS2101.4	Saltina North Loop	DW/O	15.50	24.62	S	\$7.01	full		Chinle	Yes	126	Low	50	21	2008	
NS31	NS31021.2,4	Crystal to Whiskey Creek /NS17	AB/CDU	6.15	9.90	G/S	\$10.11	Partial	\$0.50	Pr. Def.	Yes	278	Low	N/A	22	2021	
NS178	NS17801.4	Chip Sealing	BDW	7.24	11.65	CS	\$0.60	full		NHP	Yes	N/A	Low	50/758	25	2017	
NS461	NS46101-N/NS461021,2&4	Demolition Access & Brdg Rehab - NS13	AB/CD	4.30	5.15	G/S	\$2.23	full	\$0.10	Western	Update	502	Low	40	43	2004	
NS15	NS1501-1/2-1/4	Reservation line to Leupp Chip Seal	DW	14.00	22.53	CS	\$1.32	full		Western	Yes	2046	Low	40		2002	
Various	Maintenance Projects	region wide safety projects	BD	N/A	N/A	M	\$0.00	full		Region	Yes	N/A	High	N/A		2006	
Avee Wide	204(0) Transit *	Transit Facility Project under PI 93-438	TS				\$0.00	full			Yes	N/A	N/A	N/A			
	Chip Sealing	Various	D	0.00	0.00	S	\$0.00	full		Various		N/A	N/A	N/A			
BIA Direct Service	NDOT Planning, Survey, Design, NEPA, ROW	A/E Contracts & In-house for all projects non-project related		Various			\$1.20										
BIA Direct Service	Transportation Planning	Transportation Planning		Various			\$0.50										
BIA Direct Service	NDOT Construction	Non Project Inherent Federal Function		N/A													
BIA Direct Service	NHA Housing Access	Modifications & balances due on Previous Funded Projects for on-going construction		Various			\$1.44										
BIA Direct Service	NDOT Construction Monitoring	Design & construction Access Roads		Various			\$0.00										
P.L. 93-638	NN High-Cut/May	All Projects in construction, QA		Various			\$3.00										
P.L. 93-638	NN Archæology/HFD	Consents and ROW Document Processing		Various			\$0.14										
P.L. 93-638	NN Archæology	Administration under 758		Various			\$0.78										
		Task Orders		Various			\$0.50										
							Total Estimated Amount	\$61.21									
							Projected Funding Amount based on FY 2008 Funding	61.00									
							Balance	-\$0.21									

Spotted Owl Habitat, May Require 2 Years of Surveys

- Legend and Comments**
- A ROW Needed
 - B Environmental Assessment Needed
 - C Archeological Clearance Needed
 - D Surveying Data Needed
 - E Construction Easement Needed
 - F Design Completed
 - G Design Plans Revision Needed
 - H Design In Progress
 - I Under Construction
 - J Eligibility to be determined
 - K Pending Request for Proposal
 - TS Transit Request
 - U Utility Reduction Needed
 - W Within Existing ROW
 - Y Major ROW, Utility, Archeological, etc., Problem
 - Q Archeological Clearance is Questionable
 - (1) Partially Funded
 - ++ Critical Pavement Rehabilitation Work Needed

- GD Grade and Drain Construction
- GDC Grade, Drain, and Gravel Construction
- GDS Grade, Drain, and Surfacing (Pavement) Construction
- RC Reconstruction
- R Pavement Rehabilitation
- CS Chip Sealing
- GDSR Grade, Drain, Surfacing (Pavement), & Bridge Construction
- PR Pavement Resurfacing
- BR Bridge Reconstruction
- Proposed Public Law 93-638 Project
- Proposed Force Account Project
- CY Project Carry Over From Prior Year TTIP
- Buy-Indian Project
- Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other source
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$8 Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

NDOT Ranking:
 N/A Not Applicable. Project is on ARC List
 N/A Not Applicable. Project is not on ARC List

Navajo Nation Tribal Transportation Improvement Program (TTIP)
Fiscal Year 2026 Final Update
Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

Fiscal Year 2026

EXHIBIT A
8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost Million(\$)	IRR Funding	Agency	Project In Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const
N36	N36(A)-1/7-14	Reservation Bndry to Nenahnezad	BDW	10.20	16.41	R	\$7.13	full	Northern	Yes	4564	Low	88	35	2017
N503	N501(L)-14	Red Valley School Access	DBW	0.30	0.48	R	\$0.19	full	Northern	Yes	250	Low	10	25	2017
N5	N5(L)-1/2-14	US491 to Burnham	BDW	12.30	19.79	R	\$8.42	full	Northern	Yes	177	Low	54	41	2017
N12	N12/19-5/2-4	Wheatfields to Lukachukai	BDW	10.00	16.09	GDS	\$19.18	full	Chinle	Yes	2517	High	60	52	2009
N30	N30/2/2-4	Western Springs to Navajo N31	ABCDU	6.50	10.46	GDS	\$12.47	full	Fl Def	Yes	471	Low	N/A	38	2008
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High	N/A		2006
Area Wide	204(b) Transit +	Transit Facility Project under PL93-638	TS				\$0.00	full	Area	Yes	N/A	N/A	N/A		
	Chip Sealing	Various	D	0.00	0.00	CS	\$0.00	full							
BIA Direct Service	NRDOT Planning, Survey, Design, NEPA, R/W	M/E Contracts & In-house for all projects		Various			\$1.20								
BIA Direct Service	Non-project Related Transportation Planning	Non Project Inherent Federal Function		N/A			\$0.50								
BIA Direct Service	NRDOT Construction	Modifications & balances due on Previous Funded Projects for on-going construction		Various			\$3.00								
BIA Direct Service	NHA Housing Access	Design & construction Access Roads		Various			\$0.00								
BIA Direct Service	NRDOT Construction	All Projects in construction, QA		Various			\$3.00								
P.L. 93-638	NN Rights-of-Way	Consents and ROW Document Processing		Various			\$0.14								
P.L. 93-638	NN Archeology HPD	Administration under 638		Various			\$0.78								
P.L. 93-638	NN Archeology	Task Orders		Various			\$2.00								
							Total Estimated Amount	\$88.01							
							Projected Funding Amount based on FY-2009 Funding Balance	61.00							
							Balance	2.99							

Legend and Comments

- A ROW Needed
 - B Environmental Assessment Needed
 - C Archeological Clearance Needed
 - D Surveying Data Needed
 - E Construction Easement Needed
 - F Design Completed
 - G Design Plans Revision Needed
 - H Design in Progress
 - I Under Construction
 - J Eligibility to be determined
 - K Pending Request for Proposal
 - TS Transit Project
 - U Utility Relocation Needed
 - W Within Existing ROW
 - Y Major ROW, Utility, Archeological, etc., Problem
 - Q Archeological Clearance is Questionable
 - (1) Partially Funded
 - ++ Critical Pavement Rehabilitation Work Needed
- GD Grade and Drain Construction
 GDG Grade, Drain, and Gravel Construction
 GDS Grade, Drain, and Surfacing (Pavement) Construction
 RC Reconstruction
 R Pavement Rehabilitation
 CS Chip Sealing
 GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
 PR Pavement Resurfacing
 BR Bridge Reconstruction
 * Proposed Public Law 93-638 Project
 ** Proposed Force Account Project
 CY Project Carry Over from Prior Year TTIP
 § Buy-Indian Project
 £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
 (1) Excluding Funds from other sources
 (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
 \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
 M Road Maintenance Project
- NDOT Ranking:
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List
 Project is already listed on prior year

Navajo Nation Tribal Transportation Improvement Program (TTIP)
 Navajo Nation Council's Transportation and Community Development Committee
 Fiscal Year 2025 Final Update
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost Million(D)	IRR Funding	Agency	Project In Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	Fisc Yr Sch for Const
N13	N13-4-14	Red Valley to Buffalo Pass		7.70	12.39	R	\$4,96	full	Northern	Yes	519	Low	60	34	2017
N172	N172(1)	Round Rock to Cove		12.80	20.60	GD	\$8,24	full	Chinle	Yes	92	Low	8	8	2013
N8077	N8077(12&4	Black Rock Road		7.40	11.75	GDS	\$10,15	full	Chinle	Yes	503	Low	N/A	22	2017
N7004	N7004(12	99 Whitehorse to Redson Marquis		6.80	27.04	GD	\$5,88	full	Eastern	Yes	85	Low	21	21	2007
N31	N31(1,2,3	Tahachi west to N30/N31 Jct.		12.96	20.86	GD	\$2,86	full	Fl. Pbd.	Yes	82	Low	20	22	2007
Various	Maintenance Projects	Region wide safety projects		N/A	N/A	M	\$0,00	full	Region	Yes	N/A	N/A	N/A	2006	
Avea Wide	2040) Transit *	Transit facility Project under PL 93-638				TS	\$0,00	full	Various		N/A	N/A	N/A		
BIA Direct Service	NRDOT Planning, Survey, Design, NEPA, R/W	A/E Contracts & In-house for all projects				D	\$1,20		Various						
BIA Direct Service	Transportation Planning	Non-project Related					\$0,50								
BIA Direct Service	NRDOT Construction	Modifications & balances due on Previous funded Projects for on-going construction					\$1,00								
BIA Direct Service	NHA Housing Access	Design & construction Access Roads					\$0,00								
BIA Direct Service	NRDOT Construction	All Projects in construction, QA					\$3,00								
PL 93-638	NN Right-of-Way	Consents and ROW Document Processing					\$0,14								
PL 93-638	NN Archeology HDD	Administration under 638					\$0,50								
PL 93-638	NN Archeology	Task Orders					\$0,21								
Total Estimated Amount															
Projected Funding Amount based on FY 2008 Funding															
Balance															

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Funding Request for Proposal
- TS Transit Project
- U Utility Relocation Needed
- W Within Existing ROW
- Y Major ROW, Utility, Archeological, etc., Problem
- Q Archeological Clearance is Questionable
- () Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed

- GD Grade and Drain Construction
- GDC Grade, Drain, and Gravel Construction
- GDS Grade, Drain, and Surfacing (Pavement) Construction
- RC Reconstruction
- R Pavement Rehabilitation
- CS Chip Sealing
- GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
- PR Pavement Resturfacing
- BR Bridge Reconstruction
- ** Proposed Public Law 93-638 Project
- * Proposed Force Account Project
- CY Project Carry Over from Prior Year TTIP
- \$ Buy-Indian Project
- £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other sources
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

NDOT Ranking:
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List

Navajo Nation Tribal Transportation Improvement Program (TTIP)
Fiscal Year 2027 Final Update
Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A
8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost Million(\$)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const
N7046	N7046.32.3	Jones Ranch to State Line	ABCD	4.80	7.72	GDG	\$7.20	full	Eastern	Yes	44	Low	55	22	2009
N421	N421132.4	Djilato Chapter Access	ABCD	2.00	3.22	GDS	\$3.29	full	Western	Yes	415	Low	55	21	2006
N7070/0920	N70722/0920/012	Granddalls to N15	ABCD	5.10	8.21	GD	\$7.65	full	Western	Yes	54	Moderate	10	12	2007
N6440	N6440.1J1.2.3	Halgaitoh Wash Bridge	ABCD	0.25	0.40	GDGB	\$1.31	full	Western	Yes	86	Low	N/A	10	2008
N3002	N3002.4J1.2.4	N1P BK 9 SR371 to Chaco Plant	ABCD	8.54	13.74	GDSB	\$13.31	full	NHP	No	490	Low	N/A	10	2016
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High	N/A	N/A	2006
Area Wide	204(b) Transit *	Transit Facility Project under PI 93-638	IS	N/A	N/A		\$0.00	full	Area	Yes	N/A	N/A	N/A	N/A	
	Chip Sealing	Various	D	0.00	0.00	CS	\$0.00	full							
BIA Direct Service	NDOT Planning, Survey, Design, NEPA, ROW	A/E Contracts & In-house for all projects		Various			\$1.36								
BIA Direct Service	Non-Project Related Transportation Planning	Non-Project Inherent Federal Function	N/A	N/A			\$0.50								
BIA Direct Service	NDOT Construction	Modifications & balances due on Previous funded Projects for on-going construction		Various			\$3.32								
BIA Direct Service	NHA Housing Access	Design & construction Access Roads		Various			\$0.00								
BIA Direct Service	NDOT Construction	All Projects in construction, QA Monitoring		Various			\$3.00								
P.L. 93-638	NS Right-of-Way	Consents and ROW Document Processing		Various			\$0.14								
P.L. 93-638	NN Archeology HFD	Administration under 638		Various			\$0.78								
P.L. 93-638	NN Archeology	Task Orders		Various			\$1.00								
							Total Estimated Amount	\$42.67							
							Projected Funding Amount based on FY-2008 Funding	61.00							
							Balance	18.33							

Project was abandoned in FY-1998 for lack of support

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- TS Transit Project
- U Utility Relocation Needed
- W Within Existing ROW
- Y Major ROW, Utility, Archeological, etc. Problem
- Q Archeological Clearance is Questionable
- (+) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed

- GD Grade and Drain Construction
- GDS Grade, Drain, and Gravel Construction
- GDS Grade, Drain, and Surfacing (Pavement) Construction
- RC Reconstruction
- R Pavement Rehabilitation
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- GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
- PR Pavement Resurfacing
- BR Bridge Reconstruction
- * Proposed Public Law 93-638 Project
- ** Proposed Force Account Project
- CY Project Carry Over from Prior Year TTIP
- § Buy-Indian Project
- £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other sources
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

NDOT Ranking:
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List
 Project is already listed on prior year

Navajo Nation Tribal Transportation Improvement Program (TIP)
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 Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan-INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A
 8/14/2019

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est Cost Million()	HRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Payment Ranking	NDOT Ranking	First Yr. Sst for Const
NS1	NS101/14	Shiprock Farm Road	RC/DW	0.80	1.29	RC	\$0.29	fall	Northern	Yes	712	?	40	36	2017
NS2	NS201/14	Shiprock Farm Road	RC/DW	2.70	4.35	RC	\$1.21	fall	Northern	Yes	883	?	40	38	2017
NS3	NS301/14	Shiprock Farm Road	RC/DW	1.00	1.61	RC	\$0.28	fall	Northern	Yes	418	?	40	29	2017
NS0	NS001/14	Aureli VHA Access	RC/DW	0.10	0.16	RC	\$0.25	fall	Northern	Yes	450	?	10	24	2017
NS01	NS010/14	Aureli School Access	ARC/D	0.30	0.48	RC	\$0.15	fall	Northern	Yes	250	?	10	24	2017
NS11	NS110/14	Agency Roads Access	ARC/D	1.00	1.61	RC	\$0.28	fall	Northern	Yes	350	Low	10	28	2017
NS202	NS202(1) 2,4	General Loop Access to SR244(US91)	ARC/D	1.00	1.61	GDSB	\$2.14	fall	FL, DCI	Yes	2070	Medium	50	20	2009
NS09	NS0911.2	US966 Mesquite East	ARC/D	1.00	1.61	GDSB	\$1.62	fall	FL, DCI	Yes	130	Low	55	20	2005
NS043	NS043(1) 2,4	Mexican Springs to Navajo N31	ARC/D	1.00	1.61	GDSB	\$1.04	fall	Eastern	Yes	496	Low	55	26	2007
NS062/NV4	NV062/NV4(1) 2,4	NV06 to NV140	ARC/D	0.30	0.48	GDSB	\$1.62	fall	FL, DCI	Yes	242	Low	55	14	2008
Varous	204(b) Transit *	Region wide safety projects	BD	N/A	N/A	M	\$3.58	fall	Eastern	Yes	592	Moderate	50	21	2012
Area Wide	Chp Sealing	Transit Facility Project under P123-688	BD	N/A	N/A	M	\$0.00	fall	Region	Yes	N/A	High	N/A	N/A	2006
BIA Direct Service	NRDOT Planning, Survey, Design, NEPA, ROW	A/E Contracts & In-house for all projects	ID	0.00	0.00	CS	\$0.00	fall							
BIA Direct Service	Non-project related Transportation Planning	Various					\$1.07								
BIA Direct Service	NRDOT Construction	Non Project Inherent Federal Function	N/A				\$0.50								
BIA Direct Service	NHA Hoisting Access	Modifications & balances due on Previous Funded Projects for on-going construction					\$1.00								
BIA Direct Service	NRDOT Construction Monitoring	Design & construction Access Roads					\$0.00								
P.L. 92-638	NN Right-of-Way	All Projects in construction, QA					\$3.00								
P.L. 92-638	NN Archeology HPD	Consents and ROW Document Processing					\$0.14								
P.L. 92-638	NN Archeology	Administration under 638					\$0.78								
		Task Orders					\$0.50								
		Various					\$61.21								
		Total Estimated Amount					61.00								
		Projected Funding Amount based on FY-2008 Funding					61.00								
		Balance					-\$0.21								

- Legend and Comments**
- A ROW Needed
 - B Environmental Assessment Needed
 - C Archaeological Clearance Needed
 - D Surveying Data Needed
 - E Construction Assessment Needed
 - F Design Completed
 - G Design Plans Revision Needed
 - H Design in Progress
 - I Under Construction
 - J Eligibility to be determined
 - K Pending Request for Proposal
 - TS Transit Project
 - U Utility Relocation Needed
 - W Within Existing ROW
 - Y Major ROW, Utility, Archeological, etc.- Problem
 - Q Archeological Clearance is Questionable
 - (1) Partially Funded
 - ++ Critical Pavement Rehabilitation Work Needed

- NDOT Ranking:**
- N/A Not Applicable. Project is on ARC List
 - N/A Not Applicable. Project is not on ARC List

- GD Grade and Drain Construction
- GDS Grade, Drain, and Gravel Construction
- RC Reconstruction
- R Pavement Rehabilitation
- CS Chp Sealing
- GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
- RR Pavement Resurfacing
- BR Bridge Reconstruction
- ** Proposed Public Law 92-638 Project
- * Proposed Force Account Project
- CV Project Carry Over from Prior Year TIP
- § Buy-Indian Project
- § Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other sources
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

Navajo Nation Tribal Transportation Improvement Program (TTIP)
 Fiscal Year 2029 Final Update
 Navajo Nation Council's Transportation and Community Development Committee
 40 Year Plan - INDIAN RESERVATION ROADS PROGRAM

Fiscal Year 2029

EXHIBIT A
8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost Million(L)	IRR Funding	IRRBP Funding	PLHD Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const	
N7028	N7028/11.2	Torroneo to Rincon Marquez (Co-Op)		16.90	27.20	GD	\$5,535	Full			Eastern	County	60	Low	N/A	14	2008	
N101	N101/8/2384	Tuba City Main Street Re-hab-Facility St		1.00	1.61	GDS	\$120	Full			Western	No	13843	High	30	37	2010	
N101	N101/9/2384	Main Street north to N608		1.00	1.61	GDS	\$120	Full			Western	No	1334	Moderate		12	2008	
N106	N106/7/2384	US160 to SR908		8.00	12.87	GDS	\$6,551	Full			Western	Yes	341	Low			2007	
N1062	N1062/12/84	NHP RR 1 City Rd to Hammond Rd		4.00	6.44	GDS	\$6,000	Full			NHP	Yes	262	Low			2007	
N1069	N1069/12/84	US160 to SR908		8.00	12.87	GDS	\$6,000	Full			NHP	Yes	N/A	Low			2009	
N1069	N1069/12/84	NHP RR 1 City Rd to Hammond Rd		4.00	6.44	R	\$2,000	Full			NHP	Yes	N/A	High			2006	
Various	Various	Regional safety projects		15.00	24.14	R	\$3,000	Full			Region	Yes	N/A	High				
Area Wide	TS	Transit Facility Project under PL 93-638		N/A	N/A	M	\$0.00	Full			Region	Yes	N/A	N/A				
		Chip Sealing		0.00	0.00	CS	\$0.00	Full										
		NDOT Planning, Survey, Design, NEPA, ROW		Various	Various		\$1.23											
BIA Direct Service		Non-Project Related																
BIA Direct Service		Transportation Planning		N/A	N/A		\$0.50											
BIA Direct Service		Non Project Inherent Federal Function																
BIA Direct Service		Modifications & balance due on Previous Funded Projects for on going construction	N/A															
BIA Direct Service		Design & construction Access Roads		Various	Various		\$1.00											
BIA Direct Service		All Projects in construction, QA		Various	Various		\$3.00											
P.L. 93-638		Consents and ROW Document Processing		Various	Various		\$0.14											
P.L. 93-638		Administration under 638		Various	Various		\$0.78											
P.L. 93-638		Task Orders		Various	Various		\$1.00											
							Total Estimated Amount	\$61.21	\$0.00	\$0.00								
							Projected Funding Amount based on FY-2008 Funding	61.00										
							Balance											
							Balance											

Legend and Comments

- A ROW Needed
 - B Environmental Assessment Needed
 - C Archaeological Clearance Needed
 - D Surveying Data Needed
 - E Construction Easement Needed
 - F Design Completed
 - G Design Plans Revision Needed
 - H Design in Progress
 - I Under Construction
 - J Eligibility to be determined
 - K Pending Request for Proposal
 - N Transit Project
 - U Utility Relocation Needed
 - W Within Existing ROW
 - X Major ROW, Utility, Archeological, etc., Problem
 - O Archeological Clearance is Questionable
 - (1) Partially Funded
 - (2) Pending Request for Inventory Updates and other approved by TCDC
 - (3) Critical Pavement Rehabilitation Work Needed
- NDOT Ranking:
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List
- GD Grade and Drain Construction
 GDS Grade, Drain, and Gravel Construction
 RC Reconstruction
 R Pavement Rehabilitation
 CS Chip Sealing
 GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
 PR Pavement Resurfacing
 BR Bridge Reconstruction
 * Proposed Public Law 93-638 Project
 ** Proposed Force Account Project
 CY Project Carry Over from Prior Year TTIP
 \$ Buy-Indian Project
 † Project Designed by School Consultant, BIA, perform Construction, ROW needs to be transferred to BIA.
 ‡ May be used to supplement Road Maintenance Funding as authorized by TCDC
 § Transportation Planning for Inventory Updates and other approved by TCDC
 M Road Maintenance Project

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost Million(\$)	IRR Funding	IRRRP Funding	PLHD Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const
N19	N19-114 with r/w Fencing	US91 to Tordana		12.20	19.63	R	\$6.16	full			Northern	Yes	750	Low	60	40	2017
N113	N113-112	SR64 to Arizon Line		12.40	19.96	GDB	\$20.89	full			Northern	Yes	128	Low		20	2008
NS46	NS46-12	Bluff Road		4.20	6.76	GD	\$0.98	full			Northern	?	116	Low		20	2017
N7057	N7057-12	Standing Rock to SR371		13.30	21.40	GD	\$19.95	full			Eastern	Yes	33	Low		11	2009
N104	N104-3-12&4	Crowpoint Sunny side Street Access		1.15	1.85	GDS	\$4.72	full			Eastern	No	208	Low		19	2013
NS2	NS2-12&3	Dillon Pass Chapter Access		1.50	2.41	GDG	\$1.10	full			Eastern	Yes	71	Low		16	2012
N41	N41-72&3	West Dinahob Wash to Turquoise Trail		2.00	3.22	GDG	\$3.29	full			Chinle	Yes	485	Low		21	2017
Area Wide	M4(b) Transit *	Region wide safety projects		N/A	N/A	M	\$0.00	full			Region	Yes	N/A	High			2006
	Chip Sealing	Transit Facility Project under P1-91-638		0.00	0.00	S	\$0.00	full			Region		N/A	N/A			
BIA Direct Service	NRDOT Planning, Survey, Design	Various					\$0.00										
BIA Direct Service	NEPA, ROW	Non-Project Related					\$1.20										
BIA Direct Service	Transportation Planning	A/E Contracts & In-house for all projects					\$0.50										
BIA Direct Service	NRDOT Construction	Non-Project Inherent Federal Function					\$0.50										
BIA Direct Service	NHAI Housing Access	Modifications & balances due on Previous Funded Projects for on-going construction					\$1.00										
BIA Direct Service	NRDOT Construction Monitoring	Design & construction Access Roads					\$0.00										
P.L. 91-638	NN Right-of-Way	All Projects in construction, QA					\$3.00										
P.L. 91-638	NN Archeology HPD	Consents and ROW Document Processing					\$0.14										
P.L. 91-638	NN Archeology	Administration under 638					\$0.78										
		Task Orders					\$1.30										
Total Estimated Amount																	
Projected Funding Amount based on FY-2008 Funding																	
Balance																	
-\$0.21																	

Legend and Comments

- A ROW Needed
 - B Environmental Assessment Needed
 - C Archeological Clearance Needed
 - D Surveying Data Needed
 - E Construction Easement Needed
 - F Design Completed
 - G Design Plans Revision Needed
 - H Design in Progress
 - I Under Construction
 - J Eligibility to be determined
 - K Pending Request for Proposal
 - TS Transit Project
 - U Utility Relocation Needed
 - W Within Existing ROW
 - X Major ROW, Utility, Archeological, etc. Problem
 - Q Archeological Clearance is Questionable
 - (1) Partially Funded
 - ++ Critical Pavement Rehabilitation Work Needed
-
- GD Grade and Drain Construction
 - GDB Grade, Drain, and Gravel Construction
 - GDS Grade, Drain, and Surfacing (Pavement) Construction
 - RC Reconstruction
 - R Pavement Rehabilitation
 - CS Chip Sealing
 - GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
 - PR Pavement Resurfacing
 - BR Bridge Reconstruction
 - ** Proposed Public Law 91-638 Project
 - ** Proposed Force Account Project
 - CY Project Carry Over from Prior Year TTIP
 - § Boy-Indian Project
 - § Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
 - (1) Excluding Funds from other sources
 - (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
 - \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
 - M Road Maintenance Project

NDOT Ranking:
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List

Navajo Nation Tribal Transportation Improvement Program (TTIP)
 Fiscal Year 2031 Final Update
 Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A
8/14/2009

Fiscal Year 2031

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost (Million \$)	IRR Funding	IRRBP Funding	PLHD Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const	
	N8090(1)2.3	Rough rock to N59	ABCD	7.50	12.07	GDG	\$9.75	full			Chinle	Yes	125	Low		20	2012	
N8065	N8065(1)1.2.3	Kilsill West to N8066 w/N023	ABCD	9.90	15.93	GDGB	\$13.32	full			Chinle	Yes	78	Low		12	2017	
N8080	N8080(1)2.3	Wheatfields around the Lake	ABCD	5.80	9.33	GDG	\$7.54	full			Chinle	Yes	29	Low		15	2017	
N6485	N6485(2)2.4	Kayenta to US 160	ABCDU	4.20	6.76	GDG	\$6.90	full			Western	Yes	3106	Low	N/A	28	2012	
N20	N20(1)-1.2&4	Copper Mine/LeChee to Page Rehab	BCD	13.60	21.89	RC	\$6.41	full			Western	Yes	225	High	50	35	2014	
N591	N591(1)2.3	Kayenta to N59	ABCD	8.50	13.68	GD	\$11.05	full			Western	Yes	258	Low	N/A	30	2017	
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full			Region	Yes	N/A	High	N/A			
Area Wide	204(b) Transit *	Transit Facility Project under PL93-638	TS	0.00	0.00	S	\$0.00	full			Area	Yes	N/A	N/A	N/A		2006	
	Chip Sealing	Various	D	0.00	0.00	S	\$0.00	full										
	NRDOT Planning, Survey, Design	Various																
BIA Direct Service	NEPA, ROW	N/E Contracts & In-house for all projects		Various			\$1.20											
BIA Direct Service	Non-project Related Transportation Planning	Non Project Inherent Federal Function	N/A	N/A			\$0.50											
BIA Direct Service	NRDOT Construction	Modifications & balances due on Previous Funded Projects for on-going construction		Various			\$0.00											
BIA Direct Service	NHA Housing Access	Design & construction Access Roads		Various			\$0.00											
BIA Direct Service	NRDOT Construction Monitoring	All Projects in construction, QA		Various			\$3.00											
P.L. 93-638	NN Right-of-Way	Consents and ROW Document Processing		Various			\$0.14											
P.L. 93-638	NN Archeology HPD	Administration under 638		Various			\$0.78											
P.L. 93-638	NN Archeology	Task Orders		Various			\$0.62											
							Total Estimated Amount	\$61.21										
							Projected Funding Amount based on FY-2008 Funding	61.00		\$0.00								
							Balance											

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- TS Transit Project
- U Utility Relocation Needed
- W Within Existing ROW
- Y Major ROW, Utility, Archeological, etc., Problem
- Q Archeological Clearance is Questionable
- (C) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed

- GD Grade and Drain Construction
- GDG Grade, Drain, and Gravel Construction
- GDS Grade, Drain, and Surfacing (Pavement) Construction
- RC Reconstruction
- R Pavement Rehabilitation
- CS Chip Sealing
- GDGB Grade, Drain, Surfacing (Pavement), & Bridge Construction
- PR Pavement Resurfacing
- BR Bridge Reconstruction
- * Proposed Public Law 93-638 Project
- ** Proposed Force Account Project
- CY Project Carry Over from Prior Year TTIP
- § Buy-Indian Project
- ¶ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other sources
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

NDOT Ranking:
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost (Million \$)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sct for Const	
N9010	N9010.212.4	Pine Springs to SR264	ABGD	9.20	14.81	GD5	\$17.65	full	Fort Def	Yes	131	Low		18	2010	
N28	N28.I12.3	Oak Springs to Grasswood	ABGD	22.53	36.28	GD5	\$9.02	full	Fort Def	Yes	266	Low		14	2013	
N714	N714.I12.83	Lidibow Road, NMF711 to Becont	ABGD	5.30	8.53	GD5	\$6.89	full	Eastern County	Yes	96	Low		10	2013	
N106.R7750	N106.I12.3	NM571 to Lake Valley, NHA, Housing North	ABGD	6.20	9.98	GD	\$2.40	full	Eastern County	Yes	209	Low		14	2011	
N7059	N7059.I12.3	NM571 to Lake Valley, NHA, Housing Acc South	ABGD	6.00	9.66	GD	\$2.23	full	Eastern County	Yes	62	Low		16	2010	
N8089	N8089.I12.3	N8077 toward Pnl Mereto Canyon	ABGD	9.50	15.29	GD5	\$7.78	full	Chilibe	Yes	31	Low		11	2017	
N6440	N6440.212.3	Helanahob Road	ABGD	8.00	12.87	GD5	\$6.55	full	Western Region	Yes	500	Low		10	2011	
Area Wide	Maintenace Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High		10	2006	
	214(D) Transit	Transit Facility Project under PI-94638	TS	N/A	N/A	TS	\$0.00	full	Area	Yes	N/A	N/A				
	Chap Sealing	Various	D	0.00	0.00	CS	\$1.88	full								
BIA Direct Service	NRPOT Planning Survey; Design, NEPA, ROW	N/A	Various				\$1.50									
BIA Direct Service	NRPOT Planning Survey; Design, NEPA, ROW	N/A	Various				\$1.50									
BIA Direct Service	Non-Project Related Transportation Planning	N/A	Various				\$0.50									
BIA Direct Service	NRPOT Construction	Modifications & balance site on previous funded projects for ongoing construction	Various				\$1.50									
BIA Direct Service	NHA Housing Access	Design & construction Access Roads	Various				\$9.00									
BIA Direct Service	NRPOT Construction Monitoring	All Projects in construction QA	Various				\$3.00									
P.L. 94-638	NN Right-of-Way	Consents and ROW Document Processing	Various				\$0.14									
P.L. 94-638	NN Archeology HPP	Administration under 638	Various				\$0.78									
P.L. 94-638	NN Archeology	Task Orders	Various				\$1.50									
Total Estimated Amount							\$61.21									
Projected Funding Amount based on FY-2008 Funding							61.00									
Balance							-\$0.21									

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- TS Transit Project
- T Utility Redaction Needed
- W Within Existing ROW
- Y Major ROW, Utility, Archeological, etc., Problem
- Q Archeological Clearance is Questionable
- (?) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed

NDOT Ranking:

- N/A Not Applicable Project is on ARC List
- N/A Not Applicable Project is not on ARC List

- GD Grade and Drain Construction
- GD5 Grade, Drain, and Gravel Construction
- GD5 Grade, Drain, and Surfacing (Pavement) Construction
- RC Reconstruction
- R Pavement Rehabilitation
- CS Chip Sealing
- GD5B Grade, Drain, Surfacing (Pavement), & Bridge Construction
- PR Pavement Resurfacing
- BR Bridge Reconstruction
- * Proposed Public Law 94-638 Project
- ** Proposed Force Account Project
- CV Project Carry Over from Prior Year TTIP
- § Buy-Indian Project
- § Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other sources
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost Million(\$)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const
NR0063	N8063(1)1,2,3	Little Rough Rock N12 to N13	ABCD	7.10	11.43	GDS	\$6.31	Full	Chinle	Yes	87	Low		12	2017
NS47	NS47(1)1,2,3	Farm Lane Road	ABCDU	1.80	2.90	GDG	\$0.70	Full	Northern	Yes	63	Low		19	2013
NS49	NS49(1)2,3	Farm Lane Road	ABCDU	1.90	3.06	GDG	\$0.74	Full	Northern	Yes	66	Low		13	2013
NS50	NS50(1)2,3	Farm Lane Road	ABCDU	1.90	3.06	GDG	\$0.74	Full	Northern	Yes	68	Low		15	2013
NS64	NS64(3-2)4	Farm Mesa Road Chip Seal	BDW	7.10	11.43	CS	\$3.44	Full	Northern	Yes	840	Low		23	2017
N481/N7119	N481(1)/N7119(1)2&3	Littlewater Chapter Access	BCDQ	3.50	5.63	GDG	\$1.37	Full	Eastern	NDOT	243	Low		18/22	2013
NS8	N58(1)2	N57 northeast to CR334	ABCD	9.70	15.61	GD	\$2.27	Full	Eastern	Yes	54	Low		6	2014
N100	N100(1)12&4	Window Rock Streets	CDUW	3.00	4.83	GDS	\$6.09	Full	Fort Def	Yes	8000	High		39	2013
N101	N101(7-2)4	Tuba City Main Ext to N608, Birch & Fir	BDW	1.50	2.41	R	\$3.05	Full	Western	Yes	8265	Low	N/A	23	2014
N16	N16(8)2&3	US160 to SR898	ABCDU	7.00	11.27	GDG	\$5.73	Full	Western	Yes	370	Low		20	2009
N4000	N4000 BR. II & III	NHP rehab	BD	15.00	9.66	R	\$22.50	Full	NHP	Yes	N/A	Low			2007
Various Area Wide	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	Full	Region	Yes	N/A	High		N/A	2006
	Chip Sealing	Transit Facility Project under PI-93-638	IS				\$0.00	Full	Area		N/A	N/A			
	NRDOT Planning, Survey, Design, NEPA, ROW	Transit Facility Project under PI-93-638	ID	0.00	0.00	CS	\$0.00	Full							
BIA Direct Service	Non-Project Related	A/E Contracts & in-house for all projects	N/A	Various			\$1.20								
BIA Direct Service	Non-Project Related	Non Project Inherent Federal Function	N/A	N/A			\$0.50								
BIA Direct Service	NRDOT Construction	Modifications & balances due on Previous Funded Projects for on-going construction		Various			\$1.30								
BIA Direct Service	NHA Housing Access	Design & construction Access Roads		Various			\$0.00								
BIA Direct Service	NRDOT Construction Monitoring	All Projects in construction, QA		Various			\$3.00								
P.L. 93-638	NN Right-of-Way	Consents and ROW Document Processing		Various			\$0.14								
P.L. 93-638	NN Archeology HPD	Administration under 638		Various			\$0.78								
P.L. 93-638	NN Archeology	Task Orders		Various			\$1.14								
							Total Estimated Amount	\$61.01							
							Projected Funding Amount based on FY-2008 Funding	61.00							
							Balance	-\$0.01							

Legend and Comments

- A ROW Needed
 - B Environmental Assessment Needed
 - C Archeological Clearance Needed
 - D Surveying Data Needed
 - E Construction Easement Needed
 - F Design Completed
 - G Design Plans Revision Needed
 - H Design in Progress
 - I Under Construction
 - J Eligibility to be determined
 - K Pending Request for Proposal
 - TS Transit Project
 - U Utility Relocation Needed
 - W Within Existing ROW
 - Y Major ROW, Utility, Archeological, etc., Problem
 - Q Archeological Clearance is Questionable
 - (1) Partially Funded
 - ++ Critical Pavement Rehabilitation Work Needed
-
- GD Grade and Drain Construction
 - GDG Grade, Drain, and Gravel Construction
 - GDS Grade, Drain, and Surfacing (Pavement) Construction
 - RC Reconstruction
 - R Pavement Rehabilitation
 - CS Chip Sealing
 - GDSR Grade, Drain, Surfacing (Pavement), & Bridge Construction
 - PR Pavement Resurfacing
 - BR Bridge Reconstruction
 - Proposed Public Law 93-638 Project
 - § Buy-Indian Project
 - CY Project Carry Over from Prior Year TTIP
 - ‡ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
 - (1) Excluding Funds from other sources
 - (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
 - SS Transportation Planning for Inventory Updates and other approved by TCDC
 - M Road Maintenance Project
-
- NDOT Ranking:**
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List
 Project is already listed on prior year

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost (Million)	IRR Funding	IRRRP Funding	PLHD Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sp'd for Const										
N8062	N8062/12.3	N8031 to Back Spot	ARC/D	11.00	17.70	GDG	\$9.01	full			Chino	Yes	134	Low		12	2017										
N5064	N5064/11.2,3	N12 to Montezuma Creek	ARC/D	17.60	28.32	GD/S	\$11.85	full			Northern	Yes	107	Low		18	2009										
N112	N112/3,11,2,4	N7 to Navajo N12	ARC/D	7.30	11.75	GD/S	\$12.50	full			Fl. Def.	Yes	2458	Low		21	2011										
N125	N125/12	Swordill to Fort Delance	ARC/D	4.30	7.24	GD	\$5.85	full			Fort Def	Yes	574	Moderate		26	2013										
N9652	N9652/2,2	US91 to Whiteoak	ARC/D	10	16.09	GD	\$12.00	full			Fort Def	Yes	15	Low		20	2014										
N3005	N3005/1,4	BLR 285 to BLR 3 Chhp Sealing	BDW	13.92	22.40	CS	\$1.39	full			NHP	Yes	N/A	Low		20	2017										
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full			Region	Yes	N/A	High		N/A	2017										
Aves Wide	204(b) Transfer	Transit Facility Project under P1.93-638	TS	0.00	0.00	CS	\$0.00	full			Aves	Yes	N/A	N/A		N/A	2006										
BIA Direct Service	CHHP Sealing	Various	D	0.00	0.00	CS	\$0.00	full																			
BIA Direct Service	NRRDOT Planning, Survey, Design, NEPA, ROW	ME Contracts & In-hous for all projects	N/A	Various			\$1.20																				
BIA Direct Service	Nonproject Related Transportation Planning	Non Project Inherent Federal Functions	N/A	N/A			\$0.50																				
BIA Direct Service	NRRDOT Construction	Modifications & balances due on Previous Funded Projects for ongoing construction		Various			\$1.00																				
BIA Direct Service	NHTA Homeless Assistance	Homeless Assistance Projects		Various			\$3.00																				
BIA Direct Service	NRRDOT Construction Monitoring	ME Contracts to monitor construction		Various			\$3.00																				
P.L. 93-638	NN/Redevelop Way	ME Contracts to monitor construction		Various			\$0.12																				
P.L. 93-638	NN/Archdiology	Consent and ROW Document Processing		Various			\$0.78																				
P.L. 93-638	NN/Archdiology	Administration number 638		Various			\$1.00																				
		Task Orders		Various			\$0.21																				
Total Estimated Amount																											
Projected Funding Amount based on FY-2008 Funding																											
Balance																											
Balance																											

Legend and Comments

A ROW Needed
 B Environmental Assessment Needed
 C Archeological Clearance Needed
 D Surveying Data Needed
 E Construction Easement Needed
 F Design Completed
 G Design Plans Revision Needed
 H Design In Progress
 I Under Construction
 J Eligibility to be determined
 K Funding Request for Proposal
 TS Transit Project
 U Utility Relocation Needed
 W Within Existing ROW
 Y Major ROW, Utility, Archeological, etc. Problem
 Q Archeological Clearance is Questionable
 () Partially Funded
 ++ Critical Pavement Rehabilitation Work Needed

GD Grade and Drain Construction
 GDG Grade, Drain and Gravel Construction
 GDS Grade, Drain and Surfacing (Pavement) Construction
 RC Reconstruction
 R Pavement Rehabilitation
 CS Chhp Sealing
 GDSR Grade, Drain, Surfacing (Pavement), & Bridge Construction
 PR Pavement Reconstruction
 BR Bridge Reconstruction
 * Proposed Public Law 93-638 Project
 ** Proposed Force Account Project
 CV Project Carry Over from Prior Year TTIP
 \$ Buy-Indian Project
 E Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
 (1) Excluding Funds from other sources
 (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
 \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
 M Road Maintenance Project

NDOT Ranking:
 N/A Not Applicable. Project is on ARC/Lst
 N/A Not Applicable. Project is not on ARC/Lst

Navajo Nation Tribal Transportation Improvement Program (TTIP)
 Fiscal Year 2036 Final Update
 Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A
 8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost (Million)	IRR Funding	Agency	Project In Inventory	ADT Current	Safety Need	Pavement Rating	INDOT Ranking	First Yr Sch for Const
N151	N151(1)2	US91 to Corridors		10.10	16.25	GD	\$12.12	full	Fl. Def	Yes	363	Low		26	2017
N136	N136(1)2&4	St. Isabel Mission Rd w/ N009	ARCD	2.90	2.90	GD/SB	\$5.22	full	Chible	Yes	211	Low		12	2017
N704	N704(1)2&4	D-21-Na-O-2H-Hble School Access	ARCDU	0.50	0.80	GD/S	\$0.75	full	Eastern	Yes	2366	Low		24	2013
N36	N36(S)-14	US491 to Chaco Wash	BDW	7.40	11.91	R	\$3.77	full	Northern	Yes	1468	Low		29	2017
N348	N348(1)2,3	Farm Lane Road	ARCDU	2.20	3.54	GDG	\$2.64	full	Northern	Yes	85	Low		13	2013
N4000	N4077/N4080/N4081/N4103/ N4109/S4011(1)1,2,4	NTP BR 2&3 Rehabilitation Region wide safety projects	BDW BD	18.56	29.87	RC	\$27.84	full	NTP		N/A	Low			2012
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High			
Area Wide	2048(1) Transit	Transit Facility Project under P1393-638	TS	N/A	N/A		\$0.00	full	Area		N/A	N/A			2006
BIA Direct Service	NRDOT Planning, Survey, Design, NEPA, RW	A/R Contracts & In-house for all projects Non Project Inherent Federal Function	N/A	Various	N/A		\$12.20								
BIA Direct Service	NRDOT Construction	Modifications & Balances due on Previous Funded Projects for on-going construction		Various			\$2.00								
BIA Direct Service	NHA Housing Access	Design & construction Access Roads		Various			\$0.00								
BIA Direct Service	NRDOT Construction Monitoring	All Projects in construction, QA		Various			\$3.00								
P.L. 93-638	NN Right-of-Way	Consents and ROW Document Processing		Various			\$0.14								
P.L. 93-638	NN Archeology	Administration under 638		Various			\$0.78								
P.L. 93-638	NN Archeology	Task Orders		Various			\$1.25								
Total Estimated Amount														\$61.21	
Projected Funding Amount based on FY-2008 Funding														\$41.00	
Balance														\$20.21	

Legend and Comments

A ROW Needed
 B Environmental Assessment Needed
 C Archeological Clearance Needed
 D Surveying Data Needed
 E Construction Easement Needed
 F Design Completed
 G Design Plans Revision Needed
 H Design in Progress
 I Under Construction
 J Eligibility to be determined
 K Pending Request for Proposal
 L Transit Project
 M Utility Relocation Needed
 N Within Existing ROW
 O Major ROW, Utility, Archeological, etc., Problem
 P Archeological Clearance is Questionable
 Q Partially Funded
 R Critical Pavement Rehabilitation Work Needed

GD Grade and Drain Construction
 GDS Grade, Drain, and Gravel Construction
 GDS Grade, Drain, and Surfacing (Pavement) Construction
 RC Reconstruction
 R Pavement Rehabilitation
 CS Chip Sealing
 GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
 BR Pavement Resurfacing
 BR Bridge Reconstruction
 * Proposed Public Law 93-638 Project
 ** Proposed Force Account Project
 CV Project Carry Over from Prior Year TTIP
 § Buy-Jordan Project
 § Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
 (1) Excluding Funds from other sources
 (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
 \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
 M Road Maintenance Project

INDOT Ranking:
 N/A Not Applicable, Project is on ARCLIST
 N/A Not Applicable, Project is not on ARCLIST

Navajo Nation Tribal Transportation Improvement Program (TTIP)
 Fiscal Year 2038 Final Update
 Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A
 8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost (Million)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const
N36	N36/B-1/7B-14	Chaco Wash to Nembuzead	BDW	8.40	13.52	R	\$4.28	full	Northern	Yes	1468	Low		28	2017
N36	N41/2&4	Chile Agay Lane to US160	ABCDW	10.00	16.09	GDS	\$16.44	full	Western	tribe	298	Low		32	2011
N8086	N8086/1,2,3	Many Farms to Chile	ABCD	8.80	14.16	GDS	\$10.56	full	Chile	Yes	257	Low		14	2024
N28	N28/21,2,4	US191 East to N9010	ABCDU	6.15	9.96	GDBS	\$10.71	full	Fort Def	Yes	92	Low	<50	14	2017
N9205	N9205/1,2	US191 to Sunrise	ABCD	14.70	23.66	GPD	\$11.03	full	Et. Def	Yes	161	Low		19	2017
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	NI	\$0.00	full	Region	Yes	N/A	High	N/A		2006
Area Wide	2040) Transit	Transit Facility Project under P1-93-638	BD	N/A	N/A	NI	\$0.00								
	Chip Sealing	Various	D												
BIA Direct Service	Design, NEPA, ROW	A/E Contracts & In-house for all projects		Various			\$1.20								
BIA Direct Service	Transportation Planning	Non-project Related		N/A			\$0.50								
BIA Direct Service	Transportation Planning	Modifications & balances due on Previous Funded		Various			\$1.07								
BIA Direct Service	NHDOT Construction	Projects for on-going construction		Various			\$0.00								
BIA Direct Service	NHA Housing Access	Design & construction Access Roads		Various			\$3.00								
BIA Direct Service	NHDOT Construction	Monitoring		Various			\$0.14								
P.L. 93-638	NN Right-of-Way	Consents and ROW Document Processing		Various			\$0.78								
P.L. 93-638	NN Archeology	Administration under 638		Various			\$1.50								
P.L. 93-638	NN Archeology	Task Orders		Various			\$61.21								
Total Estimated Amount															\$61.21
Projected Funding Amount based on FY-2008 Funding															61.00
Balance															-\$0.21

Peabody Owned Coal Lease Area

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design In Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- T Transit Project
- U Utility Relocation Needed
- W Within Existing ROW
- X Major ROW, Utility, Archeological, etc., Problem
- Q Archeological Clearance is Questionable
- (1) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed

- GD Grade and Drain Construction
- GDG Grade, Drain, and Gravel Construction
- GDS Grade, Drain, and Surfacing (Pavement) Construction
- RC Reconstruction
- R Pavement Rehabilitation
- CS Chip Sealing
- GDSB Grade, Drain, Surfacing (Pavement), & Bridge Constructor
- PR Pavement Resturfacing
- BR Bridge Reconstruction
- * Proposed Public Law 93-638 Project
- ** Proposed Force Account Project
- CY Project Carry Over from Prior Year TTIP
- \$ Bay-Indian Project
- & Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other source
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

NDOT Ranking:
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List

Navajo Nation Tribal Transportation Improvement Program (TTIP)
 Fiscal Year 2039 Final Update
 Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A
8/14/2009

Fiscal Year 2039

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost Million(\$)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const
N7049	N7049/212.3	UN Mine North to Standing Rock	ABCD	14.00	22.53	GD	\$5.47	full	Eastern	No	227?	Low	NA		2017
CRT	N8086	Defiance to Wildcat	ABCD	11.00	17.70	S	\$5.23	full	Eastern	County	747	Low		No Data	2013
N28	N28/312.4	Many Farms to Chinle	ABCD	8.80	14.16	GDS	\$10.56	full	Chinle	Yes	257	Low	<50	14	2024
N60	N60/1-12&4	N12 West to N9010	ABCDU	9.45	15.21	GDS	\$15.54	full	Fort Def	Yes	139	Low		16	2017
N571	N571/12&3	Dillon to Tesoto & Seba-Palkal	CBD	5.6	9.01	GDS	\$9.21	full	Fort Def	Yes	529	Low		No Data	2014
N332	N332/12&3	US64 to Rattlesnake	ABCD	3.50	5.63	GDS	\$2.87	full	Northern	Yes	420	Low	NA	18	2017
		N33 to Blackhorse Wash	ABCD	5.30	8.53	GDS	\$4.34	full	Northern	Yes	48	Low	NA	18	2017
		Black Mesa Chip Seal	ABCD	12.90	20.76	CS	\$1.29	full	Western	Tribe	NA	Low	60	32	2022
Various		Region wide safety projects	BD	N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High	N/A		2006
Area Wide	204(b) Transit	Transit Facility Project under PL93-638	TS				\$0.00								
		Chip Sealing	D												
		NRDOT Planning, Survey, Design, NEPA, R/W					\$1.20								
BIA Direct Service		A/E Contracts & In-house for all projects		Various											
BIA Direct Service		Non-project Related	N/A	N/A			\$0.50								
BIA Direct Service		Transportation Planning													
BIA Direct Service		Modifications & balances due on Previous Funded Projects for on-going construction		Various			\$0.00								
BIA Direct Service		Design & construction Access Roads		Various			\$0.00								
BIA Direct Service		NRDOT Construction		Various			\$3.00								
BIA Direct Service		NHA Housing Access		Various			\$0.14								
P.L. 93-638		All Projects in construction, QA Consents and ROW Document Processing		Various			\$0.78								
P.L. 93-638		NN Right-of-Way		Various			\$1.10								
P.L. 93-638		NN Archeology HPD		Various											
P.L. 93-638		NN Archeology		Various											
		Task Orders													
		Total Estimated Amount					\$61.22								
		Projected Funding Amount based on FY-2008 Funding Balance					61.00								
							-\$0.22								

Peabody Owned Coal Lease Area

Legend and Comment:

- A ROW Needed
 - B Environmental Assessment Needed
 - C Archeological Clearance Needed
 - D Surveying Data Needed
 - E Construction Easement Needed
 - F Design Completed
 - G Design Plans Revision Needed
 - H Design in Progress
 - I Under Construction
 - J Eligibility to be determined
 - K Pending Request for Proposal
 - TS Transit Project
 - U Utility Relocation Needed
 - W Within Existing ROW
 - Y Major ROW, Utility, Archeological, etc., Problem
 - Q Archeological Clearance is Questionable
 - (?) Partially Funded
 - ++ Critical Pavement Rehabilitation Work Needed
- NDOT Ranking:
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List
- GD Grade and Drain Construction
 GDG Grade, Drain, and Gravel Construction
 GDS Grade, Drain, and Surfacing (Pavement) Construction
 RC Reconstruction
 R Pavement Rehabilitation
 CS Chip Sealing
 GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
 PR Pavement Resurfacing
 BR Bridge Reconstruction
 * Proposed Public Law 93-638 Project
 ** Proposed Force Account Project
 CY Project Carry Over from Prior Year TTIP
 § Buy-Indian Project
 £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
 (1) Excluding Funds from other sources
 (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
 \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
 M Road Maintenance Project

Navajo Nation Tribal Transportation Improvement Program (TTIP)
 Fiscal Year 2040 Final Update
 Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A
 8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost Million(I)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sct for Const	
N54	N54(1)-14	US491 to Shosone		9.20	14.81	RC	\$3.68	fall	Northern	Yes	925	Low	60	35	2017	
N57	N57(2)-84	US64 to Gadsden NM Access		7.20	11.59	ARC/DU	\$10.80	fall	Northern	Yes	412	Low		22	2017	
N56	N56(1)-2-92&4	Canoncito Access Widening		7.81	12.57	BDW	\$11.72	fall	Eastern	Yes	1512	Moderate	68	38	2017	
N60	N60(1)-2/2&4	Dillon to Teesto & Seba-Dahkal		5.6	9.01	GDS	\$9.21	fall	Fort Def	Yes	529	Low		No Data	2014	
N29	N29(3)-2,3	Trache Loop Road - Blue Cap		24.00	2.90	GDS	\$19.66	fall	Chinle	Yes	105	Low		14	2017	
Various	Maintenance Projects	Region wide safety projects		N/A	N/A	BD	\$0.00	fall	Region	Yes	N/A	High	N/A		2006	
Area Wide	2040(1) Transit	Transit Facility Project under PI 93-638				TS	\$0.00	fall	Region	Yes						
	Chip Sealing	Various				D	\$0.00	fall	Region							
BIA Direct Service	NRDOT Planning, Surveys, Design, NEPA, ROW	A/E Contracts & In-house for all projects		Various			\$1.23									
BIA Direct Service	Non-project Related Transportation Planning	Non Project Inherent Federal Function		N/A			\$0.50									
BIA Direct Service	NRDOT Construction	Modifications & balances due on Previous Funded Projects for on-going construction		Various			\$0.00									
BIA Direct Service	NHA Housing Access	Design & construction Access Roads		Various			\$0.00									
BIA Direct Service	NRDOT Construction	All Project's in construction		Various			\$3.00									
PL 93-638	NN Right-of-Way	Consents and ROW Document Processing		Various			\$0.14									
PL 93-638	NN Archeology HRPD	Administration under 638		Various			\$0.78									
PL 93-638	NN Archeology	Task Orders		Various			\$0.50									
Total Estimated Amount							\$64.21									
Projected Funding Amount based on FY-2008 Funding							61.00									
Balance							-\$0.21									

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- TS Transit Project
- U Utility Relocation Needed
- W Within Existing ROW
- Y Major ROW, Utility, Archeological, etc.- Problem
- Q Archeological Clearance is Questionable
- (1) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed

- GD Grade and Drain Construction
- GDG Grade, Drain, and Gravel Construction
- GDS Grade, Drain, and Surfacing (Pavement) Construction
- RC Reconstruction
- R Pavement Rehabilitation
- CS Chip Sealing
- GDBS Grade, Drain, Surfacing (Pavement), & Bridge Construction
- PR Pavement Resurfacing
- BR Bridge Reconstruction
- * Proposed Public Law 93-638 Project
- ** Proposed Force Account Project
- CY Project Carry Over from Prior Year TTIP
- § Bar-Indian Project
- £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other source
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

NDOT Ranking:
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List

Navajo Nation Tribal Transportation Improvement Program (TTIP)
 Fiscal Year 2042 Final Update
 Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Cost Type	Est. Cost (Million)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const
N262	N262/112.3	Chinle Wash Bridge	AB/CD	0.10	0.16	GD/GB	\$0.78	full	Northern	No	435	Low		N/A	2024
N5060	N5060/12.3	US160 to UT State Line	AB/CD	5.00	8.05	GD/G	\$4.10	full	Northern	Yes	58	Low		14	2024
CR49	CR49/12.3	US60 county north loop Pinalde	AB/CD	4.50	7.24	GD	\$1.76	partial	Eastern	No	?	Low	N/A	14	2026
N7071	N7071/12.3	N56 south to Desidero Complex Center	AB/CD	0.70	1.13	GD	\$0.27	full	Eastern	Yes	49	Low	N/A	28	2026
N8085	N8085/12.3	N27 to N7 Nazhni	AB/CD	4.90	7.89	GD	\$4.01	full	Chinle	Yes	50	Low	<50	12	2024
N8059	N8059/12&3	Low Mountain School Road	AB/CD	20.10	32.35	GD/S	\$16.46	full	Fort Def/Chinle	Yes	58	Moderate	N/A	14	2015
N28	N28/12.4	N12 West to 09010	AB/CD	16.09	16.09	GD/S	\$11.56	full	Fort Def	Yes	139	Low		14	2017
N9901	N9901/12	Seba Dalhai West	AB/CD	10.30	16.58	GD	\$11.56	full	Fl. Def	Yes	119	Low			2017
Area Wide	2044b) Transit	Region wide safety projects	TS	N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High			2006
		Chinle Sealing	TS												
		NRDOT Planning Surveys	TS												
		Design, NEPA, ROW	TS												
BIA Direct Service		AE Contracts & In-home for all projects		Various			\$1.10								
BIA Direct Service		Non-project Related Transportation Planning		N/A			\$0.50								
BIA Direct Service		Non Project Inherent Federal Function Modifications & balance due on Previous Funded Projects for ongoing construction		Various			\$0.00								
BIA Direct Service		NHA Trailing Access Design & construction Access Roads		Various			\$0.00								
BIA Direct Service		NRDOT Construction Monitoring		Various			\$3.00								
P.L. 93-638	NN Right-of-Way	All Projects in construction, QA		Various			\$0.14								
P.L. 93-638	NN Archiblog HPD	Consents and ROW Document Processing		Various			\$0.78								
P.L. 93-638	NN Archiblog	Task Orders		Various			\$0.50								
Total Estimated Amount														\$61.21	
Projected Funding Amount based on FY-2008 Funding														61.00	
Balance														-\$0.21	

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- T Transit Project
- U Utility Relocation Needed
- W Within Existing ROW
- Y Major ROW, Utility, Archeological, etc., Problem
- Q Archeological Clearance is Questionable
- (1) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed

- GD Grade and Drain Construction
- GDG Grade, Drain and Gravel Construction
- GDS Grade, Drain and Surfacing (Pavement) Construction
- RC Reconstruction
- R Pavement Rehabilitation
- CS Chip Sealing
- GHSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
- BR Bridge Reconstruction
- PR Pavement Resurfacing
- ** Proposed Public Law 93-638 Project
- * Proposed Force Account Project
- CY Project Carry Over from Prior Year TTIP
- § Buy-Indian Project
- § Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other sources
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- §\$ Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

NDOT Ranking:

- N/A Non Applicable; Project is on ARC List
- N/A Non Applicable; Project is not on ARC List

8/14/2009

Navajo Nation Tribal Transportation Improvement Program (TTIP)
Fiscal Year 2043 Final Update
Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A
8/14/2009

Fiscal Year 2043

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost Million(\$)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const	
N5016	N5016/12.3	US491 to N5012	ABCDU	8.60	13.84	GDG	\$10.32	full	Northern	Yes	349	Low			2024	
N5002	N5002/12&3	US491 to N5001 Two Grey Hills	ABCDU	6.70	10.78	GDS	\$8.04	full	Northern	Yes	133	Low			2024	
N7113	N7113/12.3	Peshlakai Road- Mariano Lake	ABCD	8.50	13.68	GD	\$10.20	full	Eastern	Yes	82	Low	N/A	12	2026	
N52	N52/23.3/N98/12.3	Dallton Pass NHA Housing Access	ABCD	4.4/4	13.52	GDG	\$4.03	full	Eastern	Yes	140	Low	140	4	2024	
N15	N15-3-12&4	Snurise to Grasswood	BCD	9.40	15.13	GDS	\$15.45	full	Fort Def	Yes	1486	Moderate	<60	No Data	2011	
N9103	N9103/12	SR264 Jeddito NW	ABCD	3.10	4.99	GD	\$3.72	full	Fl Def	Yes	39	Low		11	2017	
N3003	N3003/12/3/4/5/6/4	Chip Sealing	BDW	24.44	39.33	CS	\$2.93	full	NHP	Yes	N/A	Low			2017	
Various	Maintenance Projects	Region wide safety projects	BD			M	\$0.00	full	Region	Yes	N/A	High			2006	
Area Wide	204(D) Transit	Transit Facility Project under PI 93-638	TS				\$0.00									
		Chip Sealing	D													
BIA Direct Service		NRDOT Planning, Survey, Design, NEPA, ROW														
BIA Direct Service		Non-project Transportation														
BIA Direct Service		Planning		Various			\$1.10									
BIA Direct Service		Non-project Inherent Federal Function														
BIA Direct Service		Modifications & balances due on Previous Funded	N/A				\$0.50									
BIA Direct Service		Projects for on-going construction														
BIA Direct Service		NHA Housing Access		Various			\$0.50									
BIA Direct Service		Design & construction Access Roads		Various			\$0.00									
P.L. 93-638		NRDOT Construction Monitoring		Various			\$3.00									
P.L. 93-638		All Projects in construction, OA		Various			\$0.14									
P.L. 93-638		Consents and ROW Document Processing		Various			\$0.78									
P.L. 93-638		Administration under 638		Various			\$0.50									
P.L. 93-638		Task Orders		Various			\$61.22									
							Total Estimated Amount									
							Projected Funding Amount based on FY-2008 Funding									
							Balance									

Legend and Comments

- A ROW Needed
 - B Environmental Assessment Needed
 - C Archeological Clearance Needed
 - D Surveying Data Needed
 - E Construction Easement Needed
 - F Design Completed
 - G Design Plans- Revision Needed
 - H Design in Progress
 - I Under Construction
 - J Eligibility to be determined
 - K Pending Request for Proposal
 - TS Transit Project
 - U Utility Relocation Needed
 - W Within Existing ROW
 - Y Major ROW, Utility, Archeological, etc., Problem
 - Q Archeological Clearance is Questionable
 - (!) Partially Funded
 - ++ Critical Pavement Rehabilitation Work Needed
- GD Grade and Drain Construction
 GDG Grade, Drain, and Gravel Construction
 GDS Grade, Drain, and Surfacing (Pavement) Construction
 RC Reconstruction
 R Pavement Rehabilitation
 CS Chip Sealing
 GDSR Grade, Drain, Surfacing (Pavement), & Bridge Construction
 PR Pavement Resurfacing
 BR Bridge Reconstruction
 ** Proposed Public Law 93-638 Project
 * Project Carry Over from Prior Year TTIP
 § Buy-Indian Project
 £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
 (1) Excluding Funds from other sources
 (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
 \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
 M Road Maintenance Project
- NDOT Ranking:
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List

Navajo Nation Tribal Transportation Improvement Program (TTIP)
Fiscal Year 2045 Final Update
Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A
8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost Million(1)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const
N82	N52(2)2.3/N98(1)2.3	Dalton Pass NHA Housing Access	ARCDD	4.4/4	13.52	G/DG	\$4.03	full	Eastern	Yes	140	Low	140	4	2024
N82	N482(1)2.3	Litkwater to CR 19	ARCDD	7.50	12.07	G/DG	\$3.60	full	Eastern	Yes	72	Low	14	14	2024
N85	N485(1)2.4	Casamero Lake to N48	ARCDD	8.20	13.20	G/DG	\$4.31	full	Eastern	Yes	206	Low	18	18	2024
N4134/N4145/N4162	N4134/N4145/N4162(1)2&4	NHP Block 9	ARCDDQ	7.79	12.54	G/DG	\$0.00	full	NHP	No	0	Low	N/A	N/A	2003
N4000	N4049/N4126/N4131	NHP Block 10 Phase I	ARCDDQ	11.49	18.49	G/DG	\$0.00	full	NHP	No	0	Low	N/A	N/A	2005
N4000	NHP Block X	NHP Block 10 Phase II	ARCDD	10.00	16.09	G/DG	\$0.00	full	NHP	No	0	Low	N/A	N/A	2006
N4000	NHP Block X	NHP Block 10 Phase III	ARCDD	10.00	16.09	G/DG	\$0.00	full	NHP	No	0	Low	N/A	N/A	2008
N4000	N4000 Series	BK XI Phase II	ARCDD	9.00	14.48	G/D	\$0.00	full	NHP	No	0	Low	N/A	N/A	2009
N4000	N4000 Series	BK XI Phase I	ARCDD	9.00	14.48	G/D	\$0.00	full	NHP	No	0	Low	N/A	N/A	2017
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High	N/A	N/A	2006
Area Wide	204(b) Transit	Transit Facility Project under PI 93-638	TS				\$0.00								
		Chip Sealing	D												
		NRDOT Planning, Survey, Design, NEPA, R/W					\$1.20								
BIA Direct Service		Non-project Transportation Planning		Various			\$0.50								
BIA Direct Service		Non Project Inherent Federal Function Modifications & balance due on Previous	N/A	N/A			\$1.88								
BIA Direct Service		NDOT Construction		Various			\$0.00								
BIA Direct Service		NHA Housing Access		Various			\$3.00								
BIA Direct Service		NDOT Construction Monitorin:		Various			\$0.14								
P.L. 93-638		NN Right-of-Way		Various			\$0.78								
P.L. 93-638		NN Archeology HPD		Various			\$1.00								
P.L. 93-638		NN Archeology		Various			\$20.95								
				Total Estimated Amount			\$20.95								
				Projected Funding, Amount based on FY-2008 Funding			61.00								
				Balance			\$40.05								

Legend and Comments

- A ROW Needed
 - B Environmental Assessment Needed
 - C Archeological Clearance Needed
 - D Surveying Data Needed
 - E Construction Easement Needed
 - F Design Completed
 - G Design Plans Revision Needed
 - H Design in Progress
 - I Under Construction
 - J Eligibility to be determined
 - K Pending Request for Proposal
 - TS Transit Project
 - U Utility Relocation Needed
 - W Within Existing ROW
 - Y Major ROW, Utility, Archeological, etc., Problem
 - O Archeological Clearance is Questionable
 - (1) Partially Funded
 - ++ Critical Pavement Rehabilitation Work Needed
- NDOT Ranking:
N/A Not Applicable, Project is on ARC List
N/A Not Applicable, Project is not on ARC List
N/A Project is already listed on prior year
- GD Grade and Drain Construction
 G/DG Grade, Drain, and Gravel Construction
 GDS Grade, Drain, and Surfacing (Pavement) Construction
 RC Reconstruction
 R Pavement Rehabilitation
 CS Chip Sealing
 GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
 PR Pavement Resurfacing
 BR Bridge Reconstruction
 * Proposed Public Law 93-638 Project
 ** Proposed Force Account Project
 CY Project Carry Over from Prior Year TTIP
 § Buy-Indian Project
 £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
 (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
 \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
 M Road Maintenance Project

Navajo Nation Tribal Transportation Improvement Program (TTIP)
Fiscal Year 2046 Final Update
Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A
8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Cost Type	Est. Cost (Million \$)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch for Const	
N9055	N9055R112	SR264 East of Steamboat to Sunrise	ARCD	9.50	15.29	GD	\$11.40	full	Ft. Def	Yes	77	Low		12	2017	
N9155	N9155R112	Corralfield to N9205	ARCD	6.60	10.62	GD	\$7.92	full	Ft. Def	Yes	79	Low		7	2017	
N25	N25R12.3	SR264 north to Agency Line	ARCD	9.30	14.97	GD/G	\$7.62	full	Ft. Def	Yes	254	Low		16	2017	
N9860	N9860R12.3	Castle Hill to N6	ARCD	21.90	35.24	GD	\$17.94	full	Ft. Def	Yes	117	Low		8	2017	
N9005	N9005R12.3	Sunrise Loop Rd to N15	ARCD	10.40	16.74	GD	\$8.52	full	Ft. Def	Yes	74	Low		11	2017	
Various	Maintenance Projects	Region wide safety projects	BD				\$0.00	full	Region	Yes	N/A	High			2006	
Avea Wide	204(b) Transit	Transit Feasibility Project under PI.93-638	TS				\$0.00									
	Chip Sealing	Various	D				\$0.00									
BIA Direct Service	NBDOT Planning, Survey, Design, NEPA, ROW	A/E Contracts & In-house for all projects					\$1.40									
BIA Direct Service	Non-project Transportation Planning	Non Project Inherent Federal Function					\$0.50									
BIA Direct Service	NBDOT Construction	Modifications & balances due on Previous Funded Projects for on-going construction	N/A				\$1.00									
BIA Direct Service	NHA Housing Access	Design & construction Access Roads					\$0.00									
BIA Direct Service	NBDOT Construction Monitoring	All Projects in construction. Q ¹					\$3.00									
P.L. 93-638	NN Right-of-Way	Consents and ROW Document Processing					\$0.14									
P.L. 93-638	NN Archeology HPD	Administration under 68					\$0.78									
P.L. 93-638	NN Archeology	Task Order					\$1.00									
Total Estimated Amount							\$61.21									
Projected Funding Amount based on FY-2008 Funding Balance							\$61.00									
Balance							-\$0.21									

Legend and Comments

A ROW Need
 B Environmental Assessment Needed
 C Archeological Clearance Needed
 D Surveying Data Needed
 E Construction Easement Needed
 F Design Completed
 G Design Plans Revision Needed
 H Design in Progress
 I Under Construction
 J Eligibility to be determined
 K Pending Request for Proposal
 TS Transit Project
 U Utility Reduction Needed
 W Within Existing ROW
 X Major ROW, Utility, Archeological, etc.- Problem
 Q Archeological Clearance is Questionable
 (1) Partially Funded
 ++ Critical Pavement Rehabilitation Work Needed

GD Grade and Drain Construction
 GDG Grade, Drain, and Gravel Construction
 GDS Grade, Drain, and Surfacing (Pavement) Construction
 RC Reconstruction
 R Pavement Rehabilitation
 CS Chip Sealing
 GDSB Grade, Drain, Surfacing (Pavement), & Bridge Construction
 PG Pavement Resurfacing
 BR Bridge Reconstruction
 * Proposed Public Law 93-638 Project
 ** Proposed Force Account Project
 CY Project Carry Over from Prior Year TTIP
 \$ Buy-Station Project
 ‡ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
 (1) Excluding Funds from other sources
 (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
 \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
 M Road Maintenance Project

NDOT Ranking:
 N/A Not Applicable, Project is on ARC List
 N/A Not Applicable, Project is not on ARC List

Navajo Nation Tribal Transportation Improvement Program (TTIP)
Fiscal Year 2047 Final Update
Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A
8/14/2009

Fiscal Year 2047

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost Million(1)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Sch. for Const		
N15	N15-3-12&4	Surprise to Crosswood	BCD	9.40	15.13	GDS	\$15.45	full	Fort Def	Yes	1486	Moderate	<60	No Data	2011		
N37	N37(1)2,3	N9 South to Coal Mine	ABCD	5.00	8.05	GDG	\$4.10	full	Fl. Def	Yes	162	Low		14	2017		
N9751	N9751(1)2,3	Jeddito N9102 to N9062	ABCD	3.40	5.47	GDG	\$2.78	full	Fl. Def	Yes	65	Low		12	2017		
N9857	N9857(1)2	N60 to Smith Butte	ABCD	6.60	10.62	GD	\$7.92	full	Fl. Def	Yes	63	Low		10	2017		
N4000	N4000 Series	Blk XII Phase I & II	ABCDU	20.00	32.19	GD	\$23.00	full	NHP	NO	N/A	Low	N/A	N/A	2017		
Various	Maintenance Projects	Region wide safety projects	BD	N/A	N/A	M	\$0.00	full	Region	Yes	N/A	High	N/A	N/A	2006		
Area Wide	204(b) Transit	Transit Facility Project under P193-638	TS				\$0.00										
	Chip Sealing	Various	D														
	NDOT Planning, Survey, Design	Various															
BIA Direct Service	NEPA, ROW	A/E Contracts & In-house for all projects		Various			\$1.20										
BIA Direct Service	Non-project Transportation Planning	Non-project Inherent Federal Function Modifications & balances due on Previous Funded Projects for on-going construction	N/A	N/A			\$0.50										
BIA Direct Service	NRDOT Construction	Design & construction Access Roads		Various			\$1.13										
BIA Direct Service	NHA Housing Access	All Projects in construction, QA		Various			\$6.00										
BIA Direct Service	NRDOT Construction Monitoring	Consent and ROW Document Processing		Various			\$3.00										
P.L. 93-638	NN Right-of-Way	Administration under 638		Various			\$0.14										
P.L. 93-638	NN Archeology HPD	Task Orders		Various			\$0.78										
P.L. 93-638	NN Archeology	Task Orders		Various			\$1.00										
							Total Estimated Amount										
							Projected Funding Amount based on FY 2008 Funding										
							Balance										

Legend and Comments

- A ROW Needed
- B Environmental Assessment Needed
- C Archeological Clearance Needed
- D Surveying Data Needed
- E Construction Easement Needed
- F Design Completed
- G Design Plans Revision Needed
- H Design in Progress
- I Under Construction
- J Eligibility to be determined
- K Pending Request for Proposal
- TS Transit Project
- U Utility Relocation Needed
- W Within Existing ROW
- X Major ROW, Utility, Archeological, etc. Problem
- Q Archeological Clearance is Questionable
- (?) Partially Funded
- ++ Critical Pavement Rehabilitation Work Needed

- GD Grade and Drain Construction
- GDS Grade, Drain, and Gravel Construction
- RC Reconstruction
- R Pavement Rehabilitation
- CS Chip Sealing
- GDSE Grade, Drain, Surfacing (Pavement), & Bridge Construction
- PR Pavement Resurfacing
- BR Bridge Reconstruction
- ** Proposed Public Law 93-638 Project
- ** Proposed Force Account Project
- CY Project Carry Over from Prior Year TTIP
- § Buy-Indian Project
- £ Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
- (1) Excluding Funds from other sources
- (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
- \$\$ Transportation Planning for Inventory Updates and other approved by TCDC
- M Road Maintenance Project

NDOT Ranking:
N/A Not Applicable. Project is on ARC List
Yellow Not Applicable. Project is not on ARC List
Red Project is already listed on prior year

Navajo Nation Tribal Transportation Improvement Program (TTIP)
 Fiscal Year 2048 Final Update
 Navajo Nation Council's Transportation and Community Development Committee
40 Year Plan- INDIAN RESERVATION ROADS PROGRAM

EXHIBIT A
8/14/2009

Route No.	Project No.	Project Name/Description	Comment	Length Miles	Length Kilometers	Const Type	Est. Cost (Million)	IRR Funding	Agency	Project in Inventory	ADT Current	Safety Need	Pavement Rating	NDOT Ranking	First Yr Scl for Const				
N9010	N9010/424	Pine Springs to SR264	ABRD	7.95	12.79	GDS	\$15.25	full	Fl. Def	Yes	190	Low		18	2010				
N9010	N9010/324	Pine Springs to SR264	ABRD	9.20	14.81	GDS	\$15.12	full	Fl. Def	Yes	190	Low			2010				
N3003	N3003/122/3/4/5/6/4	Chip Sealing	BDW	2444	39.33	CS	\$2.93	full	NTP	Yes	N/A	Low			2017				
Various	Maintenance Projects	Region wide safety projects	BD		N/A	M	\$0.00	full	Region	Yes	N/A	High			2006				
Area Wide	2810/ Transit	Transit Priority Project under P103-638	TS				\$0.00												
	Chip Sealing	Various	D																
BIA Direct Service	RRDOT Planning, Survey, Design, NEP A, ROW	A/E Contracts & In-house for all projects	Various				\$1.90												
BIA Direct Service	Non-project Transportation Planning	Non-Project Inherent Federal Function	N/A				\$0.50												
BIA Direct Service	RRDOT Construction	Modifications & balances due on Previous funded projects for on-going construction	Various				\$2.00												
BIA Direct Service	NIAA Housing Access	Design & construction Access Roads	Various				\$0.00												
BIA Direct Service	RRDOT Construction Monitoring	All Projects in construction, QA	Various				\$3.00												
PL- 93-638	NN Right-of-Way	Consents and ROW Document Processing	Various				\$0.14												
PL- 93-638	NN Archeology HRD	Administration under 638	Various				\$0.78												
PL- 93-638	NN Archeology	Task Orders	Various				\$1.00												
Total Estimated Amount														\$42.63					
Projected Funding Amount based on FY-2008 Funding														61.00					
Balance														\$18.37					

- Legend and Comments**
- A ROW Needed
 - B Environmental Assessment Needed
 - C Archeological Clearance Needed
 - D Surveying Data Needed
 - E Construction Easement Needed
 - F Design Completed
 - G Design Plans Revision Needed
 - H Design in Progress
 - I Under Construction
 - J Eligibility to be determined
 - K Pending Request for Proposal
 - TS Transit Request
 - U Utility Relocation Needed
 - W Within Existing ROW
 - Y Major ROW, Utility, Archeological, etc., Problem
 - Q Archeological Clearance is Questionable
 - (3) Partially Funded
 - ++ Critical Pavement Rehabilitation Work Needed
-
- GD Grade and Drain Construction
 - GDS Grade, Drain, and Gravel Construction
 - RC Reconstruction
 - R Pavement Rehabilitation
 - CS Chip Sealing
 - GDSR Grade, Drain, Surfacing (Pavement), & Bridge Construction
 - PR Pavement Restructuring
 - BR Bridge Restructuring
 - ** Proposed Public Law 93-638 Project
 - *** Proposed Force Account Project
 - CY Project Carry-Over from Prior Year TTIP
 - § Buy-Indian Project
 - § Project Designed by School Consultant, BIA perform Construction, ROW needs to be transferred to BIA.
 - (1) Excluding Funds from other sources
 - (2) May be used to supplement Road Maintenance Funding as authorized by TCDC
 - \$§ Transportation Planning for Inventory Updates and other approved by TCDC
 - M Road Maintenance Project

NDOT Ranking:
 N/A Not Applicable. Project is on ARCLIST
 Not Applicable. Project is not on ARCLIST
 Project is already listed on prior year