

## The Road Inventory for the Flagstaff Area Parks

Sunset Crater Volcano,  
Wupatki, and Walnut Canyon  
National Monuments

D-20A

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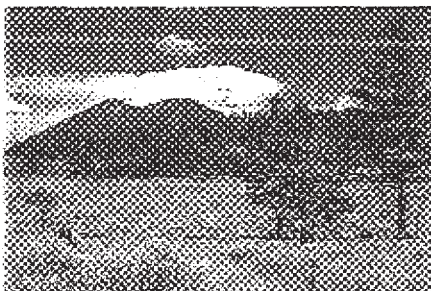
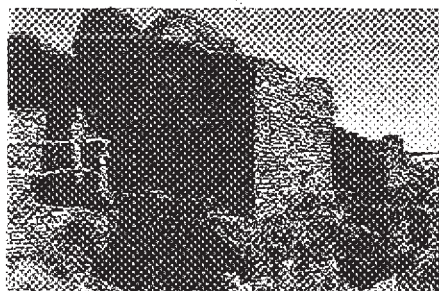
Wupatki

Also coded:

Walnut  
Canyon



national park service



## Road Inventory Program

Prepared By:  
Federal Highway Administration  
Eastern Federal Lands Highway Division  
April 1999

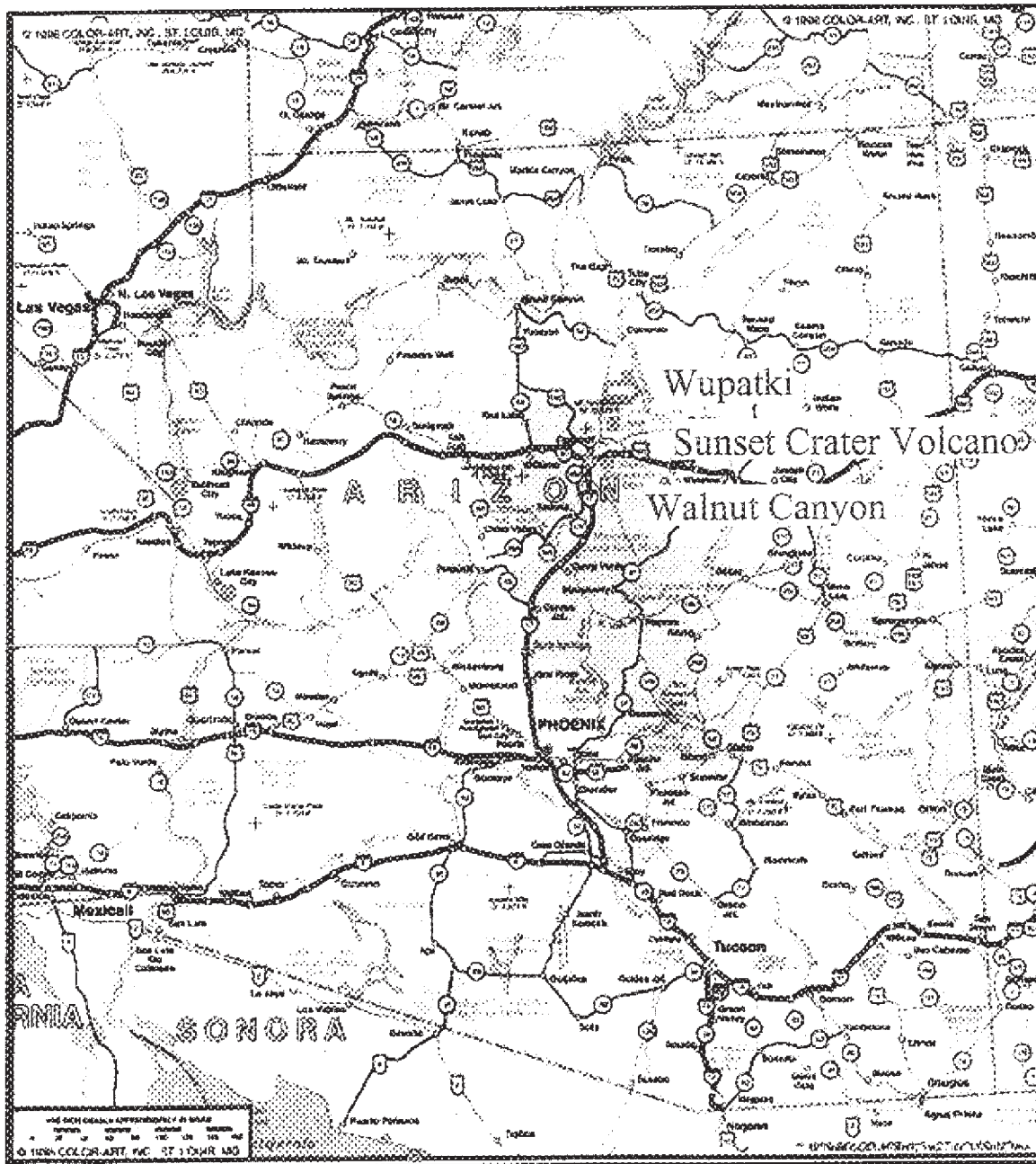
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NATIONAL PARK SERVICE

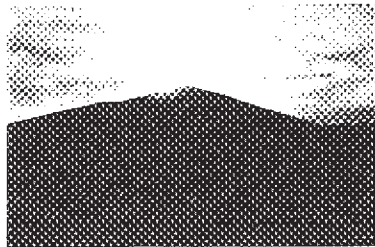


# Flagstaff Area Parks

## Sunset Crater Volcano, Wupatki, and Walnut Canyon National Monuments

in  
Arizona





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## INTRODUCTION

**Background:** In July 1976, amended December 1980, The National Park Service (NPS) and the Federal Highway Administration (FHWA) entered into a Memorandum of Agreement (MOA), establishing the Road Inventory Program (RIP). The purpose of RIP, per the 1980 MOA, was to develop long range and short range costs and programs to bring NPS roads up to, or to maintain, designated standards; as well as provide a database so the NPS can revise their Maintenance Management System, if necessary.

Since 1984 the funding has been derived from the NPS FLHP (Title 23) planning funds and coordinated by the National Park Service Park Facility Management Division. The need for a total road information data base was mandated by the requirements for continuing, comprehensive, and coordinated (3-C) planning process and Maintenance Management System.

The Federal Lands Highway (FLH) was assigned the task to inventory maintenance items (pavement type and quantities; location of culverts, signs, guardrail, etc.), identify pavement distresses and evaluate the condition of existing park roads, summarize the data and findings in a report, and provide a videolog of the NPS roads system.

**Objective:** The objective of the RIP report is to provide NPS personnel at all levels with the basic information needed for effective road and road system planning, management, operations, and maintenance. This information will be documented in a Blue Book for each park, which will replace the old Brown Books.

The Blue Book reports will be in a standard format and content with comprehensive data analysis for each park. The data presented in each report will vary greatly from park to park, but the presentation of the report will be uniform in format. Therefore, the Blue Book will become a seamless document throughout the park system displaying site specific data for each park.

**Scope:** The Road Inventory Program is a national program coordinated by the FHWA for the NPS. The FHWA goal for the paved park roads is stated as "the quality, standard and condition of the paved portion of park roads and parkways that serves the resource goals of the National Park System does not deteriorate further over the next five years".

In an effort to track the condition of the park roads, per the FHWA goal, a cyclic data collection and reporting process was implemented for all parks and regions. Monitoring the condition and system performance of the paved roads over time using a percent good, fair, and poor condition rating provided a realistic means of assessing the funding needs for road improvements. The pavement condition rating system is described in Section IX of this report. This pavement condition performance assessment will determine the level of paved park road deterioration throughout the park road system as identified in the FHWA goal.

The report will include a Park Summary, a Park Summary Map, a Park Route Inventory, a Maintenance Features Summary, a Paved Route Condition Rating and a Features



Inventory. Also included is a listing of all unpaved routes in each park and various Appendices.

The FHWA highway engineers and technicians inspect, rate, inventory the roads, and prepare the final reports for distribution to the National Park Service. All the field work is coordinated with the site specific park and the regional offices to ensure customer satisfaction. The FHWA Washington office coordinates policy and prepares national reports and needs assessment studies to congress.

The FHWA is responsible for all the data presented in this report. Anyone having questions or comments regarding the contents of this report are encouraged to contact the FHWA RIP Coordinator or the NPS RIP Coordinator in your Cluster Support Office.

FHWA RIP Coordinator:

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(703) 285-0076

## Flagstaff Area Parks Summaries

### Overall Park Mileage Summary

	MI	DATE
PAVED ROUTE MILES	42.04	1/99
UNPAVED ROUTE ESTIMATED MILES	25.97	1/99
PAVED AND UNPAVED ROUTE MILES	68.01	1/99
PARKING LOT LANE MILES	5.58	1/99
PAVED LANE MILES	89.66	1/99
DEFICIENT LANE MILES	38.34	1/99

Note: Paved Lane Miles includes parking lot areas which have been converted to lane miles using an 11-foot lane width.

### Estimated Unpaved Mileage Summary By Functional Class

CLASS	EST. UNPAVED MILEAGE	PERCENT UNPAVED
I	0	0
II	0	0
III	0	0
IV	0	0
V	25.97	100.00%
VI	0	0
VII	0	0
VIII	0	0

## Flagstaff Area Parks Summaries

### Cost to Improve to "Excellent" Condition

Based on Historic and Estimated Data

AWARD DATE	SOURCE	WORK PERFORMED	LENGTH (MILES)	COST	COST PER MILE	INITIAL CONDITION
1995-97	FHWA Projects	3-R (Resurfacing)	52.07	\$3,776,479	\$72,527	Good
1995-97	FHWA Projects	3-R (Resurfacing, Restoration, and Rehabilitation) Projects	0.76	\$497,898	\$656,858	Fair
1998	FHWA Projects	4-R (Resurfacing, Restoration, Rehabilitation, and Reconstruction) Projects	0.65	\$1,817,989	\$2,807,705	Poor

Based on the above table, the cost to improve existing condition miles to "Excellent" PCR are:

Existing Condition	Existing Miles	Estimated Cost to Improve
Excellent	2.90	\$0
Good	4.46	\$323,470
Fair	15.51	\$10,187,862
Poor	19.17	\$53,823,705
<b>Totals</b>	<b>42.04</b>	<b>\$64,335,037</b>



## Flagstaff Area Parks Summaries

### Paved Route Miles and Percentages by Functional Class and PCR

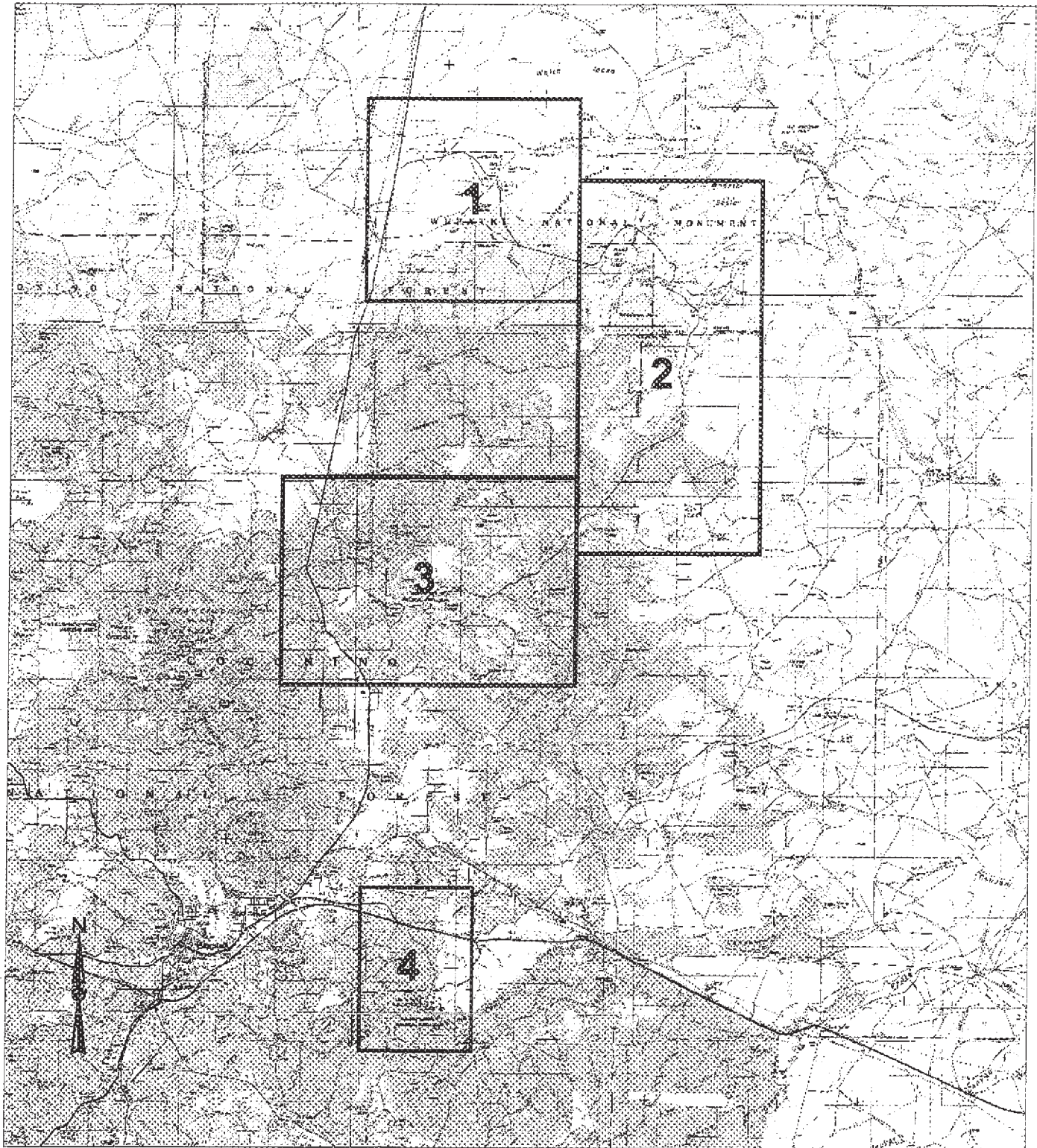
F. C.	Pavement Condition Rating (PCR)								TOTAL MILES
	Excellent (95-100)		Good (85-94)		Fair (61-84)		Poor (<=60)		
	MILES	%	MILES	%	MILES	%	MILES	%	
I	0.72	1.92%	4.04	10.77%	14.48	38.59%	18.28	48.72%	37.52
II	0	0	0	0	0	0	0	0	0
III	2.18	58.13%	0.24	6.40%	0.44	11.73%	0.89	23.73%	3.75
IV	0	0	0	0	0	0	0	0	0
V	0	0	0.18	23.38%	0.59	76.62%	0	0	0.77
VI	0	0	0	0	0	0	0	0	0
VII	0	0	0	0	0	0	0	0	0
VIII	0	0	0	0	0	0	0	0	0
Totals	2.90	6.90%	4.46	10.61%	15.51	36.89%	19.17	45.60%	42.04

Includes paved roads visually rated that were not driven with the ARAN.

### Paved Lane Miles (Parking Areas)

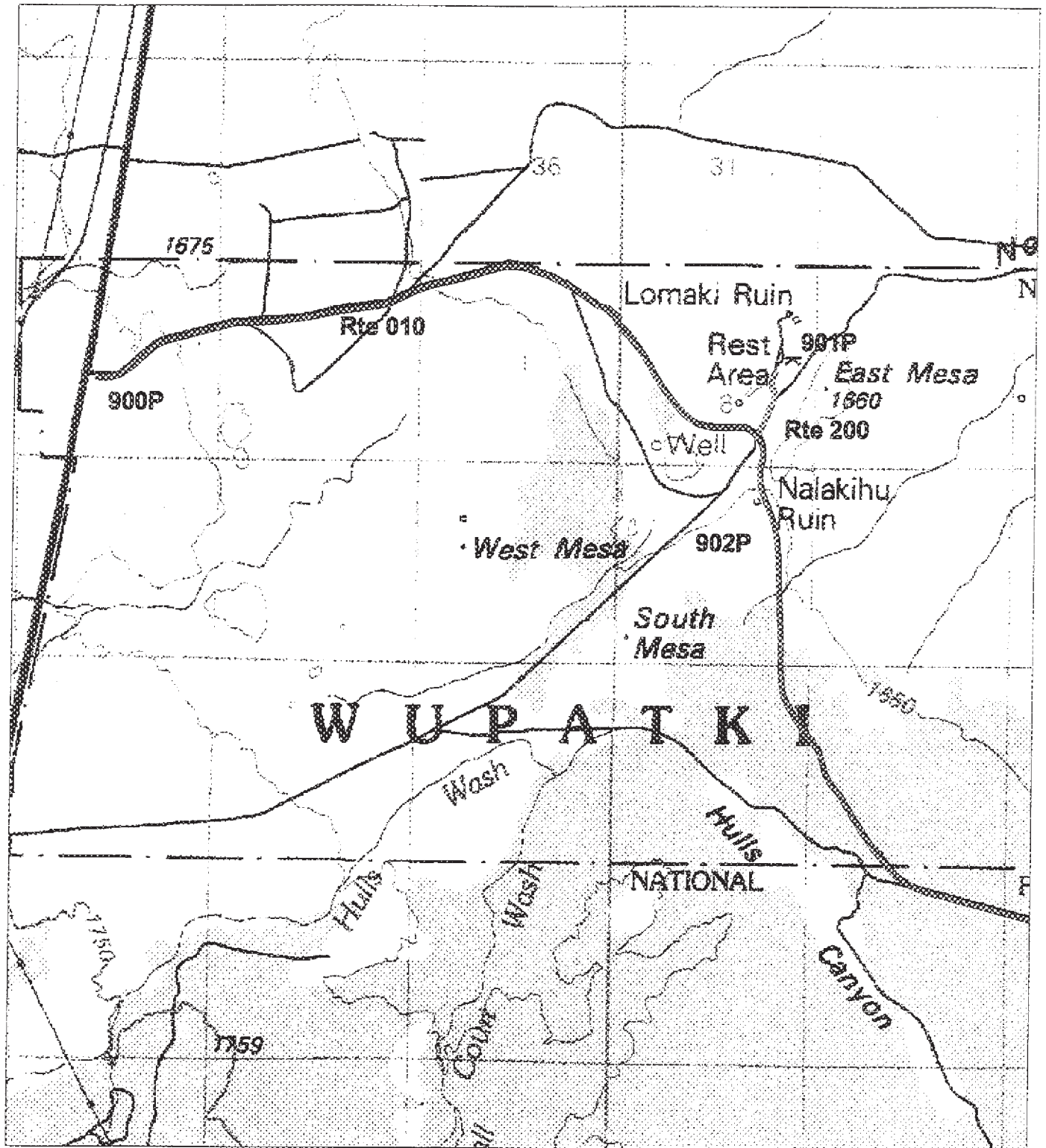
F. C.	Visual Condition Rating								TOTAL LANE MILES
	Excellent		Good		Fair		Poor		
	LANE MILES	%	LANE MILES	%	LANE MILES	%	LANE MILES	%	
-	0	0	5.58	100%	0	0	0	0	5.58

# FLAGSTAFF AREA PARKS ROUTE LOCATION KEY MAP



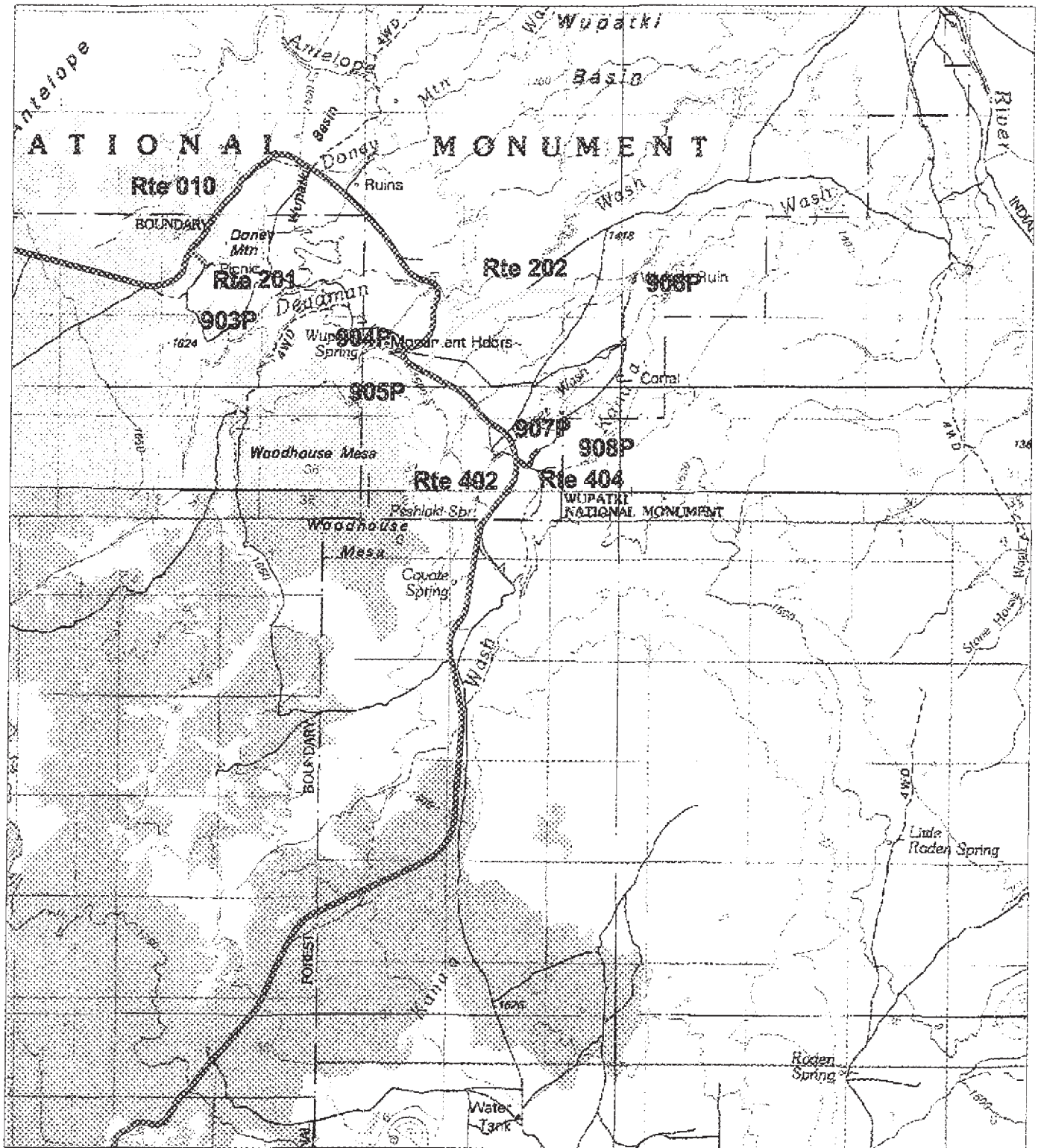


**FLAGSTAFF AREA PARKS  
ROUTE LOCATION  
AREA MAP 1**





# FLAGSTAFF AREA PARKS ROUTE LOCATION AREA MAP 2



2 0 2 4 Miles

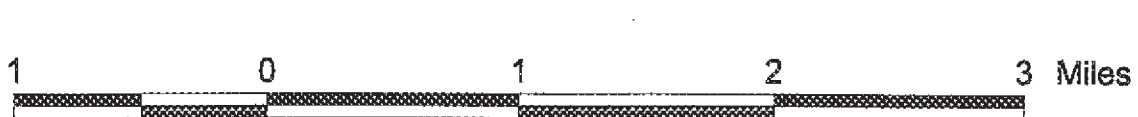
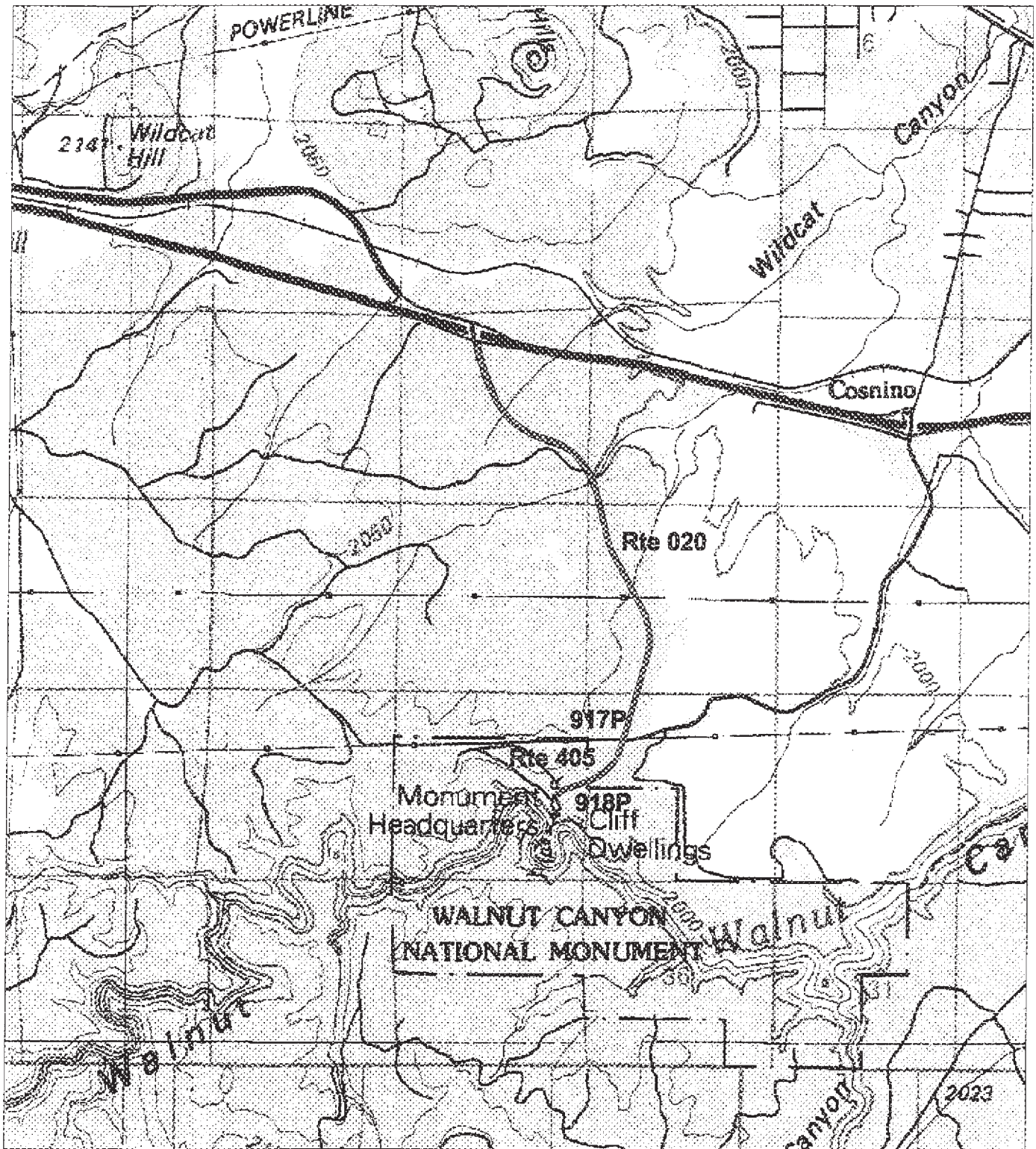


# FLAGSTAFF AREA PARKS ROUTE LOCATION AREA MAP 3





# FLAGSTAFF AREA PARKS ROUTE LOCATION AREA MAP 4





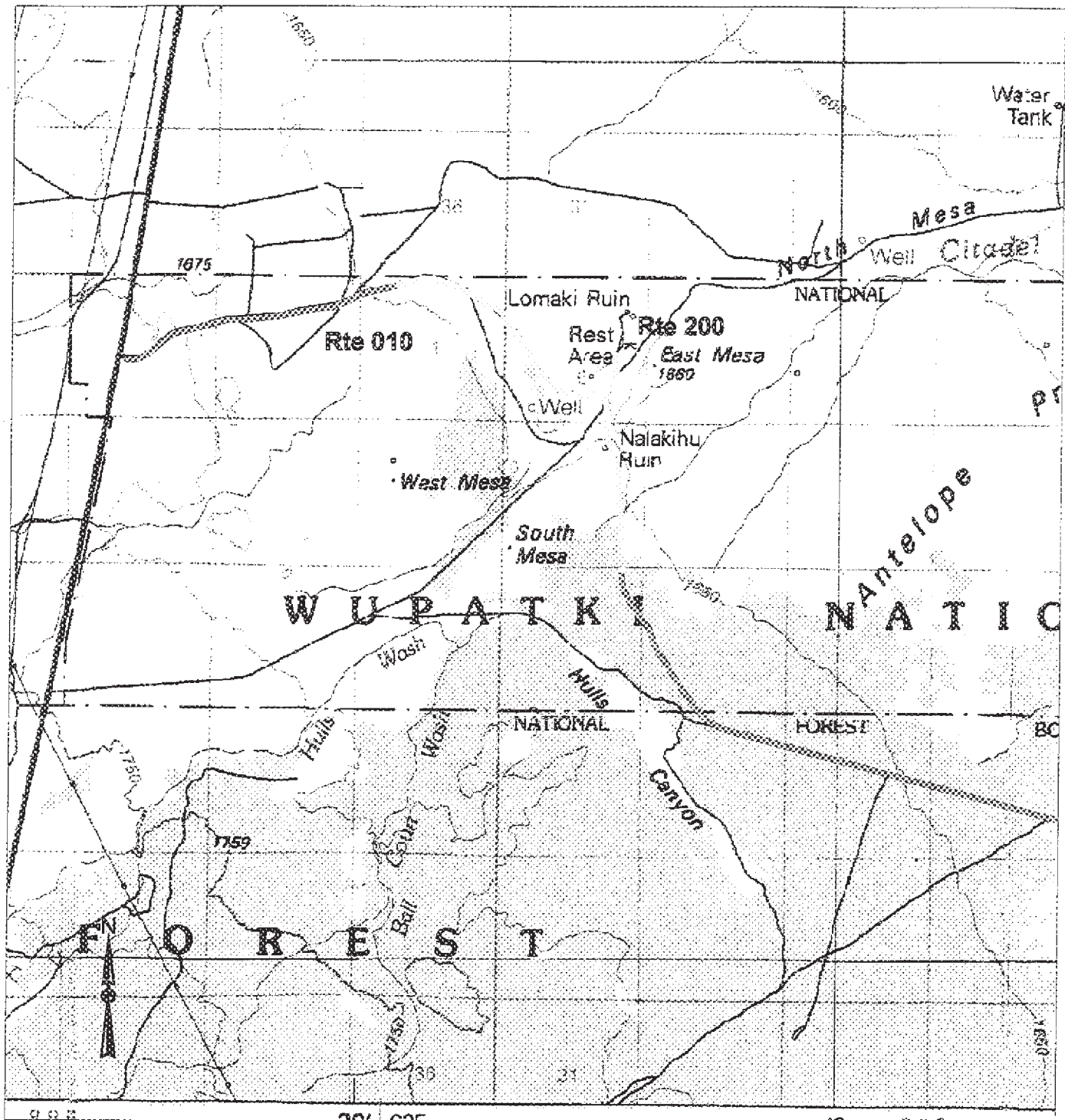
# FLAGSTAFF AREA PARKS

## ROUTE CONDITION

### KEY MAP 1

#### PCR/DCR - Mile by Mile

FUNCTIONAL CLASSIFICATION I, II, VII, VIII ROADS



PCR Excellent Good Fair Poor DCR Poor

\* If the PCR rating is not available for a section, the SCR rating will be displayed

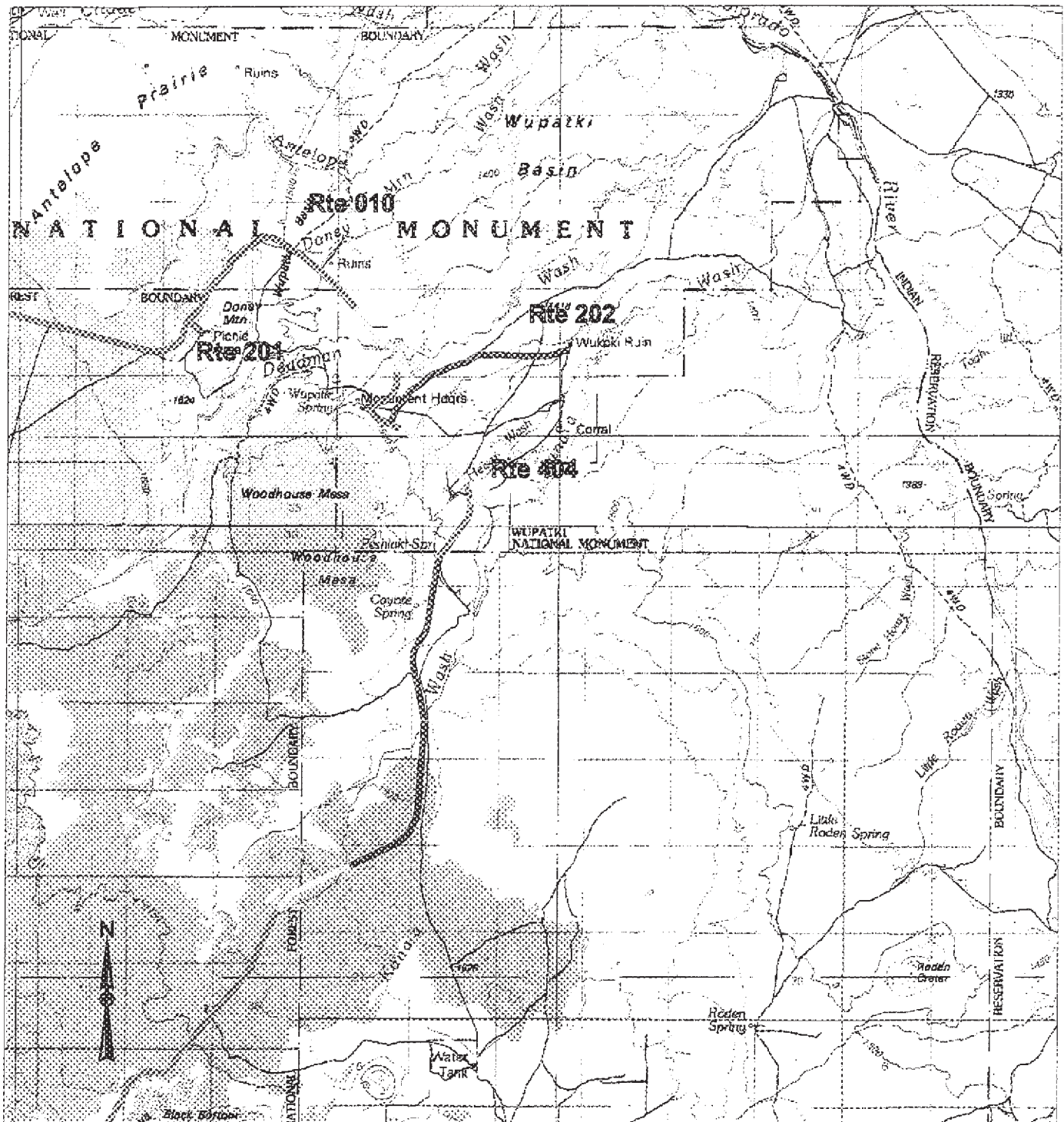
# FLAGSTAFF AREA PARKS

## ROUTE CONDITION

### KEY MAP 2

#### PCR/DCR - Mile by Mile

FUNCTIONAL CLASSIFICATION I, II, VII, VIII ROADS



PCR Excellent Good Fair Poor DCR Poor

\* If the PCR rating is not available for a section, the SCR rating will be displayed



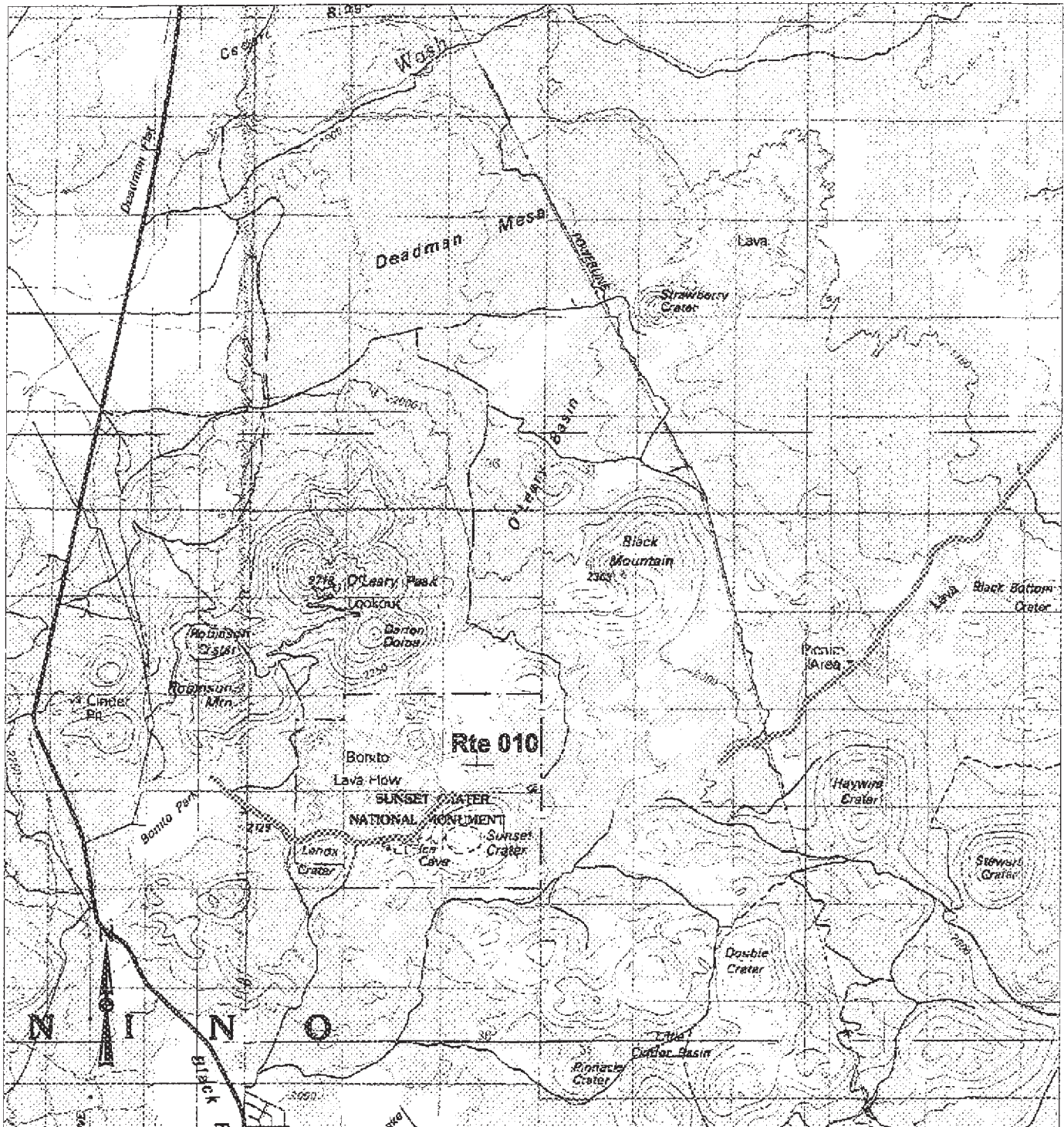
# FLAGSTAFF AREA PARKS

## ROUTE CONDITION

### KEY MAP 3

#### PCR/DCR - Mile by Mile

FUNCTIONAL CLASSIFICATION I, II, VII, VIII ROADS



PCR Excellent Good Fair Poor DCR Poor

\* If the PCR rating is not available for a section, the SCR rating will be displayed



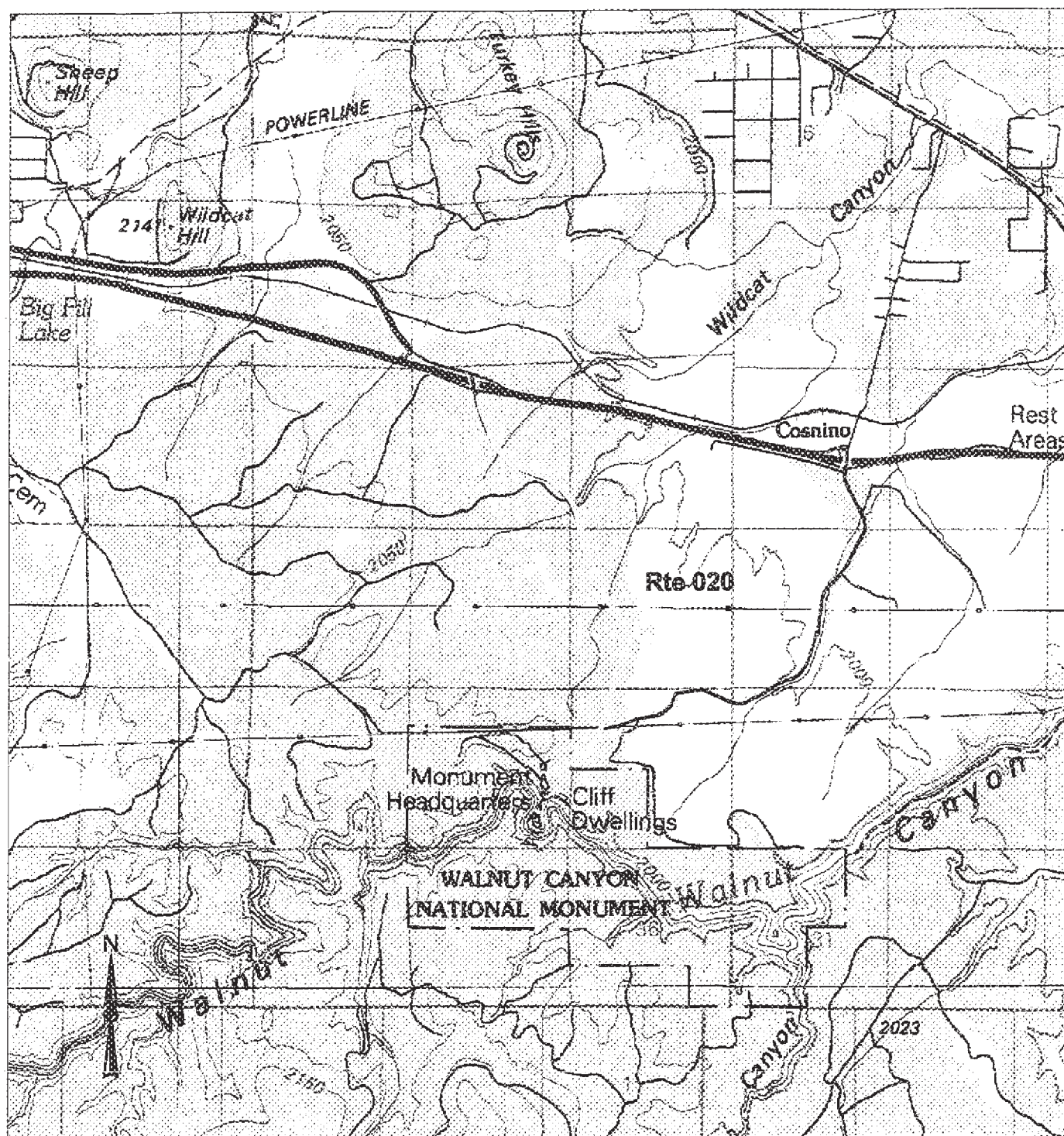
# FLAGSTAFF AREA PARKS

## ROUTE CONDITION

### KEY MAP 4

#### PCR/DCR - Mile by Mile

FUNCTIONAL CLASSIFICATION I, II, VII, VIII ROADS



PCR Excellent Good Fair Poor DCR Poor

\* If the PCR rating is not available for a section, the SCR rating will be displayed



## WUPATKI / WALNUT CANYON / SUNSET CRATER VOLCANO NATIONAL MONUMENTS

WUPA 7470 - WACA 3710 - SUCR 7460

## ROUTE IDENTIFICATION LIST (ALPHABETIC)

Shading Color Key:

White = Paved Routes, ARAN Driven

Blue = All Paved Parking Areas

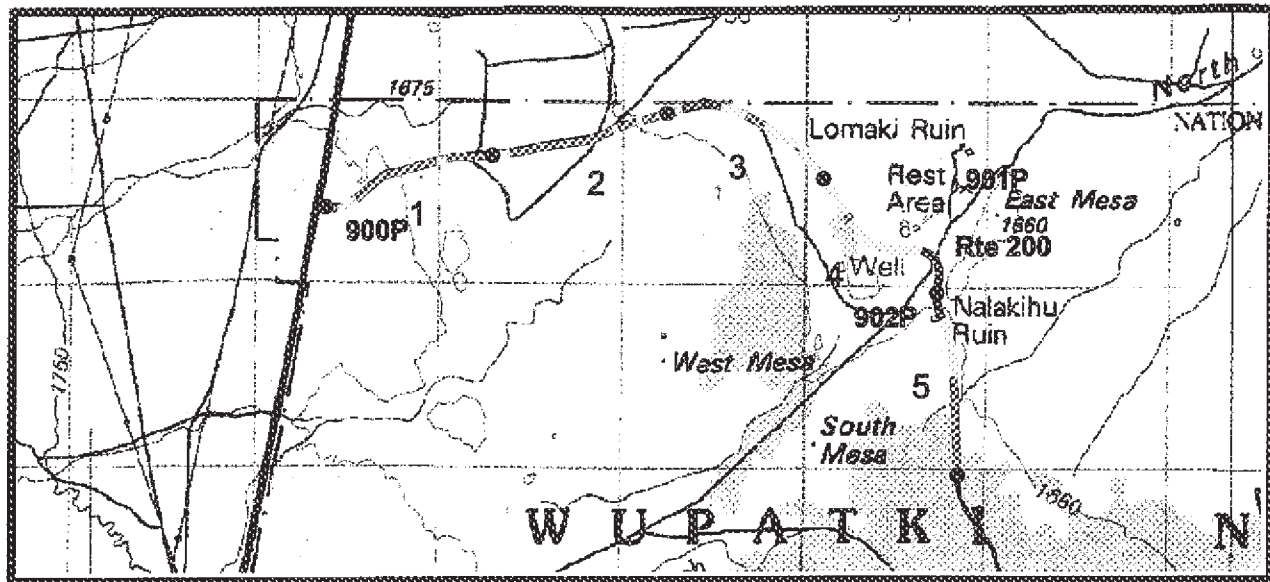
Grey = Paved Routes, ARAN not Driven

Green = All Unpaved Parking Areas

Yellow = Unpaved Routes, ARAN not Driven

Ren Denotes Approximate Mileage

ROUTE NO.	ROUTE NAME	ROUTE NO.	ROUTE DESCRIPTION	PAVED MILES	UNPAVED MILES	LANES	F. CLASS
401	Black Falls Patrol Road	1.45	From Rte 202 to river; including spur to quarry	0.00	5.45	2	5
203	Bonito National Forest Campground	1.50	From Rte 010 through campground	1.50	0.00	2	3
915	Bonito Park Pullout	-	From Rte 010	-	-	-	-
910	Cinder Hills Overlook	-	From Rte 010	-	-	-	-
902	Citadel Ruin Parking	-	From Rte 010	-	-	-	-
400	Crack in rock Patrol Rd	19.54	From Rte 200 past Crack in Rock Ruin to Rte 010 near Doney Crater	0.00	19.54	2	5
201	Doney Crater Picnic Area	0.20	From Rte 010 to Picnic Area Parking (Rte 903)	0.20	0.00	2	3
903	Doney Crater Picnic Area Parking	-	From end of Rte 201	-	-	-	-
402	Heiser Spring Service Roads	0.38	From Rte 010 west to end	0.00	0.38	2	5
913	Lava Flow Trail Parking	-	From Rte 010	-	-	-	-
912	Lenox Crater Pullout	-	From Rte 010	-	-	-	-
901	Lomaki Ruin Parking	-	From end of Rte 200	-	-	-	-
200	Lomaki Ruin Road	0.36	From Rte 010 to Parking Area (Rte 901)	0.36	0.00	2	3
908	New Heiser Maintenance Area	-	From Rte 402	-	-	-	-
404	New Heiser Road	0.34	From Rte 010 east to end of pavement	0.34	0.00	2	5
909	Painted Desert Vista Parking	-	From Rte 010	-	-	-	-
907	Pit House Parking	-	From Rte 010	-	-	-	-
916	Sunset Crater Entrance Pullout	-	From Rte 010	-	-	-	-
403	Sunset Crater Residence Road	0.35	From Rte 010 east to end of pavement	0.35	0.00	2	5
914	Sunset Crater Visitor Center and Maintenance Parking	-	From Rte 010	-	-	-	-
911	Sunset Crater Volcano Parking	-	From Rte 010	-	-	-	-
020	Walnut Canyon Entrance Road	2.94	From pavement change off I-40 exit 204 to Parking (Rte 918)	2.94	0.00	2	1
917	Walnut Canyon Picnic Area	-	From Rte 020	-	-	-	-
405	Walnut Canyon Residence / Maintenance Area	0.50	From Rte 020 to end of Loop	0.50	0.00	2	5
918	Walnut Canyon Visitor Center Parking	-	From end of Rte 020	-	-	-	-
904	Wukoki Ruin Parking	-	From end of Rte 202	-	-	-	-
202	Wukoki Ruin Road	2.42	From Rte 010 past intersection of Rte 401 to parking (Rte 904)	2.42	0.00	2	3
900	Wupatki National Monument Entrance Pullout	-	Beginning of Rte 010	-	-	-	-
906	Wupatki Residence Area	-	From Rte 905	-	-	-	-
905	Wupatki Visitor Center Parking	-	From Rte 010	-	-	-	-
010	Wupatki-Sunset Crater Scenic Loop road	34.58	From US 89 cattleguard at Wupatki to US 89 cattleguard at Sunset Crater	34.58	0.00	2	1



PCR Excellent Good Fair Poor DCR Poor   
 \* If the PCR rating is not available for a section, the SCR rating will be displayed

WR: Western Region  
 Flagstaff Area National Monuments: WUPA / WACA / SUCR

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road

TOTAL LENGTH: 34.58 Miles

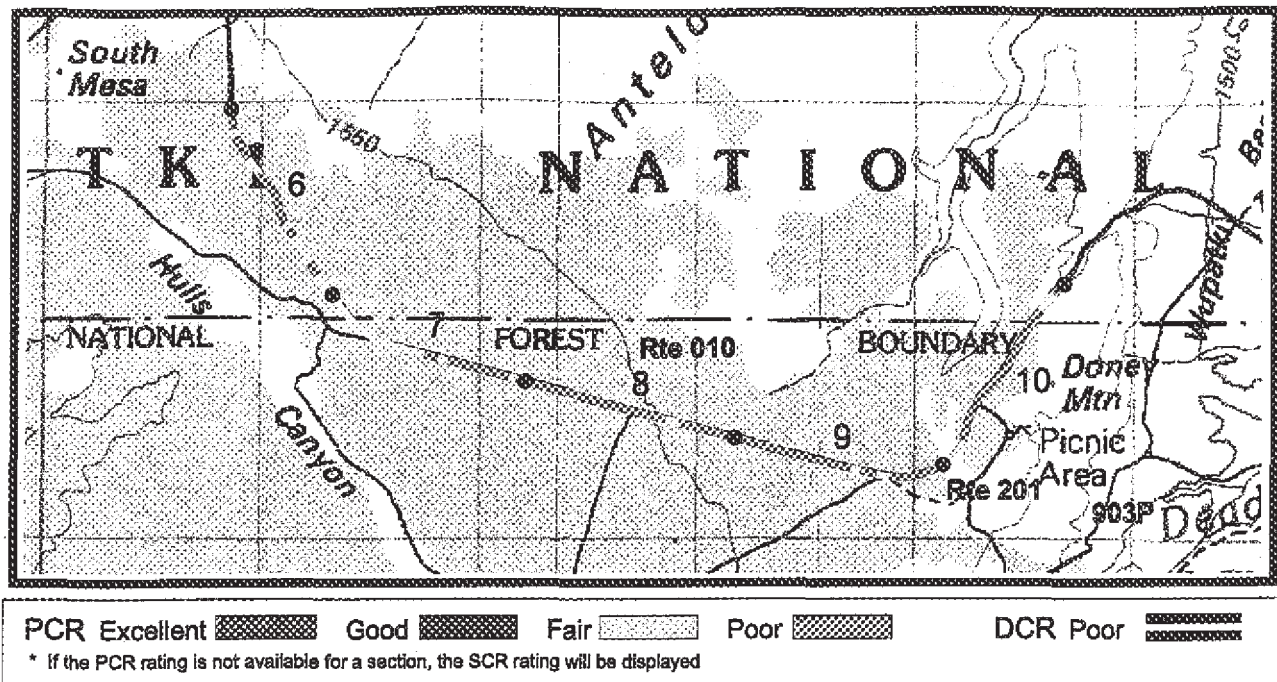
Section Number	1	2	3	4	5
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
AADT	NA	NA	NA	NA	NA
SADT	NA	NA	NA	NA	NA
ADT Date	NA	NA	NA	NA	NA
<b>Cross Section Information</b>					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	22	22	22	22	22
Lane Width (ft)	11	11	11	11	11
Shoulder Width (ft)	2	2	4	4	4
<b>Roadway Condition Information</b>					
PCR (Pavement Condition Rating)	45	56	73	77	62
Roughness Index	47	76	85	83	68
SCR (Surface Condition Rating)	43	42	64	74	58
Alligator Cracking	97	100	100	100	99
Rutting Index	83	82	85	82	83
Patching Index	100	100	100	100	100
Transverse Cracking	71	59	76	84	71
Longitudinal Cracking	86	96	98	99	98
Shoulder Condition Rating	FAIR	FAIR	FAIR	FAIR	FAIR
Drainage Condition Rating	GOOD	GOOD	GOOD	GOOD	GOOD

**COMMENTS:**

MP 0.00 Begin at US Route 89 / Pic 1770 - Typical Pavement Section  
 MP 0.02 Wupatki National Monument Entrance Pullout (Rte 900) on Right  
 MP 0.40 Pic 1771 - Vegetation in Shoulder  
 MP 0.83 Unpaved Route Intersection Right  
 MP 0.95 Unpaved Route Intersection Left  
 MP 1.61 Unpaved Route Intersection Left  
 MP 3.83 Lomaki Ruin Road (Rte 200) on Left  
 MP 4.11 Citadel Ruin Parking (Rte 902) on Right  
 MP 4.50 Pavement Change, Chipseal  
 MP 4.70 Pic 1772 - Typical Pavement Section

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road





WR: Western Region  
 Flagstaff Area National Monuments: WUPA / WACA / SUCR

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road

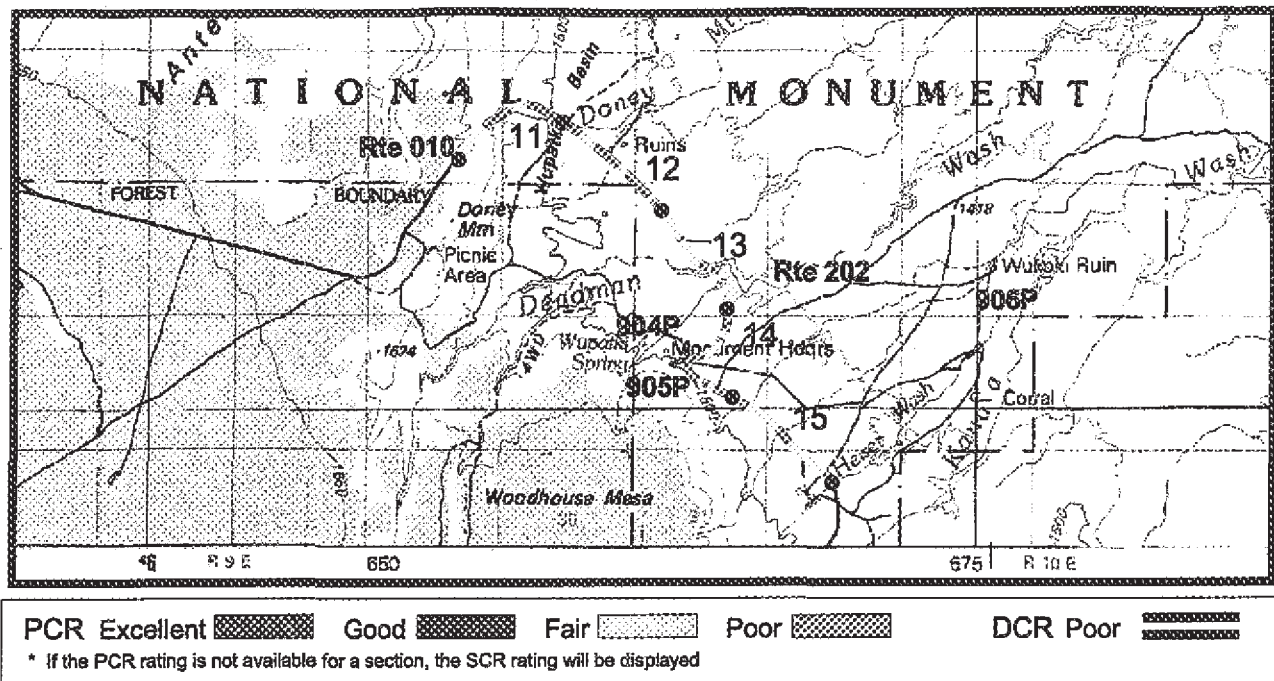
TOTAL LENGTH: 34.58 Miles

Section Number	6	7	8	9	10
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
AADT	NA	NA	NA	NA	NA
SADT	NA	NA	NA	NA	NA
ADT Date	NA	NA	NA	NA	NA
<b>Cross Section Information</b>					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	22	22	22	22	22
Lane Width (ft)	11	11	11	11	11
Shoulder Width (ft)	4	4	4	4	4
<b>Roadway Condition Information</b>					
PCR (Pavement Condition Rating)	57	58	45	53	56
Roughness Index	69	75	61	65	71
SCR (Surface Condition Rating)	50	47	35	46	45
Alligator Cracking	100	100	99	100	100
Rutting Index	89	82	81	84	84
Patching Index	100	100	100	100	100
Transverse Cracking	62	62	53	60	60
Longitudinal Cracking	97	98	96	98	97
Shoulder Condition Rating	FAIR	FAIR	FAIR	FAIR	FAIR
Drainage Condition Rating	GOOD	GOOD	GOOD	GOOD	GOOD

COMMENTS:

MP 6.15 Coconino National Forest Boundary  
 MP 6.35 Unpaved Route Intersection Right  
 MP 9.31 Doney Crater Picnic Area (Rte 201) Intersection Right  
 MP 9.75 Wupatki National Monument Boundary

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road



WR: Western Region  
Flagstaff Area National Monuments: WUPA / WACA / SUCR

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road

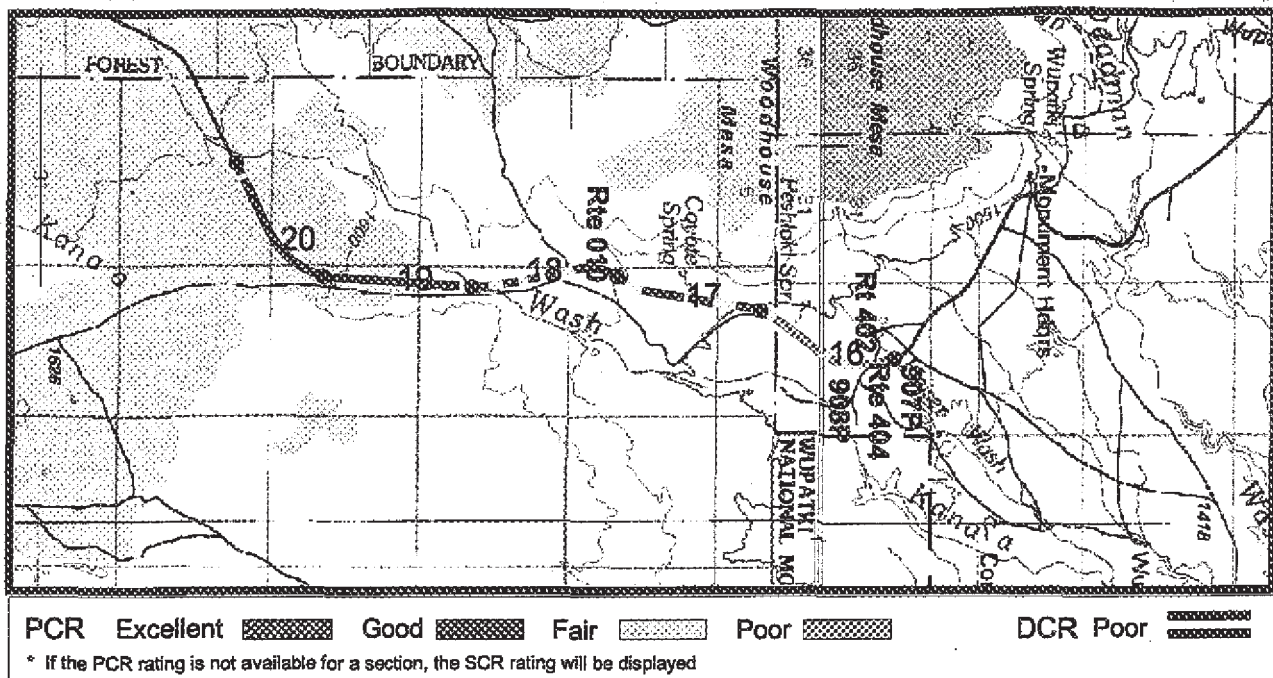
TOTAL LENGTH: 34.58 Miles

Section Number	11	12	13	14	15
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
AADT	NA	NA	NA	NA	NA
SADT	NA	NA	NA	NA	NA
ADT Date	NA	NA	NA	NA	NA
<b>Cross Section Information</b>					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	22	22	22	22	22
Lane Width (ft)	11	11	11	11	11
Shoulder Width (ft)	4	4	4	4	4
<b>Roadway Condition Information</b>					
PCR (Pavement Condition Rating)	58	57	62	57	64
Roughness Index	64	79	78	80	80
SCR (Surface Condition Rating)	54	43	51	42	52
Alligator Cracking	100	100	100	100	100
Rutting Index	83	85	88	88	88
Patching Index	100	100	100	100	100
Transverse Cracking	67	57	62	57	70
Longitudinal Cracking	99	98	99	95	93
Shoulder Condition Rating	FAIR	FAIR	FAIR	FAIR	FAIR
Drainage Condition Rating	GOOD	GOOD	GOOD	GOOD	GOOD

**COMMENTS:**

MP 13.53 Wukoki Ruin Parking (Rte 904) on Right  
MP 13.80 Wukoki Ruin Road (Rte 202) on Left  
MP 13.90 Pit House Parking (Rte 907) on Left  
MP 14.68 Unpaved Route Intersection Right

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road



WR: Western Region

Flagstaff Area National Monuments: WUPA / WACA / SUCR

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road

TOTAL LENGTH: 34.58 Miles

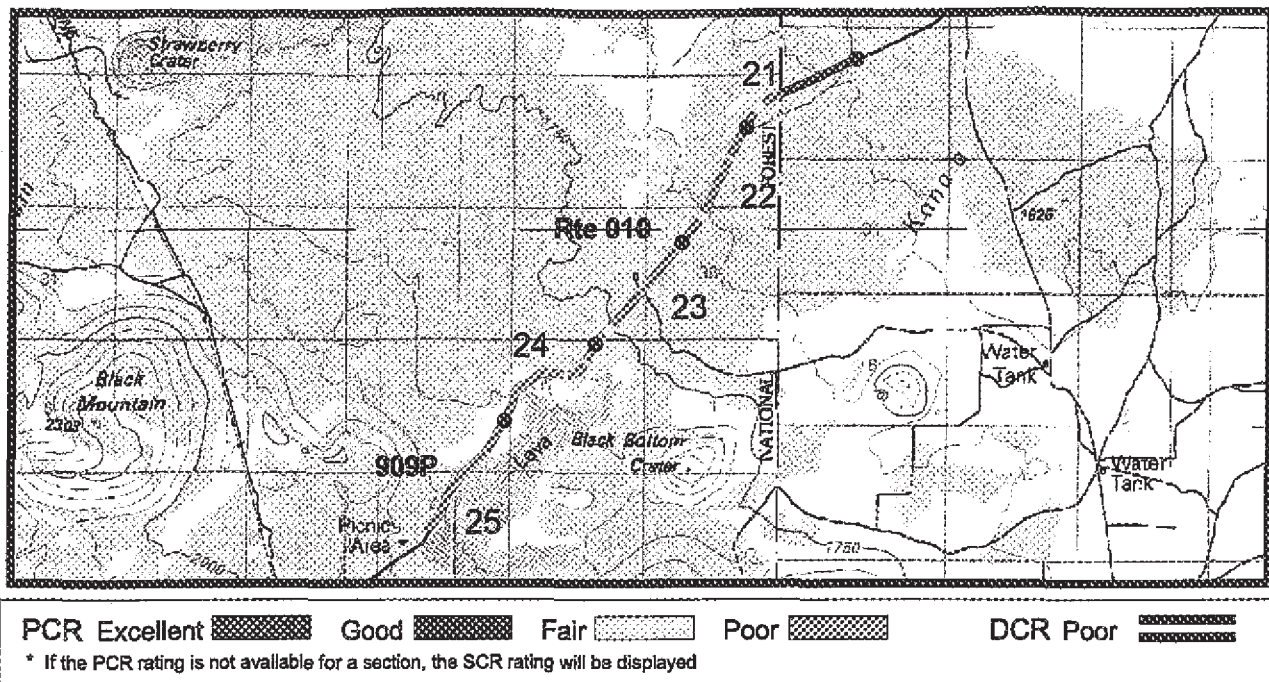
Section Number	16	17	18	19	20
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
AADT	NA	NA	NA	NA	NA
SADT	NA	NA	NA	NA	NA
ADT Date	NA	NA	NA	NA	NA
<b>Cross Section Information</b>					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	22	22	22	22	22
Lane Width (ft)	11	11	11	11	11
Shoulder Width (ft)	4	4	4	4	4
<b>Roadway Condition Information</b>					
PCR (Pavement Condition Rating)	53	87	86	90	90
Roughness Index	78	95	91	96	93
SCR (Surface Condition Rating)	36	81	83	86	88
Alligator Cracking	99	100	100	100	100
Rutting Index	83	83	84	85	85
Patching Index	100	100	100	100	100
Transverse Cracking	53	93	94	97	98
Longitudinal Cracking	96	100	100	100	100
Shoulder Condition Rating	FAIR	FAIR	FAIR	FAIR	FAIR
Drainage Condition Rating	GOOD	GOOD	GOOD	GOOD	GOOD

**COMMENTS:**

- MP 15.15 Heiser Spring Service Road (Rte 402) Right
- MP 15.21 New Heiser Road (Rte 404) Left
- MP 15.85 Wupatki National Monument Boundary / Pic 1773 Looking Back
- MP 16.29 Unpaved Route Intersection Right
- MP 17.37 Unpaved Route Intersection Left
- MP 17.60 Pic 1774 - Typical Pavement Section
- MP 19.11 Unpaved Route Intersection Left

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road





WR: Western Region  
 Flagstaff Area National Monuments: WUPA / WACA / SUCR

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road

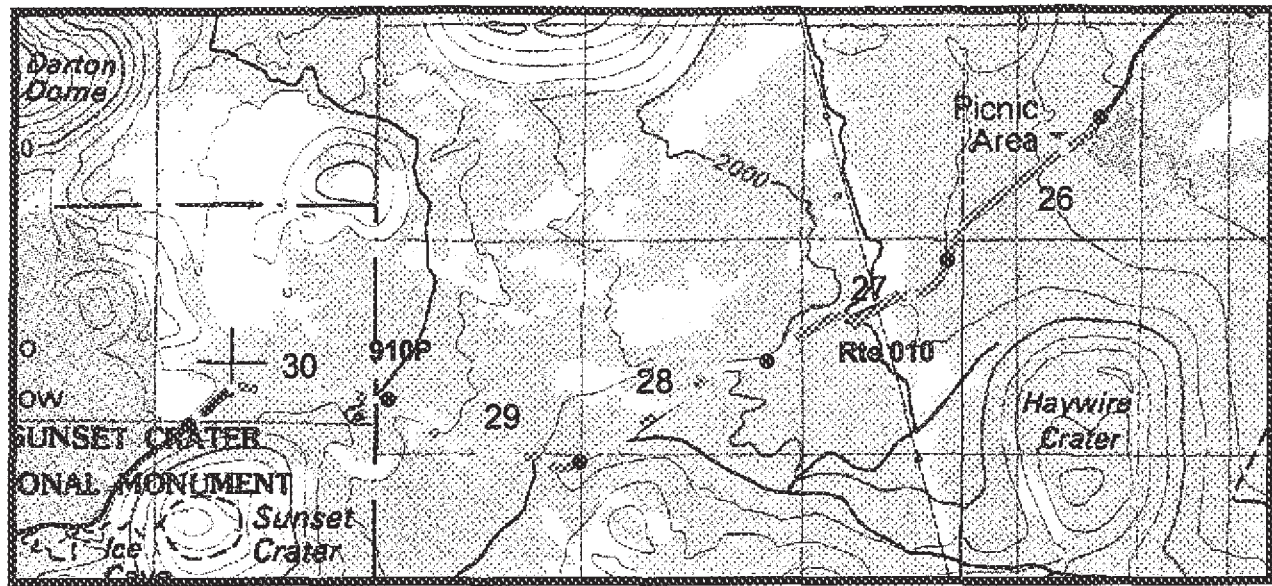
TOTAL LENGTH: 34.58 Miles

Section Number	21	22	23	24	25
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
AADT	NA	NA	NA	NA	NA
SADT	NA	NA	NA	NA	NA
ADT Date	NA	NA	NA	NA	NA
<b>Cross Section Information</b>					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	22	22	22	22	22
Lane Width (ft)	11	11	11	11	11
Shoulder Width (ft)	4	4	4	4	4
<b>Roadway Condition Information</b>					
PCR (Pavement Condition Rating)	76	43	40	44	43
Roughness Index	85	72	71	77	73
SCR (Surface Condition Rating)	71	23	19	22	23
Alligator Cracking	100	98	96	97	96
Rutting Index	77	74	76	84	75
Patching Index	100	100	100	100	100
Transverse Cracking	83	37	33	44	52
Longitudinal Cracking	99	97	95	88	85
Shoulder Condition Rating	FAIR	FAIR	FAIR	FAIR	FAIR
Drainage Condition Rating	GOOD	GOOD	GOOD	GOOD	GOOD

**COMMENTS:**

MP 20.63 Pavement Change to Large Aggregate at Cattleguard  
 MP 20.84 Coconino National Forest Boundary  
 MP 22.48 Unpaved Route Intersection Left

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road



PCR Excellent Good Fair Poor DCR Poor

\* If the PCR rating is not available for a section, the SCR rating will be displayed

WR: Western Region  
Flagstaff Area National Monuments: WUPA / WACA / SUCR

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road

TOTAL LENGTH: 34.58 Miles

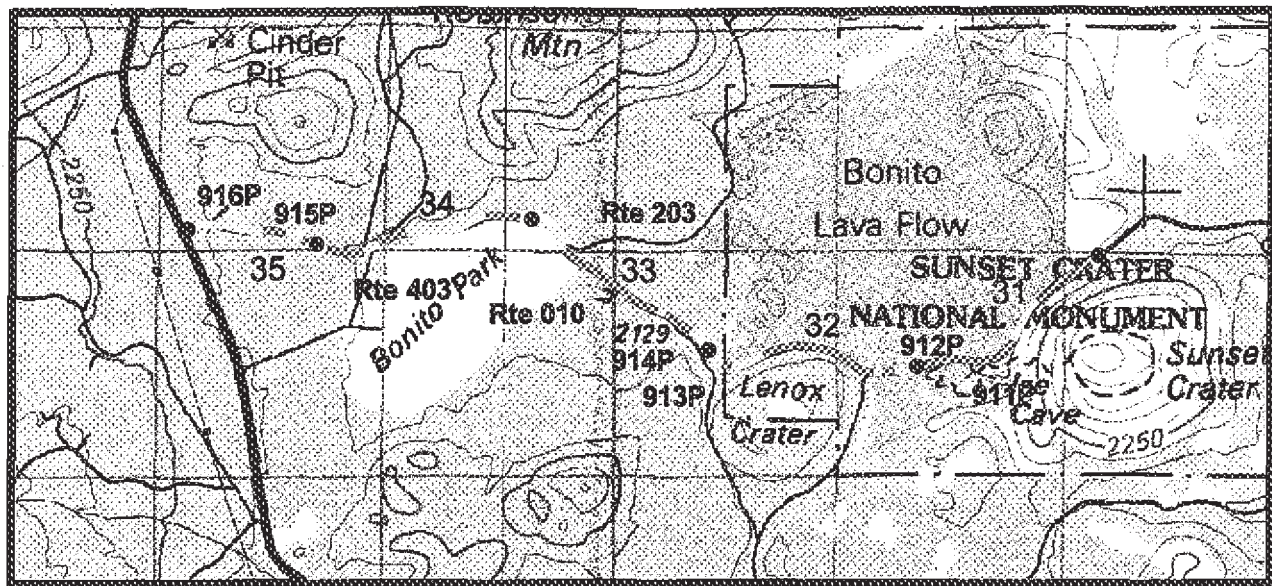
Section Number	26	27	28	29	30
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
AADT	NA	NA	NA	NA	NA
SADT	NA	NA	NA	NA	NA
ADT Date	NA	NA	NA	NA	NA
<b>Cross Section Information</b>					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	22	22	22	22	22
Lane Width (ft)	11	11	11	11	11
Shoulder Width (ft)	4	4	4	4	4
<b>Roadway Condition Information</b>					
PCR (Pavement Condition Rating)	43	45	68	66	71
Roughness Index	64	61	70	68	71
SCR (Surface Condition Rating)	29	34	66	64	72
Alligator Cracking	96	94	100	100	100
Rutting Index	75	89	88	91	82
Patching Index	100	100	100	100	100
Transverse Cracking	55	56	76	74	83
Longitudinal Cracking	88	90	98	98	98
Shoulder Condition Rating	FAIR	FAIR	FAIR	FAIR	FAIR
Drainage Condition Rating	GOOD	GOOD	GOOD	GOOD	GOOD

**COMMENTS:**

MP 25.20 Painted Desert Vista Parking (Rte 909) Right  
MP 28.22 Unpaved Parking Area Left  
MP 29.07 Unpaved Route Intersection Left  
MP 29.08 Unpaved Route Intersection Right  
MP 29.11 Cinder Hills Overlook (Rte 910) Right  
MP 29.12 Pic 1775 - Typical Pavement Section

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road





PCR Excellent Good Fair Poor DCR Poor

\* If the PCR rating is not available for a section, the SCR rating will be displayed

WR: Western Region  
Flagstaff Area National Monuments: WUPA / WACA / SUCR

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road

TOTAL LENGTH: 34.58 Miles

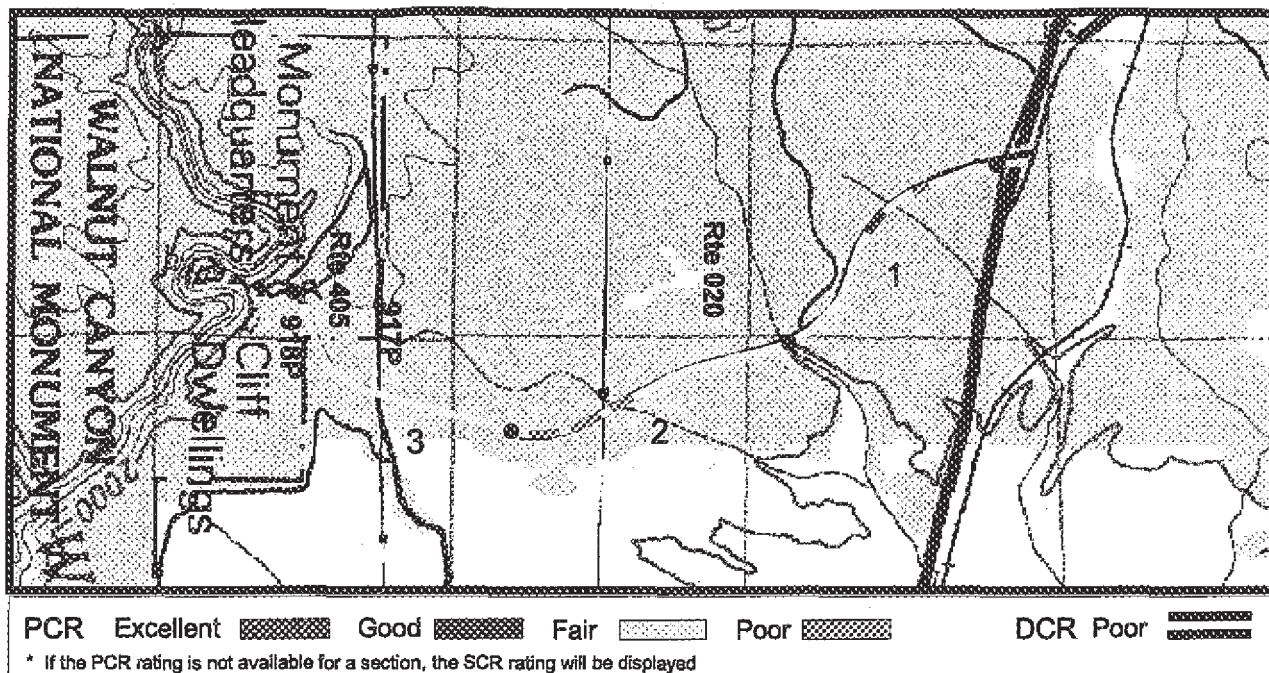
Section Number	31	32	33	34	35
Section Length (mi)	1.00	1.00	1.00	1.00	0.58
AADT	NA	NA	NA	NA	NA
SADT	NA	NA	NA	NA	NA
ADT Date	NA	NA	NA	NA	NA
<b>Cross Section Information</b>					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	22	22	22	22	22
Lane Width (ft)	11	11	11	11	11
Shoulder Width (ft)	4	4	4	4	4
<b>Roadway Condition Information</b>					
PCR (Pavement Condition Rating)	58	56	53	62	66
Roughness Index	66	55	57	72	67
SCR (Surface Condition Rating)	52	56	50	55	64
Alligator Cracking	99	99	99	99	99
Rutting Index	83	82	81	81	80
Patching Index	100	100	100	100	100
Transverse Cracking	67	70	65	69	80
Longitudinal Cracking	94	95	95	95	95
Shoulder Condition Rating	FAIR	FAIR	FAIR	FAIR	FAIR
Drainage Condition Rating	GOOD	GOOD	GOOD	GOOD	GOOD

**COMMENTS:**

MP 31.08 Sunset Crater Volcano Parking (Rte 911) Left  
 MP 31.27 Lenox Crater Pullout (Rte 912) Right  
 MP 32.55 Sunset Crater Residence Road (Rte 403) Right  
 MP 32.56 Sunset Crater Visitor Center and Maintenance Parking (Rte 914) Left  
 MP 32.69 Bonito National Forest Campground (Rte 203) Right  
 MP 32.82 Unpaved Route Intersection Right  
 MP 32.98 Unpaved Route Intersection Right  
 MP 33.40 Bonito Park Pullout (Rte 915) Left  
 MP 33.71 Unpaved Route Intersection Left  
 MP 34.46 Sunset Crater Entrance Pullout (Rte 916) Left  
 MP 34.48 Unpaved Route Intersection Right  
 MP 34.58 End Route at South Boundary, US 89

ROUTE: 010 Wupatki-Sunset Crater Scenic Loop Road





WR: Western Region  
Flagstaff Area National Monuments: WUPA / WACA / SUCR

ROUTE: 020 Walnut Canyon Entrance Road

TOTAL LENGTH: 2.94 Miles

Section Number	1	2	3		
Section Length (mi)	1.00	1.00	0.94		
AADT	NA	NA	NA		
SADT	NA	NA	NA		
ADT Date	NA	NA	NA		
<b>Cross Section Information</b>					
Number of Lanes	2	2	2		
Paved Width (ft)	24	24	24		
Lane Width (ft)	12	12	12		
Shoulder Width (ft)	1	1	1		
<b>Roadway Condition Information</b>					
PCR (Pavement Condition Rating)	76	68	75		
Roughness Index	77	76	76		
SCR (Surface Condition Rating)	75	63	75		
Alligator Cracking	100	100	100		
Rutting Index	84	71	80		
Patching Index	100	100	100		
Transverse Cracking	89	82	90		
Longitudinal Cracking	98	99	99		
Shoulder Condition Rating	GOOD	GOOD	GOOD		
Drainage Condition Rating	GOOD	GOOD	GOOD		

#### COMMENTS:

MP 0.00 Begin Route at I-40 / Pic 1784 - Typical Pavement Section  
MP 1.37 Walnut Canyon Picnic Area (Rte 917) Right  
MP 2.36 Unpaved Arizona Trail Parking Right and Left  
MP 2.46 Pavement Change  
MP 2.60 Contact Station  
MP 2.62 Walnut Canyon Residence / Maintenance Area (Rte 405) Right  
MP 2.94 End Route at Walnut Canyon Visitor Center Parking (Rte 918)

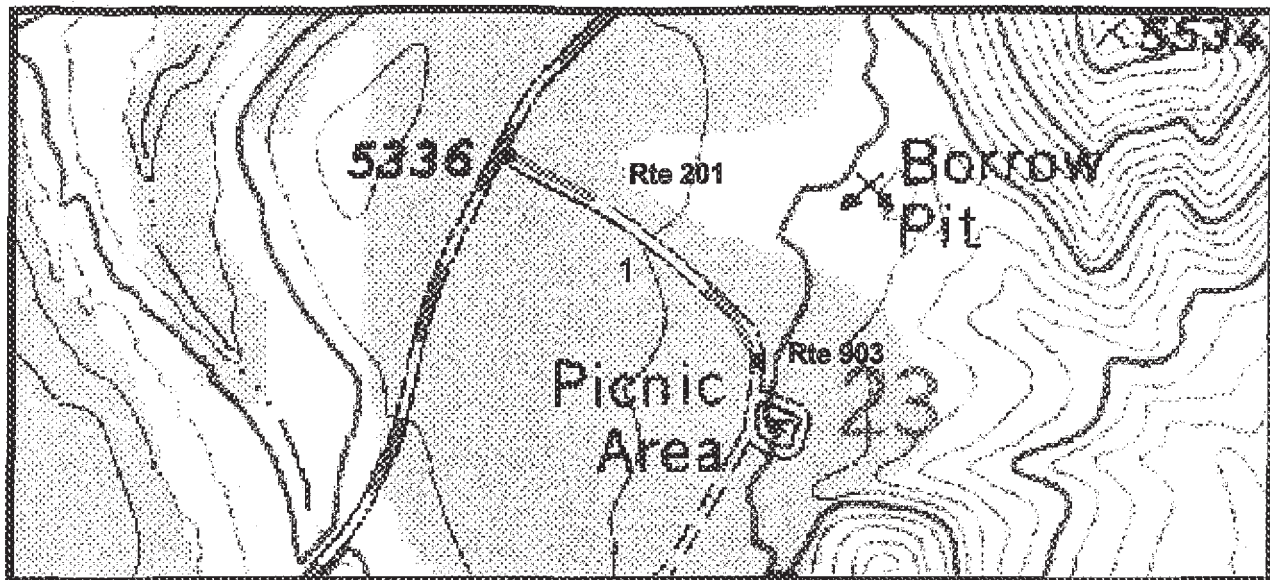
ROUTE: 020 Walnut Canyon Entrance Road



**TOTAL LENGTH: 0.36 Miles**

**ROUTE:** 200 Lomaki Ruin Road

MP 0.00 Begin Route at Rte 010 / Pic 1776 - Typical Pavement Section  
MP 0.20 Unpaved Route Intersection Right  
MP 0.36 End Route at Lomaki Ruin Parking (Rte 901)



PCR Excellent Good Fair Poor DCR Poor   
 \* If the PCR rating is not available for a section, the SCR rating will be displayed

WR: Western Region  
 Flagstaff Area National Monuments: WUPA / WACA / SUCR

ROUTE: 201 Doney Crater Picnic Area

TOTAL LENGTH: 0.2 Miles

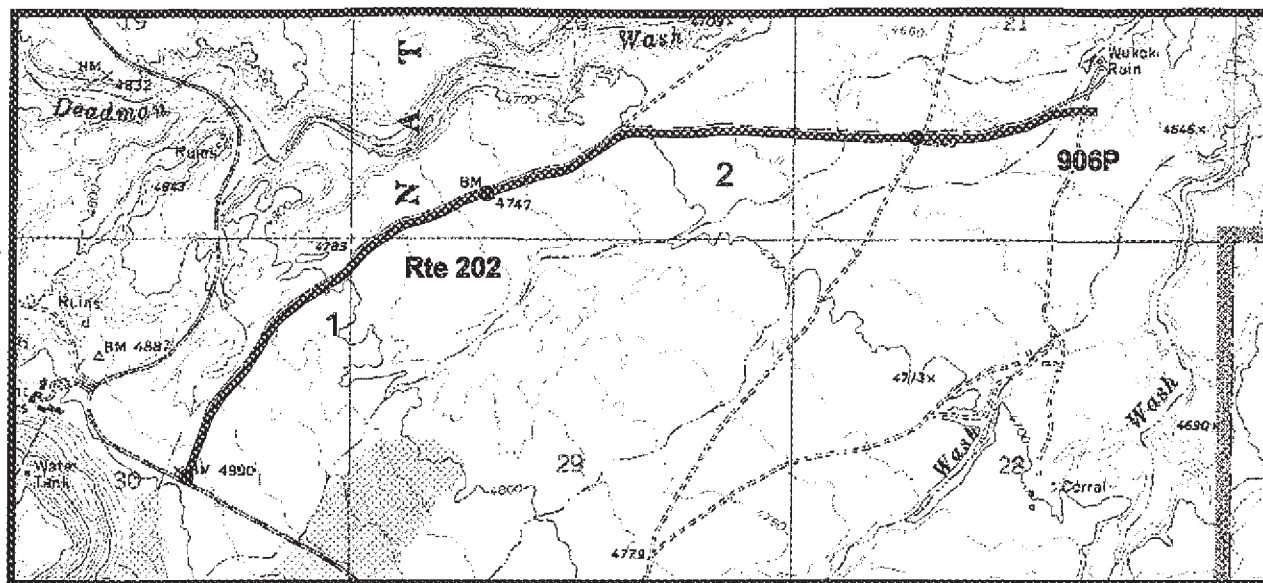
Section Number	1				
Section Length (mi)	0.20				
AADT	NA				
SADT	NA				
ADT Date	NA				
<b>Cross Section Information</b>					
Number of Lanes	2				
Paved Width (ft)	20				
Lane Width (ft)	10				
Shoulder Width (ft)	2				
<b>Roadway Condition Information</b>					
PCR (Pavement Condition Rating)	57				
Roughness Index	51				
SCR (Surface Condition Rating)	59				
Alligator Cracking	100				
Rutting Index	91				
Patching Index	100				
Transverse Cracking	69				
Longitudinal Cracking	98				
Shoulder Condition Rating	GOOD				
Drainage Condition Rating	GOOD				

COMMENTS:

MP 0.00 Begin Route at Rte 010 / Pic 1777 - Typical Pavement Section  
 MP 0.21 End Route at Doney Crater Picnic Area Parking (Rte 903)

ROUTE: 201 Doney Crater Picnic Area





WR: Western Region  
 Flagstaff Area National Monuments: WUPA / WACA / SUCR

ROUTE: 202 Wukoki Ruin Road

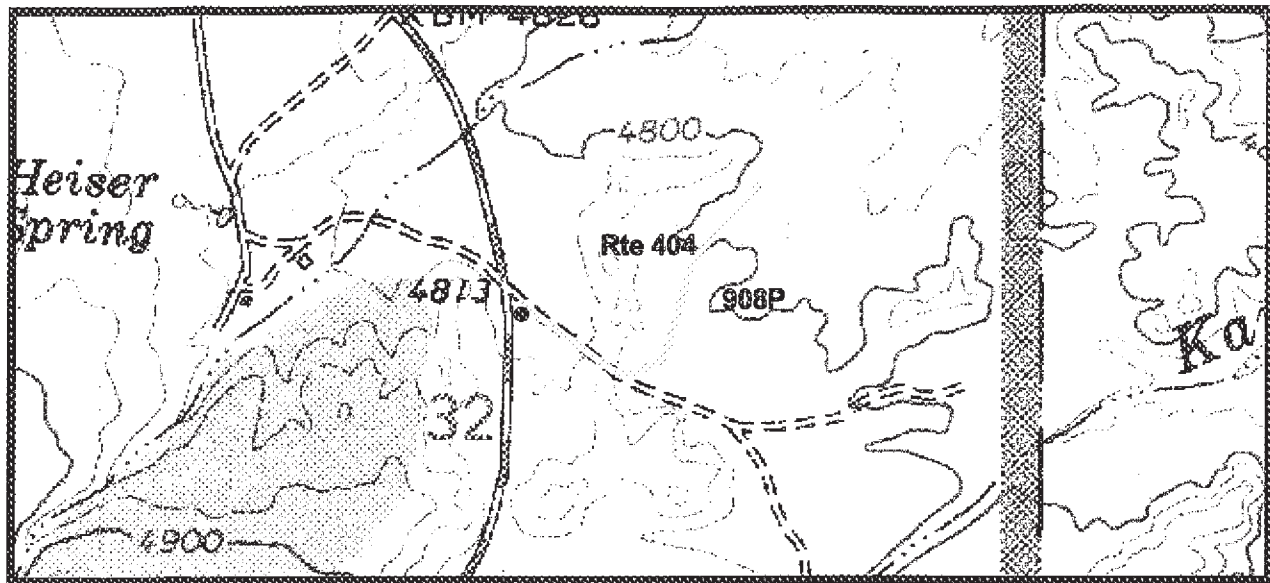
TOTAL LENGTH: 2.42 Miles

Section Number	1	2	3		
Section Length (mi)	1.00	1.00	0.42		
AADT	NA	NA	NA		
SADT	NA	NA	NA		
ADT Date	NA	NA	NA		
<b>Cross Section Information</b>					
Number of Lanes	2	2	2		
Paved Width (ft)	24	24	24		
Lane Width (ft)	12	12	12		
Shoulder Width (ft)	1	1	1		
<b>Roadway Condition Information</b>					
PCR (Pavement Condition Rating)	96	96	97		
Roughness Index	95	94	97		
SCR (Surface Condition Rating)	97	96	98		
Alligator Cracking	100	100	100		
Rutting Index	100	99	100		
Patching Index	100	100	100		
Transverse Cracking	99	99	99		
Longitudinal Cracking	100	100	100		
Shoulder Condition Rating	GOOD	GOOD	GOOD		
Drainage Condition Rating	GOOD	GOOD	GOOD		

COMMENTS:

MP 0.00 Begin Route at Rte 010 / Pic 1778 - Typical Pavement Section  
 MP 1.34 Unpaved Black Falls Patrol Road (Rte 401) Left  
 MP 2.42 End Route at Wupatki Residence Area (Rte 906)

ROUTE: 202 Wukoki Ruin Road



WR: Western Region  
 Flagstaff Area National Monuments: WUPA / WACA / SUCR

ROUTE: 404 New Heiser Road

TOTAL LENGTH: 0.34 Miles

Section Number	1				
Section Length (mi)	0.34				
AADT	NA				
SADT	NA				
ADT Date	NA				
<b>Cross Section Information</b>					
Number of Lanes	2				
Paved Width (ft)	22				
Lane Width (ft)	11				
Shoulder Width (ft)	0				
<b>Roadway Condition Information</b>					
PCR (Pavement Condition Rating)	69				
Roughness Index	60				
SCR (Surface Condition Rating)	72				
Alligator Cracking	100				
Rutting Index	100				
Patching Index	100				
Transverse Cracking	74				
Longitudinal Cracking	99				
Shoulder Condition Rating	GOOD				
Drainage Condition Rating	GOOD				

**COMMENTS:**

MP 0.00 Begin Route at Rte 010 / Pic 1779 - Typical Pavement Section  
 MP 0.14 New Heiser Maintenance Area (Rte 908) Right  
 MP 0.34 End Route at End of Pavement

ROUTE: 404 New Heiser Road

## ***VI. MANUALLY RATED PAVED ROUTE CONDITION RATING SHEETS.***

The following section contains routes that the ARAN cannot be driven on safely and accurately. Typically these are campground roads, which include aspects of both main routes and parking lot features. Also, these routes are designated for low-speed traffic, which does not allow the ARAN to effectively rate them.

In order to report the condition of these routes most accurately, they have been collected with both the ARAN and GPS data collection procedures. The entire route is collected using GPS, providing lane miles. Then, if possible, a sample section is collected using the ARAN, to get an objective rating of its condition. The portion is usually main thoroughfares or entrance roads.

Thus, SCR, RI, and PCR are reported, along with lane miles and a condition derived from the ARAN rating. Below the ratings will be the entire route mapped, with the sample section shown as a line in its corresponding condition color. If the ARAN could not be driven on the route, the ratings will be reported as 'NA', and the condition will be from subjective visual observation only.



# Wupatki / Sunset Crater National Monument

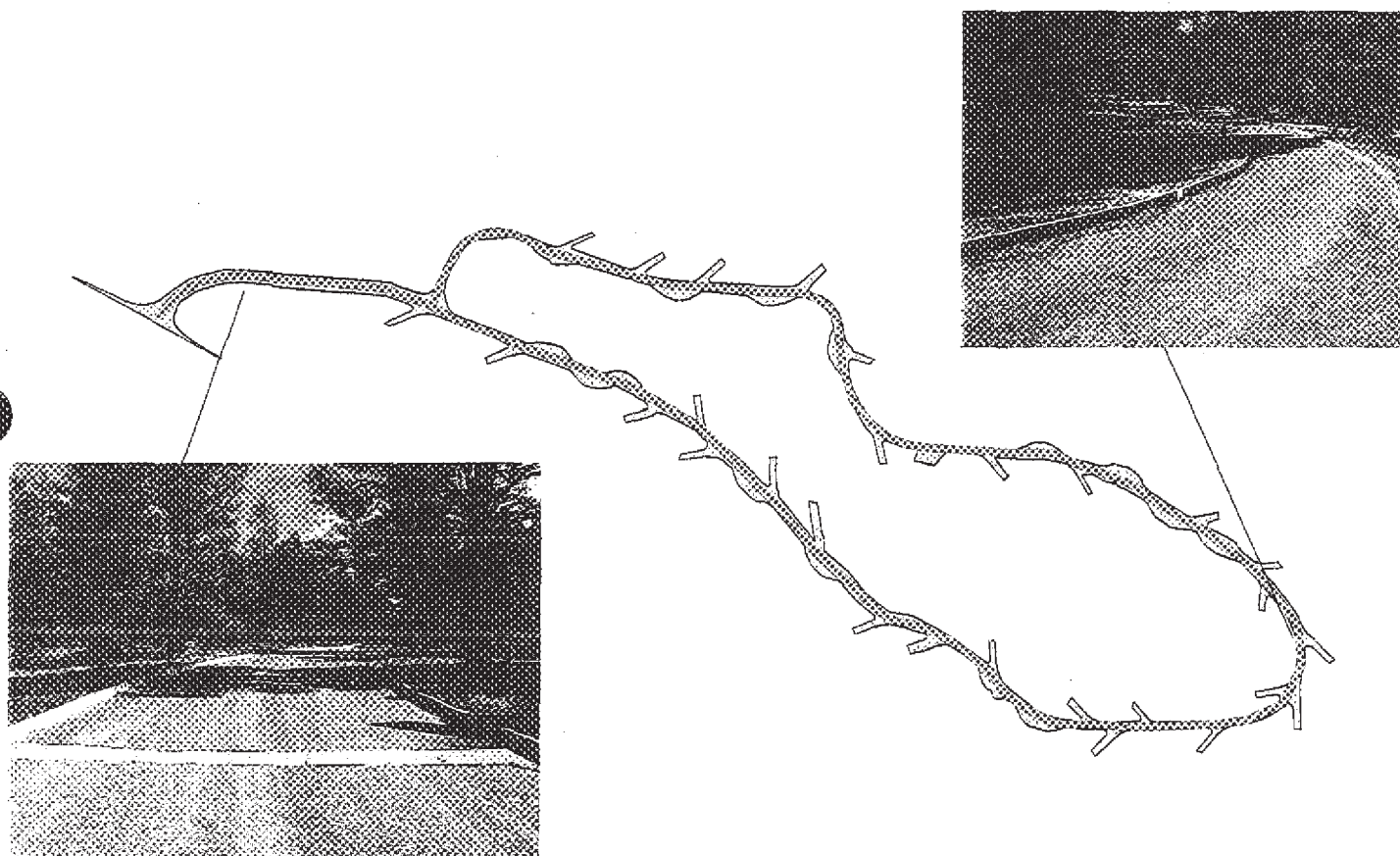
## Route 203P

Bonito N. F. Campground

Off of Rte 010 on Right

Route	Area sq ft	Lane Miles	Sample Section (mi)	Width (ft)	SCR	RI	PCR	Condition
203P	89588	1.54	0.71	NA	25	NA	NA	Poor

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



400 0 400 800 Feet



PCR Excellent  Good  Fair  Poor  DCR Poor 

\* If the PCR rating is not available for a section, the SCR rating will be displayed

# Wupatki / Sunset Crater National Monument

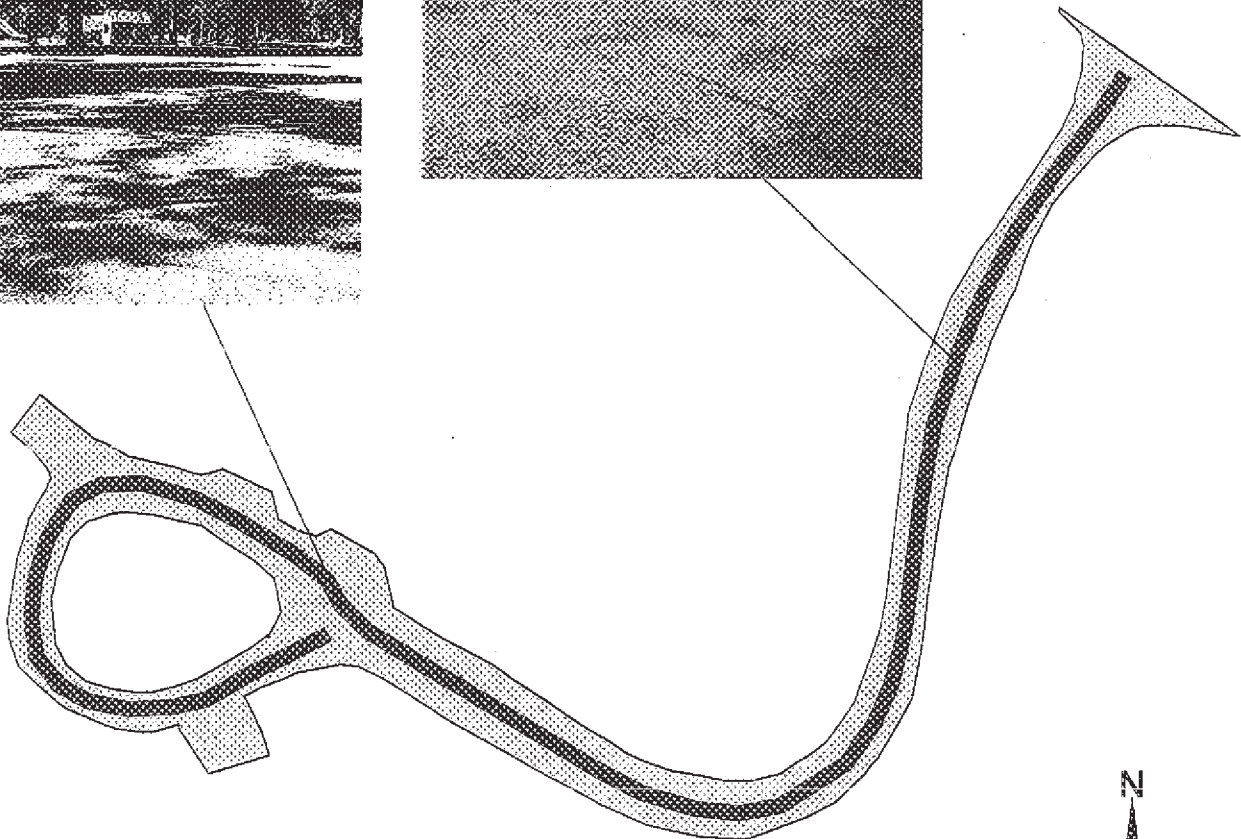
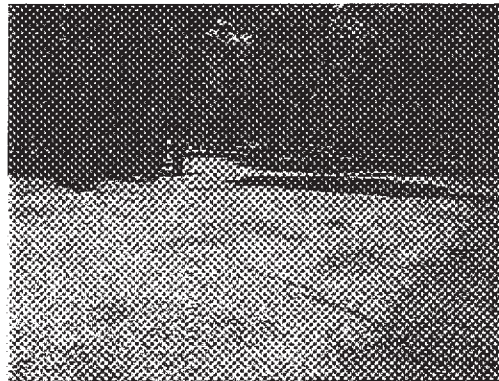
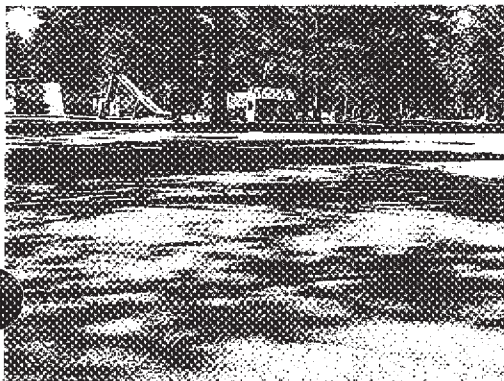
## Route 403N

Sunset Crater Residence Road

Off of Rte 010 on Left

Route	Area sq ft	Lane Miles	Sample Section (mi)	Width (ft)	SCR	RI	PCR	Condition
403N	20558	0.35	0.16	NA	92	NA	NA	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



100 0 100 200 Feet



PCR Excellent Good Fair Poor DCR Poor

\* If the PCR rating is not available for a section, the SCR rating will be displayed

# Wupatki / Sunset Crater National Monument

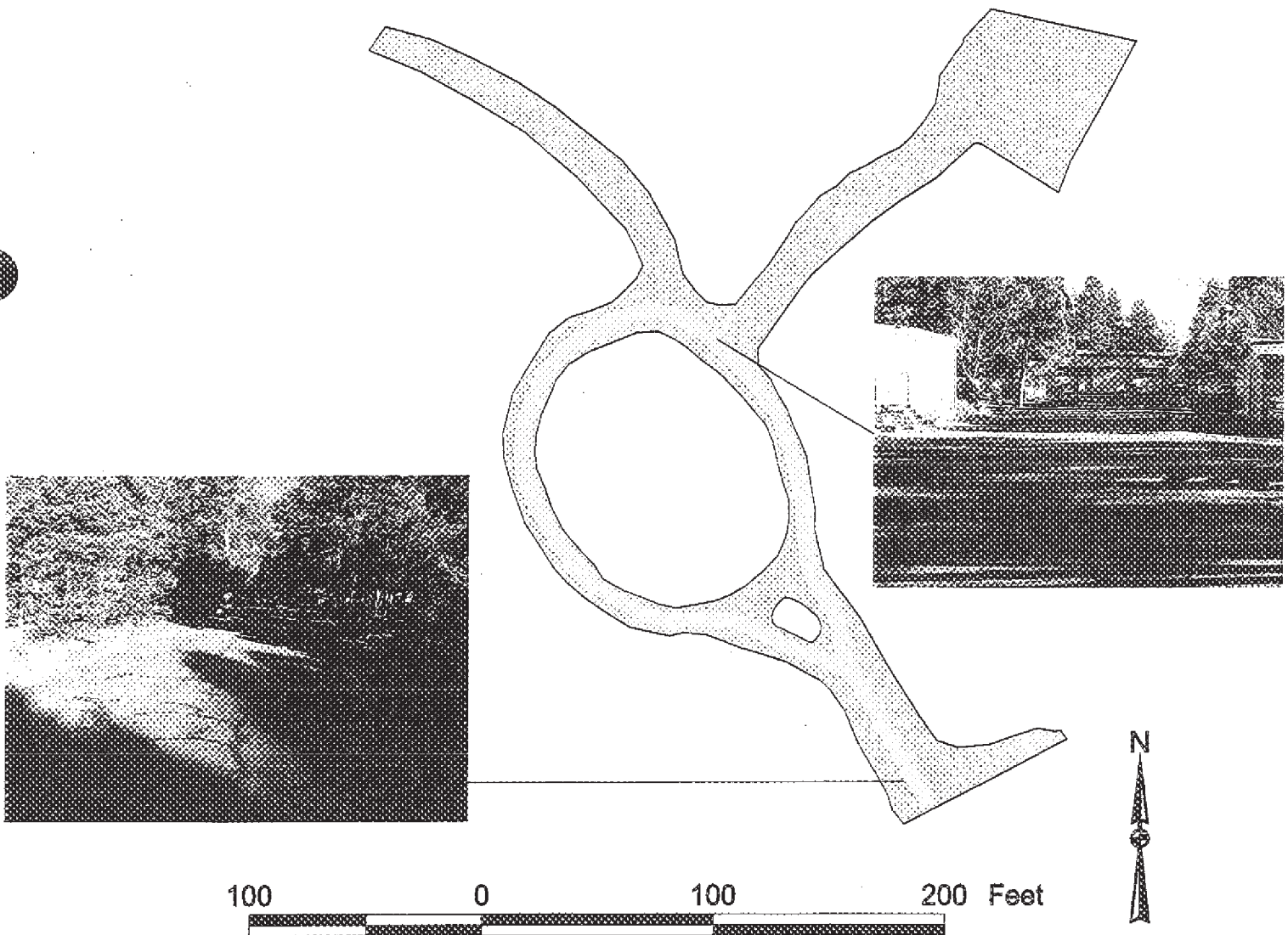
## Route 405N

Walnut Canyon Residence Area

Off of Rte 020 on Right

Route	Area sq ft	Lane Miles	Sample Section (mi)	Width (ft)	SCR	RI	PCR	Condition
405N	28763	0.50	.11	NA	82	NA	NA	Fair

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



PCR Excellent Good Fair Poor DCR Poor

\* If the PCR rating is not available for a section, the SCR rating will be displayed



# Wupatki / Sunset Crater National Monument

## Route 900P

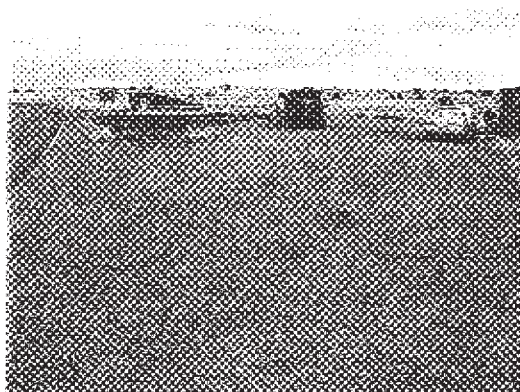
Wupatki National Monument Entrance Pullout

Pullout off Rte 010

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
900P	AZ	990120			-	-	Fair

- Length and width will be used when applicable

- Lane miles are based on 11' lane widths



GPS NOT AVAILABLE

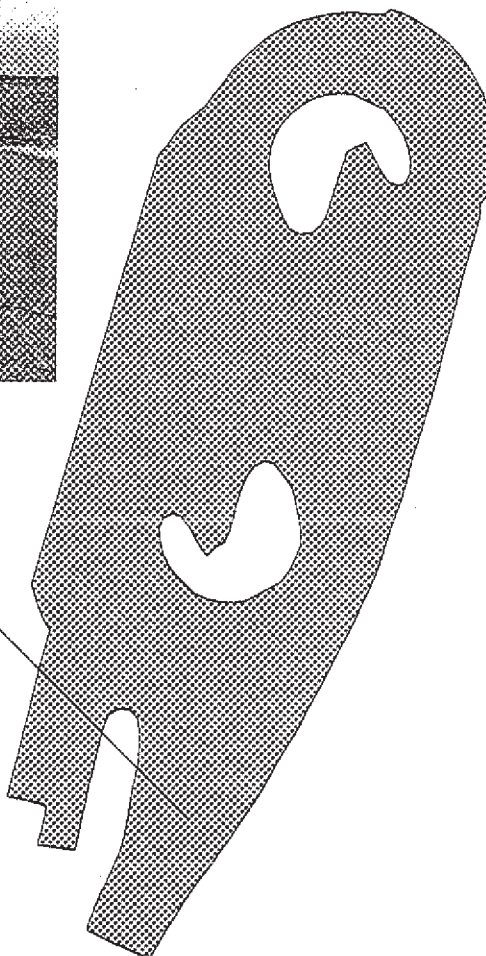
# Wupatki / Sunset Crater National Monument

## Route 901P

Lomaki Ruin Parking  
Off of Rte 010 on Right

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
901P	AZ	990120			31158	0.54	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



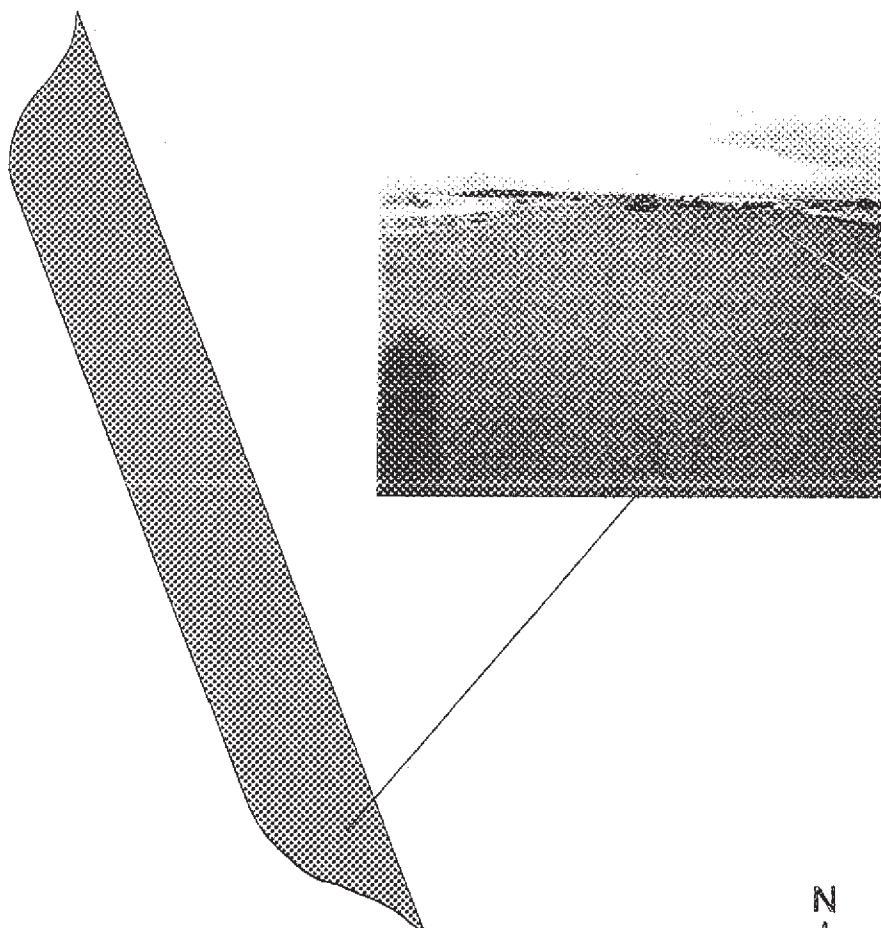
# Wupatki / Sunset Crater National Monument

## Route 902P

Citadel Ruin Parking  
Off of Rte 010 on Right

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
902P	AZ	990120			13764	0.24	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



100 0 100 200 Feet





# Wupatki / Sunset Crater National Monument

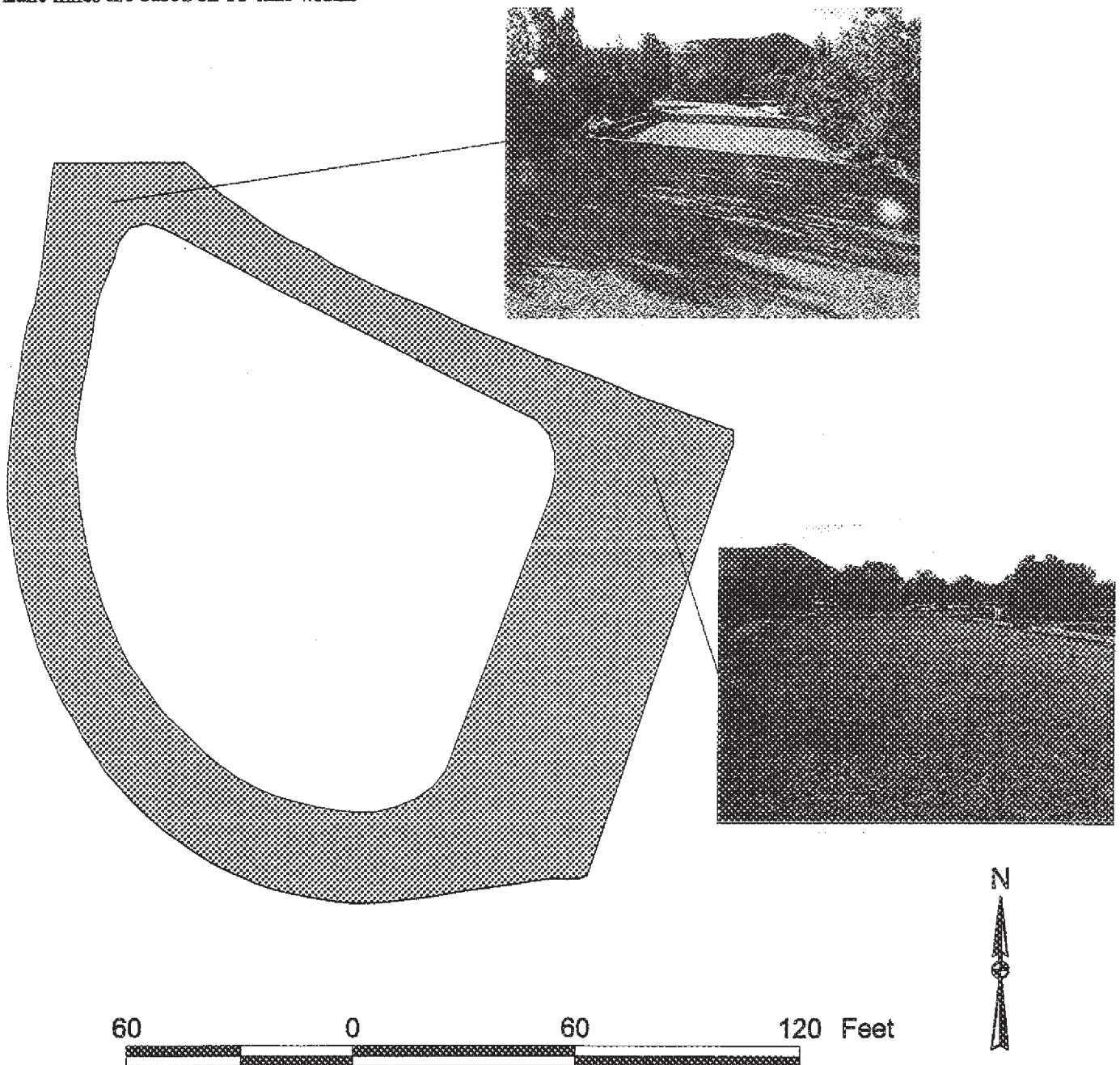
## Route 903P

Doney Crater Picnic Area Parking

At end of Rte 201

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
903P	AZ	990120			13084	0.23	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



# Wupatki / Sunset Crater National Monument

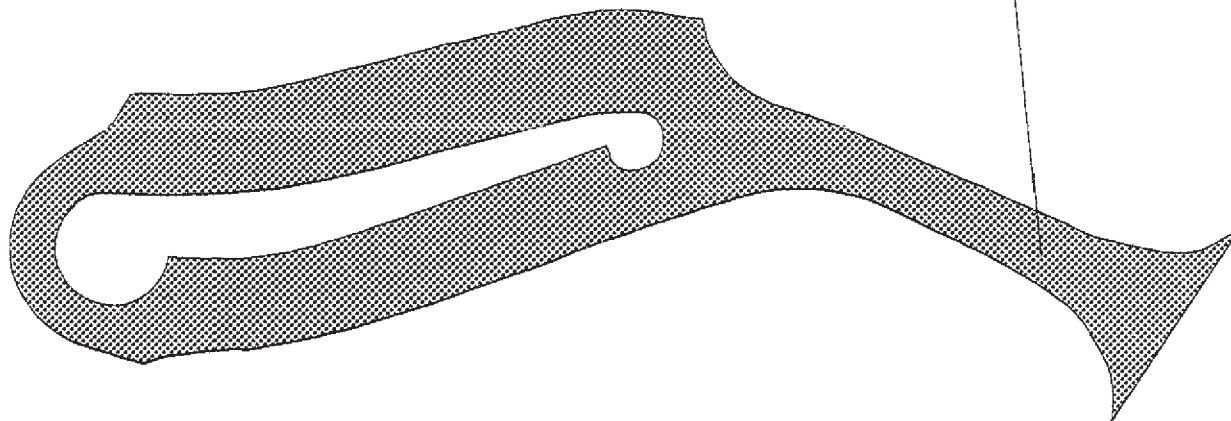
## Route 904P

Wupatki Visitor Center Parking

Off of Rte 010 on Right

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
904P	AZ	990120			32284	0.56	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



100 0 100 200 Feet



# Wupatki / Sunset Crater National Monument

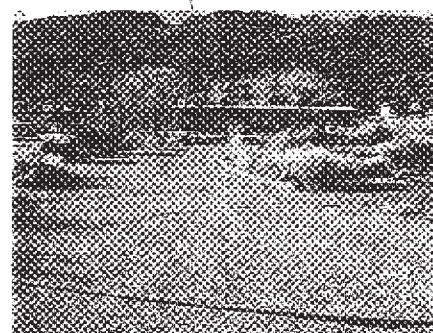
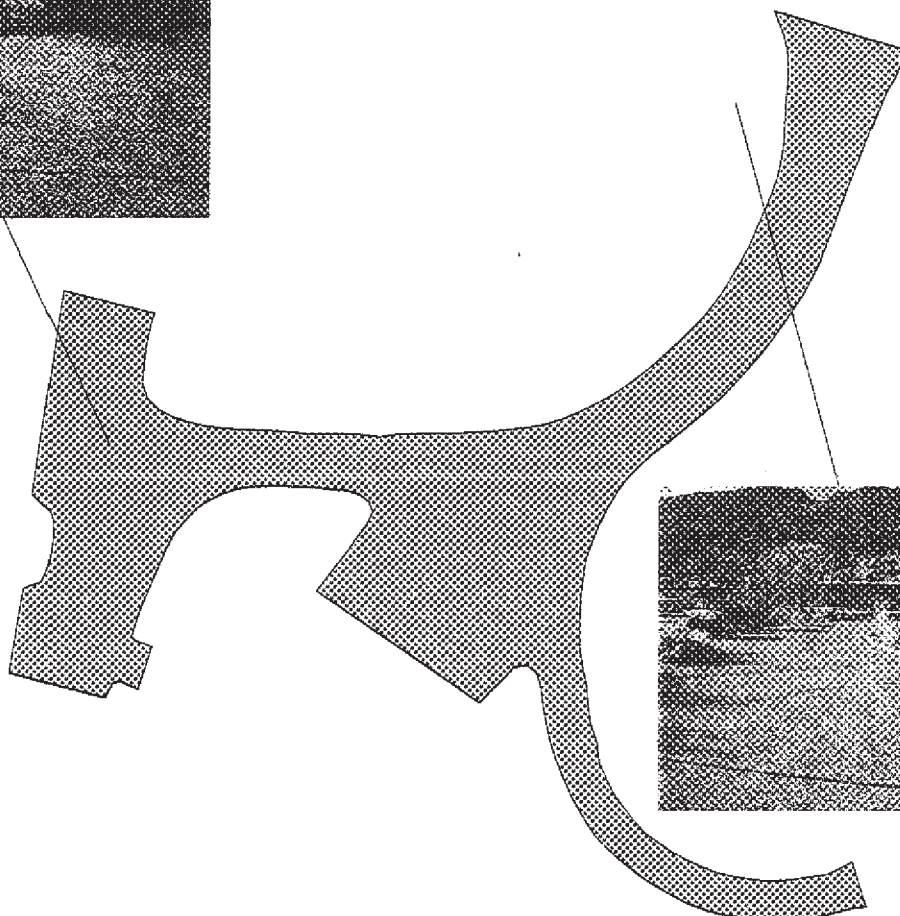
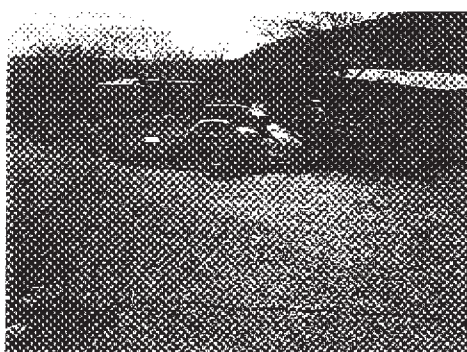
## Route 905P

Wupatki Residence Area

Off of Rte 010 on Right

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
905P	AZ	990120			13918	0.24	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths





# Wupatki / Sunset Crater National Monument

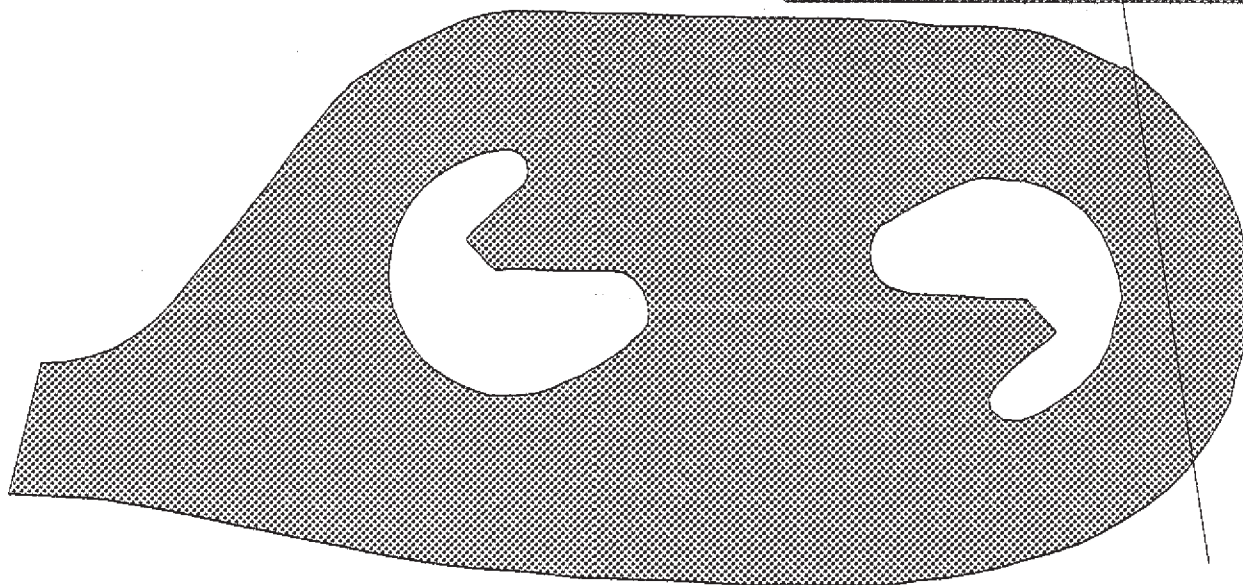
## Route 906P

Wupatki Ruin Parking

End of Rte 202

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
906P	AZ	990120			21491	0.37	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



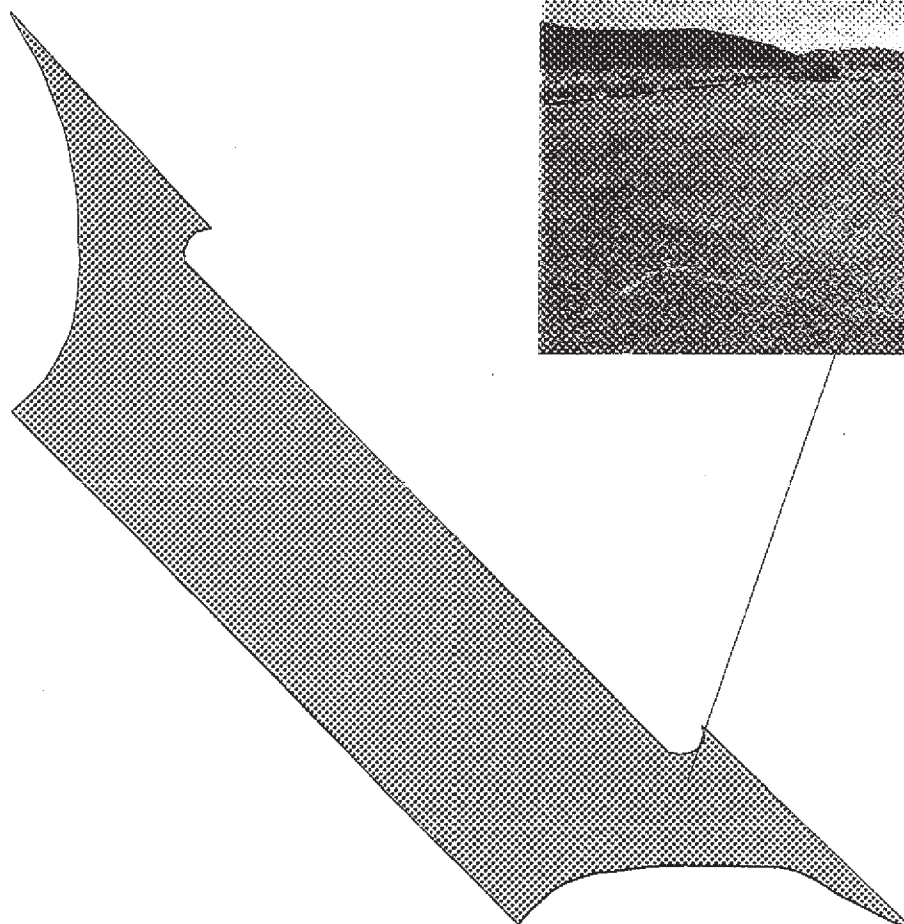
# Wupatki / Sunset Crater National Monument

## Route 907P

Pit House Parking  
Off of Rte 010 on Left

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
907P	AZ	990120			16049	0.28	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



80 0 80 160 Feet



# Wupatki / Sunset Crater National Monument

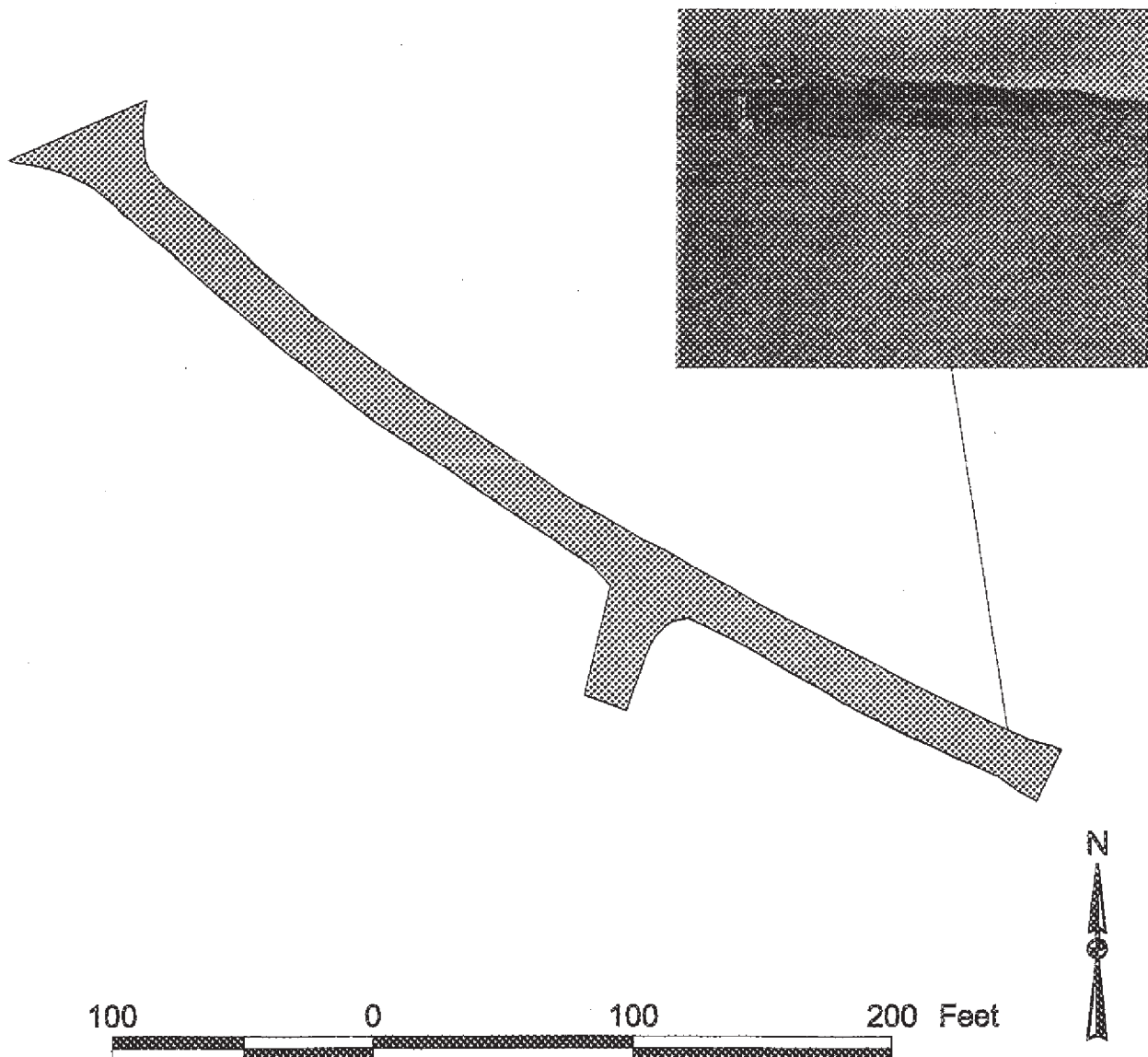
## Route 908P

New Heiser Maintenance Area

Off of Rte 404

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
908P	AZ	990120			10933	0.19	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths





# Wupatki / Sunset Crater National Monument

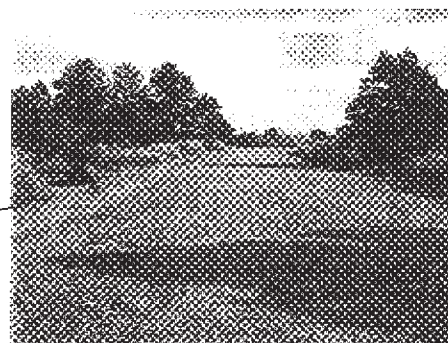
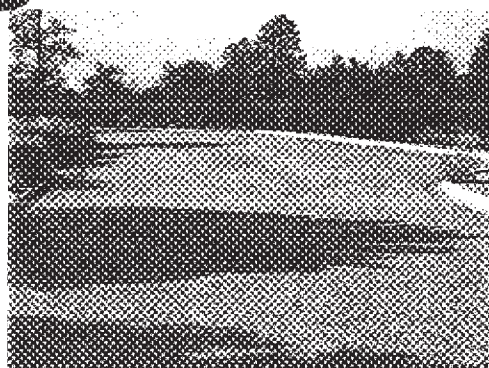
## Route 909P

Painted Desert Vista Parking

Off of Rte 010 on Right

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
909P	AZ	990120			28095	0.48	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



200 0 200 Feet



# Wupatki / Sunset Crater National Monument

## Route 910P

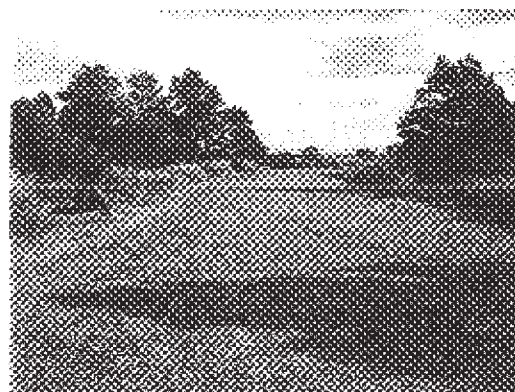
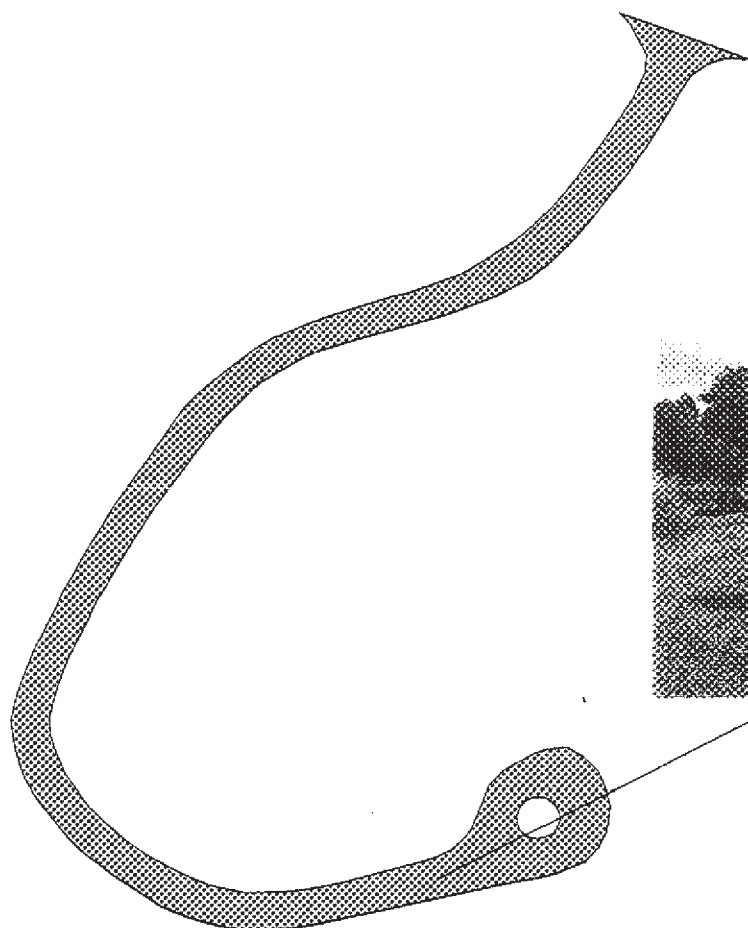
Cinder Hills Overlook

Off of Rte 010 on Left

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
910P	AZ	990120			22867	0.39	Good

- Length and width will be used when applicable

- Lane miles are based on 11' lane widths



200 0 200 Feet



# Wupatki / Sunset Crater National Monument

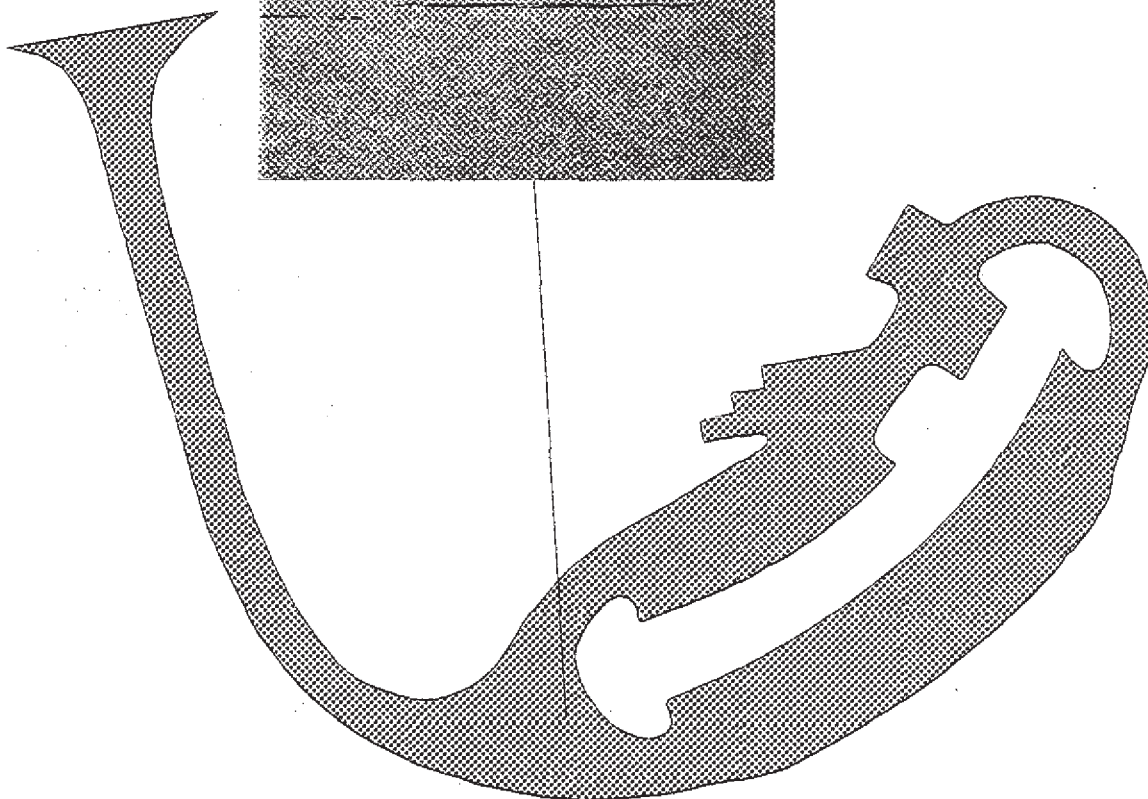
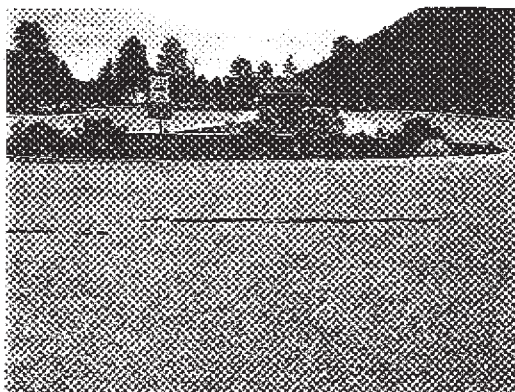
## Route 911P

Sunset Crater Volcano Parking

Off of Rte 010 on Left

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
911P	AZ	990120			41531	0.72	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths





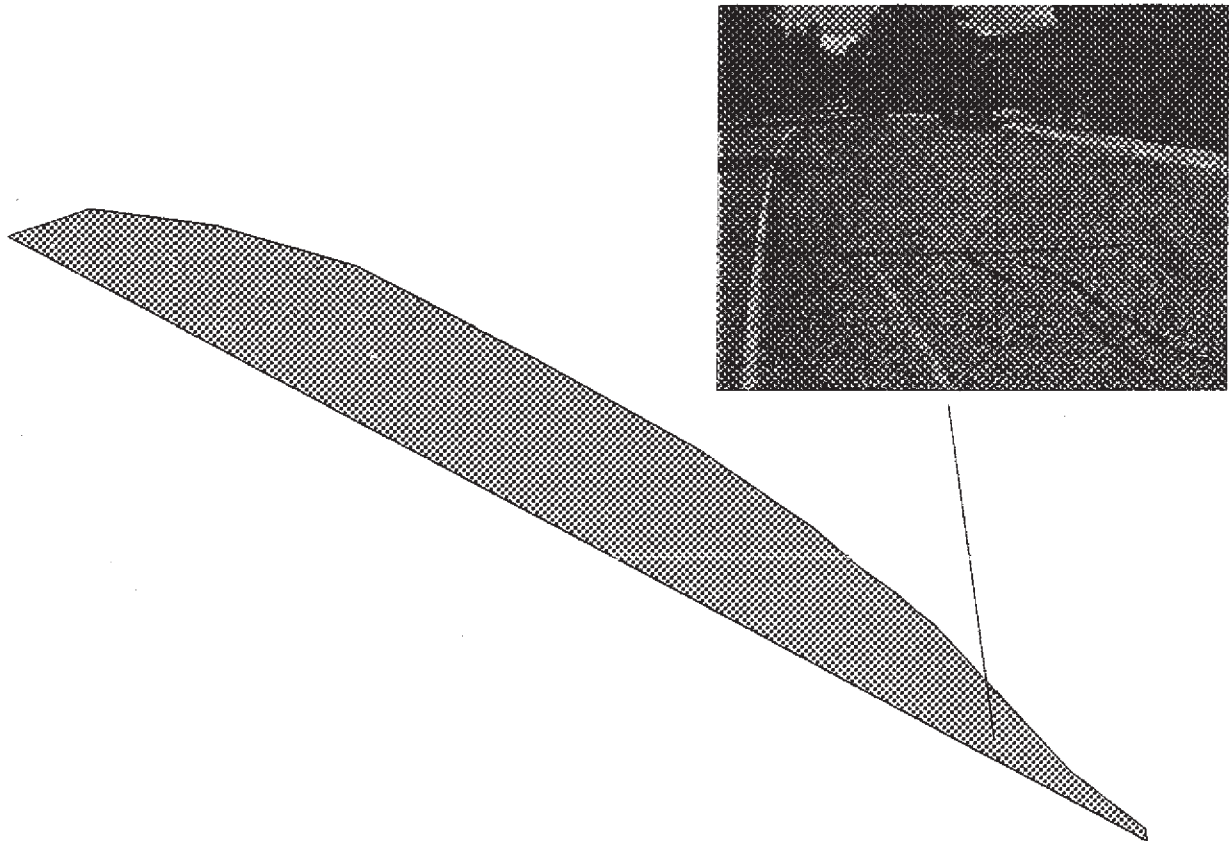
# Wupatki / Sunset Crater National Monument

## Route 912P

Lenox Crater Pullout  
Off of Rte 010 on Right

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
912P	AZ	990120			5861.1	0.1	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



60 0 60 120 Feet



# Wupatki / Sunset Crater National Monument

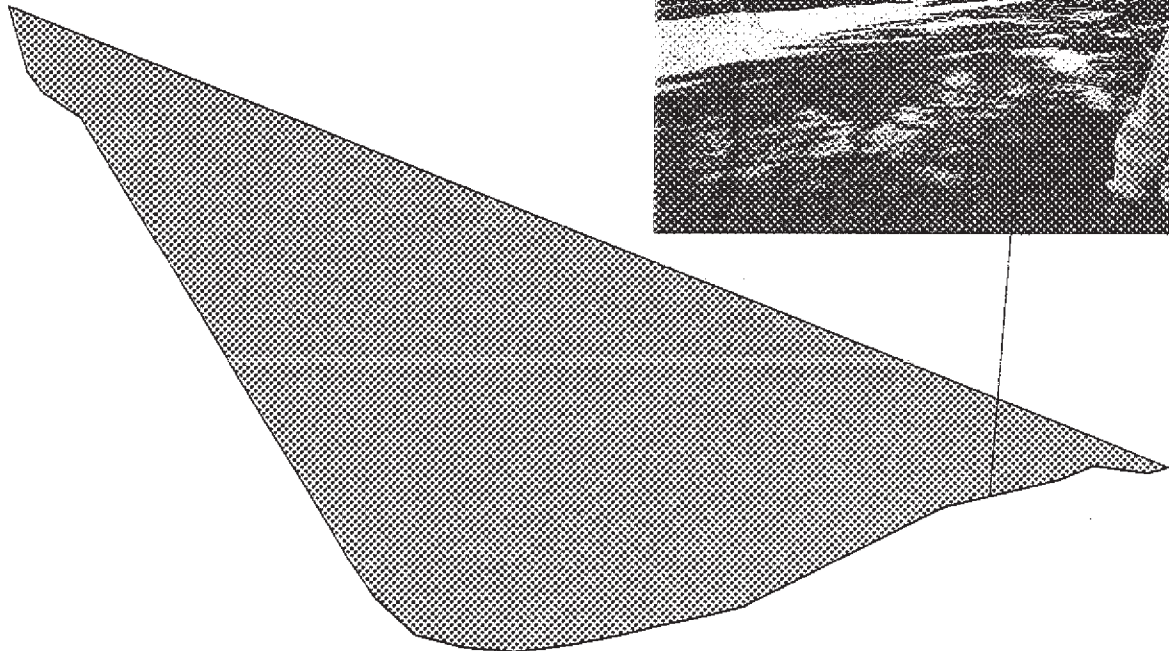
## Route 913P

Lava Flow Trail Parking

Off of Rte 010 on Left

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
913P	AZ	990120			3056	0.05	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



30 0 30 60 Feet



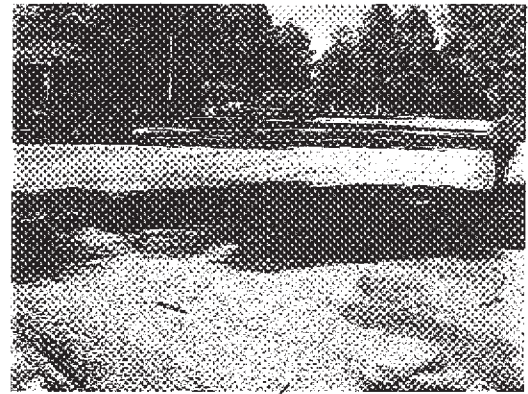
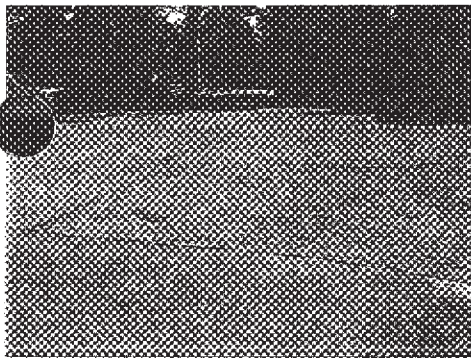
# Wupatki / Sunset Crater National Monument

## Route 914P

Sunset Crater Visitor Center and Maintenance Parking  
Off of Rte 010 on Left

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
914P	AZ	990120			20603	0.35	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



100 0 100 200 Feet





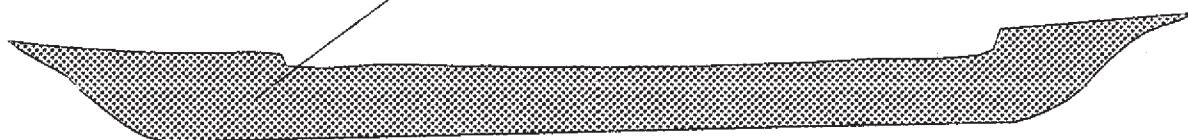
# Wupatki / Sunset Crater National Monument

## Route 915P

Bonita Park Pullout  
Off of Rte 010 on Right

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
915P	AZ	990120			4127	0.07	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



80 0 80 Feet



# Wupatki / Sunset Crater National Monument

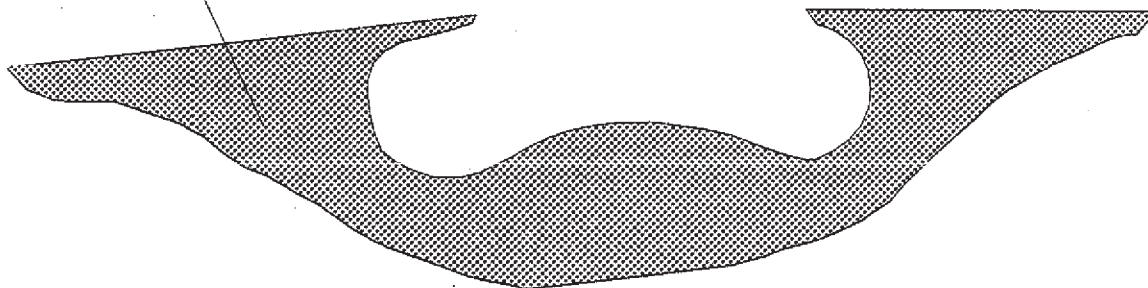
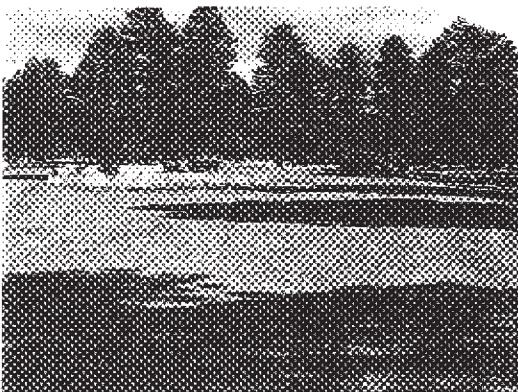
## Route 916P

Sunset Crater Entrance Turnout

Off of Rte 010 on Left

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
916P	AZ	990120			9123	0.16	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



90 0 90 Feet



# Wupatki / Sunset Crater National Monument

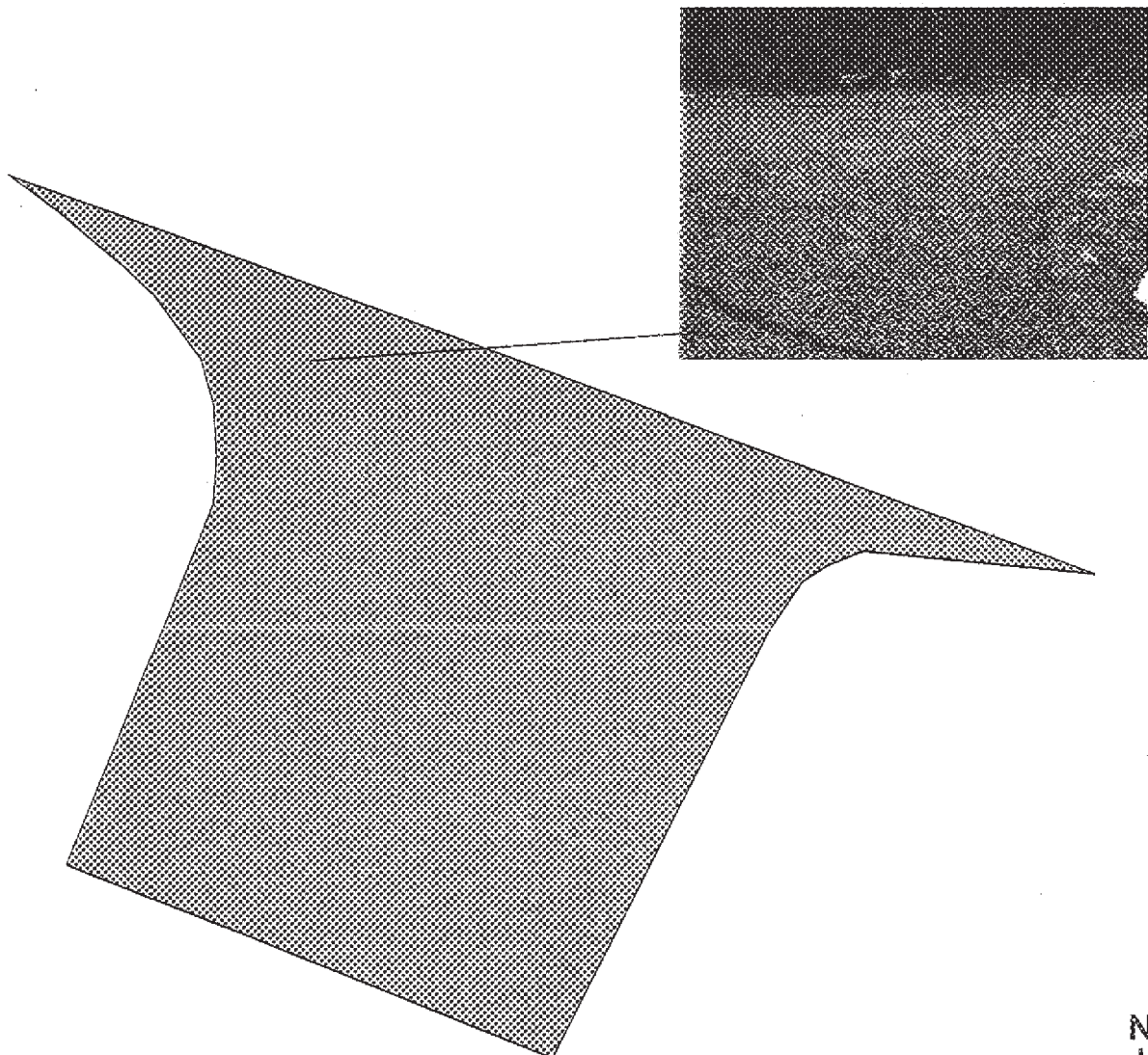
## Route 917P

Walnut Canyon Picnic Area

Off of Rte 020

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
917P	AZ	990120			1888	0.03	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



30 0 30 Feet





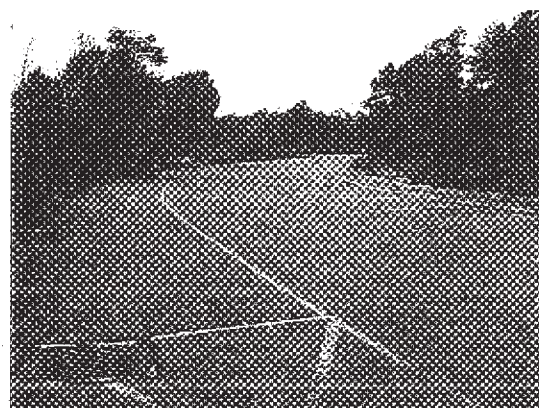
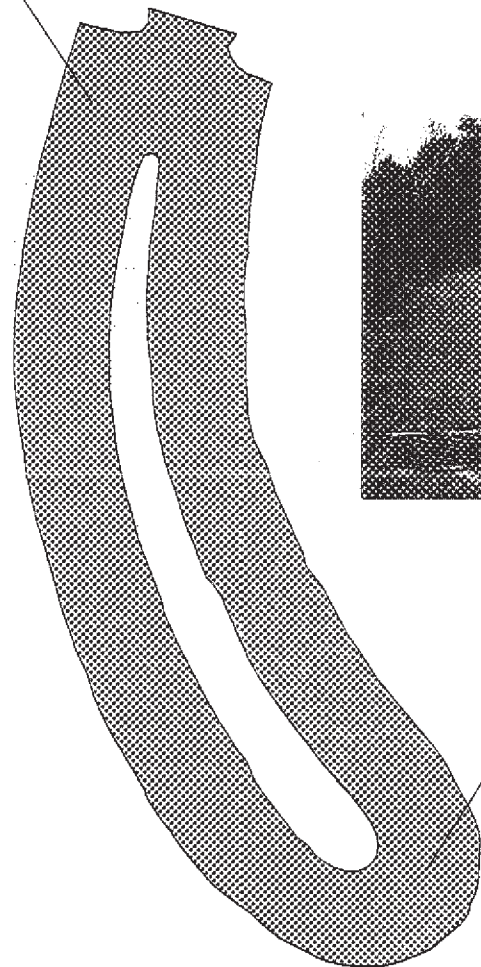
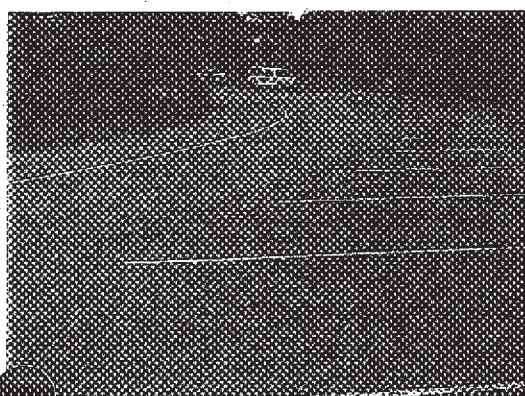
# Wupatki / Sunset Crater National Monument

## Route 918P

Walnut Canyon Visitor Center Parking  
At End of Rte 020

Route	State	Date Visited	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles	Condition
918P	AZ	990120			33544	0.58	Good

- Length and width will be used when applicable
- Lane miles are based on 11' lane widths



100 0 100 200 Feet



## PARKWIDE MAINTENANCE FEATURES SUMMARY

Western Region : WUPA 7470 / WACA 8710 / SUCR 7460

ICAP CODE	FEATURE	PARK TOTAL	UNIT
1152	PULLOUT (PAVED)	17	EACH
1153	INTERSECTION	33	EACH
1190	TURNOUT (PASSING LANE)	1319	LINEAR FEET
1320	PAVED DITCH	2149	LINEAR FEET
1331	CULVERT OPENING	60	EACH
1333	DROP INLET	0	EACH
1340	CURB	17984	LINEAR FEET
1530	TRAFFIC LIGHT	0	EACH
1540	GUARDRAIL	5639	LINEAR FEET
1542	GUARD WALL	0	LINEAR FEET
1545	CATTLE GUARD	6	EACH
1720	BRIDGE	0	EACH
1740	TUNNEL	0	EACH
3361	RETAINING WALL	0	EACH
5833	LIGHT POLE	0	EACH
8390	OVERHEAD SIGN	0	EACH
8400	RAILROAD CROSSING	0	EACH
	PARK BOUNDARY	7	EACH

## ROUTE MAINTENANCE FEATURES SUMMARY

Western Region : WUPA 7470 / WACA 8710 / SUCR 7460

### ROUTE:010 : Wupatki-Sunset Crater Scenic Loop Road

ICAP CODE	FEATURE	PARK TOTAL	UNIT
1152	PULLOUT (PAVED)	14	EACH
1153	INTERSECTION	27	EACH
1190	TURNOUT (PASSING LANE)	1319	LINEAR FEET
1320	PAVED DITCH	2149	LINEAR FEET
1331	CULVERT OPENING	27	EACH
1333	DROP INLET	0	EACH
1340	CURB	14394	LINEAR FEET
1530	TRAFFIC LIGHT	0	EACH
1540	GUARDRAIL	5639	LINEAR FEET
1542	GUARD WALL	0	LINEAR FEET
1545	CATTLE GUARD	6	EACH
1720	BRIDGE	0	EACH
1740	TUNNEL	0	EACH
3361	RETAINING WALL	0	EACH
5833	LIGHT POLE	0	EACH
8390	OVERHEAD SIGN	0	EACH
8400	RAILROAD CROSSING	0	EACH
	PARK BOUNDARY	6	EACH



## ROUTE MAINTENANCE FEATURES SUMMARY

Western Region : WUPA 7470 / WACA 8710 / SUCR 7460

### ROUTE:020 : Walnut Canyon Entrance Road

ICAP CODE	FEATURE	PARK TOTAL	UNIT
1152	PULLOUT (PAVED)	3	EACH
1153	INTERSECTION	4	EACH
1190	TURNOUT (PASSING LANE)	0	LINEAR FEET
1320	PAVED DITCH	0	LINEAR FEET
1331	CULVERT OPENING	29	EACH
1333	DROP INLET	0	EACH
1340	CURB	0	LINEAR FEET
1530	TRAFFIC LIGHT	0	EACH
1540	GUARDRAIL	0	LINEAR FEET
1542	GUARD WALL	0	LINEAR FEET
1545	CATTLE GUARD	0	EACH
1720	BRIDGE	0	EACH
1740	TUNNEL	0	EACH
3361	RETAINING WALL	0	EACH
5833	LIGHT POLE	0	EACH
8390	OVERHEAD SIGN	0	EACH
8400	RAILROAD CROSSING	0	EACH
	PARK BOUNDARY	1	EACH

## ROUTE MAINTENANCE FEATURES SUMMARY

Western Region : WUPA 7470 / WACA 8710 / SUCR 7460

### ROUTE:202 : Wukoki Ruin Road

ICAP CODE	FEATURE	PARK TOTAL	UNIT
1152	PULLOUT (PAVED)	0	EACH
1153	INTERSECTION	1	EACH
1190	TURNOUT (PASSING LANE)	0	LINEAR FEET
1320	PAVED DITCH	0	LINEAR FEET
1331	CULVERT OPENING	2	EACH
1333	DROP INLET	0	EACH
1340	CURB	0	LINEAR FEET
1530	TRAFFIC LIGHT	0	EACH
1540	GUARDRAIL	0	LINEAR FEET
1542	GUARD WALL	0	LINEAR FEET
1545	CATTLE GUARD	0	EACH
1720	BRIDGE	0	EACH
1740	TUNNEL	0	EACH
3361	RETAINING WALL	0	EACH
5833	LIGHT POLE	0	EACH
8390	OVERHEAD SIGN	0	EACH
8400	RAILROAD CROSSING	0	EACH
	PARK BOUNDARY	0	EACH

## ROUTE MAINTENANCE FEATURES SUMMARY

Western Region : WUPA 7470 / WACA 8710 / SUCR 7460

### ROUTE:404 : New Heiser Road

ICAP CODE	FEATURE	PARK TOTAL	UNIT
1152	PULLOUT (PAVED)	0	EACH
1153	INTERSECTION	1	EACH
1190	TURNOUT (PASSING LANE)	0	LINEAR FEET
1320	PAVED DITCH	0	LINEAR FEET
1331	CULVERT OPENING	2	EACH
1333	DROP INLET	0	EACH
1340	CURB	0	LINEAR FEET
1530	TRAFFIC LIGHT	0	EACH
1540	GUARDRAIL	0	LINEAR FEET
1542	GUARD WALL	0	LINEAR FEET
1545	CATTLE GUARD	0	EACH
1720	BRIDGE	0	EACH
1740	TUNNEL	0	EACH
3361	RETAINING WALL	0	EACH
5833	LIGHT POLE	0	EACH
8390	OVERHEAD SIGN	0	EACH
8400	RAILROAD CROSSING	0	EACH
	PARK BOUNDARY	0	EACH



# ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 010

## WUPATKI-SUNSET CRATER SCENIC LOOP ROAD

MILE POST BEGIN END	FEATURE DESCRIPTION LEFT	FEATURE DESCRIPTION RIGHT	REMARKS
0.000 0.000			Beginning of Rte
0.003 0.000		Boundary	West Boundary to Wupatki NM
0.006 0.000		Cattle Guard	
0.018 0.054		Turnout	Rte 900
0.034 0.044		Curb	
0.441 0.563		Curb	
0.515 0.595	Curb		
0.830 0.000		Intersection	Unpaved Rte
0.953 0.000	Intersection		Unpaved Rte
1.614 0.000	Intersection		Unpaved Rte
2.553 2.764		Curb	
3.329 0.000	Intersection		Rte 200
4.028 0.000	Culvert		
4.106 0.000		Pullout	Rte 902
6.148 0.000		Cattle Guard	
6.186 0.000		Boundary	Leaving Wupatki NM
6.345 0.000		Intersection	Unpaved Rte
9.003 9.174	Curb		
9.054 0.000		Culvert	
9.308 0.000		Intersection	Rte 201
9.750 0.000		Boundary	Entering Wupatki NM
9.756 0.000		Cattle Guard	
9.788 0.000		Boundary	Entering Wupatki NM
10.288 10.371	Curb		
10.327 10.420		Curb	
10.469 10.549	Curb		
10.519 10.814		Curb	
11.470 0.000	Culvert		
11.659 0.000	Culvert		
12.510 12.546		Ditch	
12.537 12.614	Curb		
12.614 0.000		Culvert	
12.662 0.000	Culvert		
12.723 12.775		Curb	
12.796 0.000	Culvert		
12.921 0.000	Culvert		
13.010 0.000	Culvert		
13.322 0.000	Culvert		
13.533 0.000		Intersection	Rte 904
13.669 0.000	Culvert		
13.900 0.000	Intersection		Rte 907
14.500 0.000	Culvert		
14.572 14.640		Turnout	
14.591 14.619		Curb	
14.680 0.000		Intersection	Unpaved Rte

# ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 010

WUPATKI-SUNSET CRATER SCENIC LOOP ROAD

MILE POST		FEATURE	FEATURE	REMARKS
BEGIN	END	DESCRIPTION LEFT	DESCRIPTION RIGHT	
14.937	15.049		Curb	
15.062	0.000	Culvert		
15.152	0.000		Intersection	Unpaved Rte 402
15.207	0.000	Intersection		Rte 404
15.316	0.000	Culvert		
15.853	0.000		Boundary	Leaving Wupatki NM
15.858	0.000		Cattle Guard	
15.862	0.000	Pullout		
15.267	0.000	Culvert		
16.287	0.000		Intersection	Unpaved Rte
16.623	0.000	Culvert		
16.645	16.818		Guardrail	
16.688	16.826	Guardrail		
16.727	16.824		Curb	
17.372	0.000	Intersection		Unpaved Rte
17.518	0.000		Culvert	
17.996	0.000		Culvert	
18.022	0.000	Culvert		
19.110	0.000	Intersection		Unpaved Rte
19.465	0.000	Culvert		
20.129	0.000	Culvert		
20.372	0.000	Culvert		
20.628	0.000		Cattle Guard	
20.837	0.000		Boundary	East Boundary of Coconino NF
21.519	0.000		Pullout	
22.481	0.000	Intersection		Unpaved Rte
22.507	22.556	Curb		
22.534	0.000	Pullout		
22.728	22.886		Curb	
22.869	22.927	Curb		
22.897	0.000	Pullout		
22.937	22.976	Curb		
23.209	23.311		Curb	
23.451	23.522		Curb	
23.481	0.000		Pullout	
23.889	23.933		Curb	
23.903	0.000		Pullout	
24.217	24.323		Ditch	
24.495	24.534	Curb		
24.511	0.000	Pullout		
24.751	24.920		Ditch	
25.046	25.079		Ditch	
25.203	0.000		Intersection	Rte 909
25.237	25.669	Curb		
25.476	0.000		Boundary	

# ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 010

WUPATKI-SUNSET CRATER SCENIC LOOP ROAD

MILE POST BEGIN END	FEATURE DESCRIPTION LEFT	FEATURE DESCRIPTION RIGHT	REMARKS
25.619 25.673		Curb	
25.643 0.000		Pullout	
26.536 26.596	Curb		
26.572 0.000	Pullout		
27.627 0.000		Pullout	
27.768 0.000	Intersection		Unpaved Rte
28.239 0.000	Intersection		Unpaved Rte
29.077 0.000		Intersection	Unpaved Rte
29.091 29.107		Turnout	
29.108 0.000	Intersection		Rte 910
29.764 30.053	Guardrail		
30.130 30.598		Guardrail	
31.082 0.000	Intersection		Rte 911
31.249 31.290		Curb	
31.274 0.000		Pullout	Rte 912
31.898 0.000		Culvert	
31.899 0.000	Pullout		
31.916 0.000	Pullout		
31.985 32.048		Ditch	
32.547 0.000	Intersection		Rte 403
32.559 32.610	Turnout		Rte 914
32.566 32.608	Curb		
32.673 32.718		Curb	
32.687 0.000		Intersection	Rte 203
32.775 0.000	Culvert		
32.821 0.000		Intersection	Unpaved Rte
32.983 0.000		Intersection	Unpaved Rte
33.076 0.000		Culvert	
33.399 33.437	Turnout		Rte 915
33.713 0.000	Intersection		Unpaved Rte
34.102 0.000		Culvert	
34.112 0.000	Culvert		
34.462 34.503	Turnout		Rte 916
34.482 0.000		Intersection	Unpaved Rte
34.572 0.000		Cattle Guard	
34.575 0.000		Boundary	End Route



# ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 020

WALNUT CANYON ENTRANCE ROAD

MILE POST BEGIN	MILE POST END	FEATURE DESCRIPTION LEFT	FEATURE DESCRIPTION RIGHT	REMARKS
0.000	0.000			Begin Route
0.024	0.000		Culvert	
0.327	0.000	Culvert		
0.336	0.000		Pullout	
0.377	0.000	Culvert		
0.628	0.000	Culvert		
0.646	0.000		Culvert	
0.727	0.000	Culvert		
0.838	0.000		Culvert	
0.839	0.000	Culvert		
0.910	0.000	Culvert		
0.918	0.000		Culvert	
0.983	0.000		Culvert	
0.986	0.000	Culvert		
1.151	0.000		Culvert	
1.157	0.000	Culvert		
1.365	0.000		Intersection	Rte 917
1.386	0.000		Culvert	
1.431	0.000		Culvert	
1.453	0.000	Culvert		
1.594	0.000		Culvert	
1.596	0.000	Culvert		
1.789	0.000		Culvert	
1.790	0.000	Culvert		
1.826	0.000		Culvert	
1.828	0.000	Culvert		
1.874	0.000	Putout		
2.100	0.000	Culvert		
2.100	0.000		Culvert	
2.253	0.000		Culvert	
2.257	0.000	Culvert		
2.355	0.000	Culvert		
2.362	0.000		Intersection	Arizona Trail Parking (unpaved)
2.436	0.000	Intersection		Arizona Trail Parking (unpaved)
2.440	0.000		Culvert	
2.598	0.000	Intersection		Contact Station
2.624	0.000		Intersection	Rte 405
2.940	0.000			End Route at Rte 918

# ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 200

LOMAKI RUIN ROAD

MILE POST		FEATURE	FEATURE	REMARKS
BEGIN	END	DESCRIPTION LEFT	DESCRIPTION RIGHT	
0.000	0.000			Begin Rte
0.362	0.000			End Rte

# ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 201

DONEY CRATER PICNIC AREA ROAD

MILE POST		FEATURE	FEATURE	REMARKS
BEGIN	END	DESCRIPTION LEFT	DESCRIPTION RIGHT	
0.000	0.000			Begin Rte
0.207	0.000			End Rte



# ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 202

WUKOKI RUIN ROAD

MILE POST		FEATURE	FEATURE	REMARKS
BEGIN	END	DESCRIPTION LEFT	DESCRIPTION RIGHT	
0.000	0.000			Begin Rte
1.339	0.000	Intersection		Rte 401 (unpaved)
1.603	0.000		Culvert	
2.348	0.000		Culvert	
2.420	0.000			End Rte

# ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 404

NEW HEISER ROAD

MILE POST		FEATURE	FEATURE	REMARKS
BEGIN	END	DESCRIPTION LEFT	DESCRIPTION RIGHT	
0.000	0.000			Begin Rte
0.025	0.000		Culvert	
0.142	0.000		Intersection	Rte 908
0.173	0.000		Culvert	
0.201	0.000		Culvert	
0.340	0.000			End Rte

# PHOTOGRAPHIC SHEET

PARK NUMBER: 7470  
ROUTE NUMBER: Rte 010  
DATE: 01/99

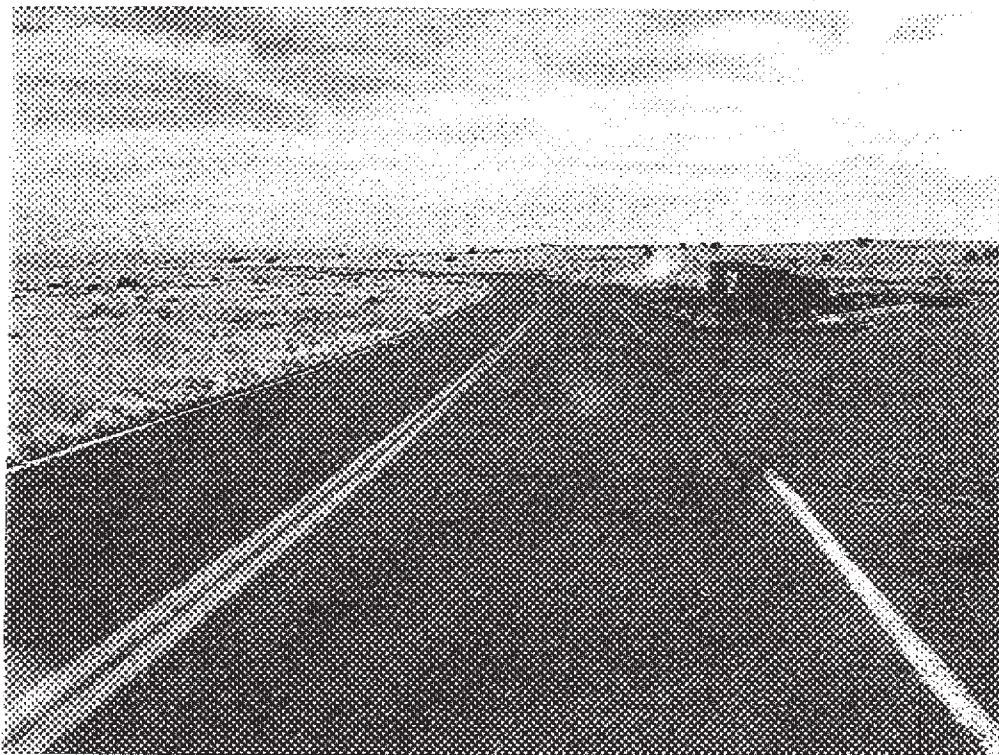


Photo #1770 MP 0.00 Beginning of Rte 010

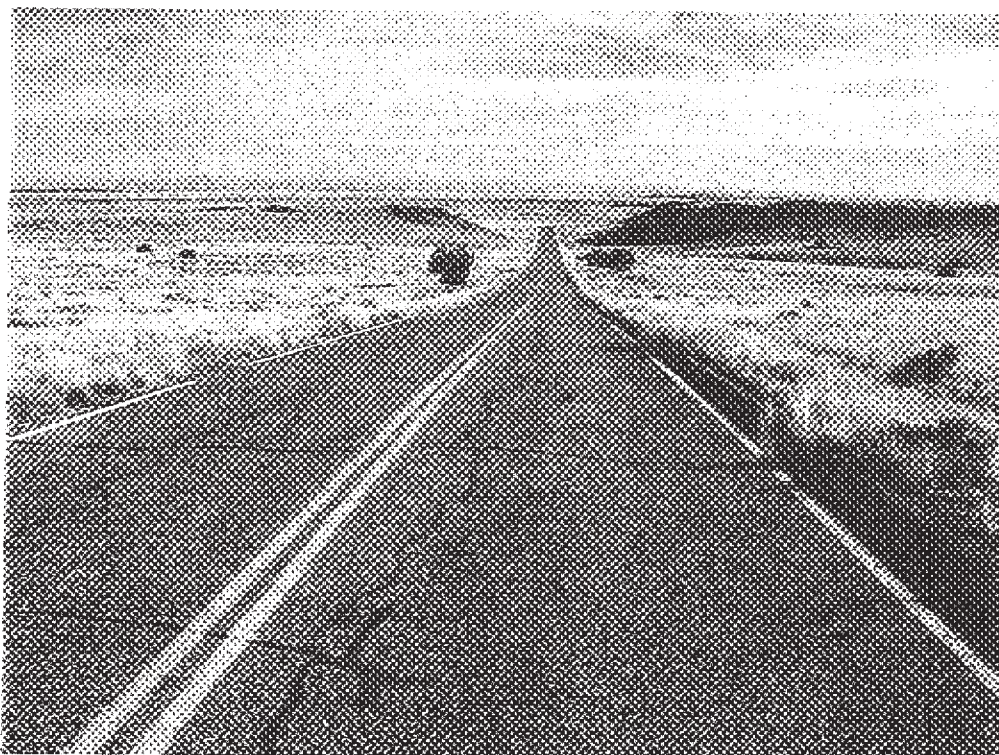


Photo #1771 MP 0.70 Vegetation in Lane



# PHOTOGRAPHIC SHEET

PARK NUMBER: 7470

ROUTE NUMBER: Rte 010

DATE: 01/99



Photo #1772 MP 4.70 Typical Pavement Distresses

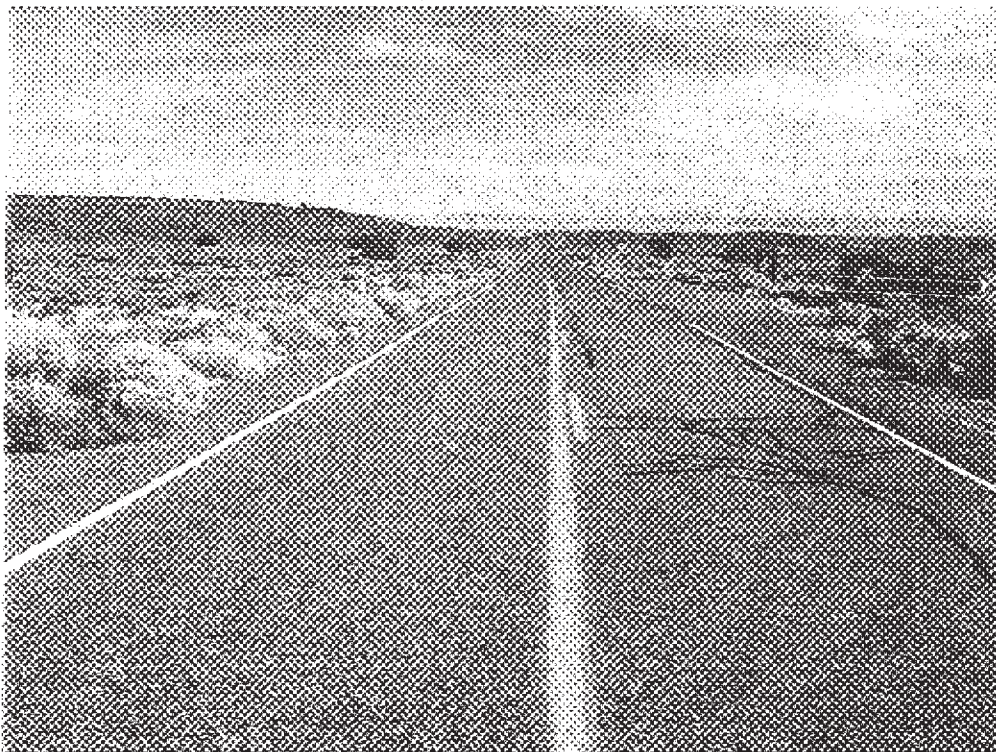


Photo #1773 MP 15.24 S. Boundary of WUPA, Typical Pavement Distresses (looking back-chainage)



# PHOTOGRAPHIC SHEET

PARK NUMBER: 7470  
ROUTE NUMBER: Rte 010  
DATE: 01/99

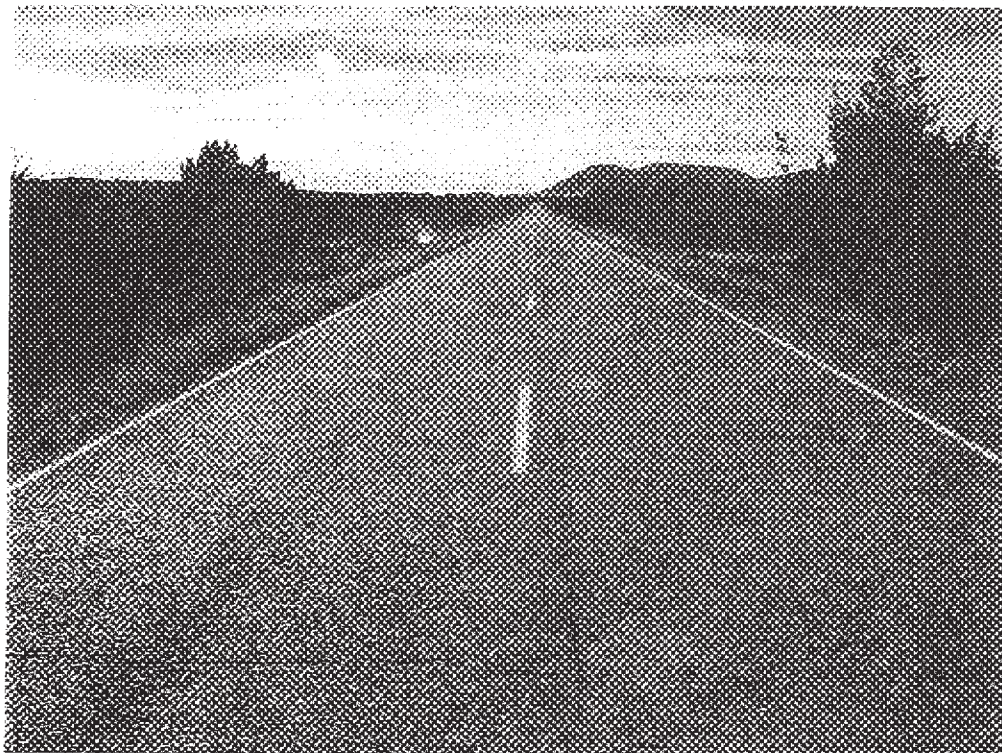


Photo #1774 MP 17.60 Typical Pavement Section

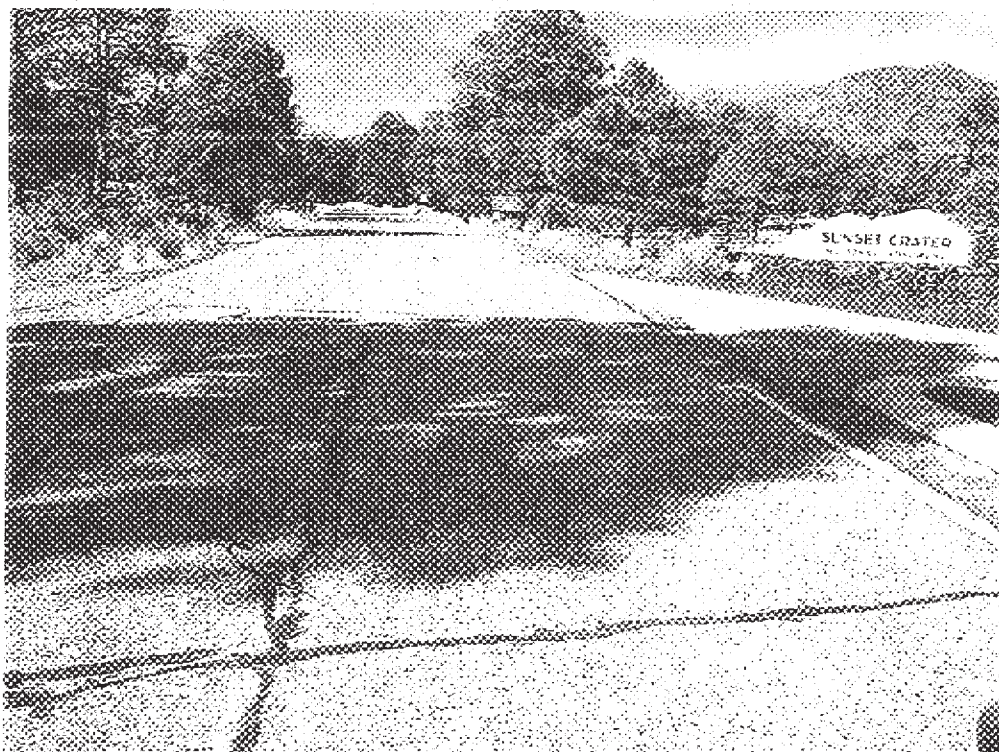


Photo #1775 MP 28.08 Typical Pavement Section

# PHOTOGRAPHIC SHEET

PARK NUMBER: 8130  
ROUTE NUMBER: Rte 020  
DATE: 01/99

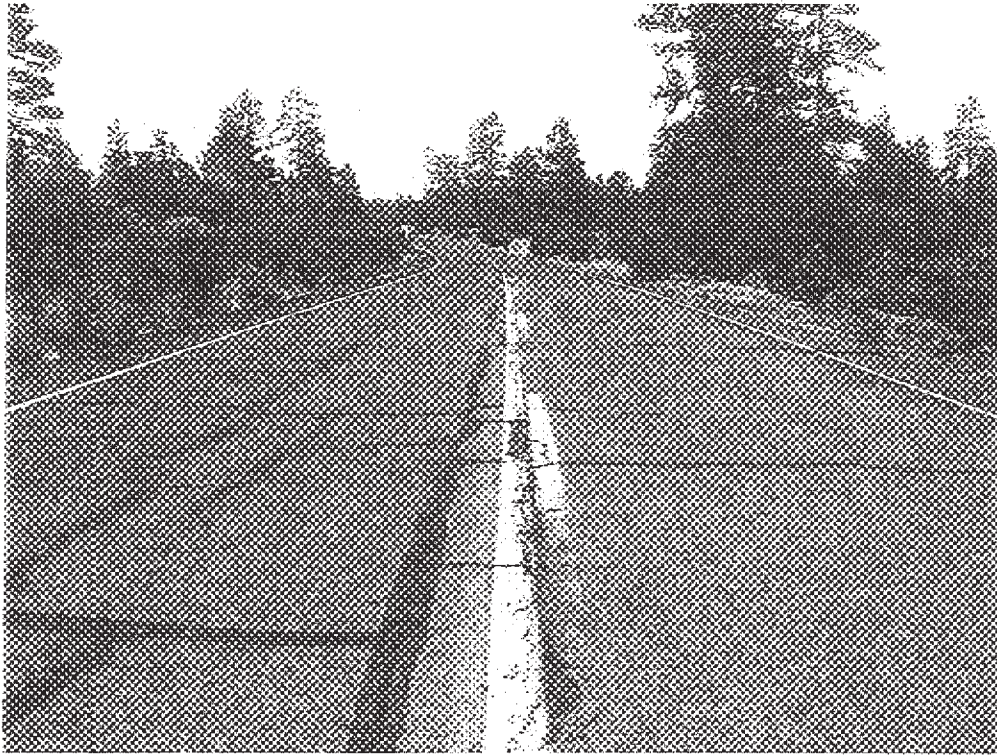


Photo #1784 MP 0.00 Typical Pavement Section



# PHOTOGRAPHIC SHEET

PARK NUMBER: 8130  
ROUTE NUMBER: Rte 200  
DATE: 01/99

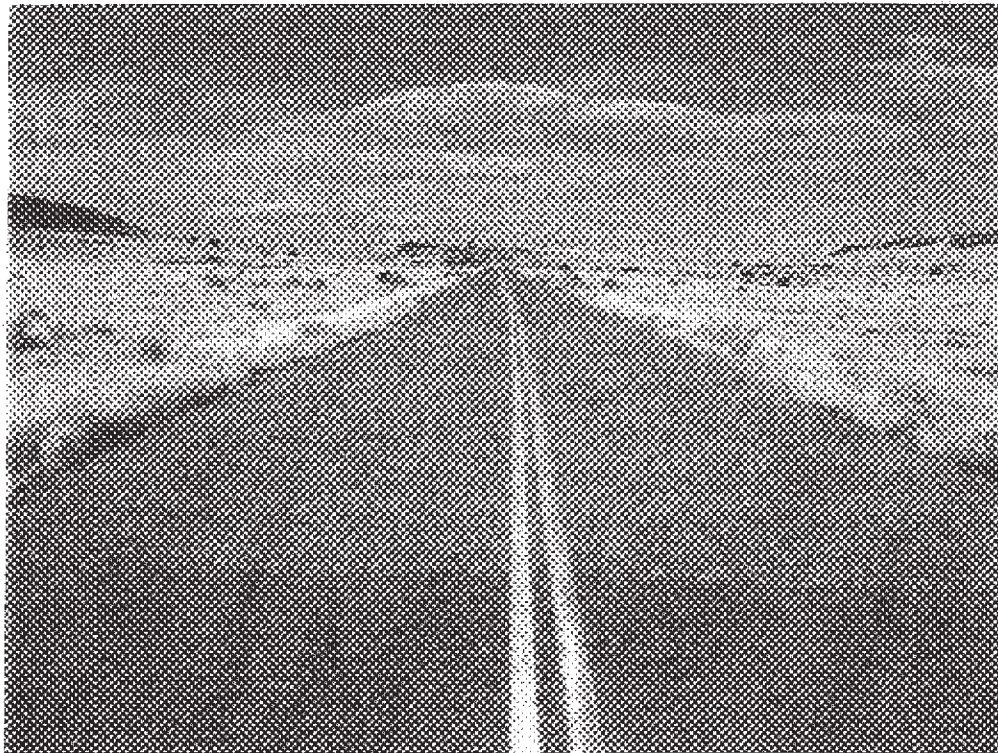


Photo #1776 MP 0.00 Typical Pavement Section

# PHOTOGRAPHIC SHEET

PARK NUMBER: 8130

ROUTE NUMBER: Rte 201

DATE: 01/99

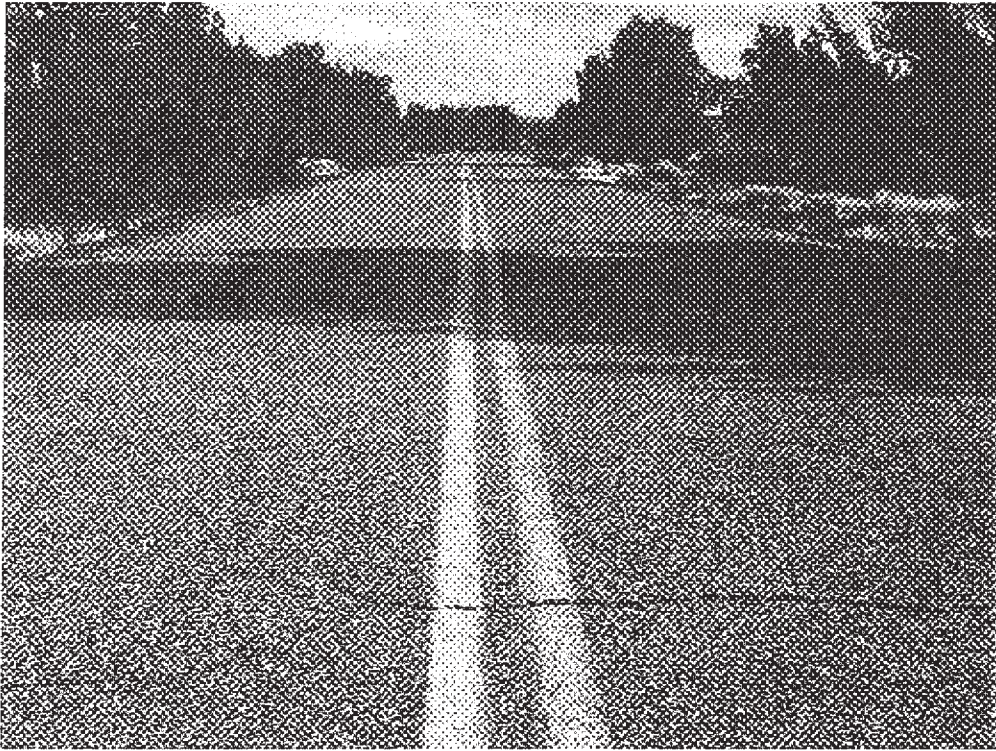


Photo #1777 MP 0.00 Typical Pavement Section



# PHOTOGRAPHIC SHEET

PARK NUMBER: 7470  
ROUTE NUMBER: Rte 202  
DATE: 01/99

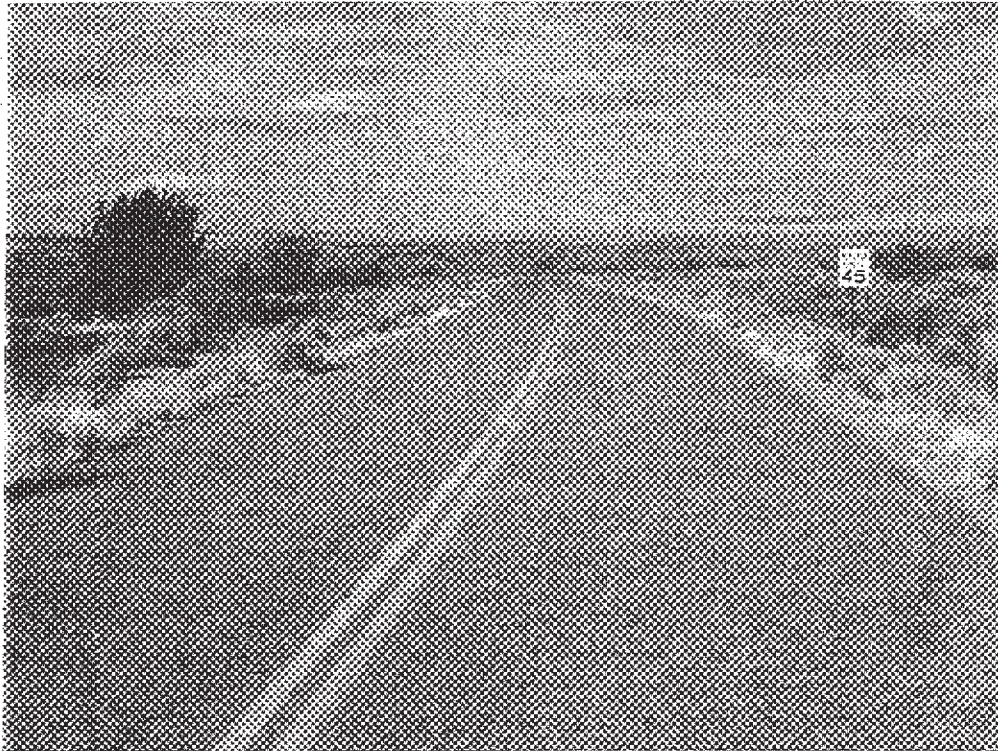


Photo #1778 MP 0.00 Typical Pavement Section



# PHOTOGRAPHIC SHEET

PARK NUMBER: 7470  
ROUTE NUMBER: Rte 404  
DATE: 01/99

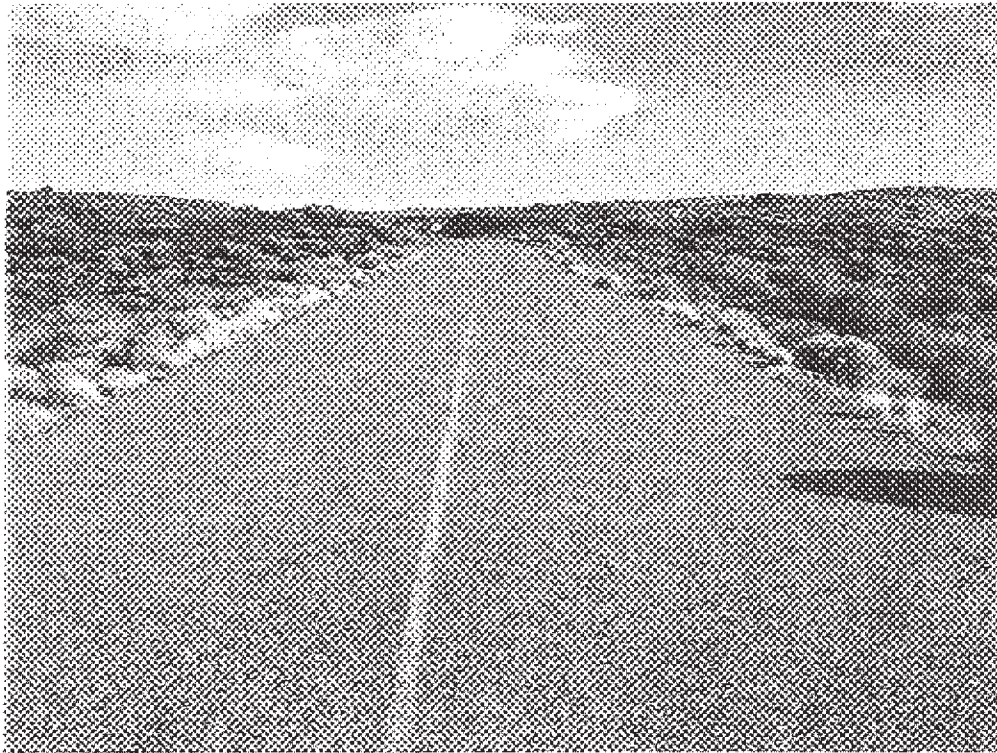


Photo #1779 MP 0.00 Typical Pavement Section

## ***XI. UNPAVED ROUTES***

*Unpaved routes are not addressed in this report at this time. Section "IV. ROUTE INVENTORY" includes a current register of all unpaved routes (name, number, estimated mileage to the nearest 0.01, functional class, number of lanes, and termini description). Any further information will be added post 1997-99 data collection. Data was collected for unpaved routes in numerous parks during the '94-'96 data collection cycle. This data (digital images, GPS traces, features inventory, and condition assessments) may be processed in the future.*

## WUPA - 7470 / WACA - 8710 / SUCR - 7460 - R.O.W. VIDEO TAPE INDEX

PAVED ROUTE NO.	MILEAGE AT BEGINNING FRAME	FROM	TO	BEGINNING FRAME NO.	ENDING FRAME NO.	VIDEO TAPE NO.	DATE	DIR: PRIM/ OPP
010	0.00	NORTH ENT	SOUTH ENT	0	92546	1	990122	P
010	34.58	SOUTH ENT	NORTH ENT	0	93600	3	990123	O
020	0.00	I - 40	RTE 918	94000	104997	3	990123	P
020	2.94	RTE 918	I - 40	107683	118800	3	990123	O
200	0.00	RTE 010	RTE 901	92546	95002	1	990123	P
200	0.36	RTE 901	RTE 010	95002	98900	1	990123	O
201	0.00	RTE 010	RTE 903	100326	101232	1	990123	P
201	0.20	RTE 903	RTE 010	101232	103900	1	990123	O
202	0.00	RTE 010	RTE 904	103900	112177	1	990123	P
202	2.42	RTE 904	RTE 010	112177	120774	1	990123	O
203	0.00	RTE 010	END LOOP	134400	140224	1	990123	P
403	0.00	RTE 010	END	131667	134400	1	990123	P
404	0.00	RTE 010	END PVMT	122364	123900	1	990123	P
404	0.35	END PVMT	RTE 010	123900	129337	1	990123	O
405	0.00	RTE 020	END LOOP	104997	107683	3	990123	P
913	0.00	RTE 010	END	129337	131667	1	990123	P

\* Tape #2 does not exist



GLOSSARY OF TERMS  
AND  
ABBREVIATIONS

<u>TERM OR ABBREVIATION</u>	<u>DESCRIPTION OR DEFINITION</u>
7460	Sunset Crater National Monument numeric code
7470	Wupatki National Monument numeric code
8710	Walnut Canyon National Monument numeric code
AADT	Annually adjusted average daily traffic. Average daily traffic for the term period comprising 80% of annual visitation.
CRS	Condition Rating Sheet. Index rating for pavement distresses, roadway condition and cross section information.
DCR	Drainage Condition Rating
DIRI	Driver International Roughness Index
Drainage Condition Rating	Drainage condition rating. An alpha rating from P (failed) to E (excellent) based on visual observations.
EXCELLENT	Excellent rating.
F_C	Functional Class. See Table 1 in appendix.
FAIR	Fair rating.
GOOD	Good rating.
IRI	International Roughness Index
Lane	The portion of roadway from centerline to fogline or edge of pavement if no fog line exists.
LRUT	Left Rut
NA	Not applicable.
PAV_MI	Paved portion of route, length in miles.
Pavement Width	The entire portion of roadway from edge of pavement to edge of pavement.
PCR	Pavement condition rating. Numerical rating form 0 (failed) to 100 (excellent). Based on the surface condition and the roughness of the road.

GLOSSARY OF TERMS  
AND  
ABBREVIATIONS

<u>TERM OR ABBREVIATION</u>	<u>DESCRIPTION OR DEFINITION</u>
POOR	Poor rating.
RI	Roughness Index.
RT#	Route number.
RTE_DESCRIPTION	Description of the route terminus.
RTE_MI	Total route length in miles.
RTE_NAME	Route name.
RRUT	Right Rut
SADT	Seasonal Annual Daily Traffic. Average daily traffic for the total "season".
SCR	Surface Condition Rating. Numerical rating from 0 (failed) to 100 (excellent). Based on the extent of alligator cracking, patching, longitudinal cracking, rutting and transverse cracking.
Shoulder Condition Rating	Alpha rating from P (failed) to E (excellent). Visual and measured observations of the adequacy of a section of shoulder. Also applies to curb and gutter.
Shoulder Width	If fogline exists, the portion of pavement outside lane, from fogline to edge of pavement.
SUCR	Sunset Crater National Monument Alpha Code
UNPAV_MI	Unpaved portion of route, length in miles.
WACA	Walnut Canyon National Monument Alpha Code
WR	Western Region
WUPA	Wupatki National Monument Alpha Code

**GENERAL PARK ROAD FUNCTIONAL CLASSIFICATION - TABLE 1**

<b>Class I</b>	Principal Park Road/Rural Parkway (Public Roads) - Roads which constitute the main access route, circulatory tour, or thoroughfare for park visitors. Route Numbers 1-99. Note: Rural parkways (e.g. Natchez Trace) are numbered 1-9.  All other FC 1 routes have two digit numbers.
<b>Class II</b>	Connector Park Road (Public Roads) - Roads which provide access within a park to areas of scenic, scientific, recreational or cultural interest, such as overlooks, campgrounds, etc. Route Numbers 100-199.
<b>Class III</b>	Special Purpose Park Road (Public Roads) - Roads which provide circulation within public areas, such as campgrounds, picnic areas, visitor center complexes, concessionaire facilities, etc.  These roads generally serve low-speed traffic and are often designed for one-way circulation. Route Numbers 200-299.
<b>Class IV</b>	Primitive Park Roads (Public Roads) - Roads which provide circulation through remote areas and/or access to primitive campgrounds and undeveloped areas.  These roads frequently have no minimum design standards and their use may be limited to specially equipped vehicles. Route Numbers 200-299.  Note: Functional Classes III and IV have the same route numbers because, historically, they were numbered similarly.
<b>Class V</b>	Administrative Access Road (Administrative Roads) - All public roads intended for access to administrative developments or structures such as park offices, employee quarters, or utility areas. Route Numbers 400-499.
<b>Class VI</b>	Restricted Road (Administrative Roads) - All roads normally closed to the public, including patrol roads, truck trails, and other similar roads. Route Numbers 400-499.  Note: Functional Classes V and VI have the same route numbers because historically they were numbered similarly and often there is little distinction between these routes.  For example, because utility areas and employee housing are often closed to the public, this restriction would result in classification of FC VI rather than FC V.
<b>Class VII</b>	Urban Parkway (Urban Parkways and City Streets) - These facilities serve high volumes of park and non-park related traffic and are restricted, limited-access facilities in an urban area.  This category of roads primarily encompasses the major parkways which serve as gateways to our nation's capital. Other major park roads or portions thereof, however, may be included in this category. Route Numbers 1-9.
<b>Class VIII</b>	City Streets (Urban Parkways and City Streets) - City streets are usually extensions of the adjoining street system that are owned and maintained by the National Park Service.  The construction and/or reconstruction should conform with accepted local engineering practice and local conditions. Route Numbers 600-699.

A park road system contains those roads within or giving access to a park or other unit of the NPS which are administered by the NPS, or by the Service in cooperation with other agencies. The assignment of a functional classification (FC) to a park road is not based on traffic volumes or design speed, but on the intended use or function of that road or route.

The historic route numbering system also included a 300 number series for interpretive roads, and a 500 series for one-way roads. There are approximately 250 roads nationwide which are designated by the 300 and 500 series. The numbers for these roads will be maintained for reporting consistency. However, since these interpretive and one-way routes are not as clearly tied to a specific functional class, the 300 and 500 series will be discontinued for future use.



## DESCRIPTION OF RATING SYSTEM

Data is collected on the following distresses and conditions:

- **Alligator Cracking** - a series of interconnecting cracks resembling alligator skin or chicken wire which usually occur in the wheel path.
- **Longitudinal Cracking** - cracks which are parallel to the pavement centerline or asphalt lay down direction.
- **Transverse Cracking** - cracks perpendicular to the pavement centerline.
- **Pothole (patch)** - a bowl-shaped hole in the pavement surface.
- **Rutting** - surface depressions in the wheel paths.

In addition, **Roughness** has been collected and is used in the PCR formula.

A Rating Index value is calculated for each of these at the 0.02 mile, or every 105.6 feet.

### Rating Index Formulas

Alligator Cracking Index =  $100 - [40 * (\% \text{low}/70 + \% \text{medium}/30 + \% \text{high}/10)]$

Longitudinal Cracking Index =  $100 - [40 * (\% \text{low}/350 + \% \text{medium}/200 + \% \text{high}/75)]$

Transverse Cracking Index =  $100 - [40 * (\text{low}/15.1 + \text{medium}/7.5 + \text{high}/1.9)]$

Patching Index =  $100 - [40 * (\% \text{patching} / 80)]$

Rutting Index: Asphalt Surface =  $[13.33 * (\text{deepest rut})^2] - [86.67 * \text{deepest rut}] + 100$

Chipseal (1-5 yrs. old) =  $[9.53 * (\text{deepest rut})^2] - [86.67 * \text{deepest rut}] + 108.57$

Chipseal (>5 yrs. old) =  $[3.85 * (\text{deepest rut})^2] - [83.46 * \text{deepest rut}] + 116.53$

Roughness Index: (RI) =  $29 * [5 * e^{(-0.0041 * \text{average RI})}]$

These 0.02 Rating Index values are then averaged over one mile sections for the mile-by-mile Rating Indexes, Surface Condition Rating (SCR) and Pavement Condition Rating (PCR).

**Surface Condition Rating (SCR)** =  $100 - [40 * (\text{LOW ALLIGATOR CRACKING}/70 + \text{MEDIUM ALLIGATOR CRACKING}/30 + \text{HIGH ALLIGATOR CRACKING}/10 + \text{PATCHING}/80 + \text{LOW TRANSVERSE CRACKING}/15.1 + \text{MEDIUM TRANSVERSE CRACKING}/7.5 + \text{HIGH TRANSVERSE CRACKING}/1.9 + \text{LOW LONGITUDINAL CRACKING}/350 + \text{MEDIUM LONGITUDINAL CRACKING}/200 + \text{HIGH LONGITUDINAL CRACKING}/75 + \text{MAXIMUM RUT VALUE})]$

**Pavement Condition Rating (PCR)** =  $(\text{SCR} * 0.60) + (\text{RI} * 0.40)$

NOTE: Collection of roughness data is dependant on the data collection vehicle traveling at a minimum speed of 22 mph. In the event that a route cannot be safely traveled at this minimum speed, and results in no roughness data, the SCR only will be calculated.

## Drainage Condition Rating Definitions

**Excellent:** No drainability problem. If funding were available for pavement maintenance, no funds would be required for drainage concerns.

**Good:** Minimal overall drainability problems. If funding were available for pavement maintenance, 25% or less is estimated to correct drainage deficiencies.

**Fair:** Moderate problems with drainability that needs correcting before it deteriorates to a poor rating. If funding were available for pavement maintenance in this section, 25% to 50% is estimated to correct deficiencies.

**Poor:** Severe problems exist that jeopardizes the integrity of the road in this section. If funding were available for pavement maintenance, 50% to 100% is estimated to correct drainage deficiencies.

## Drainage Rating Criteria

The following are examples of basic criteria to help the rater to identify the different drainability ratings. While in the field, many other flaws will be discovered, but this criteria should give a feel for where the flaws would apply in the ratings.

### **A. Excellent Drainability**

All water clears the road prism adequately without any chance of base saturation.

- Pavement drains without interruption.
- Curbs are flawless with the exception of minor cracking.
- Down drains are secure and placed properly.
- Drop inlets are at the correct grade and location with no deficiencies.
- Culverts are adequate in numbers, size, and condition.
- Ditches are constructed of asphalt and are sufficient to carry required volumes of water.

### **B. Good Drainability**

Most water clears the road prism adequately with little concern of base saturation.

- Pavement has minor deficiencies that interrupt water flow.
- Shoulders are mostly adequate as they relate to surrounding terrain. Shoulder design generally coincides with the drainage design.
- Curbs have deficiencies, but still function without erosion.
- Down drains are placed properly, but show signs of some deterioration.
- Culverts are adequate in numbers and size, however, minor deficiencies are evident.
- Ditches are not paved, but solid and have enough area to maintain and carry required volume of water.

### **C. Fair Drainability**

Some areas have questionable ability for the water to clear the road prism with an uncomfortable concern for base saturation.

- Pavement shows moderate flaws, such as rutting, and other irregularities that would hold minor amounts of water, interrupting the flow of water.

- Shoulder grades restrict the flow of water, however, water exits after some ponding.
- Down drains show evidence that limited water is causing erosion as a result of deterioration, or other similar flaws (e.g. missing asphalt that guides water to down drain).
- Drop inlet encasements are cracked, iron is bent, or are misaligned to cause limited water to escape,
- Culvert headwalls show moderate damage or are inadequate, the exit shows some damage to fill areas, or entry asphalt is moderately damaged.
- Ditches have some permeable material, unmovable obstructions to interrupt flow obviously hard to maintain due to inconsistencies, or have a less than desirable area to carry required volumes of water.

#### **D. Poor Drainability**

This section has areas of inadequate drainage ability that is causing base saturation that could cause a road failure.

- Pavement grade is irregular and holds dangerous amounts of water (hydroplaning is a concern), or shows massive alligator cracking.
- Shoulder design induces ponding that encroaches on the pavement (drivers try to avoid ponds).
- Portions of curbs are missing, allowing water to escape causing erosion.
- Drop inlets, due to various reasons, are only able to drain 50% or less efficiently.
- Down drains show signs of water exiting in areas by the down drain causing erosion.
- Culverts are functionally deficient including size, installation, location, or grade giving water opportunity to saturate the road base.
- Ditches allow water opportunity to saturate the road base through various reasons such as low places in ditch where design has not allowed for water to drain, little or no room in the road prism for a needed ditch, or water is disappearing within the ditch.

#### **Shoulder Condition Rating Definitions**

**Excellent:** Shoulder is new or under construction. It meets or exceeds standards. The curb is new.

**Good:** The shoulder is below standard width for posted speed and grading is required. The curb is functional.

**Fair:** There are variations in the shoulder, irregular width with material replacement required. The curb is in need of repairs or adjustments.

**Poor:** There isn't any shoulder, erosion has removed it. The curb needs replacement.

#### **Shoulder Rating Criteria**

The following are examples of basic criteria to help the rater to identify the different shoulder ratings. While in the field, many other flaws will be discovered, but this criteria should give a feel for where the flaws would apply in the ratings.



The overall shoulder condition rating for a section is determined by the lowest individual rating for any one of the above categories (width, rutting, cracking, erosion, drop-off, and curbs).

#### **A. Excellent Shoulders**

- If shoulder is unpaved there will not be any drop-offs or erosion.
- If shoulder is paved there isn't any rutting, cracking, or erosion.
- Curbs are flawless with the exception of minor cracking and no erosion behind curb.

#### **B. Good Shoulders**

- If shoulder is unpaved drop-offs are less than 1", but grading is required.
- If shoulder is paved rut depth is less than 1/2", sealed cracks are present, and grading is required.
- If curbs are present they are functional.

#### **C. Fair Shoulder**

- If shoulder is unpaved drop-offs are from 1" to 4" and replacement of material required.
- If shoulder is paved rut depth is from 1/2" to 1". Open cracks are present but less than 1/4" deep, replacement of material is needed from erosion.
- If curbs are present they need repairs, and there is erosion behind the curb.

#### **D. Poor Shoulder**

- If shoulder is unpaved drop-offs are greater than 4" and erosion has removed the shoulder.
- If shoulder is paved rut depth is greater than 1". Open cracks are greater than 1/4" deep, and erosion has removed the shoulder.
- If curbs are present they need replacement.
- If curbs are present they need repairs, and there is erosion behind the curb.