Federal Lands Highway

Road Inventory Program

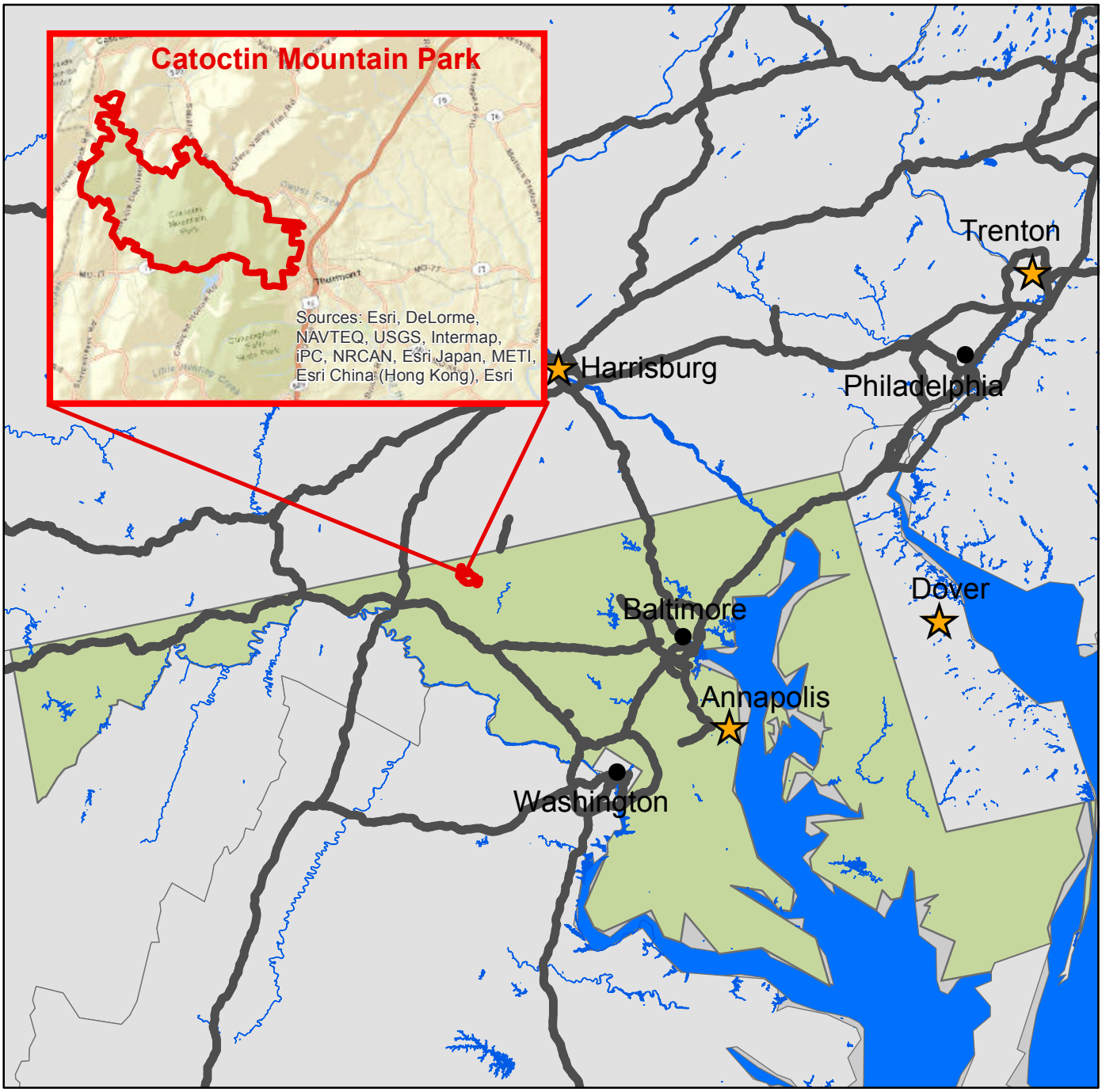
Road Inventory and Condition Assessment

Catoctin Mountain Park
CATO

Cycle 5 Report

Prepared By: Federal Highway Administration
Road Inventory Program (RIP)
Data Collected: 04/2013
Report Date: 12/2013

Catoctin Mountain Park
in
Maryland



DCV = Data Collection Vehicle

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INTRODUCTION

The Federal Highway Administration, (FHWA), in the mid 1970s, was charged with the task of identifying surface condition deficiencies and corrective priorities on National Park Service (NPS) roads and parkways. Additionally, FHWA was tasked with establishing an integrated maintenance features inventory, locating features such as culverts, guardrails, and signs, among others, along NPS roads and parkways. As a result, in 1976 the NPS and FHWA entered into an MOA (Memorandum Of Agreement) which established the RIP (Road Inventory Program). This MOA was terminated and revised in 1980 to establish a new MOA aiming to update RIP data and develop a long-range program to improve and maintain NPS roads to designated condition standards and establish a maintenance management program.

The FHWA completed this initial phase of the RIP in the early 1980s. As a result of this effort, each NPS site included in the study received a RIP Report known as the "Brown Book" which included the information collected during this first RIP phase.

In the 1990s, the effort was again renewed to update and maintain the RIP data. By this time the computer age was upon us and a process was employed that relied heavily on electronic data collection and computer technology. A cyclical program was developed and the RIP completed two cycles of data collection from 1994 to 2001. Cycle 1, starting in 1994, was conducted in 44 "large parks" (parks containing 10 or more paved route miles). Cycle 2 began in 1997 and comprised 79 large parks and 5 small parks totaling 4,874 paved route miles. Each of these parks received a RIP Report known as the "Blue Book". Cycle 3, from 2001 to 2004, was conducted in all parks, large and small, that contained any paved routes, including parking areas and, again, each park received a RIP Report and associated electronic files.

Cycle 4 was initiated in the spring of 2006 covering 86 large parks and several associated small parks consisting of 5,553 paved route miles and 6,232 paved parking areas. Data collection has been completed for Cycle 4 and all data has been delivered to the NPS.

In 2005, the FHWA began implementing the use of a Pavement Management System (PMS) to assist the NPS in prioritizing Pavement Maintenance and Rehabilitation activities. The PMS used by FHWA is the Highway Pavement Management Application (HPMA) and this software has the ability to store inventory and condition data from RIP and forecast future performance using prediction models. Outputs include performance and condition reports at the National, Regional, Park, or Route level. A regional prioritized list and optimization have been produced for most regions and the Federal Highway Deferred Maintenance is calculated via the HPMA.

In an effort to improve the accuracy of treatment recommendations and pavement condition descriptions, an extensive study was completed throughout 2010 that has resulted in changes to the RIP condition reporting method, specifically the distresses and indexes that comprise the Pavement Condition Rating (PCR). It was determined that a better representation of PCR could

be achieved by modifying the relative impact certain distresses would have on the overall rating. The changes that were implemented were endorsed by management at both the FHWA and NPS in October 2010. These changes will allow greater use of RIP and HPMA data for not simply condition data reporting, but also as a reliable tool for project identification and selection. Because of these changes, the PCR Condition ratings reported in Cycle 5 do not directly relate to the condition ratings reported in previous cycle RIP Reports. For more detailed information about the changes, see Section 3 and Section 10 in this RIP Report.

Cycle 5 has launched in the summer of 2010 and will again comprise all parks, large and small, that are served by paved roads and/or parking areas. For Cycle 5, the decision was made to collect condition data in large parks on Functional Class 1, 2, and 7 paved routes only, as well as any new routes that were previously not collected. In small parks, all paved routes and parking areas will be collected. As a result, this will include 81 large parks with 4,459 paved route miles and 231 small parks with 529 paved route miles and associated paved parking areas.

Since 1984, the Road Inventory Program has been funded through the Federal Lands Highway Park Roads and Parkways (PRP) Program. Currently, coordination of the RIP with FLH is under the NPS Washington Headquarters Park Facility Management Division. The FLH Washington office coordinates policy and prepares national reports and needs assessment studies for Congress.

In 1998, the Transportation Equity Act for the 21st Century (TEA-21) amended Title 23 U.S.C., and inserted Section 204(a)(6) requiring the FHWA and NPS, to develop by rule, a Pavement Management System (PMS) applied to park roads and parkways serving the National Park System.

FLH is responsible for the accuracy of all data presented in this report. Any questions or comments concerning the contents of this report should be directed to the national RIP Coordinator located in Sterling, Virginia.

Respectfully,

FHWA RIP Team

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Section 2
Park Route Inventory

Catoctin Mountain Park

Federal Lands Highway
Road Inventory Program

Cycle 5 NPS/RIP Route ID Report

Shading Color Key:
Red text denotes approx. mileage

White = Paved Routes, DCV Driven
Yellow = Unpaved Routes, DCV not Driven
Blue = All Paved Parking Areas
Green = All Unpaved Parking Areas
Grey = Paved Routes, DCV not Driven
Black = State, Local or Private non-NPS Routes
= Concession Route Flag ON

*Unpaved route data was obtained from NPS and was not inventoried by the Road Inventory Program (RIP).

** DCV - Data Collection Vehicle NC - Not Collected

CATO

CATOCTIN MOUNTAIN PARK

Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From	Route Description To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
0010	5	15991		PARK CENTRAL DRIVE	FROM STATE ROUTE 77 (ROCKY RIDGE ROAD)	TO ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)	N/A	4.75	0.00	4.75	1		AS	2,3,4
0011	5	16218		FOXVILLE - DEERFIELD ROAD	FROM FOXVILLE CHURCH ROAD	TO NORTH PARK BOUNDARY AT PAVEMENT CHANGE	N/A	1.86	0.00	1.86	1		AS	1,2
0100	NC	90191		IKE SMITH ROAD	FROM ROUTE 0300 (MANAHAN ROAD)	TO END	N/A	0.00	0.09	0.09	6		GR	
0101	NC	242023		POPLAR GROVE ACCESS ROAD	FROM ROUTE 0300 (MANAHAN ROAD)	TO POPLAR GROVE CAMPGROUND	N/A	0.00	0.11	0.11	2		GR	
0201	NC	37291		MISTY MOUNT CAMPGROUND ROAD	FROM ROUTE 0904 (MISTY MOUNT PARKING)	TO END	N/A	0.00	1.00	1.00	3		GR	
0202	NC	17098		GREENTOP CAMPGROUND ROAD	FROM ROUTE 0909 (GREENTOP CAMPGROUND PARKING)	TO END OF LOOP	N/A	0.00	0.50	0.50	3		GR	
0204	5	17171		OWENS CREEK CAMPGROUND	FROM ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)	TO END OF LOOP	N/A	0.67	0.00	0.67	2		AS	1
0205	5	91197		OWENS CREEK CAMPGROUND CUTOFF A	FROM ROUTE 0204 (OWENS CREEK CAMPGROUND)	TO ROUTE 0204 (OWENS CREEK CAMPGROUND)	N/A	0.08	0.00	0.08	3		AS	1
0206	5	91198		OWENS CREEK CAMPGROUND CUTOFF B	FROM ROUTE 0204 (OWENS CREEK CAMPGROUND)	TO ROUTE 0204 (OWENS CREEK CAMPGROUND)	N/A	0.08	0.00	0.08	3		AS	1
0207	5	242206		FOXVILLE PLAZA	FROM ROUTE 0300 (MANAHAN ROAD)	TO END OF LOOP	N/A	0.30	0.00	0.30	3		AS	2
0300	5	91199		MANAHAN ROAD	FROM WEST PARK BOUNDARY AT PARK SIGN	TO NORTH PARK BOUNDARY AT MP 1.88	N/A	0.38	1.50	1.88	1		AS	2
0401	5	17115		JIM BROWN ROAD	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO END AT MP 0.35	N/A	0.10	0.25	0.35	6		AS	2
0402	5	17407		QUARTERS #6 ACCESS ROAD	FROM ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)	TO QUARTERS #6	N/A	0.14	0.00	0.14	5		AS	1
0404ZZ	5	17143		ROUND MEADOW ROADS	FROM ROUTE 0300 (MANAHAN ROAD)	TO USPP BUILDING	N/A	0.27	0.00	0.27	1		AS	2
0405ZZ	5	91216		ROUND MEADOW MAINTENANCE ROADS	FROM ROUTE 0920 (ROUND MEADOW MAINTENANCE AREA)	TO END	N/A	0.12	0.00	0.12	5		AS	2

Cycle 5 NPS/RIP Route ID Report

Shading Color Key:
Red text denotes approx. mileage

White = Paved Routes, DCV Driven | Yellow = Unpaved Routes, DCV not Driven | Blue = All Paved Parking Areas | Green = All Unpaved Parking Areas
Grey = Paved Routes, DCV not Driven | Black = State, Local or Private non-NPS Routes | = Concession Route Flag ON

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Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From	Route Description To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
0406	5	17399		QUARTERS #5 DRIVEWAY	FROM ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)	TO ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)	N/A	0.00	0.00	0.00	5	4,912	AS	2
0407	NC	242024		BLUE BLAZES #2 ACCESS ROAD	FROM ROUTE 0901 (MAINTENANCE AREA)	TO END OF LOOP	N/A	0.00	0.24	0.24	6		GR	
0408	5	17021		QUARTERS #1 ACCESS ROAD	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO QUARTERS #1	N/A	0.00	0.00	0.00	5	4,526	AS	4
0409	5	16946		BUILDING 167 ACCESS ROAD	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO BUILDING 167	N/A	0.00	0.00	0.00	5	1,600	AS	4
0410	5	242025		VISITORS SERVICE ACCESS ROAD	FROM ROUTE 0404ZZ (ROUND MEADOW ROADS)	TO ROUTE 0404ZZ (ROUND MEADOW ROADS)	N/A	0.00	0.00	0.00	5	2,732	AS	2
0411	5	242026		QUARTER #7 ACCESS ROAD	FROM ROUTE 0404ZZ (ROUND MEADOW ROADS)	TO QUARTERS #7	N/A	0.00	0.00	0.00	5	1,585	AS	2
0900	5	15998		VISITOR CENTER PARKING	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO PARKING	N/A	0.00	0.00	0.00		12,997	AS	4
0901	5	16952		MAINTENANCE AREA	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO MAINTENANCE AREA	N/A	0.00	0.00	0.00		16,988	AS	4
0902	NC	91220		MAINTENANCE AREA PARKING	FROM ROUTE 0901 (MAINTENANCE AREA)	TO PARKING	N/A	0.00	0.00	0.00		4,000	GR	
0903	5	15987		WOLF ROCK PARKING	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO ROUTE 0010 (PARK CENTRAL DRIVE)	N/A	0.00	0.00	0.00		7,439	AS	4
0904	5	91221		MISTY MOUNT PARKING	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO ROUTE 0201 (MISTY MOUNT CAMPGROUND ROAD)	N/A	0.00	0.00	0.00		27,743	AS	4
0905	5	15988		THURMONT VISTA PARKING	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO PARKING	N/A	0.00	0.00	0.00		13,360	AS	4
0906	5	91222		PARK CENTRAL PICNIC PARKING	ADJACENT TO ROUTE 0010 (PARK CENTRAL DRIVE)		N/A	0.00	0.00	0.00		2,535	AS	4
0907	5	15989		HOG ROCK PARKING	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO PARKING	N/A	0.00	0.00	0.00		20,477	AS	3
0908	5	91223		CAMP #3 TURN AROUND	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO ROUTE 0010 (PARK CENTRAL DRIVE)	N/A	0.00	0.00	0.00		2,349	AS	3
0909	5	91224		GREENTOP CAMPGROUND PARKING	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO ROUTE 0202 (GREENTOP CAMPGROUND ROAD)	N/A	0.00	0.00	0.00		26,806	AS	3

Cycle 5 NPS/RIP Route ID Report

Shading Color Key: White = Paved Routes, DCV Driven | Yellow = Unpaved Routes, DCV not Driven | Blue = All Paved Parking Areas | Green = All Unpaved Parking Areas
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Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From	Route Description To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
0910	5	60188		CHESTNUT PICNIC PARKING	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO PARKING	N/A	0.00	0.00	0.00		32,398	AS	2
0911	5	91225		ROUND MEADOW BUS TURN AROUND	FROM INTERSECTION OF ROUTE 0404ZZ (ROUND MEADOW ROADS) AND ROUTE 0411 (QUARTERS #7 ACCESS ROAD)	TO ROUTE 0920 (ROUND MEADOW MAINTENANCE AREA)	N/A	0.00	0.00	0.00		14,244	AS	2
0912C	NC	91227		ROUND MEADOW GYM PARKING C	FROM ROUTE 0404ZZ (ROUND MEADOW ROADS)	TO PARKING	N/A	0.00	0.00	0.00		3,142	GR	
0912ZZ	5	91226		ROUND MEADOW GYM PARKING AREAS	ADJACENT TO ROUTE 0912C (ROUND MEADOW GYM PARKING C)		N/A	0.00	0.00	0.00		7,264	AS	2
0913	5	37293		OWENS PICNIC PARKING AREA	FROM ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)	TO PARKING	N/A	0.00	0.00	0.00		33,901	AS	1
0914ZZ	NC	91228		SAW MILL EXHIBIT PARKING AREAS	ADJACENT TO ROUTE 0011 (FOXVILLE - DEERFIELD ROAD) AND ROUTE 0204 (OWENS CREEK CAMPGROUND)		N/A	0.00	0.00	0.00		1,655	GR	
0915	5	91230		VISITOR CENTER EMPLOYEE PARKING	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO PARKING	N/A	0.00	0.00	0.00		2,997	AS	4
0916	NC	91231		BLUE BLAZES PARKING AREA	FROM ROUTE 0010 (PARK CENTRAL DRIVE)	TO PARKING	N/A	0.00	0.00	0.00		2,000	GR	
0917	5	15981		ADMINISTRATIVE PARKING	FROM STATE ROUTE 77 (ROCKY RIDGE ROAD)	TO PARKING	N/A	0.00	0.00	0.00		10,830	BR	4
0918	5	91232		FISHING PARKING	FROM ROUTE 0917 (ADMINISTRATIVE PARKING)	TO PARKING	N/A	0.00	0.00	0.00		3,150	AS	4
0919	5	91233		JIM BROWN ROAD PARKING	FROM ROUTE 0401 (JIM BROWN ROAD)	TO ROUTE 0401 (JIM BROWN ROAD) UNPAVED SECTION	N/A	0.00	0.00	0.00		6,540	AS	2
0920	5	242027		ROUND MEADOW MAINTENANCE AREA	FROM ROUTE 0911 (ROUND MEADOW BUS TURNAROUND)	TO ROUTE 0405ZZ (ROUND MEADOW MAINTENANCE ROADS)	N/A	0.00	0.00	0.00		32,385	AS	2
0921	5	242028		CROSS COUNTRY SKIING PARKING A	ADJACENT TO ROUTE 0300 (MANAHAN ROAD)		N/A	0.00	0.00	0.00		2,267	BR	2

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Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From	Route Description To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
0922	**5**	**242029**		**CROSS COUNTRY SKIING PARKING B**	**ADJACENT TO ROUTE 0010 (PARK CENTRAL DRIVE)**		**N/A**	**0.00**	**0.00**	**0.00**		**1,099**	**BR**	**2**
0923	NC	242030		NORTH BOUNDARY PARKING AREA	FROM ROUTE 0300 (MANAHAN ROAD)	TO PARKING	N/A	0.00	0.00	0.00			GR	
0924ZZ	NC	242031		FISHERMAN PULLOUTS	ADJACENT TO ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)		N/A	0.00	0.00	0.00		2,400	GR	

Cycle 5 NPS/RIP Route ID Report

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CYCLE 5 SUMMARY TOTALS FOR CATOCTIN MOUNTAIN PARK

CYCLE 5 ROUTE TOTALS

DCV Driven Route Miles	8.73
Manually Rated Route Miles	0.02
TOTAL PARK ROUTE MILES COLLECTED IN CYCLE 5	8.75
Manually Rated Routes (SQFT)	15,355
TOTAL UNPAVED PARK ROUTE MILES	3.69

CYCLE 5 CONCESSION TOTALS

Concession Paved Route Miles	0.00
Concession Unpaved Route Miles	0.00
TOTAL CONCESSION ROUTE MILES	0.00
Concession Paved Parking Area SQFT	0
Concession Unpaved Parking Area SQFT	0
TOTAL CONCESSION PARKING AREA SQFT	0
Concession Manually Rated Routes SQFT	0

* CYCLE 5 PARKING AREA TOTALS

Paved Parking (SQFT)	277,769
Unpaved Parking (SQFT)	13,197
TOTAL PARKING (SQFT)	290,966

CYCLE 5 WEIGHTED AVERAGE PARK VALUES

DCV Driven PCR	78
**Manually Rated Routes PCR	61
**Parking PCR	73
***Total Equivalent Lane Miles	20.74

* - The Parking Area Totals SQFT value represents **all** parking areas collected in Cycle 5, both park and concessionaire.

** - Parking and Manually Rated Routes are assigned the following PCR values based on their observed condition: Construction=-1, Excellent=97, Good=90, Fair=73, and Poor=45.

*** - Equivalent Lane Miles are calculated by route using the following equations : DCV and Manually Rated Lines Routes=(PAVE_WIDTHxPAVED_MI)/11 foot lane. Parking Areas=SQ_FEET/5280/11. Manually Rated Polygons=SQ_FEET/5280/11.

Cycle 5 NPS/RIP Route ID Report

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Grey = Paved Routes, DCV not Driven	Black = State, Local or Private non-NPS Routes	= Concession Route Flag ON	

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General Park Road Functional Classification Table

Class 1 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. State Routes Inventoried for Park. Route Numbers 5000-5999

Class 2 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.

Class 3 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.

Class 4 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 3 and 4 have the same route numbers because, historically, they were numbered similarly.

Class 5 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.

Class 6 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 5 and 6 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 6 rather than FC 5.

Class 7 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.

Class 8 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.

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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.

5000 route numbers are assigned to Non-NPS Routes that are State, County or City owned which border, traverse, or provide access to Park Facilities or Locations. 5000 Routes are driven for GPS and Video Log only.

Surface Type Abbreviations:

AS - Asphaltic Concrete Pavement
CO - Portland Cement Concrete Pavement
BR - Brick or Pavers Road Bed
CB - Cobble Stone Road Bed
GR - Gravel Road Bed
SA - Sand Road Bed
NV - Native or Dirt Material Road Bed
OT - Other Materials Road Bed

NPS/RIP Subcomponent Details for CATO

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CATO

CATOCTIN MOUNTAIN PARK

Rte. No.	FMSS No.	Cycle Collected	Route Name	Route Description From	Route Description To	Concess Route	Func. Class	Paved Miles	Un-Paved Miles	Total Route Length	Manual Rated SQ/FT
0404ZZ	17143	5	ROUND MEADOW ROADS	FROM ROUTE 0300 (MANAHAN ROAD)	TO USPP BUILDING		1	0.27	0.00	0.27	
0405ZZ	91216	5	ROUND MEADOW MAINTENANCE ROADS	FROM ROUTE 0920 (ROUND MEADOW MAINTENANCE AREA)	TO END		5	0.12	0.00	0.12	
0912ZZ	91226	5	ROUND MEADOW GYM PARKING AREAS	ADJACENT TO ROUTE 0912C (ROUND MEADOW GYM PARKING C)				0.00	0.00	0.00	7,264
0914ZZ	91228	NC	SAW MILL EXHIBIT PARKING AREAS	ADJACENT TO ROUTE 0011 (FOXVILLE - DEERFIELD ROAD) AND ROUTE 0204 (OWENS CREEK CAMPGROUND)				0.00	0.00	0.00	1,655
0924ZZ	242031	NC	FISHERMAN PULLOUTS	ADJACENT TO ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)				0.00	0.00	0.00	2,400

CATO-0404ZZ Subcomponent Breakdown

Rte. No.	FMSS No.	Cycle Collected	Route Name	Route Description From	Route Description To	Concess Route	Func. Class	Paved Miles	Un-Paved Miles	Total Route Length	Manual Rated SQ/FT
0404AZ	17143	5	ROUND MEADOW ROAD	FROM ROUTE 0300 (MANAHAN ROAD)	TO USPP BUILDING		1	0.25	0.00	0.25	
0404BZ	17143	5	ROUND MEADOW TURN AROUND	FROM ROUTE 0404AZ (ROUND MEADOW ROAD)	TO ROUTE 0404AZ (ROUND MEADOW ROAD)		1	0.02	0.00	0.02	1,331

CATO-0405ZZ Subcomponent Breakdown

Rte. No.	FMSS No.	Cycle Collected	Route Name	Route Description From	Route Description To	Concess Route	Func. Class	Paved Miles	Un-Paved Miles	Total Route Length	Manual Rated SQ/FT
0405AZ	91216	5	ROUND MEADOW MAINTENANCE ROAD A	FROM ROUTE 0920 (ROUND MEADOW MAINTENANCE AREA)	TO END		5	0.09	0.00	0.09	
0405BZ	91216	5	ROUND MEADOW MAINTENANCE ROAD B	FROM ROUTE 0405AZ (ROUND MEADOW MAINTENANCE ROAD A)	TO END		5	0.03	0.00	0.03	

NPS/RIP Subcomponent Details for CATO

Shading Color Key: White = Paved Routes, DCV Driven | Yellow = Unpaved Routes, DCV not Driven | Blue = All Paved Parking Areas | Green = All Unpaved Parking Areas
Red text denotes approx. mileage
Grey = Paved Routes, DCV not Driven | Black = State, Local or Private non-NPS Routes | = Concession Route Flag ON

*Unpaved route data was obtained from NPS and was not inventoried by the Road Inventory Program (RIP).

CATO

CATOCTIN MOUNTAIN PARK

CATO-0912ZZ Subcomponent Breakdown

Rte. No.	FMSS No.	Cycle Collected	Route Name	Route Description From	To	Concess Route	Func. Class	Paved Miles	Un-Paved Miles	Total Route Length	Manual Rated SQ/FT
0912AZ	91226	5	ROUND MEADOW GYM PARKING A	ADJACENT TO ROUTE 0912C (ROUND MEADOW GYM PARKING C)				0.00	0.00	0.00	3,615
0912BZ	91226	5	ROUND MEADOW GYM PARKING B	ADJACENT TO ROUTE 0912C (ROUND MEADOW GYM PARKING C)				0.00	0.00	0.00	3,649

CATO-0914ZZ Subcomponent Breakdown

Rte. No.	FMSS No.	Cycle Collected	Route Name	Route Description From	To	Concess Route	Func. Class	Paved Miles	Un-Paved Miles	Total Route Length	Manual Rated SQ/FT
0914AZ	91228	NC	SAW MILL EXHIBIT HANDICAPPED PARKING	ADJACENT TO ROUTE 0204 (OWENS CREEK CAMPGROUND)				0.00	0.00	0.00	
0914BZ	91228	NC	SAW MILL EXHIBIT PARKING	ADJACENT TO ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)				0.00	0.00	0.00	1,655

CATO-0924ZZ Subcomponent Breakdown

Rte. No.	FMSS No.	Cycle Collected	Route Name	Route Description From	To	Concess Route	Func. Class	Paved Miles	Un-Paved Miles	Total Route Length	Manual Rated SQ/FT
0924AZ	242031	NC	FISHERMAN PULLOUT A	ADJACENT TO ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)				0.00	0.00	0.00	600
0924BZ	242031	NC	FISHERMAN PULLOUT B	ADJACENT TO ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)				0.00	0.00	0.00	600
0924CZ	242031	NC	FISHERMAN PULLOUT C	ADJACENT TO ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)				0.00	0.00	0.00	600
0924DZ	242031	NC	FISHERMAN PULLOUT D	ADJACENT TO ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)				0.00	0.00	0.00	600

ROUTE IDENTIFICATION CHANGES TO PAVED ROUTES FROM PREVIOUS CYCLE - CATO

ROUTES ADDED FROM PREVIOUS INVENTORY:			
Route #	**Route Name**	**Reason for Addition**	**Comments**
0207	FOXVILLE PLAZA	OTHER	PAVED ROUTE ADDED IN CYCLE 5.
0408	QUARTERS #1 ACCESS ROAD	OTHER	PAVED MANUALLY RATED ROUTE ADDED IN CYCLE 5.
0409	BUILDING 167 ACCESS ROAD	OTHER	PAVED MANUALLY RATED ROUTE ADDED IN CYCLE 5.
0410	VISITORS SERVICE ACCESS ROAD	OTHER	PAVED MANUALLY RATED ROUTE ADDED IN CYCLE 5.
0411	QUARTER #7 ACCESS ROAD	OTHER	PAVED MANUALLY RATED ROUTE ADDED IN CYCLE 5.
0921	CROSS COUNTRY SKIING PARKING A	OTHER	BRICK PARKING AREA ADDED IN CYCLE 5.
0922	CROSS COUNTRY SKIING PARKING B	OTHER	BRICK PARKING AREA ADDED IN CYCLE 5.

ROUTE IDENTIFICATION CHANGES TO PAVED ROUTES FROM PREVIOUS CYCLE - CATO

ROUTES MODIFIED FROM PREVIOUS INVENTORY:			
Route #	**Route Name**	**Type of Modification**	**Comments**
0903	WOLF ROCK PARKING	SQ FEET CHANGE	MINOR ADJUSTMENT MADE TO SHAPE TO REFLECT PARKING LOT GEOMETRY ACCURATELY.
0905	THURMONT VISTA PARKING	SQ FEET CHANGE	MINOR ADJUSTMENT MADE TO SHAPE TO REFLECT PARKING LOT GEOMETRY ACCURATELY.
0906	PARK CENTRAL PICNIC PARKING	SQ FEET CHANGE	MINOR ADJUSTMENT MADE TO SHAPE TO REFLECT PARKING LOT GEOMETRY ACCURATELY.
0917	ADMINISTRATIVE PARKING	RECONSTRUCTED	PARKING AREA HAS BEEN RECONSTRUCTED AND MODIFIED.
0918	FISHING PARKING	RECONSTRUCTED	PARKING AREA HAS BEEN RECONSTRUCTED AND MODIFIED.
0919	JIM BROWN ROAD PARKING	RECONSTRUCTED	PARKING AREA HAS BEEN RECONSTRUCTED AND MODIFIED.

ROUTE IDENTIFICATION CHANGES TO PAVED ROUTES FROM PREVIOUS CYCLE - CATO

OTHER CHANGES FROM PREVIOUS INVENTORY:			
Route #	**Route Name**	**Type of Change**	**Comments**
0010	PARK CENTRAL DRIVE	OTHER	RIGHT SHOULDER IMAGES WERE NOT COLLECTED IN THE ENTIRE LENGTH OF ROUTE 0010 PER PARK REQUEST.
0204	OWENS CREEK CAMPGROUND	FUNCTIONAL CLASS CHANGE	FUNCTIONAL CLASS CHANGED FROM 1 TO 2 IN CYCLE 5 BECAUSE IT PROVIDES ACCESS WITHIN THE CAMPGROUND.
0300	MANAHAN ROAD	LENGTH CHANGE	LONGER IN CYCLE 5 BECAUSE THE START WAS MOVED OUT TO THE PARK SIGN (NEAR SOUTHWESTERN PARK BOUNDARY).
0401	JIM BROWN ROAD	FUNCTIONAL CLASS CHANGE	FUNCTIONAL CLASS CHANGED FROM 5 TO 6 IN CYCLE 5 BECAUSE IT IS CLOSED TO THE PUBLIC.
0402	QUARTERS #6 ACCESS ROAD	ROUTE NAME	NAME CHANGED FROM "RANGERS QUARTERS ACCESS ROAD" TO "QUARTERS #6 ACCESS ROAD".
0404ZZ	ROUND MEADOW ROADS	OTHER	THE TURNAROUND SECTION NEAR THE END OF THE ROUTE WAS ADDED AND COMBINED INTO ROUTE 0404ZZ.
0405ZZ	ROUND MEADOW MAINTENANCE ROADS	OTHER	A NEW SECTION OF ROAD WAS ADDED AND COMBINED INTO ROUTE 0405ZZ.
0406	QUARTERS #5 DRIVEWAY	OTHER	FIRST TIME COLLECTED AND MANUALLY RATED IN CYCLE 5.
0911	ROUND MEADOW BUS TURN AROUND	ROUTE SPLIT	CYCLE 3 ROUTE 0911 WAS SPLIT INTO TWO SECTIONS: ROUTE 0911 (PUBLIC ACCESS) AND ROUTE 0920 (NON PUBLIC ACCESS). THE NAME FOR ROUTE 0911 WAS CHANGED FROM "ROUND MEADOW PARKING" TO "ROUND MEADOW BUS TURN AROUND".
0912ZZ	ROUND MEADOW GYM PARKING AREAS	ROUTES COMBINED	CYCLE 3 ROUTES 0912A AND 0912B WERE COMBINED IN CYCLE 5.

ROUTE IDENTIFICATION CHANGES TO PAVED ROUTES FROM PREVIOUS CYCLE - CATO

OTHER CHANGES FROM PREVIOUS INVENTORY:			
Route #	**Route Name**	**Type of Change**	**Comments**
0913	OWENS PICNIC PARKING AREA	SQ FEET CHANGE	MINOR ADJUSTMENT MADE TO SHAPE TO REFLECT PARKING LOT GEOMETRY ACCURATELY.
0915	VISITOR CENTER EMPLOYEE PARKING	SQ FEET CHANGE	A CONCRETE SECTION WAS ADDED TO EXISTING SHAPE, THEREFORE THE SQUARE FEET HAS CHANGED.
0920	ROUND MEADOW MAINTENANCE AREA	ROUTE SPLIT	CYCLE 3 ROUTE 0911 WAS SPLIT INTO TWO SECTIONS: ROUTE 0911 (PUBLIC ACCESS) AND ROUTE 0920 (NON PUBLIC ACCESS). THE NAME FOR ROUTE 0920 WAS UPDATED TO “ROUND MEADOW MAINTENANCE AREA”.

Section 3
Park Summary Information

Catoctin Mountain Park

Federal Lands Highway
Road Inventory Program

CATO: PAVED ROUTE MILES AND PERCENTAGES BY FUNCTIONAL CLASS AND PCR

F.C.	Pavement Condition Rating (PCR)								TOTAL MILES
	Poor (0-60)		Fair (61-84)		Good (85-94)		Excellent (95-100)		
	MILES	%	MILES	%	MILES	%	MILES	%	
1	1.62	18.56%	1.83	20.96%	1.60	18.33%	2.19	25.09%	**7.24**
2			0.10	1.15%	0.45	5.15%	0.12	1.37%	**0.67**
3	0.20	2.29%	0.14	1.60%	0.10	1.15%	0.02	0.23%	**0.46**
4									
5	0.10	1.15%	0.02	0.23%	0.10	1.15%	0.04	0.46%	**0.26**
6	0.02	0.23%	0.02	0.23%			0.06	0.69%	**0.10**
7									
8									
Totals	**1.94**	**22.22%**	**2.11**	**24.17%**	**2.25**	**25.77%**	**2.43**	**27.83%**	**8.73**

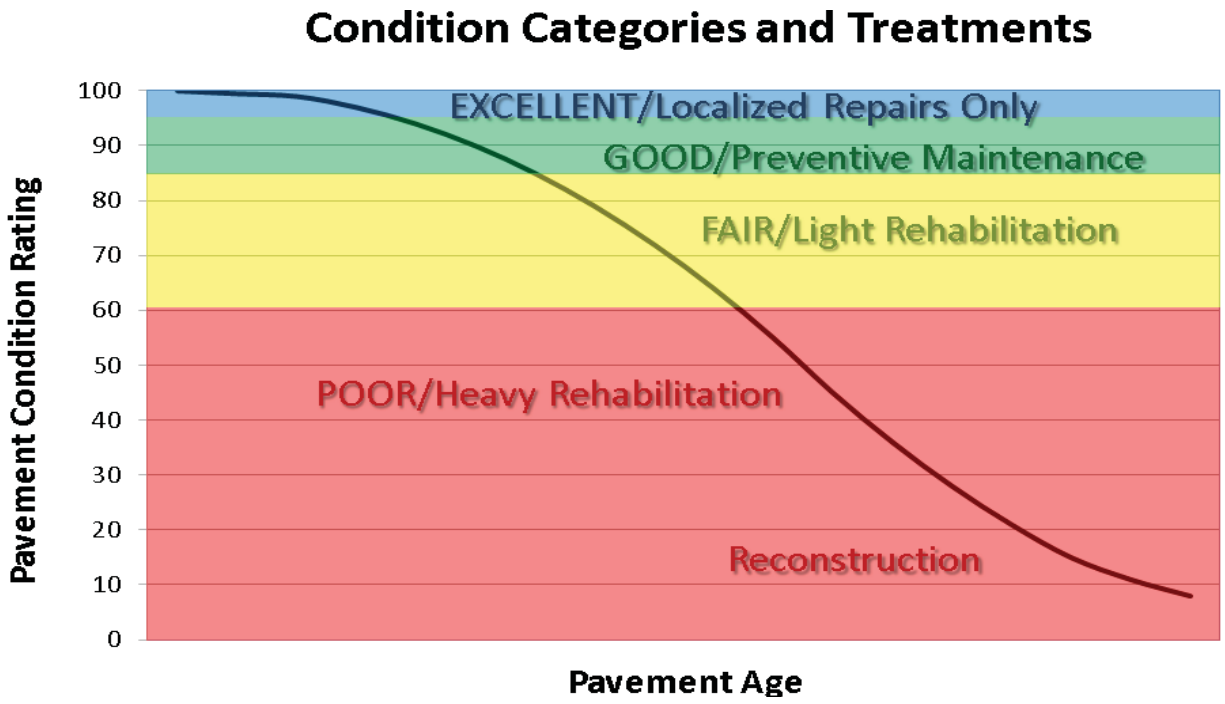
Note: **The information in this table is derived from the PMS_20 table in the Park database, which only contains processed data from routes collected with the Data Collection Vehicle (DCV). Information for Manually Rated Routes (MRR) and Parking Areas is not reported in this table. Only Functional Class 1, 2, & 7 routes, and any new routes not previously collected by RIP, are collected in Large Parks.**

Explanation of the Excellent, Good, Fair and Poor Condition Descriptions

In addition to the RIP Index changes that have been implemented in Cycle 5, we will also aim to provide greater assistance in translating excellent/good/fair/poor categories into pavement needs categories. The PCR can be used to indicate the place in the Pavement Life Cycle and the types of treatments that should be considered now and into the future.

- Excellent/New: PCR of 95-100. Pavements in this range will require only spot repairs
- Good: PCR of 85-94. Pavements in this range will likely be candidates for Preventive Maintenance. Examples include Chip and Slurry Seals, Micro Surfacing and Thin Overlays.
- Fair: PCR of 61-84. Pavements in this range will likely be candidates of Light Rehabilitation (L3R). Examples include single-lift overlays up to 2.5 inches in total thickness, milling and overlays.
- Poor: PCR of 0-60. Pavements in this range will likely be candidates of Heavy Rehabilitation or Reconstruction (H3R or 4R). Examples include Pulverization, Multiple Lift Overlays, and Reconstruction.

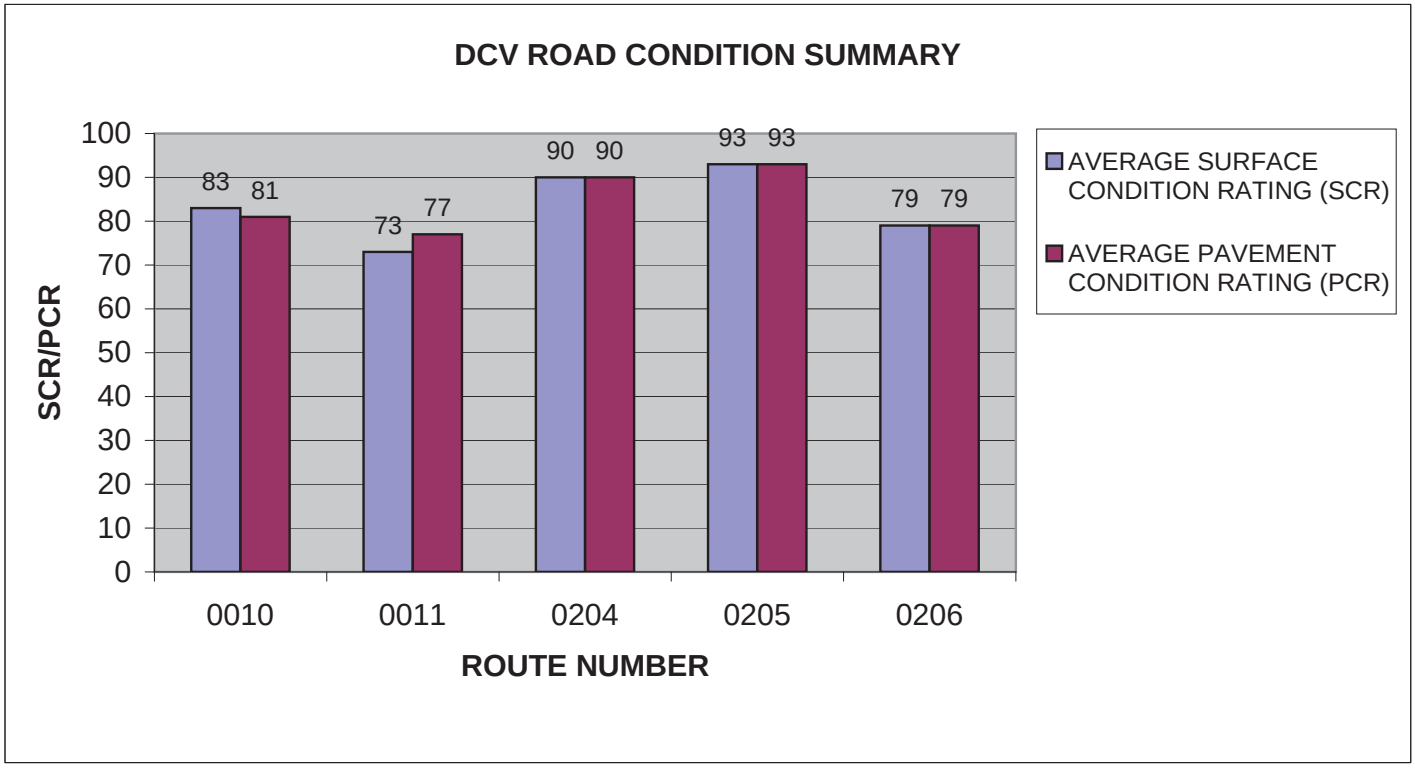
At this time, specific Maintenance and Rehabilitation activities should be evaluated and recommended at the project level. Site-specific conditions that influence treatment type should be determined based on performing a subsurface investigation and/or pavement condition survey, and not be based solely on RIP data. Additionally, RIP produces a snapshot of conditions the year in which the data was collected. For further information or to obtain additional Pavement Management System's data from our Highway Pavement Management Application (HPMA) please contact the Eastern Federal Lands pavement team.



CATO: DCV ROAD CONDITION SUMMARY

DCV - Data Collection Vehicle

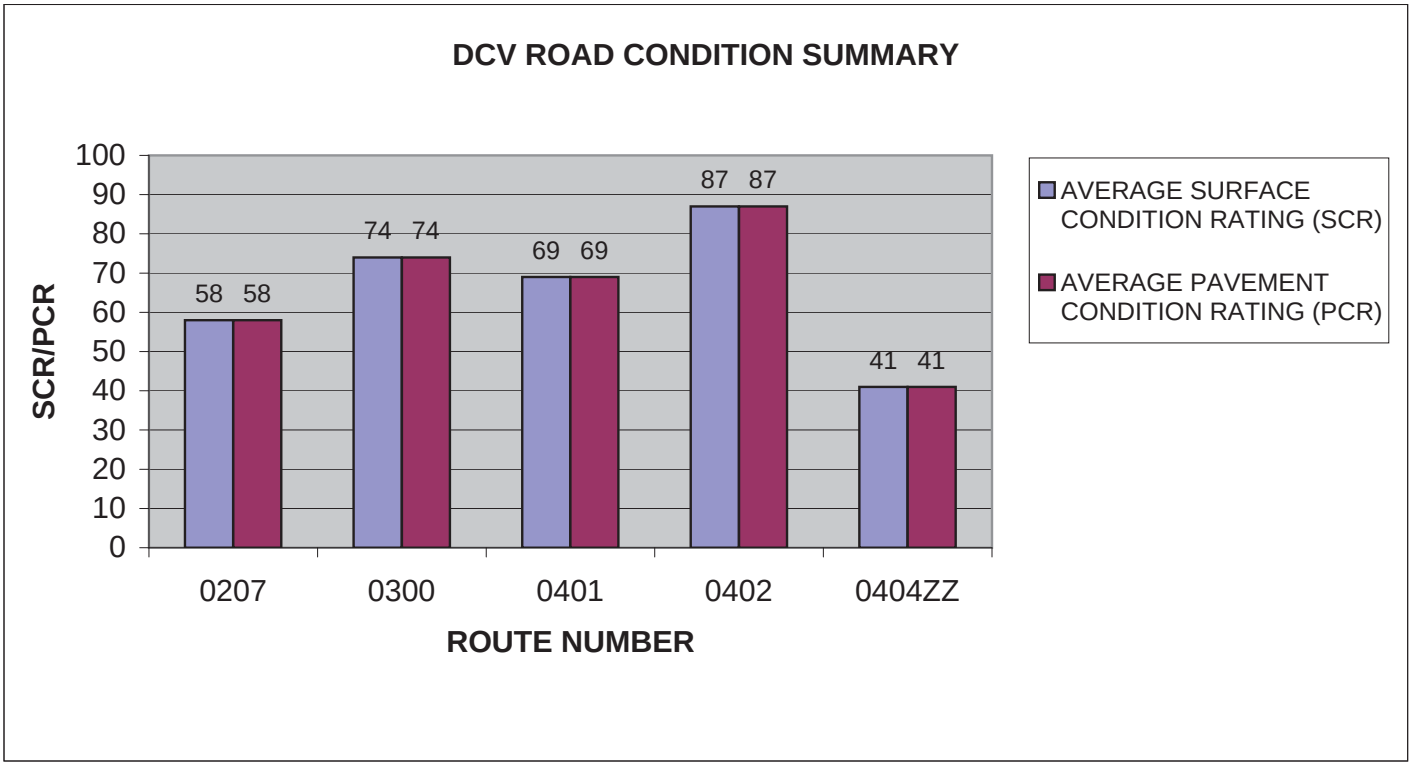
ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	PAVED LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0010	PARK CENTRAL DRIVE	1	4.75	ASPHALT	83	81
0011	FOXVILLE - DEERFIELD ROAD	1	1.86	ASPHALT	73	77
0204	OWENS CREEK CAMPGROUND	2	0.67	ASPHALT	90	90
0205	OWENS CREEK CAMPGROUND CUTOFF A	3	0.08	ASPHALT	93	93
0206	OWENS CREEK CAMPGROUND CUTOFF B	3	0.08	ASPHALT	79	79



CATO: DCV ROAD CONDITION SUMMARY

DCV - Data Collection Vehicle

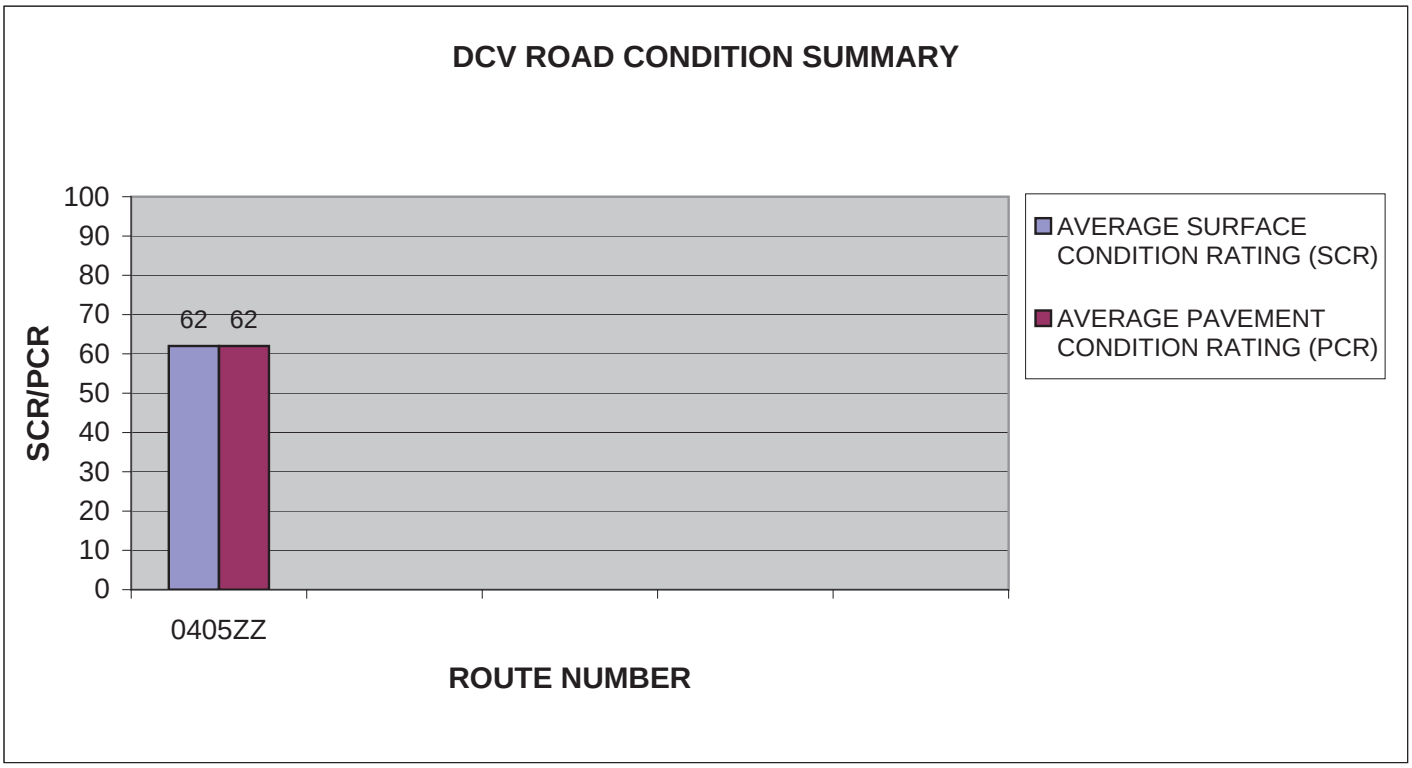
ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	PAVED LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0207	FOXVILLE PLAZA	3	0.30	ASPHALT	58	58
0300	MANAHAN ROAD	1	0.38	ASPHALT	74	74
0401	JIM BROWN ROAD	6	0.10	ASPHALT	69	69
0402	QUARTERS #6 ACCESS ROAD	5	0.14	ASPHALT	87	87
0404ZZ	ROUND MEADOW ROADS	1	0.27	ASPHALT	41	41



CATO: DCV ROAD CONDITION SUMMARY

DCV - Data Collection Vehicle

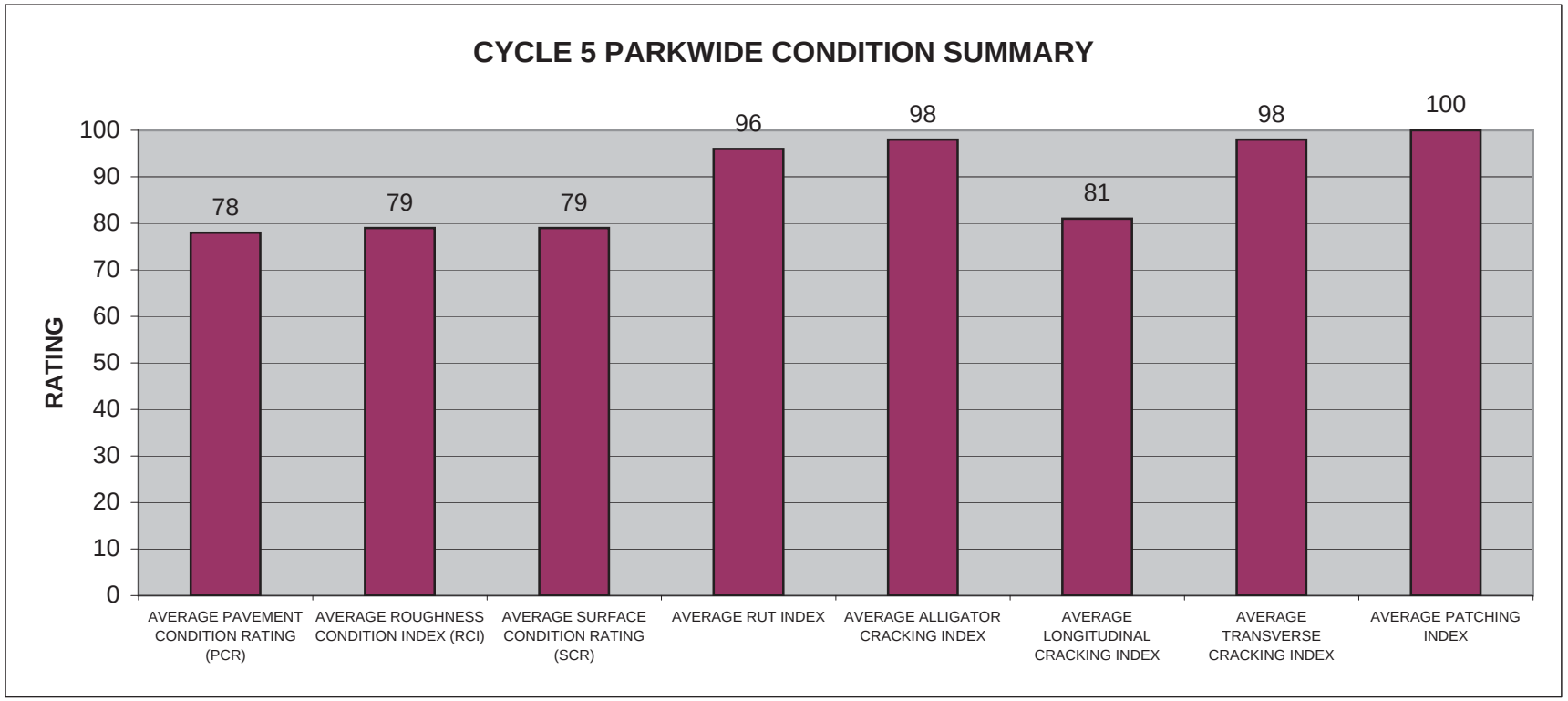
ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	PAVED LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0405ZZ	ROUND MEADOW MAINTENANCE ROADS	5	0.12	ASPHALT	62	62



CATO: PARKWIDE DCV CONDITION SUMMARY

AVERAGE PAVEMENT CONDITION RATING (PCR)	AVERAGE ROUGHNESS CONDITION INDEX (RCI)	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE RUT INDEX	AVERAGE ALLIGATOR CRACKING INDEX	AVERAGE LONGITUDINAL CRACKING INDEX	AVERAGE TRANSVERSE CRACKING INDEX	AVERAGE PATCHING INDEX
78	79	79	96	98	81	98	100

All Index values are based on Data Collection Vehicle (DCV) driven roads that were collected in Cycle-5.
Roughness data is only collected on routes with lengths greater than 0.5 miles and a posted speed limit of 25 MPH or greater.

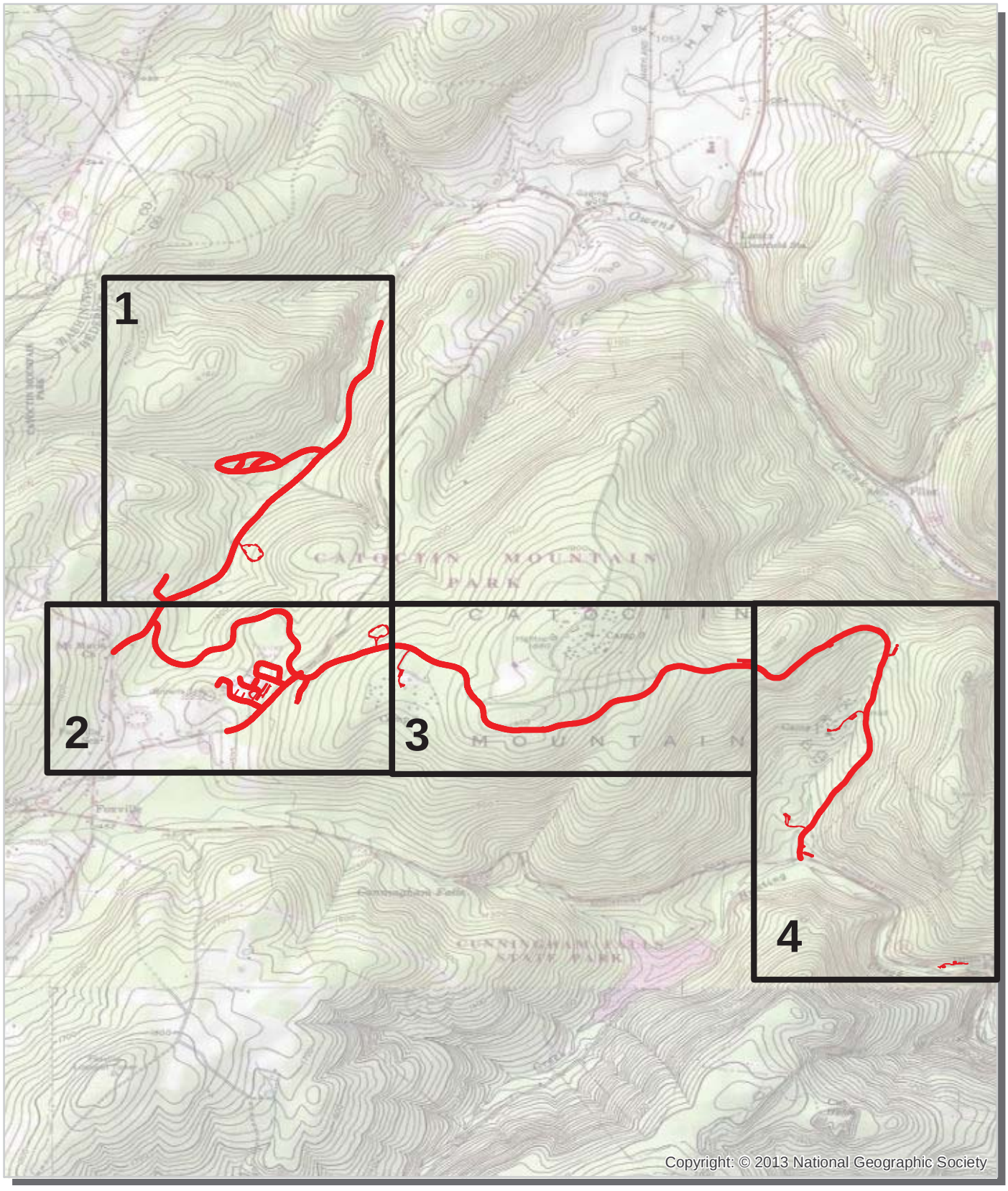


Section 4
Park Route Location Maps

Catoctin Mountain Park

Federal Lands Highway
Road Inventory Program

Catoctin Mountain Park
Route Location Map
Key Map

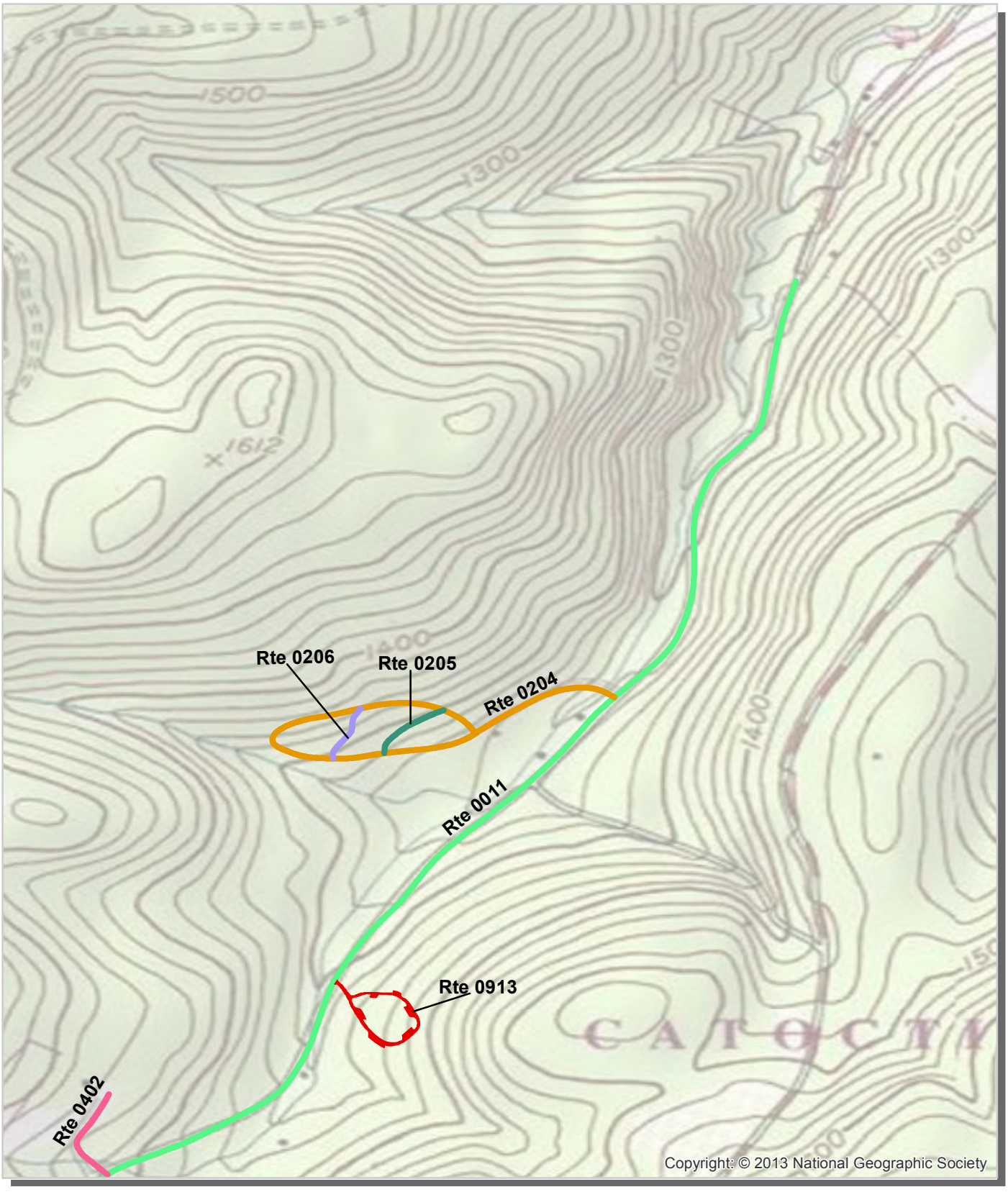


Cycle 5 Collected Routes

0.6 0.3 0 0.6
Miles

N

Catoctin Mountain Park
Route Location Map
Area 1

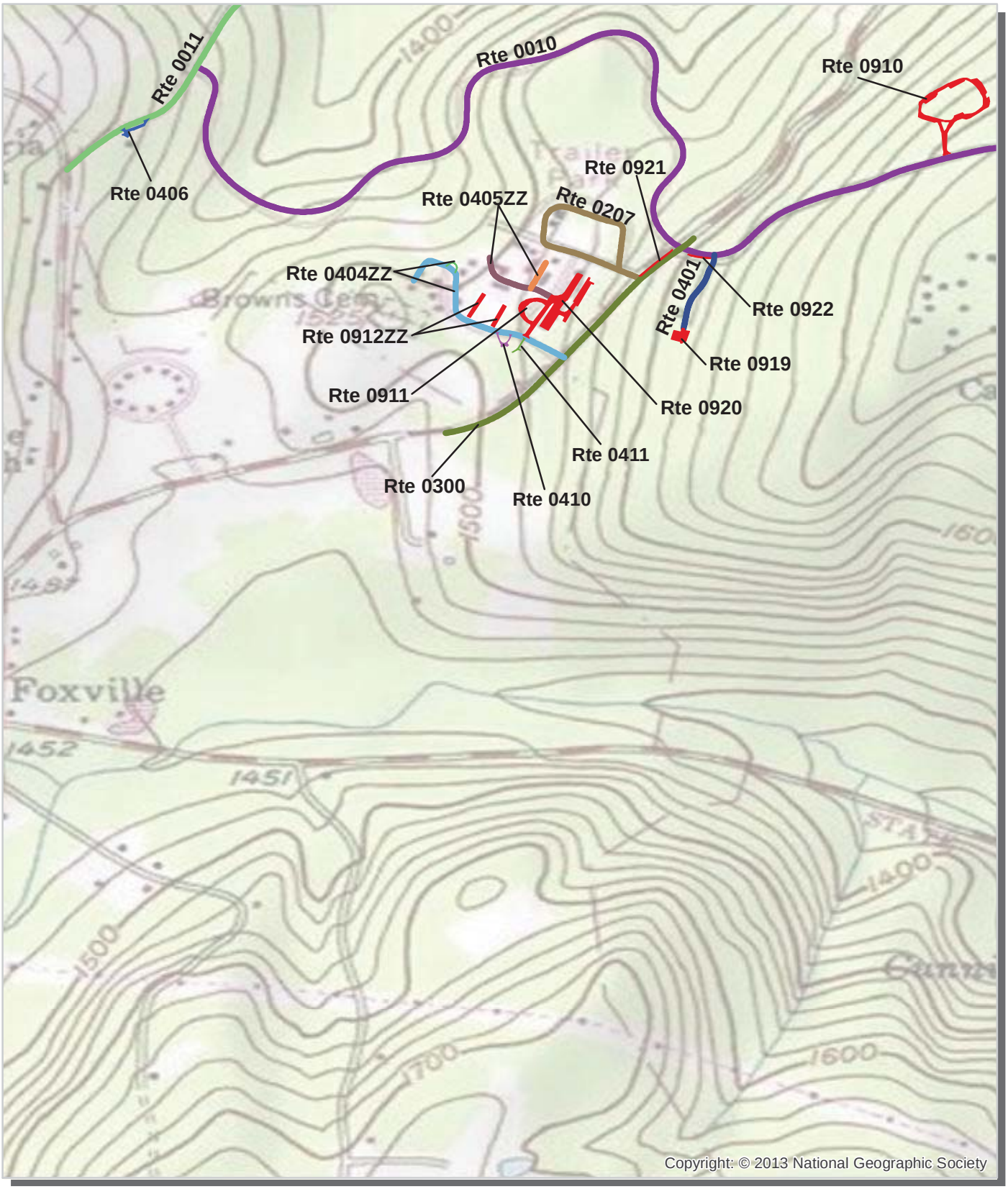


Unique colors used to differentiate routes

0.2 0.1 0 0.2 Miles

N

Catoctin Mountain Park
Route Location Map
Area 2



Unique colors used to differentiate routes

0.15 0.075 0 0.15
Miles

N

Catoctin Mountain Park
Route Location Map
Area 3

Unique colors used to differentiate routes

0.2 0.1 0 0.2
Miles

N

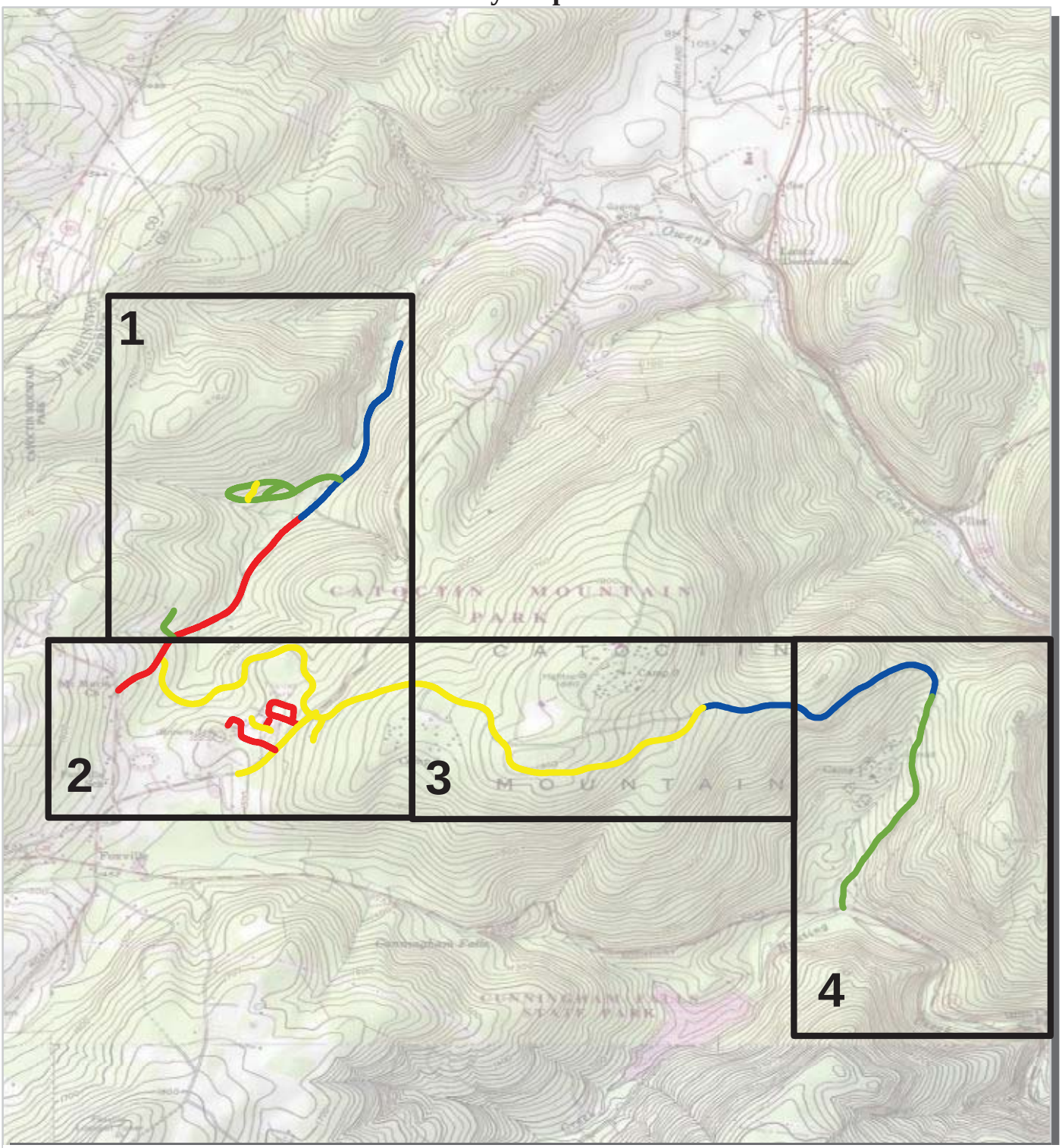
Catoctin Mountain Park
Route Location Map
Area 4

Unique colors used to differentiate routes

0.2 0.1 0 0.2
Miles

N

Catoctin Mountain Park
Route Condition Map
PCR - Mile by Mile
Key Map



PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

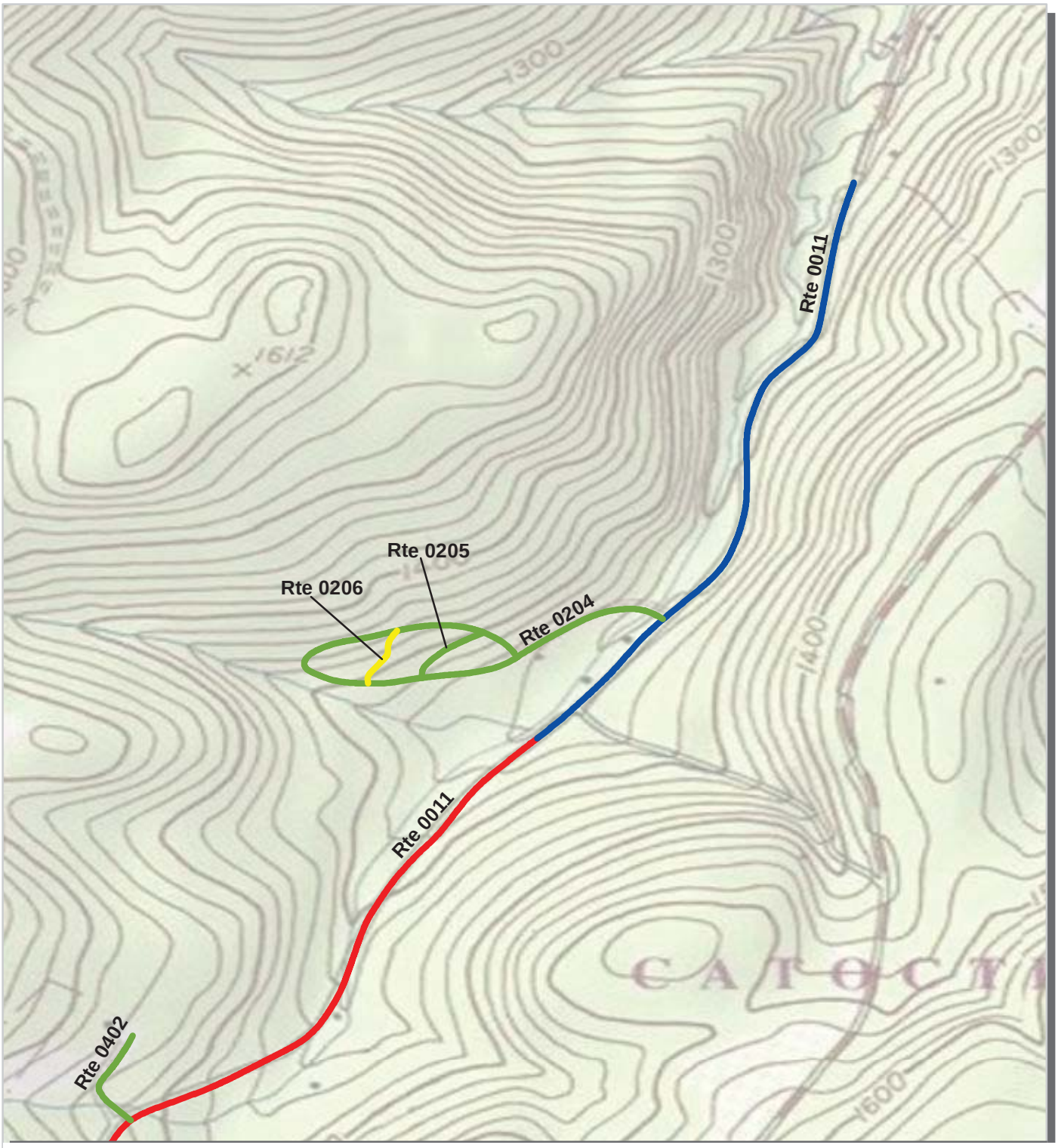
* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

Note: Only routes collected by the DCV in Cycle-5 are displayed.

0.6 0.3 0 0.6 Miles

N

Catoctin Mountain Park
Route Condition Map
PCR - Mile by Mile
Area 1



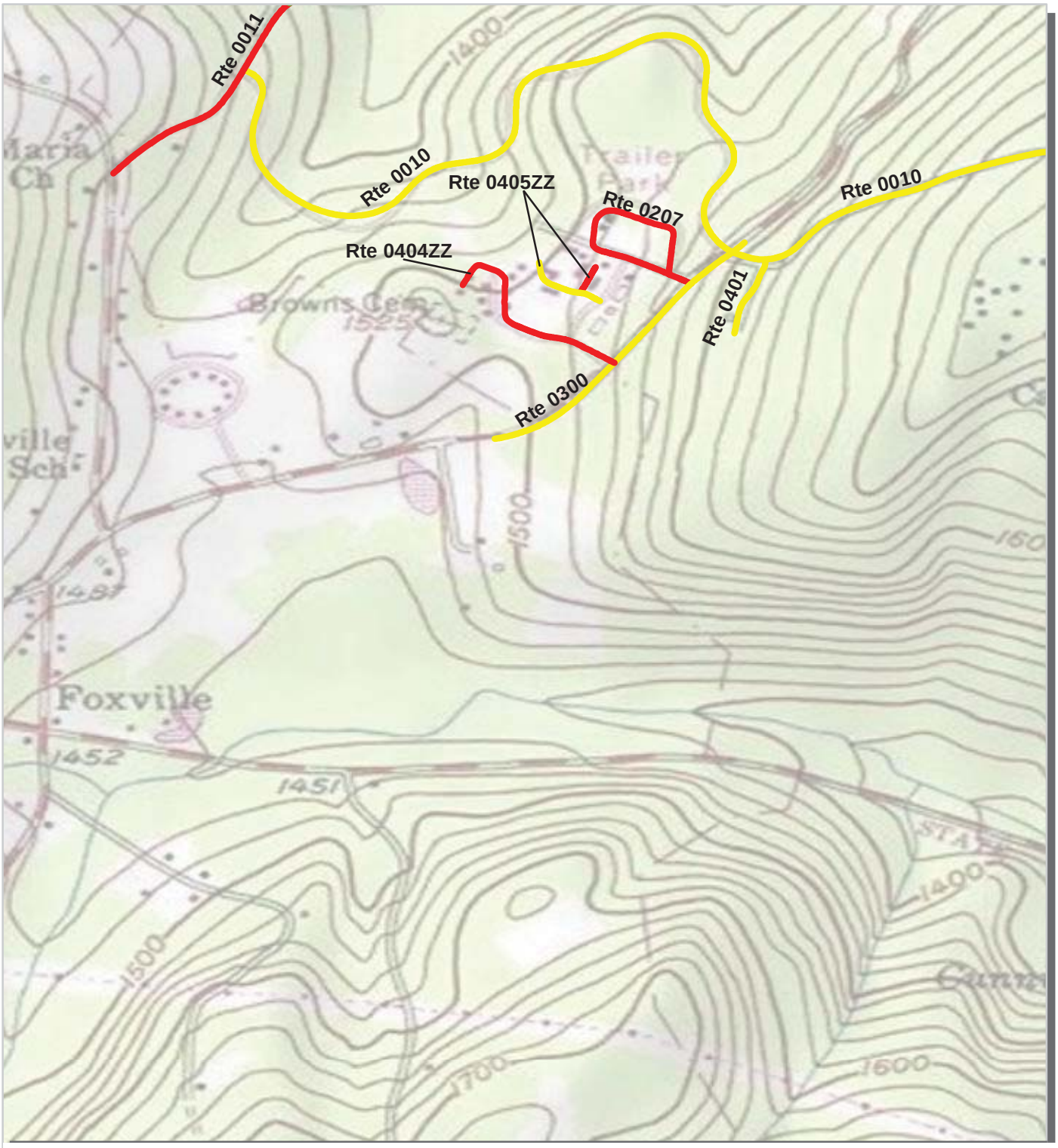
PCR — Poor (0 - 60) — Fair (61 - 84) — Good (85 - 94) — Excellent (95 - 100) — No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

0.2 0.1 0 0.2 Miles

N

Catoctin Mountain Park
Route Condition Map
PCR - Mile by Mile
Area 2



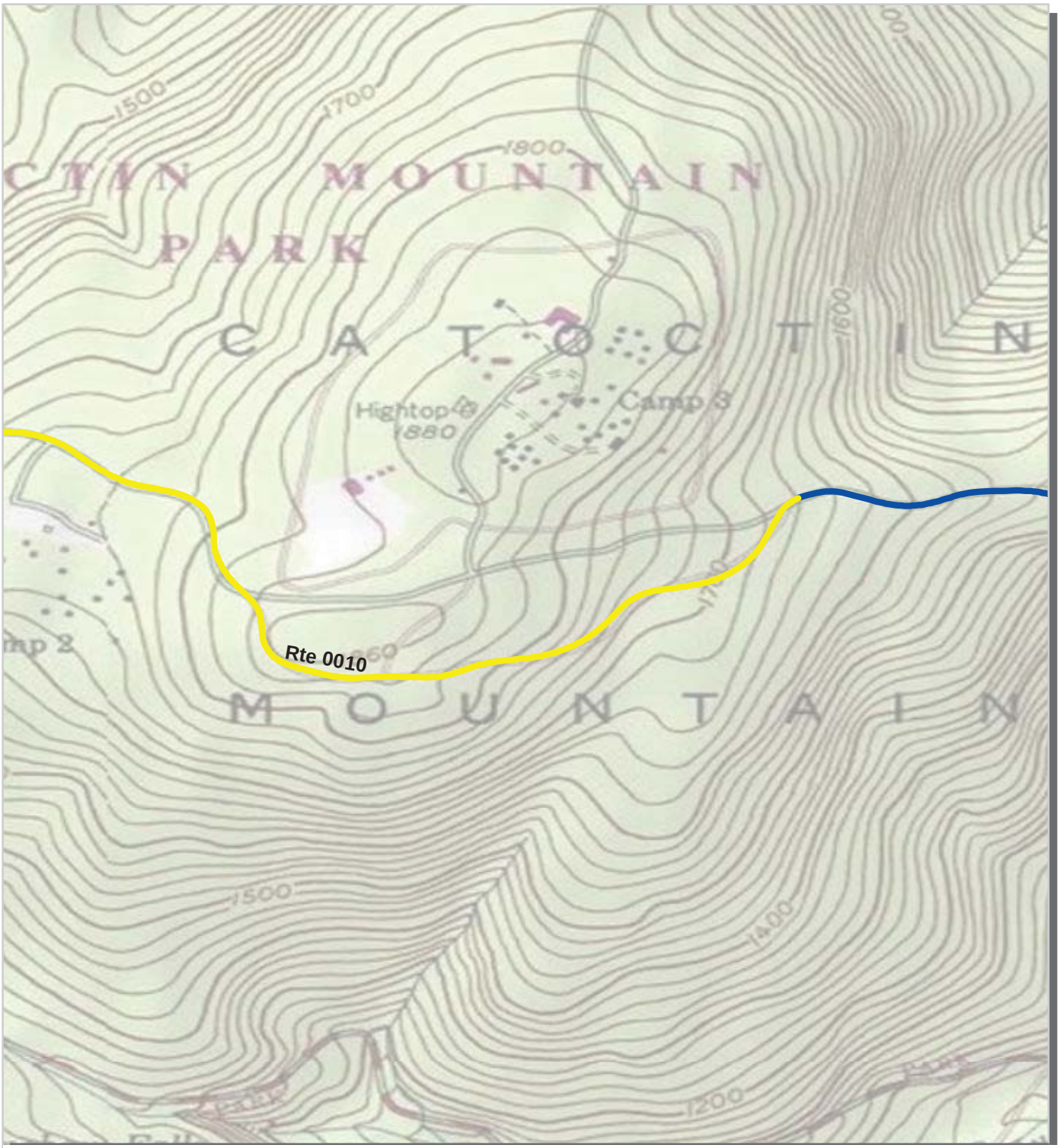
PCR — Poor (0 - 60) | Fair (61 - 84) | Good (85 - 94) | Excellent (95 - 100) | No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

0.2 0.1 0 0.2 Miles

N

Catoctin Mountain Park
Route Condition Map
PCR - Mile by Mile
Area 3



PCR	Poor	Fair	Good	Excellent	No Data
	(0 - 60)	(61 - 84)	(85 - 94)	(95 - 100)	

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

0.2 0.1 0 0.2 Miles

N

Catoctin Mountain Park
Route Condition Map
PCR - Mile by Mile
Area 4

PCR	Poor	Fair	Good	Excellent	No Data
	(0 - 60)	(61 - 84)	(85 - 94)	(95 - 100)	

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

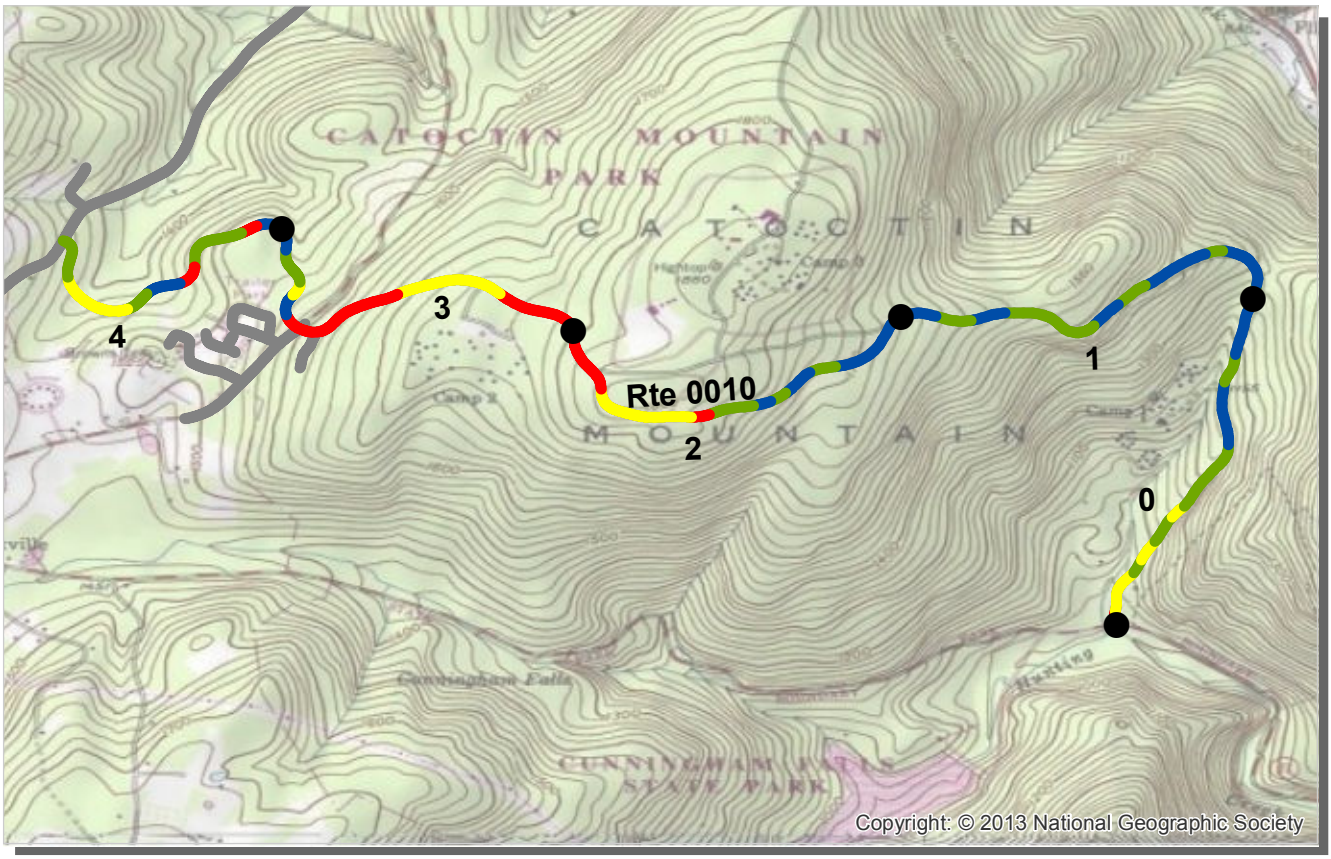
0.2 0.1 0 0.2 Miles

N

Section 5
Paved Route
Condition Rating Sheets

Catoctin Mountain Park

Federal Lands Highway
Road Inventory Program



PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

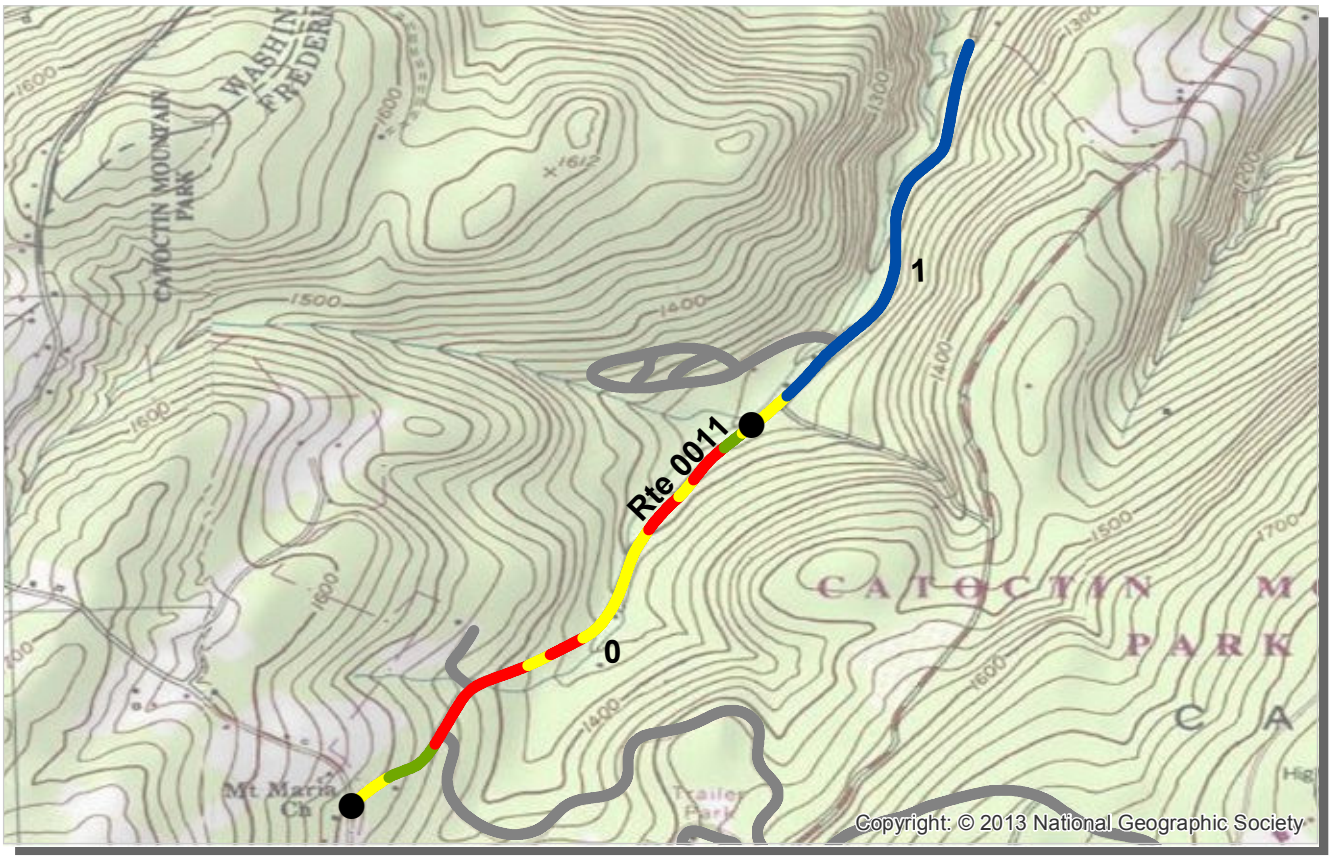
ROUTE: 0010 PARK CENTRAL DRIVE
CATO : CATOCTIN MOUNTAIN PARK

COLLECTED: 4/16/2013

NATIONAL CAPITAL REGION **TOTAL LENGTH: 4.75 Miles**

Section Number	0	1	2	3	4
Section Length (mi)	1.00	1.00	1.00	1.00	0.75
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	20	21	21	25	22
Lane Width (ft)	9	9	9	11	10
Roadway Condition Information					
SCR (Surface Condition Rating)	91	99	77	62	86
PCR (Pavement Condition Rating)	86	95	76	63	84
Distress Index Values					
Structural Crack Index	91	100	77	62	86
Transverse Cracking Index	99	100	98	96	100
Patching Index	100	100	100	100	100
Rutting Index	99	99	94	94	97
Roughness Condition Index (RCI)	79	88	75	65	80

NOTES:
Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.
See Section 10 for explanation of SCR, PCR, & all Distress Index Values.
NC - Not Collected N/A - Not Applicable



PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

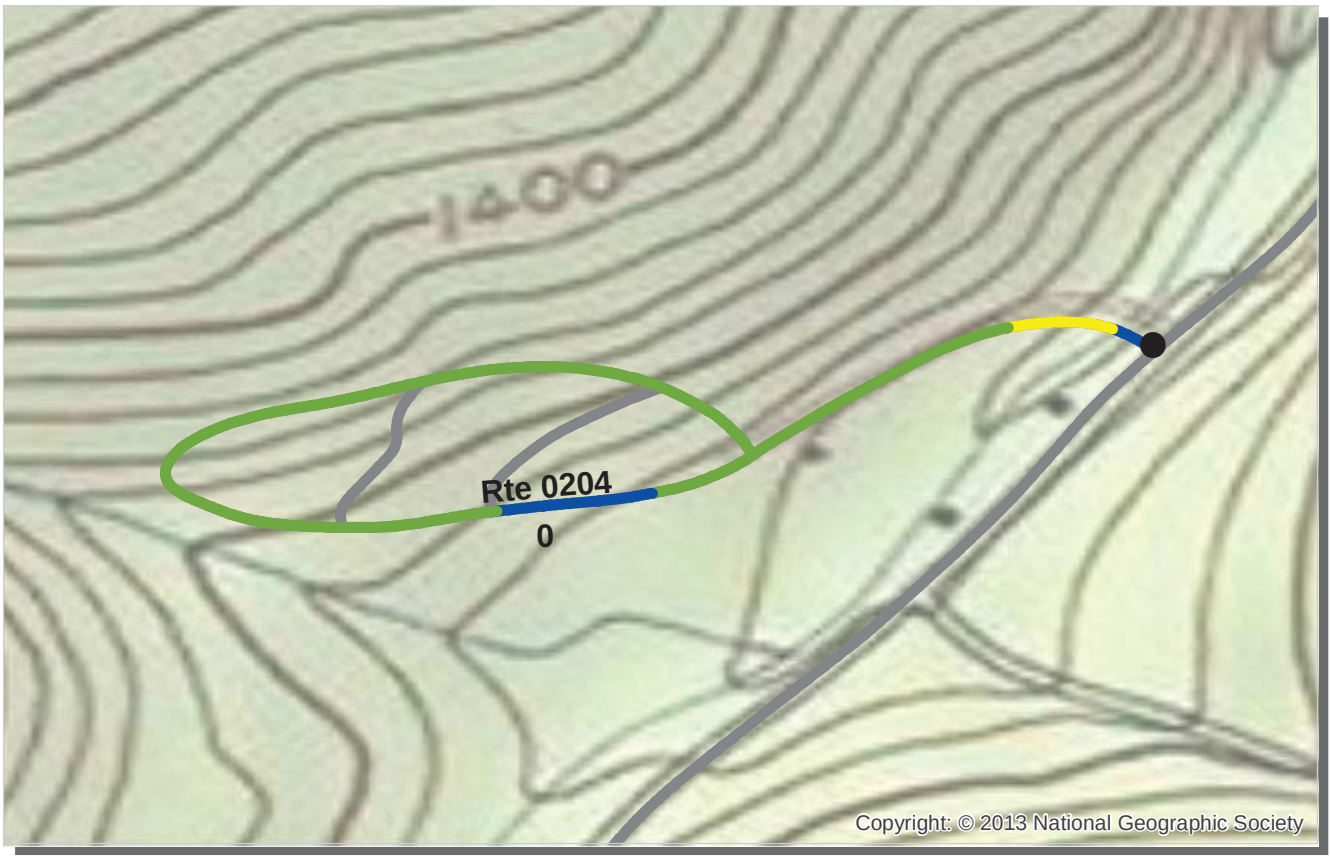
ROUTE: 0011 FOXVILLE - DEERFIELD ROAD
CATO : CATOCTIN MOUNTAIN PARK

COLLECTED: 4/16/2013

NATIONAL CAPITAL REGION **TOTAL LENGTH: 1.86 Miles**

Section Number	0	1			
Section Length (mi)	1.00	0.86			
Cross Section Information					
Number of Lanes	2	2			
Paved Width (ft)	18	18			
Lane Width (ft)	8	8			
Roadway Condition Information					
SCR (Surface Condition Rating)	52	98			
PCR (Pavement Condition Rating)	59	99			
Distress Index Values					
Structural Crack Index	52	98			
Transverse Cracking Index	98	100			
Patching Index	100	100			
Rutting Index	97	100			
Roughness Condition Index (RCI)	69	100			

NOTES:
Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.
See Section 10 for explanation of SCR, PCR, & all Distress Index Values.
NC - Not Collected N/A - Not Applicable



PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0204 OWENS CREEK CAMPGROUND
CATO : CATOCTIN MOUNTAIN PARK

COLLECTED: 4/16/2013

NATIONAL CAPITAL REGION **TOTAL LENGTH: 0.67 Miles**

Section Number	0				
Section Length (mi)	0.67				
Cross Section Information					
Number of Lanes	1				
Paved Width (ft)	15				
Lane Width (ft)	11				
Roadway Condition Information					
SCR (Surface Condition Rating)	90				
PCR (Pavement Condition Rating)	90				
Distress Index Values					
Structural Crack Index	98				
Transverse Cracking Index	99				
Patching Index	99				
Rutting Index	90				
Roughness Condition Index (RCI)	NC				

NOTES:

Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.

See Section 10 for explanation of SCR, PCR, & all Distress Index Values.

NC - Not Collected N/A - Not Applicable

PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0205 OWENS CREEK CAMPGROUND CUTOFF A
CATO : CATOCTIN MOUNTAIN PARK

COLLECTED: 4/16/2013

NATIONAL CAPITAL REGION **TOTAL LENGTH: 0.08 Miles**

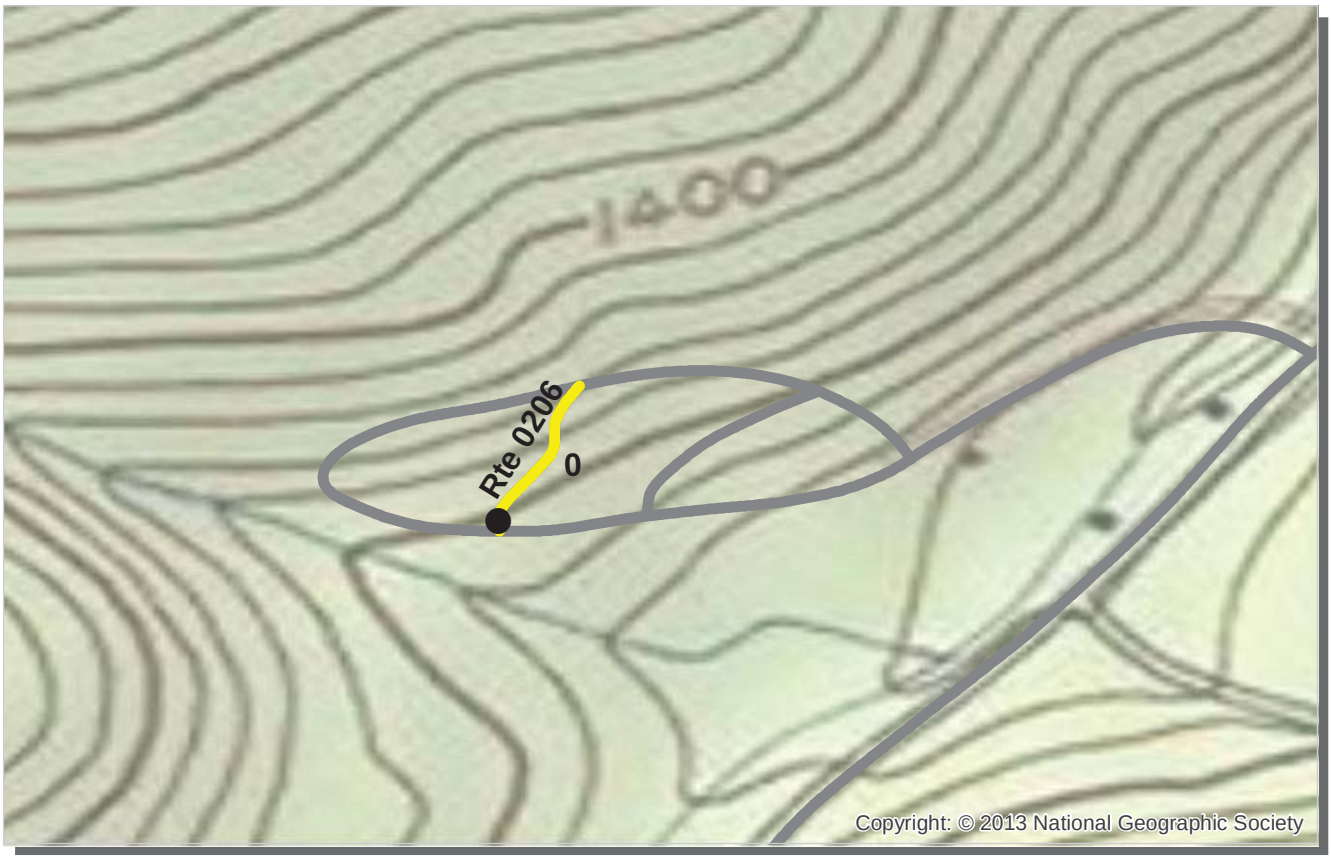
Section Number	0				
Section Length (mi)	0.08				
Cross Section Information					
Number of Lanes	1				
Paved Width (ft)	12				
Lane Width (ft)	12				
Roadway Condition Information					
SCR (Surface Condition Rating)	93				
PCR (Pavement Condition Rating)	93				
Distress Index Values					
Structural Crack Index	99				
Transverse Cracking Index	100				
Patching Index	99				
Rutting Index	93				
Roughness Condition Index (RCI)	NC				

NOTES:

Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.

See Section 10 for explanation of SCR, PCR, & all Distress Index Values.

NC - Not Collected N/A - Not Applicable



PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0206 OWENS CREEK CAMPGROUND CUTOFF B
CATO : CATOCTIN MOUNTAIN PARK

COLLECTED: 4/16/2013

NATIONAL CAPITAL REGION **TOTAL LENGTH: 0.08 Miles**

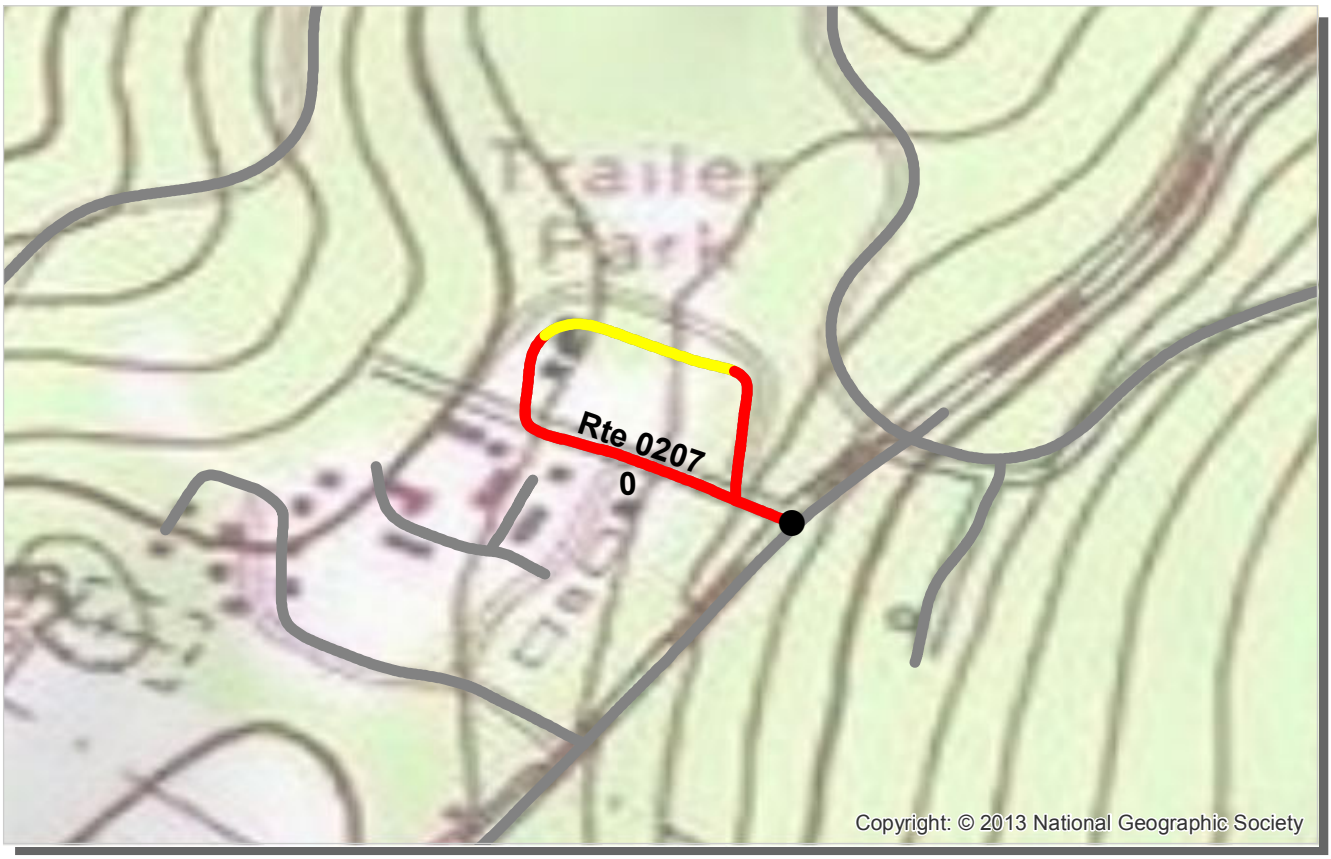
Section Number	0				
Section Length (mi)	0.08				
Cross Section Information					
Number of Lanes	1				
Paved Width (ft)	12				
Lane Width (ft)	12				
Roadway Condition Information					
SCR (Surface Condition Rating)	79				
PCR (Pavement Condition Rating)	79				
Distress Index Values					
Structural Crack Index	99				
Transverse Cracking Index	98				
Patching Index	96				
Rutting Index	79				
Roughness Condition Index (RCI)	NC				

NOTES:

Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.

See Section 10 for explanation of SCR, PCR, & all Distress Index Values.

NC - Not Collected N/A - Not Applicable



PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0207 FOXVILLE PLAZA
CATO : CATOCTIN MOUNTAIN PARK

COLLECTED: 4/16/2013

NATIONAL CAPITAL REGION **TOTAL LENGTH: 0.30 Miles**

Section Number	0				
Section Length (mi)	0.30				
Cross Section Information					
Number of Lanes	1				
Paved Width (ft)	20				
Lane Width (ft)	20				
Roadway Condition Information					
SCR (Surface Condition Rating)	58				
PCR (Pavement Condition Rating)	58				
Distress Index Values					
Structural Crack Index	58				
Transverse Cracking Index	90				
Patching Index	94				
Rutting Index	89				
Roughness Condition Index (RCI)	NC				

NOTES:
Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.
See Section 10 for explanation of SCR, PCR, & all Distress Index Values.
NC - Not Collected N/A - Not Applicable

PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0300 MANAHAN ROAD
CATO : CATOCTIN MOUNTAIN PARK

COLLECTED: 4/16/2013

NATIONAL CAPITAL REGION **TOTAL LENGTH: 0.38 Miles**

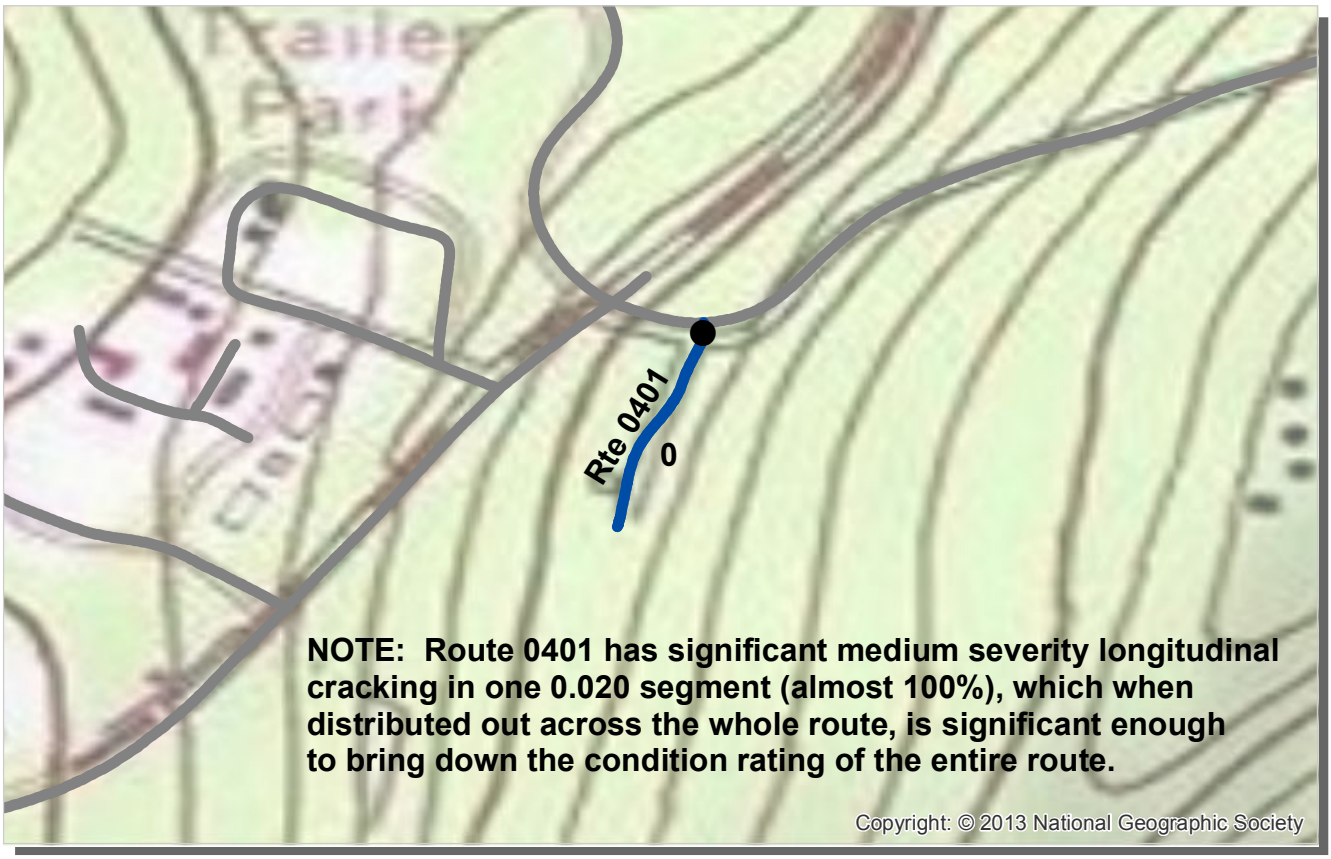
Section Number	0				
Section Length (mi)	0.38				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	21				
Lane Width (ft)	10				
Roadway Condition Information					
SCR (Surface Condition Rating)	74				
PCR (Pavement Condition Rating)	74				
Distress Index Values					
Structural Crack Index	74				
Transverse Cracking Index	96				
Patching Index	99				
Rutting Index	98				
Roughness Condition Index (RCI)	NC				

NOTES:

Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.

See Section 10 for explanation of SCR, PCR, & all Distress Index Values.

NC - Not Collected N/A - Not Applicable



PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0401 JIM BROWN ROAD
CATO : CATOCTIN MOUNTAIN PARK

COLLECTED: 4/16/2013

NATIONAL CAPITAL REGION **TOTAL LENGTH: 0.10 Miles**

Section Number	0				
Section Length (mi)	0.10				
Cross Section Information					
Number of Lanes	1				
Paved Width (ft)	11				
Lane Width (ft)	11				
Roadway Condition Information					
SCR (Surface Condition Rating)	69				
PCR (Pavement Condition Rating)	69				
Distress Index Values					
Structural Crack Index	69				
Transverse Cracking Index	98				
Patching Index	100				
Rutting Index	93				
Roughness Condition Index (RCI)	NC				

NOTES:
Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.
See Section 10 for explanation of SCR, PCR, & all Distress Index Values.
NC - Not Collected N/A - Not Applicable

PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0402 QUARTERS #6 ACCESS ROAD
CATO : CATOCTIN MOUNTAIN PARK

COLLECTED: 4/16/2013

NATIONAL CAPITAL REGION **TOTAL LENGTH: 0.14 Miles**

Section Number	0				
Section Length (mi)	0.14				
Cross Section Information					
Number of Lanes	1				
Paved Width (ft)	13				
Lane Width (ft)	13				
Roadway Condition Information					
SCR (Surface Condition Rating)	87				
PCR (Pavement Condition Rating)	87				
Distress Index Values					
Structural Crack Index	87				
Transverse Cracking Index	99				
Patching Index	100				
Rutting Index	98				
Roughness Condition Index (RCI)	NC				

NOTES:

Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.

See Section 10 for explanation of SCR, PCR, & all Distress Index Values.

NC - Not Collected N/A - Not Applicable

PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0404ZZ ROUND MEADOW ROADS
CATO : CATOCTIN MOUNTAIN PARK

Summary Record **COLLECTED: 4/16/2013**
NATIONAL CAPITAL REGION **TOTAL LENGTH: 0.27 Miles**

Section Number					
Section Length (mi)					
Cross Section Information					
Number of Lanes	N/A				
Paved Width (ft)	N/A				
Lane Width (ft)	N/A				
Roadway Condition Information					
SCR (Surface Condition Rating)	41				
PCR (Pavement Condition Rating)	41				
Distress Index Values					
Structural Crack Index	N/A				
Transverse Cracking Index	N/A				
Patching Index	N/A				
Rutting Index	N/A				
Roughness Condition Index (RCI)	N/A				

NOTES:
Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.
See Section 10 for explanation of SCR, PCR, & all Distress Index Values.
NC - Not Collected N/A - Not Applicable

PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0404AZ ROUND MEADOW ROAD
CATO : CATOCTIN MOUNTAIN PARK

Subcomponent Record **COLLECTED: 4/16/2013**
NATIONAL CAPITAL REGION **TOTAL LENGTH: 0.25 Miles**

Section Number	0				
Section Length (mi)	0.25				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	17				
Lane Width (ft)	11				
Roadway Condition Information					
SCR (Surface Condition Rating)	41				
PCR (Pavement Condition Rating)	41				
Distress Index Values					
Structural Crack Index	41				
Transverse Cracking Index	86				
Patching Index	98				
Rutting Index	91				
Roughness Condition Index (RCI)	NC				

NOTES:
Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.
See Section 10 for explanation of SCR, PCR, & all Distress Index Values.
NC - Not Collected N/A - Not Applicable

PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0405ZZ ROUND MEADOW MAINTENANCE ROADS
CATO : CATOCTIN MOUNTAIN PARK

Summary Record **COLLECTED: 4/16/2013**
NATIONAL CAPITAL REGION **TOTAL LENGTH: 0.12 Miles**

Section Number					
Section Length (mi)					
Cross Section Information					
Number of Lanes	N/A				
Paved Width (ft)	N/A				
Lane Width (ft)	N/A				
Roadway Condition Information					
SCR (Surface Condition Rating)	62				
PCR (Pavement Condition Rating)	62				
Distress Index Values					
Structural Crack Index	N/A				
Transverse Cracking Index	N/A				
Patching Index	N/A				
Rutting Index	N/A				
Roughness Condition Index (RCI)	N/A				

NOTES:
Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.
See Section 10 for explanation of SCR, PCR, & all Distress Index Values.
NC - Not Collected N/A - Not Applicable

PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0405AZ ROUND MEADOW MAINTENANCE ROAD A
CATO : CATOCTIN MOUNTAIN PARK

Subcomponent Record **COLLECTED: 4/16/2013**
NATIONAL CAPITAL REGION **TOTAL LENGTH: 0.09 Miles**

Section Number	0				
Section Length (mi)	0.09				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	15				
Lane Width (ft)	8				
Roadway Condition Information					
SCR (Surface Condition Rating)	79				
PCR (Pavement Condition Rating)	79				
Distress Index Values					
Structural Crack Index	79				
Transverse Cracking Index	96				
Patching Index	95				
Rutting Index	83				
Roughness Condition Index (RCI)	NC				

NOTES:
Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.
See Section 10 for explanation of SCR, PCR, & all Distress Index Values.
NC - Not Collected N/A - Not Applicable

PCR Poor (0 - 60) Fair (61 - 84) Good (85 - 94) Excellent (95 - 100) No Data

* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0405BZ ROUND MEADOW MAINTENANCE ROAD B
CATO : CATOCTIN MOUNTAIN PARK

Subcomponent Record **COLLECTED: 4/16/2013**
NATIONAL CAPITAL REGION **TOTAL LENGTH: 0.03 Miles**

Section Number	0				
Section Length (mi)	0.03				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	16				
Lane Width (ft)	8				
Roadway Condition Information					
SCR (Surface Condition Rating)	17				
PCR (Pavement Condition Rating)	17				
Distress Index Values					
Structural Crack Index	17				
Transverse Cracking Index	68				
Patching Index	97				
Rutting Index	93				
Roughness Condition Index (RCI)	NC				

NOTES:
Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.
See Section 10 for explanation of SCR, PCR, & all Distress Index Values.
NC - Not Collected N/A - Not Applicable

Section 6
Manually Rated Paved Route Condition Rating Sheets

Catoctin Mountain Park

Federal Lands Highway
Road Inventory Program

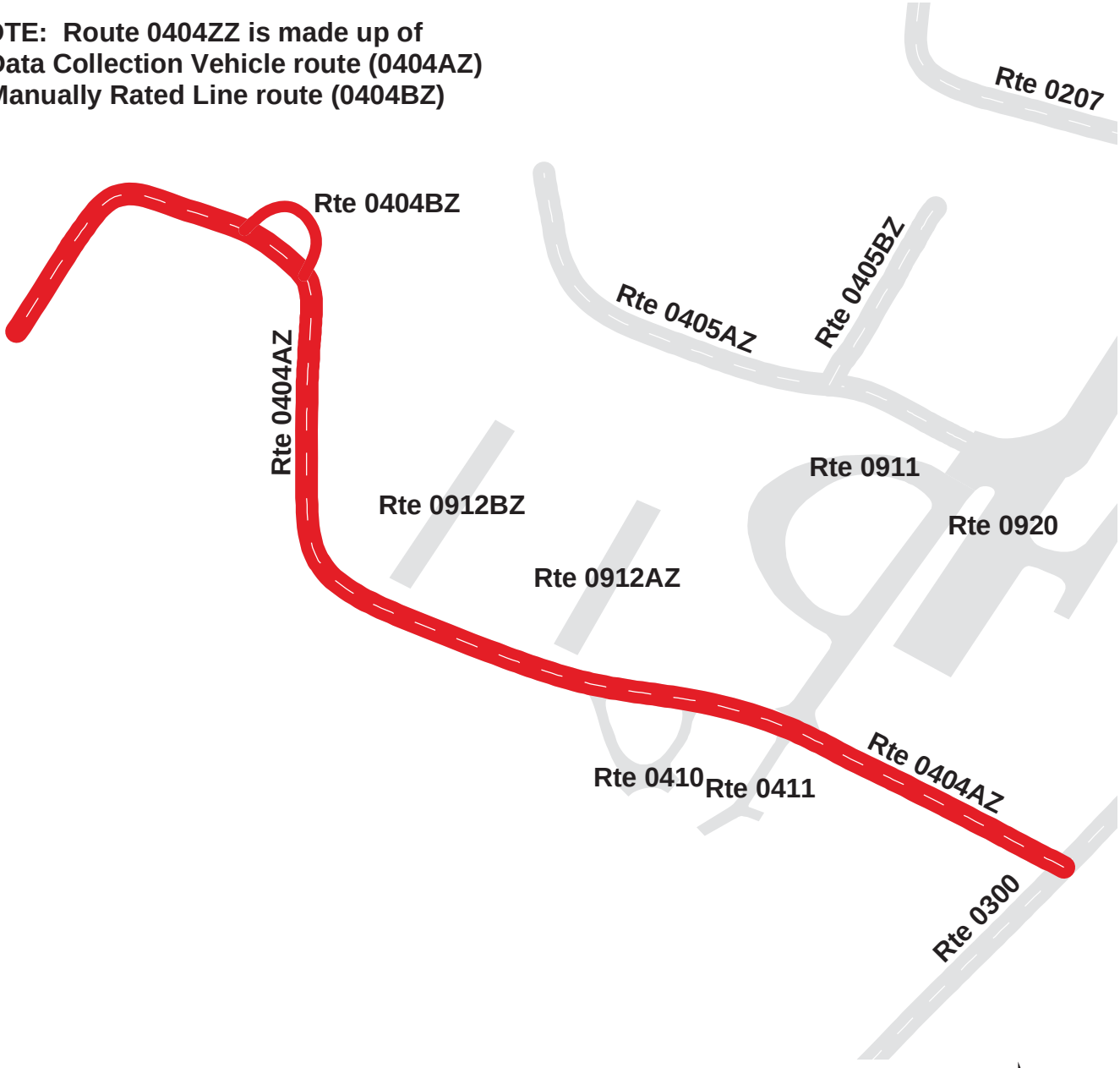
CATOCTIN MOUNTAIN PARK
Route 0404ZZ
ROUND MEADOW ROADS
FROM ROUTE 0300 (MANAHAN ROAD)
TO USPP BUILDING

Summary Record

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Paved Length (mi)	Paved Width (ft)
0404ZZ	PUBLIC	4/16/2013	N/A	0.42	0.27	17
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**	**Surface Type**
0	0	1	N/A	N/A	SUMMARY/41	AS

* Lane miles are based on 11' lane widths

NOTE: Route 0404ZZ is made up of
1 Data Collection Vehicle route (0404AZ)
1 Manually Rated Line route (0404BZ)



CATOCTIN MOUNTAIN PARK
Route 0404BZ

ROUND MEADOW TURN AROUND

FROM ROUTE 0404AZ (ROUND MEADOW ROAD)

TO ROUTE 0404AZ (ROUND MEADOW ROAD)

Subcomponent Record

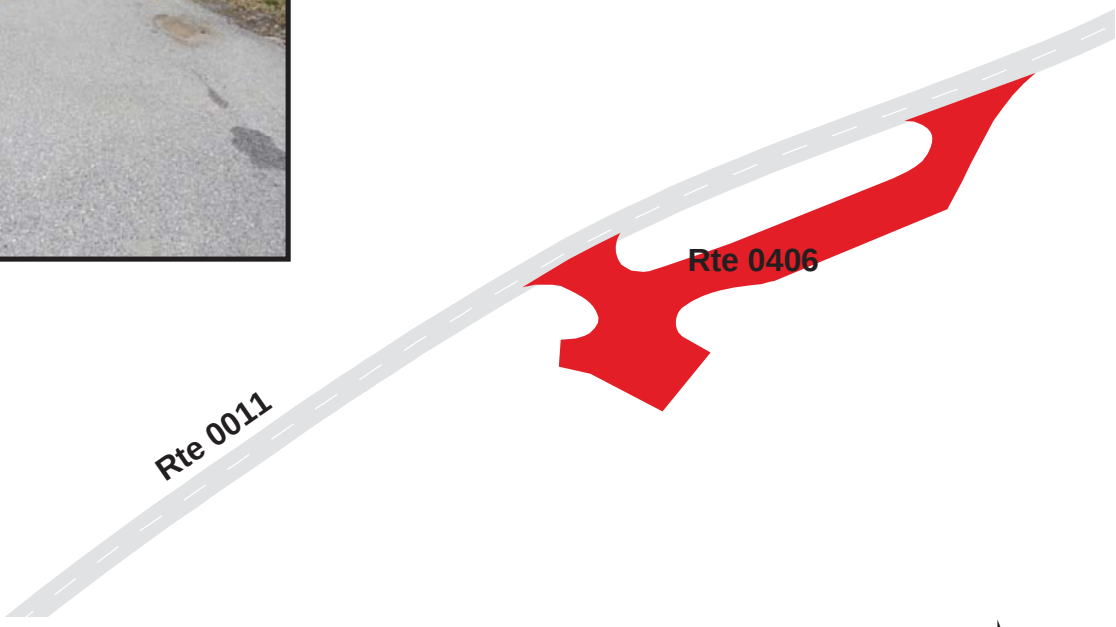
Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Paved Length (mi)	Paved Width (ft)
0404BZ	PUBLIC	4/2/2013	1,331	0.02	0.02	12
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**	**Surface Type**
0	0	0	NO CURB AND GUTTER	NO CURB	POOR/45	AS

* Lane miles are based on 11' lane widths

CATOCTIN MOUNTAIN PARK
Route 0406
QUARTERS #5 DRIVEWAY
FROM ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)
TO ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0406	PUBLIC	4/2/2013	4,912	0.09	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	1	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



150 75 0 150
Feet

CATOCTIN MOUNTAIN PARK
Route 0408
QUARTERS #1 ACCESS ROAD
FROM ROUTE 0010 (PARK CENTRAL DRIVE)
TO QUARTERS #1

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0408	PUBLIC	4/2/2013	4,526	0.08	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	1	NO CURB AND GUTTER	NO CURB	POOR/45

* Lane miles are based on 11' lane widths

CATOCTIN MOUNTAIN PARK
Route 0409
BUILDING 167 ACCESS ROAD
FROM ROUTE 0010 (PARK CENTRAL DRIVE)
TO BUILDING 167

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0409	PUBLIC	4/2/2013	1,600	0.03	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	POOR/45

* Lane miles are based on 11' lane widths

CATOCTIN MOUNTAIN PARK
Route 0410
VISITORS SERVICE ACCESS ROAD
FROM ROUTE 0404ZZ (ROUND MEADOW ROADS)
TO ROUTE 0404ZZ (ROUND MEADOW ROADS)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0410	PUBLIC	4/2/2013	2,732	0.05	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	POOR/45

* Lane miles are based on 11' lane widths

CATOCTIN MOUNTAIN PARK
Route 0411
QUARTER #7 ACCESS ROAD
FROM ROUTE 0404ZZ (ROUND MEADOW ROADS)
TO QUARTERS #7

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0411	PUBLIC	4/2/2013	1,585	0.03	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	FAIR/73

* Lane miles are based on 11' lane widths

130 65 0 130 Feet

N

Section 7
Parking Area
Condition Rating Sheets

Catoctin Mountain Park

Federal Lands Highway
Road Inventory Program

CATOCTIN MOUNTAIN PARK
Route 0900
VISITOR CENTER PARKING
FROM ROUTE 0010 (PARK CENTRAL DRIVE)
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0900	PUBLIC	4/2/2013	12,997	0.22	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	1	0	CONCRETE CURB AND GUTTER	NO CURB	FAIR/73

* Lane miles are based on 11' lane widths

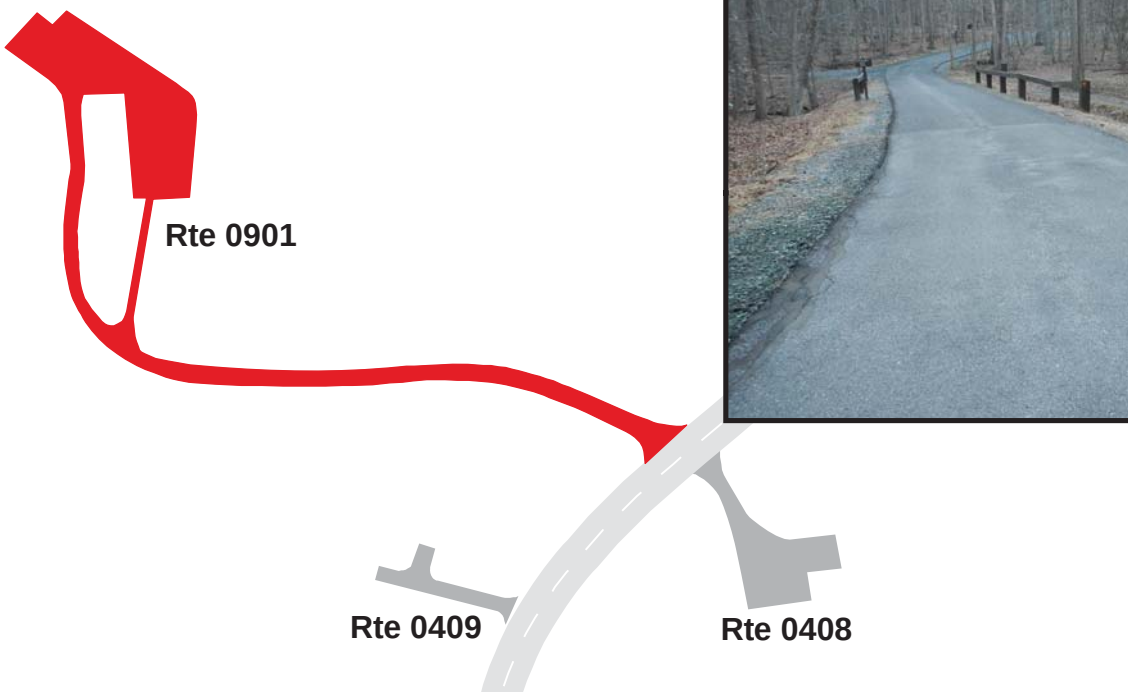
180 90 0 180
Feet

N

CATOCTIN MOUNTAIN PARK
Route 0901
MAINTENANCE AREA
FROM ROUTE 0010 (PARK CENTRAL DRIVE)
TO MAINTENANCE AREA

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0901	NONPUBLIC	4/2/2013	16,988	0.29	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
2	0	3	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths

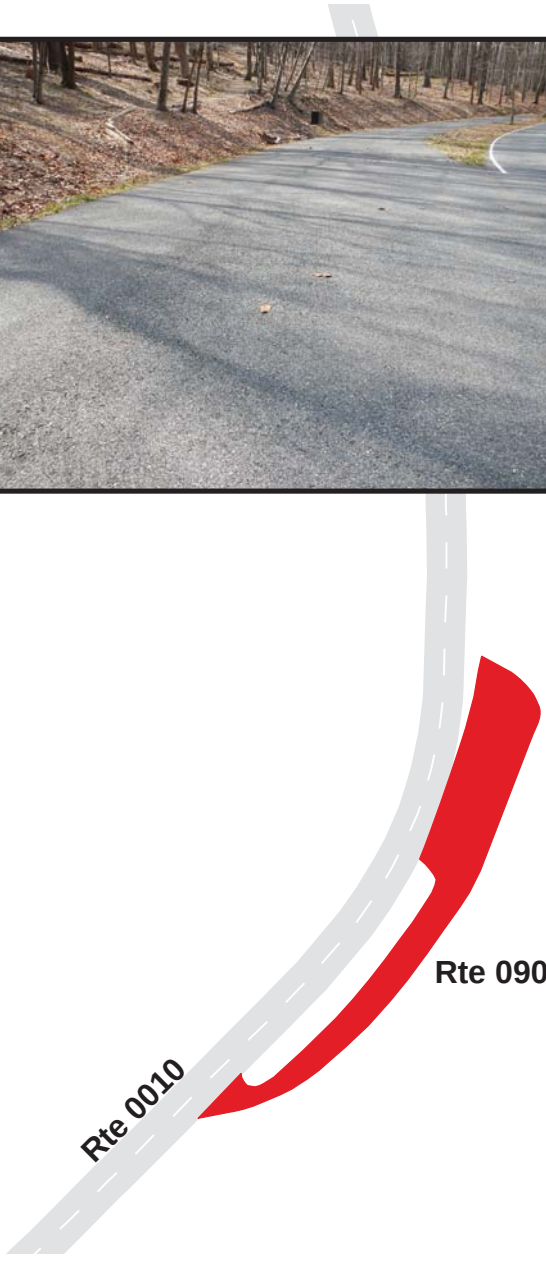


360 180 0 360
Feet

CATOCTIN MOUNTAIN PARK
Route 0903
WOLF ROCK PARKING
FROM ROUTE 0010 (PARK CENTRAL DRIVE)
TO ROUTE 0010 (PARK CENTRAL DRIVE)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0903	PUBLIC	4/2/2013	7,439	0.13	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
1	3	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



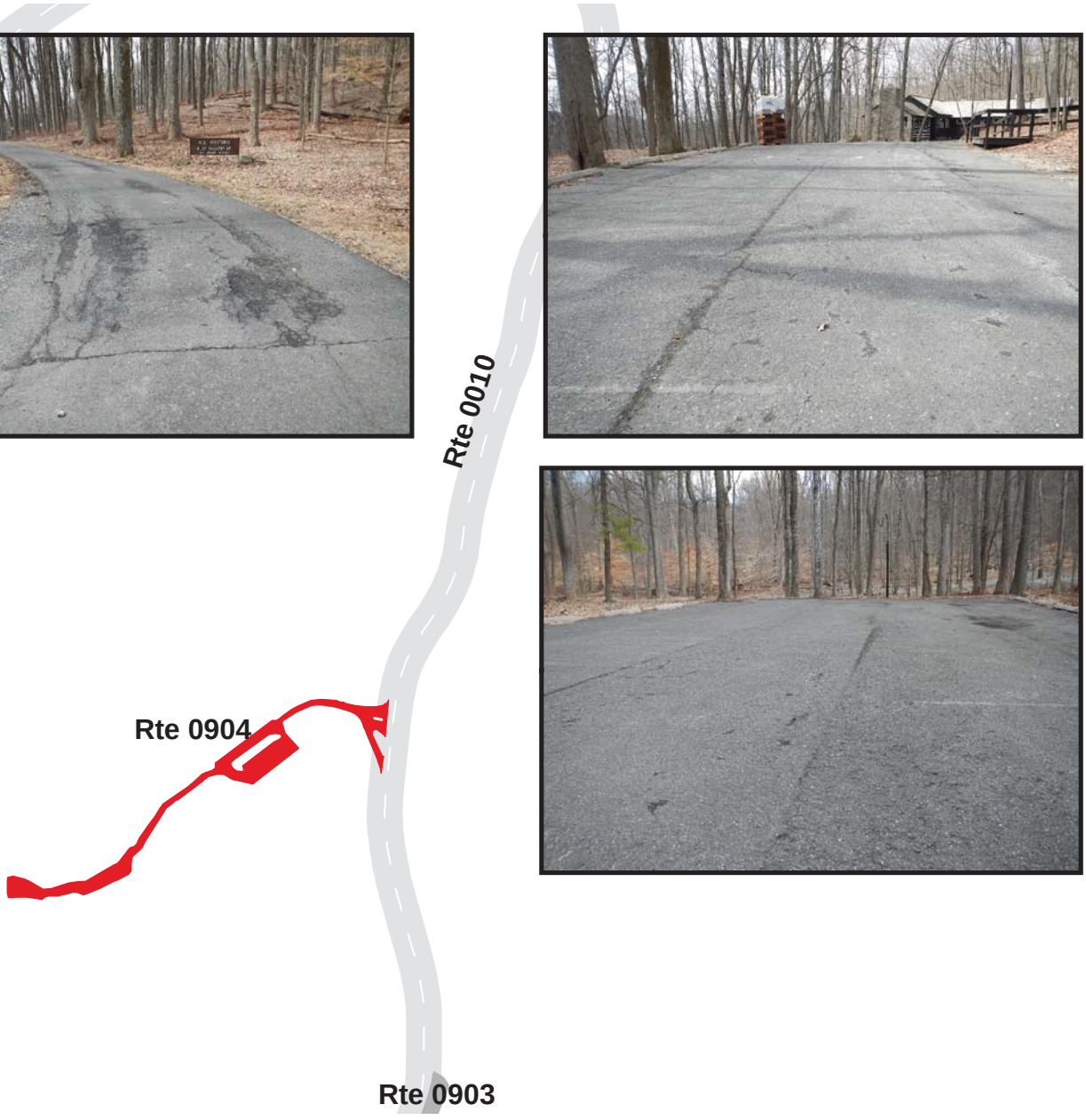
270 135 0 270
Feet

N

CATOCTIN MOUNTAIN PARK
Route 0904
MISTY MOUNT PARKING
FROM ROUTE 0010 (PARK CENTRAL DRIVE)
TO ROUTE 0201 (MISTY MOUNT CAMPGROUND ROAD)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0904	PUBLIC	4/2/2013	27,743	0.48	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
4	1	1	NO CURB AND GUTTER	NO CURB	POOR/45

* Lane miles are based on 11' lane widths

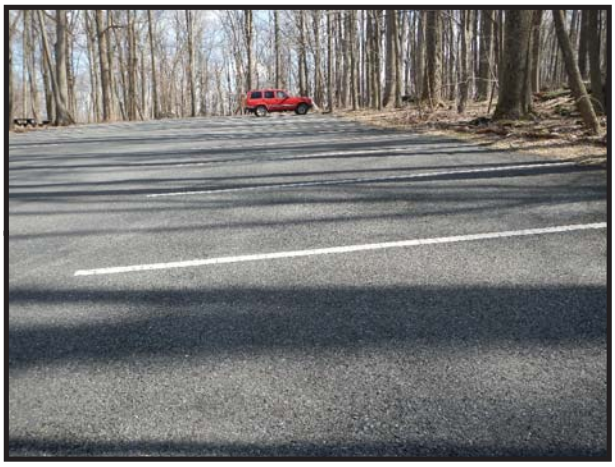


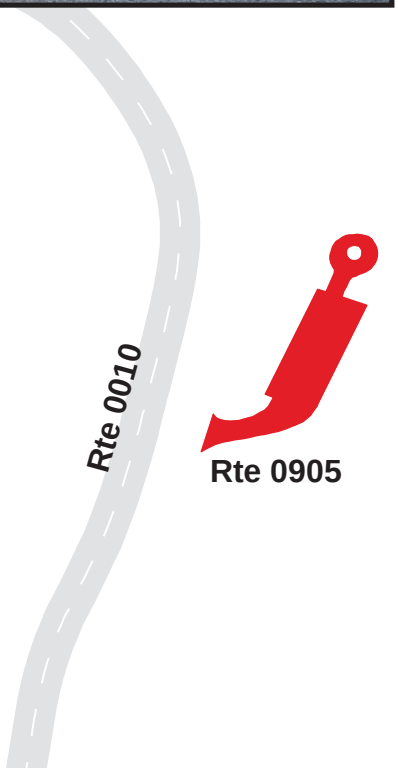
900 450 0 900 Feet

CATOCTIN MOUNTAIN PARK
Route 0905
THURMONT VISTA PARKING
FROM ROUTE 0010 (PARK CENTRAL DRIVE)
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0905	PUBLIC	4/2/2013	13,360	0.23	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
1	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths

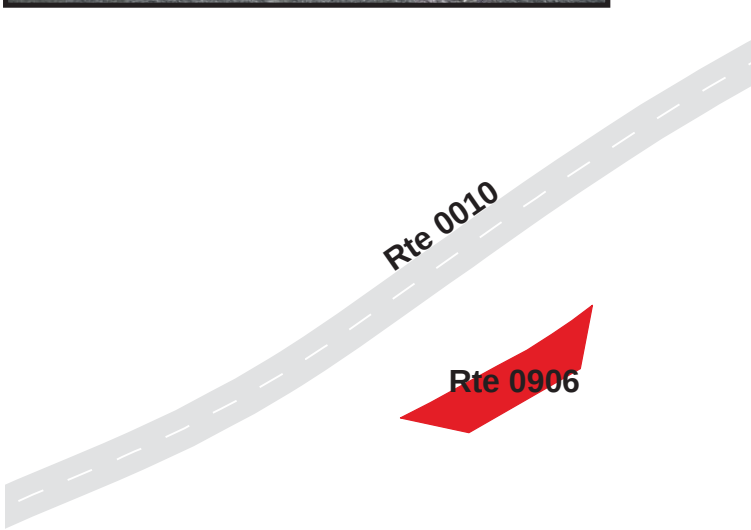




CATOCTIN MOUNTAIN PARK
Route 0906
PARK CENTRAL PICNIC PARKING
ADJACENT TO ROUTE 0010 (PARK CENTRAL DRIVE)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0906	PUBLIC	4/2/2013	2,535	0.04	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



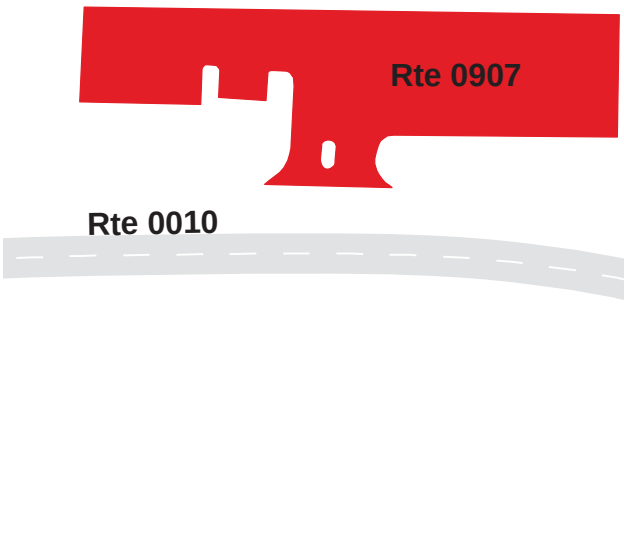
270 135 0 270
Feet

N

CATOCTIN MOUNTAIN PARK
Route 0907
HOG ROCK PARKING
FROM ROUTE 0010 (PARK CENTRAL DRIVE)
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0907	PUBLIC	4/2/2013	20,477	0.35	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
1	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths

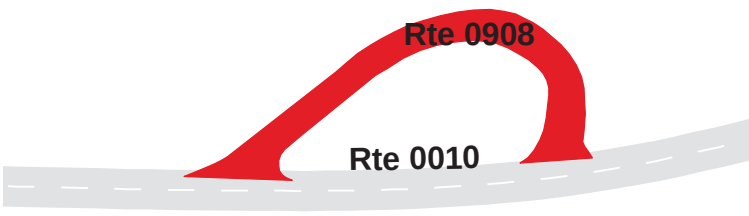


270 135 0 270
Feet

CATOCTIN MOUNTAIN PARK
Route 0908
CAMP #3 TURN AROUND
FROM ROUTE 0010 (PARK CENTRAL DRIVE)
TO ROUTE 0010 (PARK CENTRAL DRIVE)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0908	PUBLIC	4/2/2013	2,349	0.04	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	1	1	NO CURB AND GUTTER	CONCRETE CURB	GOOD/90

* Lane miles are based on 11' lane widths



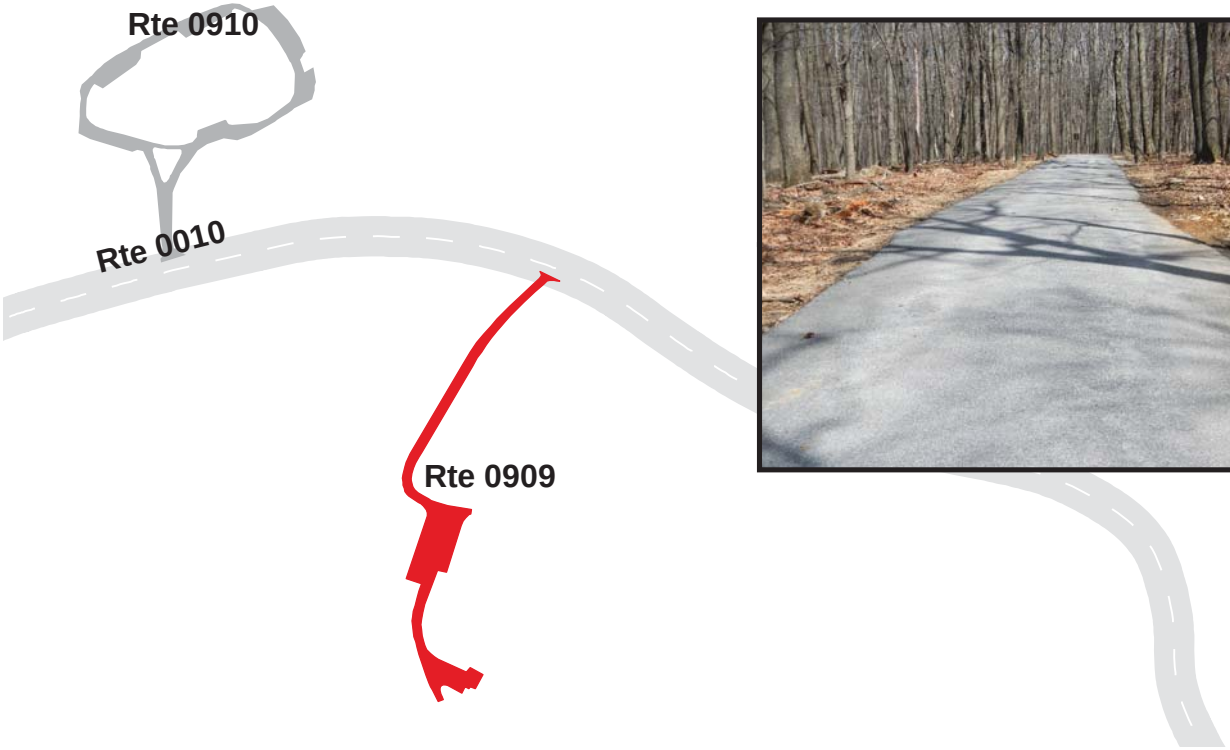
180 90 0 180
Feet

N

CATOCTIN MOUNTAIN PARK
Route 0909
GREENTOP CAMPGROUND PARKING
FROM ROUTE 0010 (PARK CENTRAL DRIVE)
TO ROUTE 0202 (GREENTOP CAMPGROUND ROAD)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0909	PUBLIC	4/2/2013	26,806	0.46	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	1	1	NO CURB AND GUTTER	CONCRETE CURB	GOOD/90

* Lane miles are based on 11' lane widths



CATOCTIN MOUNTAIN PARK
Route 0910
CHESTNUT PICNIC PARKING
FROM ROUTE 0010 (PARK CENTRAL DRIVE)
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0910	PUBLIC	4/2/2013	32,398	0.56	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	1	NO CURB AND GUTTER	NO CURB	POOR/45

* Lane miles are based on 11' lane widths

CATOCTIN MOUNTAIN PARK
Route 0911
ROUND MEADOW BUS TURN AROUND
FROM INTERSECTION OF ROUTE 0404ZZ (ROUND MEADOW ROADS)
AND ROUTE 0411 (QUARTERS #7 ACCESS ROAD)
TO ROUTE 0920 (ROUND MEADOW MAINTENANCE AREA)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0911	PUBLIC	4/2/2013	14,244	0.25	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	FAIR/73

* Lane miles are based on 11' lane widths

360 180 0 360
Feet

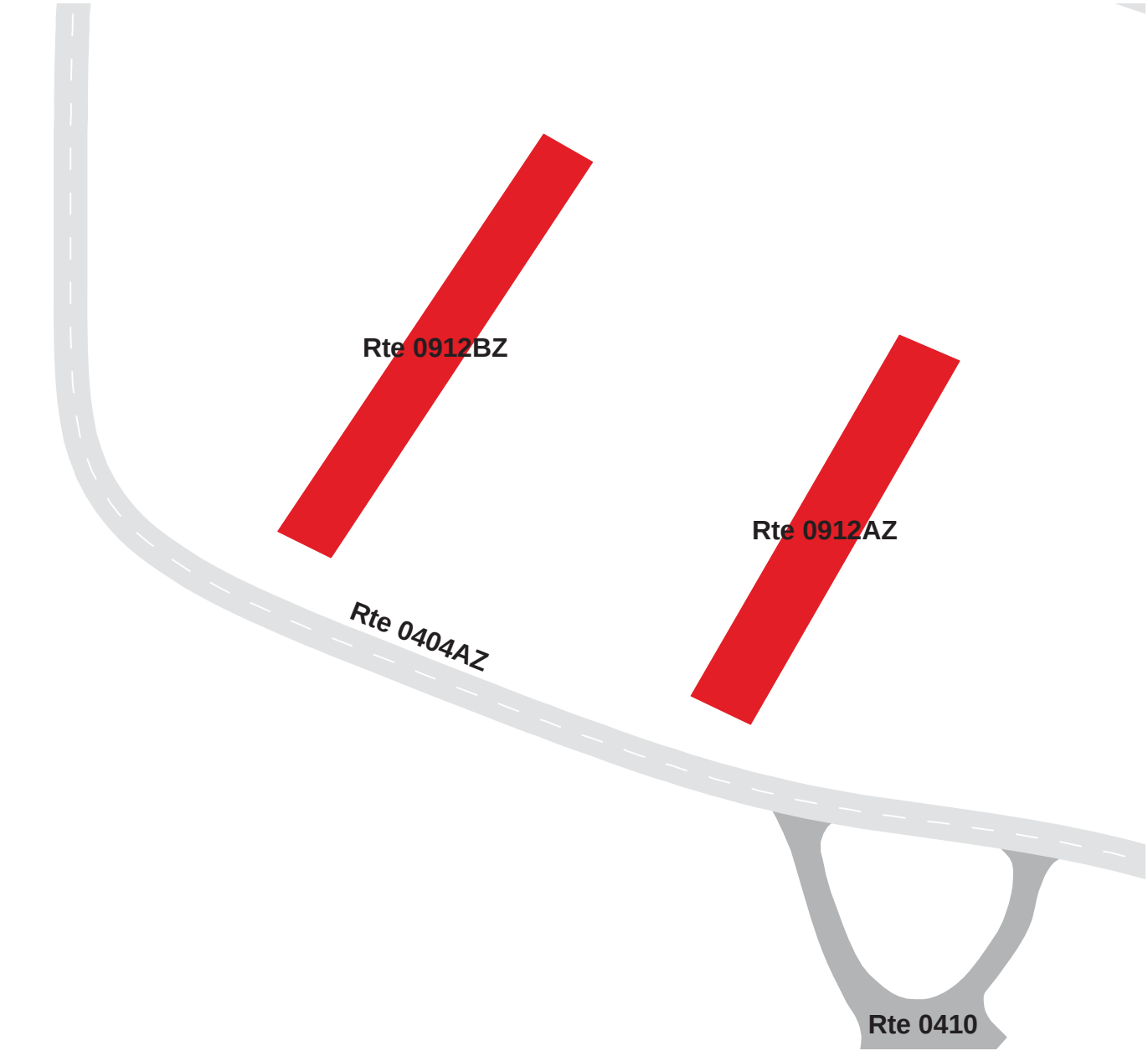
N

CATOCTIN MOUNTAIN PARK
Route 0912ZZ
ROUND MEADOW GYM PARKING AREAS
ADJACENT TO ROUTE 0912C (ROUND MEADOW GYM PARKING C)

Summary Record

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0912ZZ	PUBLIC	4/2/2013	7,264	0.13	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	SUMMARY/90

* Lane miles are based on 11' lane widths



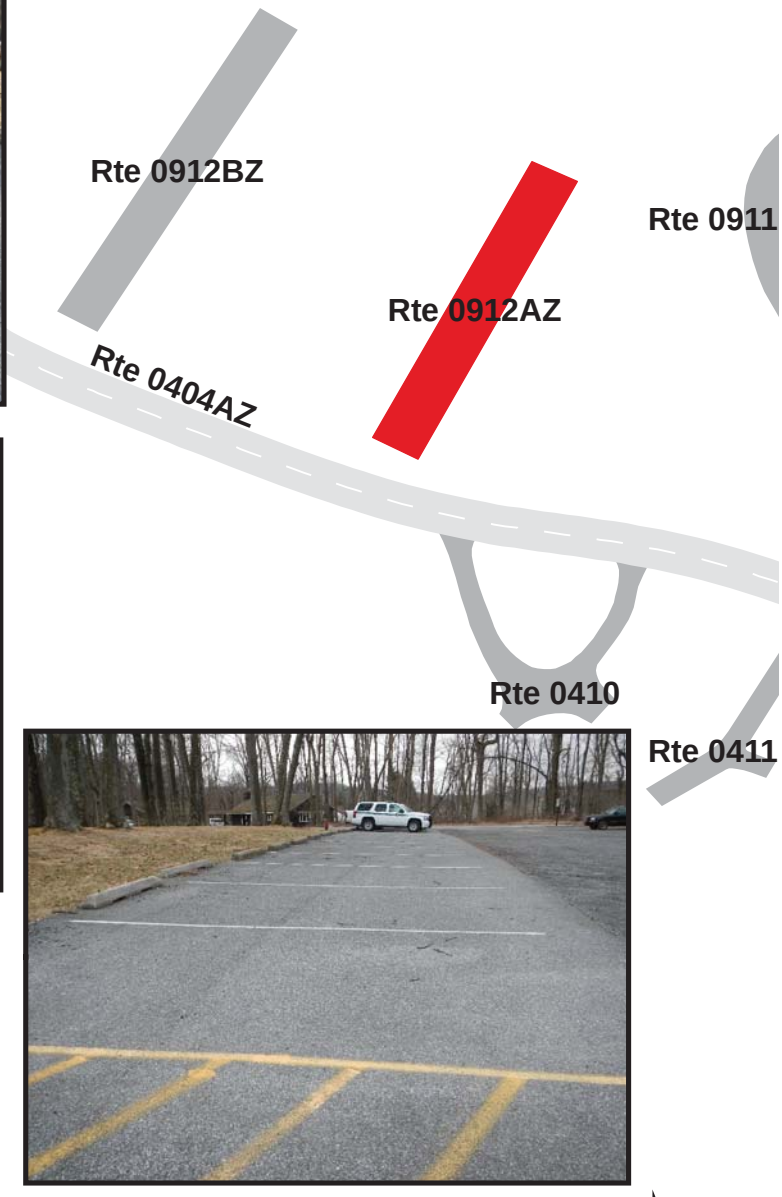
CATOCTIN MOUNTAIN PARK
Route 0912AZ
ROUND MEADOW GYM PARKING A

ADJACENT TO ROUTE 0912C (ROUND MEADOW GYM PARKING C)

Subcomponent Record

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0912AZ	PUBLIC	4/2/2013	3,615	0.06	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



220 110 0 220 Feet

N

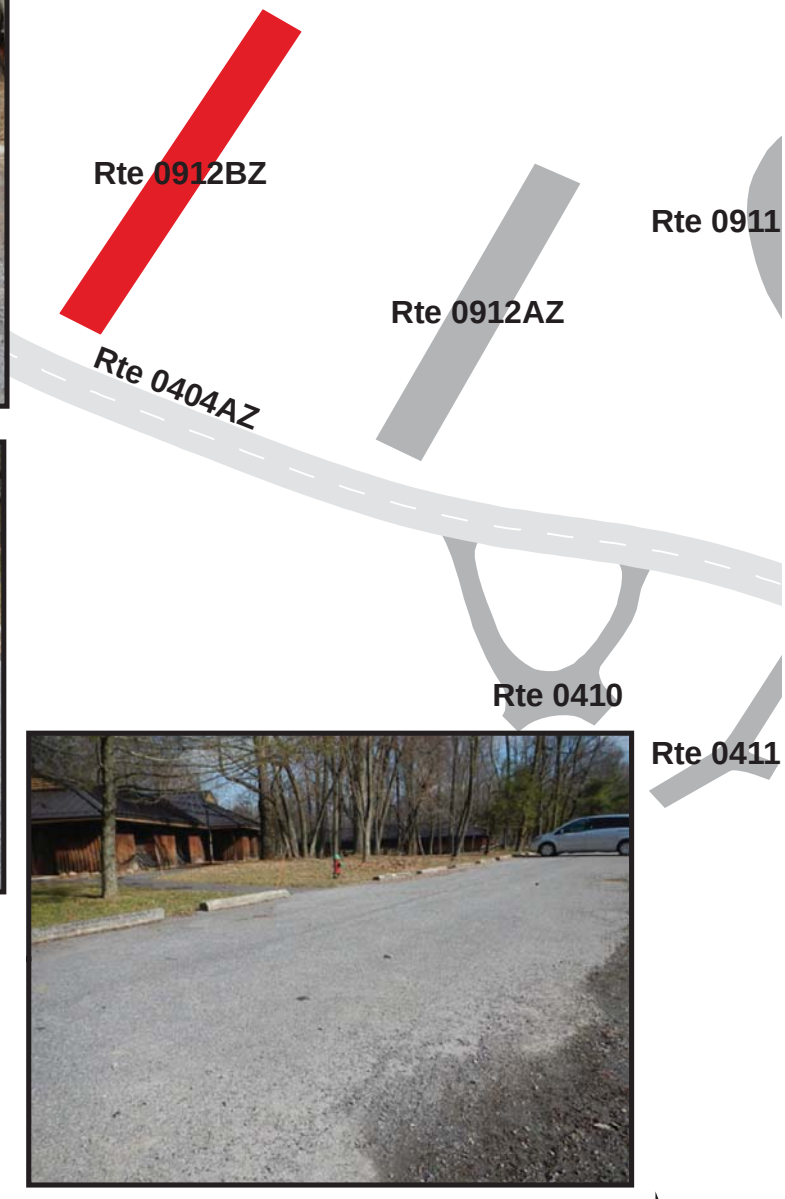
CATOCTIN MOUNTAIN PARK
Route 0912BZ
ROUND MEADOW GYM PARKING B

ADJACENT TO ROUTE 0912C (ROUND MEADOW GYM PARKING C)

Subcomponent Record

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0912BZ	PUBLIC	4/2/2013	3,649	0.06	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths

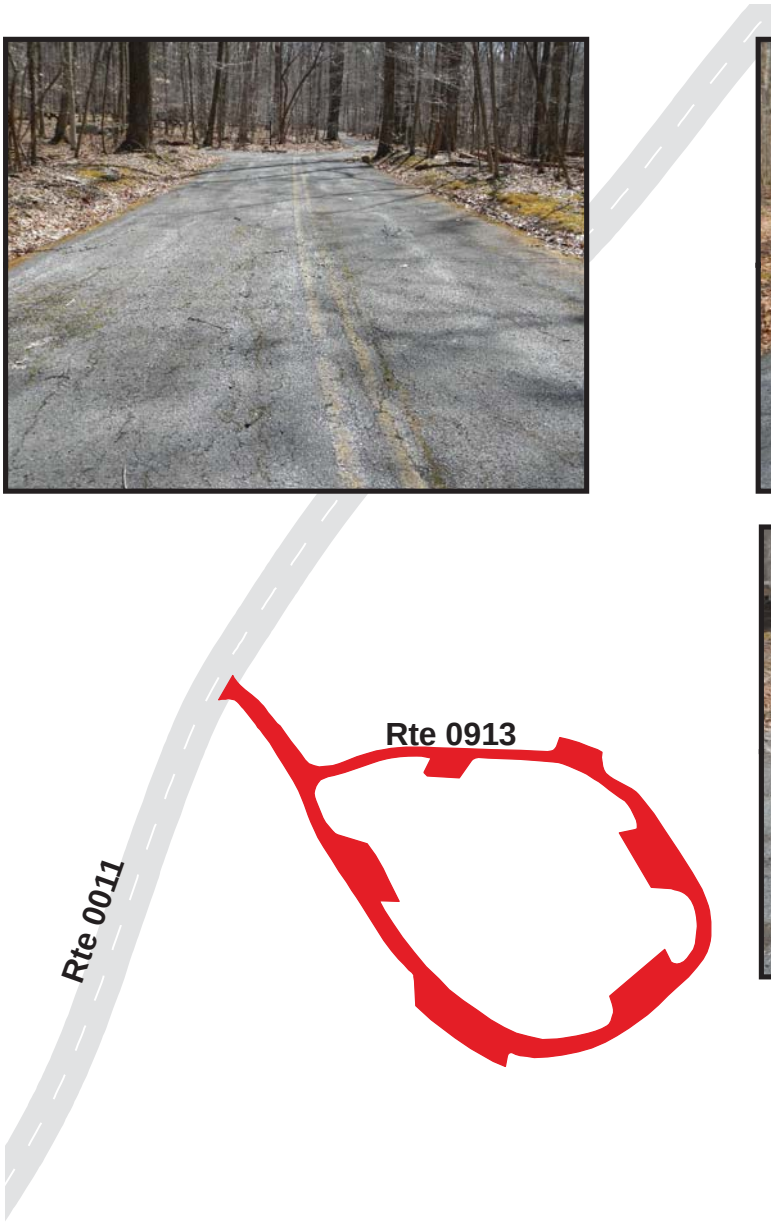


220 110 0 220 Feet

CATOCTIN MOUNTAIN PARK
Route 0913
OWENS PICNIC PARKING AREA
FROM ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0913	PUBLIC	4/2/2013	33,901	0.58	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
1	0	1	NO CURB AND GUTTER	NO CURB	FAIR/73

* Lane miles are based on 11' lane widths



540 270 0 540
Feet

N

CATOCTIN MOUNTAIN PARK
Route 0915
VISITOR CENTER EMPLOYEE PARKING
FROM ROUTE 0010 (PARK CENTRAL DRIVE)
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0915	NONPUBLIC	4/2/2013	2,997	0.05	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	4	0	CONCRETE CURB AND GUTTER	NO CURB	FAIR/73

* Lane miles are based on 11' lane widths

140 70 0 140 Feet

N

CATOCTIN MOUNTAIN PARK
Route 0917
ADMINISTRATIVE PARKING
FROM STATE ROUTE 77 (ROCKY RIDGE ROAD)
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0917	NONPUBLIC	4/2/2013	10,830	0.19	BR
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
1	0	1	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths

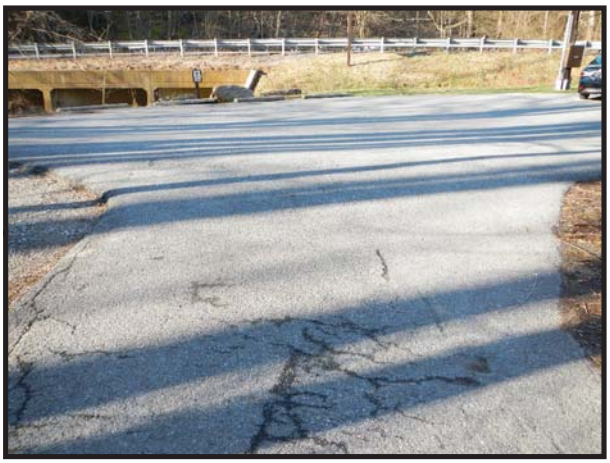
360 180 0 360
Feet

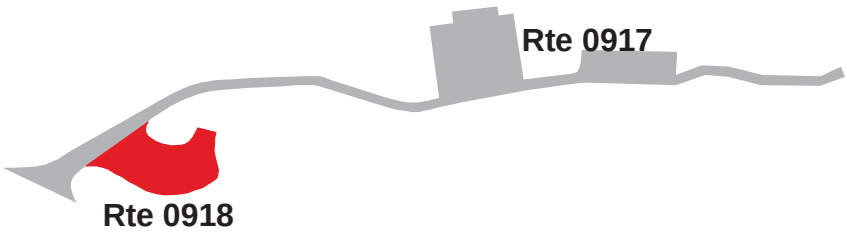
N

CATOCTIN MOUNTAIN PARK
Route 0918
FISHING PARKING
FROM ROUTE 0917 (ADMINISTRATIVE PARKING)
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0918	PUBLIC	4/2/2013	3,150	0.05	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	POOR/45

* Lane miles are based on 11' lane widths



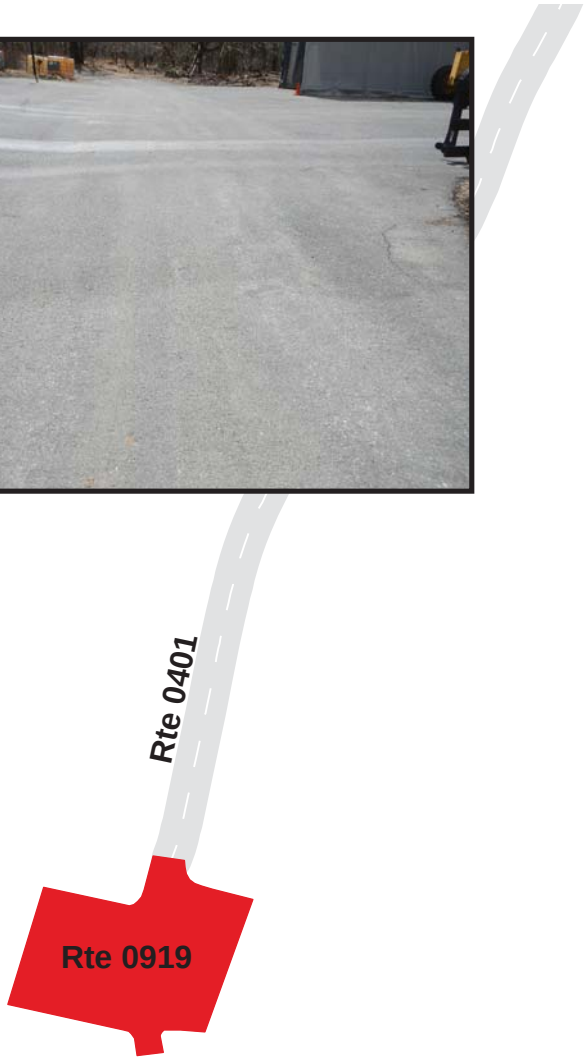


360 180 0 360
Feet

CATOCTIN MOUNTAIN PARK
Route 0919
JIM BROWN ROAD PARKING
FROM ROUTE 0401 (JIM BROWN ROAD)
TO ROUTE 0401 (JIM BROWN ROAD) UNPAVED SECTION

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0919	NONPUBLIC	4/2/2013	6,540	0.11	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	FAIR/73

* Lane miles are based on 11' lane widths



220 110 0 220 Feet

N

CATOCTIN MOUNTAIN PARK
Route 0920
ROUND MEADOW MAINTENANCE AREA
FROM ROUTE 0911 (ROUND MEADOW BUS TURNAROUND)
TO ROUTE 0405ZZ (ROUND MEADOW MAINTENANCE ROADS)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0920	NONPUBLIC	4/2/2013	32,385	0.56	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	1	2	CONCRETE CURB AND GUTTER	NO CURB	FAIR/73

* Lane miles are based on 11' lane widths

360 180 0 360 Feet

N

CATOCTIN MOUNTAIN PARK
Route 0921
CROSS COUNTRY SKIING PARKING A
ADJACENT TO ROUTE 0300 (MANAHAN ROAD)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0921	PUBLIC	4/2/2013	2,267	0.04	BR
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	FAIR/73

* Lane miles are based on 11' lane widths

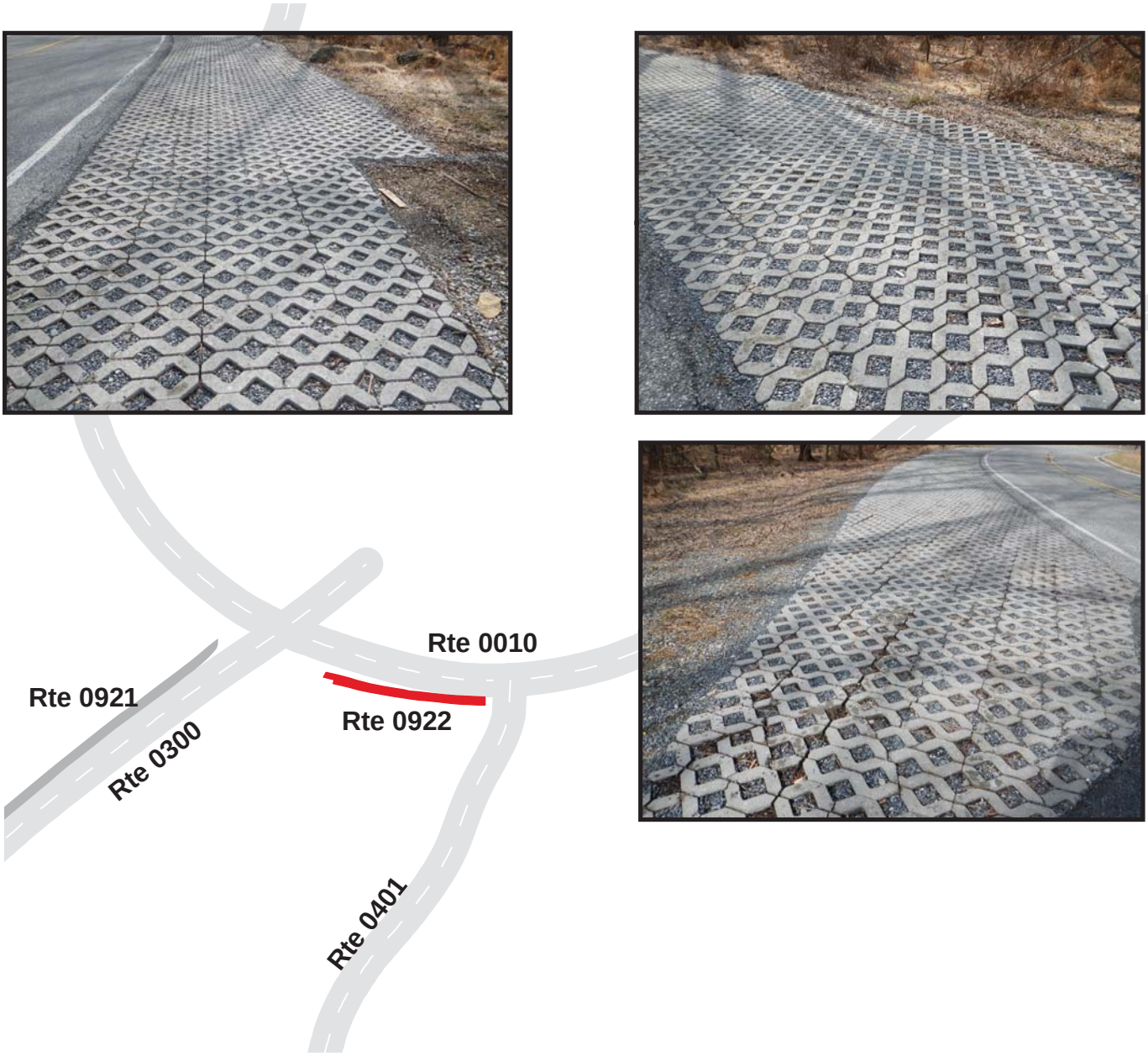
360 180 0 360
Feet

N

CATOCTIN MOUNTAIN PARK
Route 0922
CROSS COUNTRY SKIING PARKING B
ADJACENT TO ROUTE 0010 (PARK CENTRAL DRIVE)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0922	PUBLIC	4/2/2013	1,099	0.02	BR
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	FAIR/73

* Lane miles are based on 11' lane widths



Section 8
Parkwide/Route
Maintenance Features Summaries

Catoctin Mountain Park

Federal Lands Highway
Road Inventory Program

CATO: PARKWIDE MAINTENANCE FEATURES SUMMARY
Includes DCV, MRL, MRP & PKG routes collected in Cycle-5

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all DCV driven routes. Culverts, drop inlets, and gates were also collected on all Manually Rated Routes and Paved Parking areas. Those totals are reflected below.

FEATURE	LINEAR FEET	COUNT
BRIDGE	--	0
CATTLE GUARD	--	0
CULVERT	--	46
CURB	15,452	--
DROP INLET	--	28
GATE	--	24
GUARD/GUIDE RAIL	1,462	--
CABLE	0	--
NON-CABLE	1,462	--
GUARD/GUIDE WALL	53	--
BOLLARD	0	--
TEMPORARY BARRIER	0	--
NON TEMP/BOLLARD	53	--
INTERSECTION	--	107
LOW WATER CROSSING	0	0
MILE MARKER	--	0
OVERPASS	--	0
PARK BOUNDARY	--	3
PAVED DITCH	613	--
PULLOUT	0	0
RAILROAD CROSSING	--	0
RETAINING WALL	42	1
SIGN	--	172
STATE BOUNDARY	--	0
TRAFFIC LIGHT	--	0
TUNNEL	0	0

CATO: DCV ROUTE MAINTENANCE FEATURES SUMMARY

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5.

FEATURE	ROUTE 0010 PARK CENTRAL DRIVE	ROUTE 0011 FOXVILLE - DEERFIELD ROAD	ROUTE 0204 OWENS CREEK CAMPGROUND	ROUTE 0205 OWENS CREEK CAMPGROUND CUTOFF A	ROUTE 0206 OWENS CREEK CAMPGROUND CUTOFF B	ROUTE 0207 FOXVILLE PLAZA	UNIT
BRIDGE	0	0	0	0	0	0	EACH
CATTLE GUARD	0	0	0	0	0	0	EACH
CULVERT	10	16	3	0	0	0	EACH
CURB	15,367	0	0	0	0	0	LINEAR FEET
DROP INLET	15	0	0	0	0	0	EACH
GATE	8	0	1	0	0	0	EACH
GUARD/GUIDE RAIL	786	512	164	0	0	0	LINEAR FEET
CABLE	0	0	0	0	0	0	LINEAR FEET
NON-CABLE	786	512	164	0	0	0	LINEAR FEET
GUARD/GUIDE WALL	53	0	0	0	0	0	LINEAR FEET
BOLLARD	0	0	0	0	0	0	LINEAR FEET
TEMPORARY BARRIER	0	0	0	0	0	0	LINEAR FEET
NON TEMP/BOLLARD	53	0	0	0	0	0	LINEAR FEET
INTERSECTION	29	17	10	4	4	6	EACH
LOW WATER CROSSING	0	0	0	0	0	0	EACH
LOW WATER CROSSING	0	0	0	0	0	0	LINEAR FEET
MILE MARKER	0	0	0	0	0	0	EACH
OVERPASS	0	0	0	0	0	0	EACH
PARK BOUNDARY	0	2	0	0	0	0	EACH
PAVED DITCH	0	613	0	0	0	0	LINEAR FEET
PULLOUT	0	0	0	0	0	0	EACH
PULLOUT	0	0	0	0	0	0	LINEAR FEET
RAILROAD CROSSING	0	0	0	0	0	0	EACH
RETAINING WALL	1	0	0	0	0	0	EACH
RETAINING WALL	42	0	0	0	0	0	LINEAR FEET
SIGN	78	33	21	4	2	3	EACH
STATE BOUNDARY	0	0	0	0	0	0	EACH
TRAFFIC LIGHT	0	0	0	0	0	0	EACH
TUNNEL	0	0	0	0	0	0	EACH
TUNNEL	0	0	0	0	0	0	LINEAR FEET

CATO: DCV ROUTE MAINTENANCE FEATURES SUMMARY

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5.

FEATURE	ROUTE 0300 MANAHAN ROAD	ROUTE 0401 JIM BROWN ROAD	ROUTE 0402 QUARTERS #6 ACCESS ROAD	ROUTE 0404ZZ ROUND MEADOW ROADS	ROUTE 0405ZZ ROUND MEADOW MAINTENANCE ROADS		UNIT
BRIDGE	0	0	0	0	0		EACH
CATTLE GUARD	0	0	0	0	0		EACH
CULVERT	1	2	3	0	0		EACH
CURB	0	0	0	85	0		LINEAR FEET
DROP INLET	0	0	0	0	0		EACH
GATE	1	1	0	1	0		EACH
GUARD/GUIDE RAIL	0	0	0	0	0		LINEAR FEET
CABLE	0	0	0	0	0		LINEAR FEET
NON-CABLE	0	0	0	0	0		LINEAR FEET
GUARD/GUIDE WALL	0	0	0	0	0		LINEAR FEET
BOLLARD	0	0	0	0	0		LINEAR FEET
TEMPORARY BARRIER	0	0	0	0	0		LINEAR FEET
NON TEMP/BOLLARD	0	0	0	0	0		LINEAR FEET
INTERSECTION	7	6	5	13	6		EACH
LOW WATER CROSSING	0	0	0	0	0		EACH
LOW WATER CROSSING	0	0	0	0	0		LINEAR FEET
MILE MARKER	0	0	0	0	0		EACH
OVERPASS	0	0	0	0	0		EACH
PARK BOUNDARY	1	0	0	0	0		EACH
PAVED DITCH	0	0	0	0	0		LINEAR FEET
PULLOUT	0	0	0	0	0		EACH
PULLOUT	0	0	0	0	0		LINEAR FEET
RAILROAD CROSSING	0	0	0	0	0		EACH
RETAINING WALL	0	0	0	0	0		EACH
RETAINING WALL	0	0	0	0	0		LINEAR FEET
SIGN	11	1	1	14	4		EACH
STATE BOUNDARY	0	0	0	0	0		EACH
TRAFFIC LIGHT	0	0	0	0	0		EACH
TUNNEL	0	0	0	0	0		EACH
TUNNEL	0	0	0	0	0		LINEAR FEET

STRUCTURE LIST

No data available for this section.

Section 9
Route Maintenance Features
Road Logs

Catoctin Mountain Park

Federal Lands Highway
Road Inventory Program

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0010: PARK CENTRAL DRIVE

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM STATE ROUTE 77 (ROCKY RIDGE ROAD)
0.000	0.000	INTERSECTION	RIGHT	PAVED ROUTE (STATE ROUTE 77 / NO NPS)
0.000	0.000	SIGN	N/A	REGULATORY, MARYLAND 77
0.000	0.000	SIGN	N/A	REGULATORY, WEST
0.000	0.000	SIGN	N/A	REGULATORY, EAST
0.000	0.000	SIGN	N/A	REGULATORY, GRAPHIC SIGN NO TEXT
0.000	0.000	SIGN	N/A	REGULATORY, MARYLAND 77
0.000	0.000	SIGN	N/A	REGULATORY, GRAPHIC SIGN NO TEXT
0.000	0.000	INTERSECTION	LEFT	PAVED ROUTE (STATE ROUTE 77 / NO NPS)
0.004	0.004	SIGN	RIGHT	GUIDE, NATIONAL PARK SERVICE
0.004	0.008	GUARD/GUIDE RAIL	LEFT	N/A
0.004	0.004	SIGN	RIGHT	GUIDE, CATOCTIN MOUNTAIN PARK
0.004	0.004	SIGN	LEFT	GUIDE, UNABLE TO READ FROM VIDEO
0.006	0.006	SIGN	LEFT	REGULATORY, STOP
0.022	0.022	SIGN	RIGHT	REGULATORY, GRAPHIC SIGN NO TEXT
0.022	0.022	SIGN	RIGHT	GUIDE, BUS PARKING
0.022	0.022	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
0.027	0.027	INTERSECTION	RIGHT	ROUTE 0900 (VISITOR CENTER PARKING)
0.036	0.036	INTERSECTION	LEFT	ROUTE 0916 (BLUE BLAZES PARKING AREA)
0.036	0.039	CURB-AND-GUTTER	RIGHT	N/A
0.040	0.050	GUARD/GUIDE WALL	LEFT	N/A
0.050	0.050	GATE	N/A	N/A
0.051	0.051	SIGN	RIGHT	GUIDE, UNABLE TO READ FROM VIDEO
0.052	0.052	SIGN	RIGHT	REGULATORY, UNABLE TO READ FROM VIDEO
0.056	0.056	INTERSECTION	RIGHT	ROUTE 0915 (VISITOR CENTER EMPLOYEE PARKING)
0.059	0.138	CURB	RIGHT	N/A
0.067	0.067	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
0.078	0.078	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
0.088	0.088	SIGN	RIGHT	REGULATORY, SPEED LIMIT 30
0.107	0.107	INTERSECTION	LEFT	ROUTE 0409 (BUILDING 167 ACCESS ROAD)

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0010: PARK CENTRAL DRIVE

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.140	0.140	INTERSECTION	LEFT	ROUTE 0901 (MAINTENANCE AREA)
0.142	0.142	INTERSECTION	RIGHT	ROUTE 0408 (QUARTERS #1 ACCESS ROAD)
0.146	0.146	GATE	N/A	N/A
0.146	0.513	CURB	RIGHT	N/A
0.147	0.147	SIGN	LEFT	REGULATORY, ROAD CLOSED
0.237	0.237	DROP INLET	RIGHT	N/A
0.339	0.339	DROP INLET	RIGHT	N/A
0.424	0.424	DROP INLET	RIGHT	N/A
0.491	0.491	SIGN	LEFT	REGULATORY, SPEED LIMIT 30
0.515	0.515	INTERSECTION	RIGHT	ROUTE 0903 (WOLF ROCK PARKING)
0.564	0.564	INTERSECTION	RIGHT	ROUTE 0903 (WOLF ROCK PARKING)
0.576	0.576	SIGN	RIGHT	REGULATORY, NO PARKING AFTER DARK
0.576	1.000	CURB	RIGHT	N/A
0.673	0.673	DROP INLET	RIGHT	N/A
0.718	0.718	INTERSECTION	LEFT	ROUTE 0904 (MISTY MOUNT PARKING)
0.740	0.740	INTERSECTION	LEFT	ROUTE 0904 (MISTY MOUNT PARKING)
0.741	0.741	SIGN	RIGHT	GUIDE, MISTY MOUNT
0.747	0.747	GATE	N/A	N/A
0.747	0.747	INTERSECTION	LEFT	ROUTE 0904 (MISTY MOUNT PARKING)
0.749	0.749	SIGN	RIGHT	REGULATORY, UNABLE TO READ FROM VIDEO
0.749	0.749	SIGN	LEFT	REGULATORY, ROAD CLOSED
0.766	0.766	DROP INLET	RIGHT	N/A
0.836	0.836	DROP INLET	RIGHT	N/A
0.935	0.935	DROP INLET	RIGHT	N/A
1.016	1.016	SIGN	LEFT	GUIDE, THURMONT VISTA PARKING CHARCOAL EXHIBIT
1.016	1.016	SIGN	LEFT	GUIDE, THURMONT VISTA PARKING CHARCOAL EXHIBIT
1.025	1.025	INTERSECTION	RIGHT	ROUTE 0905 (THURMONT VISTA PARKING)
1.031	1.031	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
1.031	1.031	SIGN	RIGHT	REGULATORY, UNABLE TO READ FROM VIDEO
1.033	1.033	GATE	N/A	N/A

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0010: PARK CENTRAL DRIVE

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
1.091	1.152	CURB	LEFT	N/A
1.200	1.293	CURB	RIGHT	N/A
1.272	1.272	SIGN	RIGHT	REGULATORY, SPEED LIMIT 30
1.327	1.529	CURB	RIGHT	N/A
1.356	1.356	INTERSECTION	LEFT	ROUTE 0906 (PARK CENTRAL PICNIC PARKING)
1.451	1.451	DROP INLET	RIGHT	N/A
1.457	1.457	SIGN	LEFT	REGULATORY, SPEED LIMIT 30
1.469	1.469	SIGN	RIGHT	REGULATORY, SPEED LIMIT 30
1.526	1.526	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
1.526	1.526	SIGN	RIGHT	WARNING, 25 M.P.H.
1.600	1.675	CURB	RIGHT	N/A
1.607	1.607	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
1.639	1.677	CURB	LEFT	N/A
1.641	1.641	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
1.641	1.641	SIGN	LEFT	WARNING, 25 M.P.H.
1.718	1.718	SIGN	RIGHT	GUIDE, HOG ROCK PARKING
1.732	1.732	INTERSECTION	RIGHT	ROUTE 0907 (HOG ROCK PARKING)
1.733	1.910	CURB	RIGHT	N/A
1.739	1.739	SIGN	RIGHT	REGULATORY, UNABLE TO READ FROM VIDEO
1.742	1.742	GATE	N/A	N/A
1.743	1.743	SIGN	LEFT	GUIDE, HOG ROCK PARKING
1.830	1.830	DROP INLET	RIGHT	N/A
1.873	1.996	CURB	LEFT	N/A
1.983	1.983	SIGN	RIGHT	WARNING, 25 M.P.H.
1.983	1.983	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
2.041	2.041	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
2.041	2.041	SIGN	LEFT	WARNING, 25 M.P.H.
2.053	2.053	CULVERT	N/A	N/A
2.230	2.555	CURB	RIGHT	N/A
2.401	2.401	DROP INLET	RIGHT	N/A

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0010: PARK CENTRAL DRIVE

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
2.406	2.406	SIGN	LEFT	REGULATORY, SPEED LIMIT 30
2.482	2.482	DROP INLET	RIGHT	N/A
2.549	2.549	SIGN	LEFT	REGULATORY, NO PARKING ANY TIME
2.550	2.550	SIGN	LEFT	REGULATORY, ROAD CLOSED
2.550	2.550	SIGN	LEFT	REGULATORY, GRAPHIC SIGN NO TEXT
2.551	2.551	GATE	N/A	N/A
2.551	2.551	SIGN	RIGHT	REGULATORY, UNABLE TO READ FROM VIDEO
2.556	2.556	INTERSECTION	RIGHT	ROUTE 0908 (CAMP #3 TURN AROUND)
2.556	2.572	CURB	RIGHT	N/A
2.579	2.579	INTERSECTION	RIGHT	ROUTE 0908 (CAMP #3 TURN AROUND)
2.580	2.584	CURB	RIGHT	N/A
2.591	2.591	SIGN	LEFT	GUIDE, GRAPHIC SIGN NO TEXT
2.591	2.591	SIGN	LEFT	REGULATORY, NO PARKING OR STANDING
2.592	2.592	INTERSECTION	RIGHT	PAVED ROUTE
2.594	2.825	CURB	RIGHT	N/A
2.601	2.601	SIGN	RIGHT	REGULATORY, NO PARKING OR STANDING
2.601	2.601	SIGN	RIGHT	GUIDE, GRAPHIC SIGN NO TEXT
2.647	2.647	SIGN	RIGHT	REGULATORY, SPEED LIMIT 30
2.701	2.701	DROP INLET	RIGHT	N/A
2.842	2.919	CURB	RIGHT	N/A
2.844	2.908	CURB	LEFT	N/A
2.991	2.991	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
2.991	2.991	SIGN	RIGHT	WARNING, 25 M.P.H.
3.055	3.180	CURB	LEFT	N/A
3.067	3.123	CURB	RIGHT	N/A
3.207	3.234	CURB	LEFT	N/A
3.237	3.237	INTERSECTION	RIGHT	UNPAVED PARKING (HORSE TRAILER PARKING)
3.242	3.242	INTERSECTION	LEFT	ROUTE 0909 (GREENTOP CAMPGROUND PARKING)
3.243	3.243	SIGN	RIGHT	GUIDE, HORSE TRAILERS
3.243	3.243	SIGN	RIGHT	GUIDE, GREENTOP

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0010: PARK CENTRAL DRIVE

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
3.245	3.588	CURB	LEFT	N/A
3.368	3.368	SIGN	LEFT	GUIDE, CHESTNUT PICNIC AREA
3.370	3.370	INTERSECTION	RIGHT	ROUTE 0910 (CHESTNUT PICNIC PARKING)
3.429	3.429	DROP INLET	LEFT	N/A
3.490	3.490	DROP INLET	LEFT	N/A
3.540	3.540	DROP INLET	LEFT	N/A
3.585	3.585	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
3.648	3.648	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
3.658	3.658	INTERSECTION	LEFT	ROUTE 0401 (JIM BROWN ROAD)
3.676	3.676	INTERSECTION	LEFT	ROUTE 0922 (CROSS COUNTRY SKIING PARKING B)
3.690	3.690	SIGN	LEFT	GUIDE, MANAHAN RD
3.701	3.701	INTERSECTION	LEFT	ROUTE 0300 (MANAHAN ROAD)
3.701	3.701	INTERSECTION	RIGHT	ROUTE 0300 (MANAHAN ROAD)
3.704	3.704	GATE	N/A	N/A
3.705	3.705	SIGN	LEFT	REGULATORY, ROAD CLOSED
3.711	3.711	CULVERT	N/A	N/A
3.729	3.729	SIGN	LEFT	GUIDE, GREENTOP MISTY MOUNT VISITOR CENTER ROUND MEADOW
3.769	3.769	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
3.827	3.827	SIGN	RIGHT	REGULATORY, SPEED LIMIT 30
3.911	3.911	INTERSECTION	LEFT	UNPAVED ROUTE (FIRE ROAD)
3.923	3.931	RETAINING WALL	LEFT	N/A
3.946	3.946	SIGN	LEFT	WARNING, 25 M.P.H.
3.946	3.946	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
3.987	3.987	CULVERT	N/A	N/A
4.097	4.097	CULVERT	N/A	N/A
4.153	4.153	SIGN	RIGHT	WARNING, 25 M.P.H.
4.153	4.153	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
4.165	4.165	CULVERT	N/A	N/A
4.270	4.270	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0010: PARK CENTRAL DRIVE

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
4.309	4.309	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
4.355	4.355	SIGN	LEFT	WARNING, 25 M.P.H.
4.355	4.355	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
4.375	4.375	CULVERT	N/A	N/A
4.436	4.436	CULVERT	N/A	N/A
4.561	4.561	CULVERT	N/A	N/A
4.599	4.599	CULVERT	N/A	N/A
4.641	4.641	SIGN	LEFT	REGULATORY, SPEED LIMIT 30
4.652	4.743	GUARD/GUIDE RAIL	RIGHT	N/A
4.692	4.746	GUARD/GUIDE RAIL	LEFT	N/A
4.703	4.703	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
4.704	4.704	CULVERT	N/A	N/A
4.723	4.723	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
4.748	4.748	INTERSECTION	RIGHT	ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)
4.748	4.748	SIGN	RIGHT	REGULATORY, STOP
4.748	4.748	SIGN	N/A	GUIDE, OWENS CREEK
4.748	4.748	INTERSECTION	LEFT	ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)
4.748	4.748	GATE	N/A	N/A
4.748	4.748	ROUTE END	N/A	TO ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0011: FOXVILLE - DEERFIELD ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM FOXVILLE CHURCH ROAD
0.000	0.000	INTERSECTION	LEFT	PAVED ROUTE (FOXVILLE CHURCH ROAD / NON NPS)
0.000	0.000	INTERSECTION	RIGHT	PAVED ROUTE (FOXVILLE CHURCH ROAD / NON NPS)
0.000	0.000	PARK BOUNDARY	N/A	N/A
0.000	0.000	SIGN	N/A	GUIDE, FOXVILLE CHURCH RD
0.005	0.005	SIGN	LEFT	REGULATORY, STOP
0.005	0.005	SIGN	LEFT	GUIDE, FOXVILLE DEERFIELD RD
0.013	0.013	SIGN	RIGHT	GUIDE, CATOCTIN MOUNTAIN PARK U.S. DEPT. OF THE INTERIOR NATIONAL PARK SERVICE
0.016	0.016	SIGN	RIGHT	REGULATORY, SPEED LIMIT 30
0.022	0.022	SIGN	RIGHT	REGULATORY, WEIGHT LIMIT 10 TONS
0.031	0.031	SIGN	RIGHT	REGULATORY, ENTERING OWENS CREEK WATERSHED
0.031	0.031	SIGN	LEFT	REGULATORY, ENTERING HUNTING CREEK WATERSHED
0.039	0.039	SIGN	LEFT	REGULATORY, GRAPHIC SIGN NO TEXT
0.039	0.039	SIGN	LEFT	REGULATORY, MARYLAND 77
0.039	0.039	SIGN	LEFT	REGULATORY, TO
0.083	0.083	INTERSECTION	RIGHT	ROUTE 0406 (QUARTERS #5 DRIVEWAY)
0.097	0.097	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
0.111	0.111	INTERSECTION	RIGHT	ROUTE 0406 (QUARTERS #5 DRIVEWAY)
0.199	0.199	INTERSECTION	RIGHT	ROUTE 0010 (PARK CENTRAL DRIVE)
0.200	0.200	SIGN	RIGHT	GUIDE, PARK CENTRAL RD
0.202	0.202	SIGN	LEFT	GUIDE, VISITOR CENTER MARYLAND 77
0.241	0.241	CULVERT	N/A	N/A
0.291	0.291	INTERSECTION	LEFT	ROUTE 0402 (QUARTERS #6 ACCESS ROAD) SPUR
0.304	0.304	INTERSECTION	LEFT	ROUTE 0402 (QUARTERS #6 ACCESS ROAD)
0.335	0.359	PAVED DITCH	LEFT	N/A
0.366	0.366	CULVERT	N/A	N/A
0.472	0.472	CULVERT	N/A	N/A
0.478	0.478	SIGN	LEFT	REGULATORY, SPEED LIMIT 30
0.485	0.485	INTERSECTION	RIGHT	UNPAVED PARKING

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0011: FOXVILLE - DEERFIELD ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.492	0.492	SIGN	RIGHT	GUIDE, GRAPHIC SIGN NO TEXT
0.564	0.564	CULVERT	N/A	N/A
0.687	0.687	SIGN	RIGHT	REGULATORY, SPEED LIMIT 30
0.692	0.692	SIGN	LEFT	GUIDE, OWENS CREEK PICNIC AREA
0.697	0.697	CULVERT	N/A	N/A
0.701	0.701	INTERSECTION	RIGHT	ROUTE 0913 (OWENS PICNIC PARKING AREA)
0.812	0.812	CULVERT	N/A	N/A
0.919	0.919	CULVERT	N/A	N/A
0.997	0.997	CULVERT	N/A	N/A
1.058	1.058	SIGN	LEFT	GUIDE, SAW MILL EXHIBIT
1.062	1.062	INTERSECTION	RIGHT	UNPAVED ROUTE (FIRE ROAD)
1.073	1.073	INTERSECTION	LEFT	ROUTE 0914BZ (SAW MILL EXHIBIT PARKING)
1.113	1.113	CULVERT	N/A	N/A
1.122	1.122	SIGN	LEFT	REGULATORY, SPEED LIMIT 30
1.140	1.140	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
1.185	1.185	CULVERT	N/A	N/A
1.195	1.195	SIGN	LEFT	GUIDE, OWENS CREEK CAMPGROUND
1.206	1.206	INTERSECTION	LEFT	ROUTE 0204 (OWENS CREEK CAMPGROUND)
1.221	1.221	SIGN	RIGHT	REGULATORY, SPEED LIMIT 30
1.234	1.234	CULVERT	N/A	N/A
1.256	1.256	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
1.384	1.384	CULVERT	N/A	N/A
1.461	1.461	SIGN	LEFT	REGULATORY, SPEED LIMIT 30
1.463	1.463	CULVERT	N/A	N/A
1.493	1.493	INTERSECTION	LEFT	ROUTE 0924DZ (FISHERMAN PULLOUT D)
1.538	1.538	CULVERT	N/A	N/A
1.561	1.658	GUARD/GUIDE RAIL	LEFT	N/A
1.593	1.593	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
1.593	1.593	SIGN	RIGHT	WARNING, 25 M.P.H.
1.668	1.668	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0011: FOXVILLE - DEERFIELD ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
1.668	1.668	SIGN	LEFT	WARNING, 25 M.P.H.
1.698	1.698	INTERSECTION	LEFT	ROUTE 0924CZ (FISHERMAN PULLOUT C)
1.723	1.723	CULVERT	N/A	N/A
1.735	1.827	PAVED DITCH	RIGHT	N/A
1.744	1.744	SIGN	LEFT	GUIDE, GRAPHIC SIGN NO TEXT
1.752	1.752	INTERSECTION	LEFT	ROUTE 0924BZ (FISHERMAN PULLOUT B)
1.785	1.785	SIGN	LEFT	REGULATORY, SPEED LIMIT 30
1.829	1.829	CULVERT	N/A	N/A
1.838	1.838	SIGN	LEFT	REGULATORY, WEIGHT LIMIT 10 TONS
1.842	1.842	SIGN	LEFT	GUIDE, GRAPHIC SIGN NO TEXT
1.848	1.848	INTERSECTION	LEFT	ROUTE 0924AZ (FISHERMAN PULLOUT A)
1.857	1.857	INTERSECTION	N/A	PAVED ROUTE (FOXVILLE DEERFIELD ROAD / NON NPS)
1.857	1.857	PARK BOUNDARY	N/A	N/A
1.857	1.857	ROUTE END	N/A	TO NORTH PARK BOUNDARY AT PAVEMENT CHANGE

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0204: OWENS CREEK CAMPGROUND

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)
0.000	0.000	INTERSECTION	LEFT	ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)
0.004	0.004	SIGN	LEFT	REGULATORY, STOP
0.006	0.006	GATE	N/A	N/A
0.007	0.007	SIGN	RIGHT	GUIDE, CAMPGROUND OPEN MAY 17 CLOSED NOV 4
0.007	0.007	SIGN	RIGHT	GUIDE, TRAFFIC RESTRICTED TO CAMPERS ONLY
0.008	0.008	SIGN	RIGHT	REGULATORY, NO PARKING FIRE ROAD
0.011	0.024	GUARD/GUIDE RAIL	RIGHT	N/A
0.012	0.025	GUARD/GUIDE RAIL	LEFT	N/A
0.015	0.015	CULVERT	N/A	N/A
0.017	0.017	CULVERT	N/A	N/A
0.019	0.019	CULVERT	N/A	N/A
0.043	0.043	SIGN	RIGHT	REGULATORY, SPEED LIMIT 15
0.043	0.043	SIGN	RIGHT	GUIDE, U.S. FEE AREA
0.170	0.175	GUARD/GUIDE RAIL	LEFT	N/A
0.175	0.175	SIGN	RIGHT	REGULATORY, DO NOT ENTER
0.179	0.179	INTERSECTION	RIGHT	ROUTE 0204 (OWENS CREEK CAMPGROUND)
0.179	0.667	ONE-WAY	N/A	N/A
0.189	0.189	INTERSECTION	RIGHT	ROUTE 0914AZ (SAW MILL EXHIBIT HANDICAPPED PARKING)
0.191	0.191	SIGN	LEFT	REGULATORY, GRAPHIC SIGN NO TEXT
0.195	0.195	SIGN	LEFT	REGULATORY, ONE WAY
0.195	0.195	SIGN	RIGHT	GUIDE, REGISTER HERE
0.195	0.195	SIGN	RIGHT	REGULATORY, NO ALCOHOLIC BEVERAGES
0.273	0.273	SIGN	LEFT	REGULATORY, GRAPHIC SIGN NO TEXT
0.278	0.278	INTERSECTION	RIGHT	ROUTE 0205 (OWENS CREEK CAMPGROUND CUTOFF A)
0.281	0.281	SIGN	RIGHT	GUIDE, SITE 8-13 SITE 14-51 ONE WAY
0.282	0.282	SIGN	RIGHT	REGULATORY, GRAPHIC SIGN NO TEXT
0.338	0.338	INTERSECTION	RIGHT	ROUTE 0206 (OWENS CREEK CAMPGROUND CUTOFF B)
0.340	0.340	SIGN	RIGHT	GUIDE, SITE 19-26 SITE 27-51 ONE WAY

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0204: OWENS CREEK CAMPGROUND

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.410	0.410	SIGN	LEFT	GUIDE, GRAPHIC SIGN NO TEXT
0.410	0.410	SIGN	LEFT	GUIDE, DEERFIELD NATURE TRAIL
0.493	0.493	SIGN	LEFT	REGULATORY, SPEED LIMIT 15
0.528	0.528	SIGN	RIGHT	REGULATORY, GRAPHIC SIGN NO TEXT
0.543	0.543	INTERSECTION	RIGHT	ROUTE 0206 (OWENS CREEK CAMPGROUND CUTOFF B)
0.601	0.601	SIGN	RIGHT	REGULATORY, GRAPHIC SIGN NO TEXT
0.614	0.614	INTERSECTION	RIGHT	ROUTE 0205 (OWENS CREEK CAMPGROUND CUTOFF A)
0.664	0.664	SIGN	RIGHT	REGULATORY, STOP
0.667	0.667	INTERSECTION	LEFT	ROUTE 0204 (OWENS CREEK CAMPGROUND)
0.667	0.667	INTERSECTION	RIGHT	ROUTE 0204 (OWENS CREEK CAMPGROUND)
0.667	0.667	ROUTE END	N/A	TO END OF LOOP

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0205: OWENS CREEK CAMPGROUND CUTOFF A

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0204 (OWENS CREEK CAMPGROUND)
0.000	0.000	INTERSECTION	LEFT	ROUTE 0204 (OWENS CREEK CAMPGROUND)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0204 (OWENS CREEK CAMPGROUND)
0.000	0.083	ONE-WAY	N/A	N/A
0.005	0.005	SIGN	LEFT	REGULATORY, GRAPHIC SIGN NO TEXT
0.010	0.010	SIGN	LEFT	REGULATORY, GRAPHIC SIGN NO TEXT
0.039	0.039	SIGN	LEFT	GUIDE, CAMPGROUND HOST
0.080	0.080	SIGN	N/A	REGULATORY, ONE WAY
0.083	0.083	INTERSECTION	LEFT	ROUTE 0204 (OWENS CREEK CAMPGROUND)
0.083	0.083	INTERSECTION	N/A	ROUTE 0204 (OWENS CREEK CAMPGROUND)
0.083	0.083	ROUTE END	N/A	TO ROUTE 0204 (OWENS CREEK CAMPGROUND)

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0206: OWENS CREEK CAMPGROUND CUTOFF B

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0204 (OWENS CREEK CAMPGROUND)
0.000	0.000	SIGN	N/A	GUIDE, NO TENTS SEPTIC FIELD
0.000	0.077	ONE-WAY	N/A	N/A
0.000	0.000	INTERSECTION	LEFT	ROUTE 0204 (OWENS CREEK CAMPGROUND)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0204 (OWENS CREEK CAMPGROUND)
0.077	0.077	INTERSECTION	LEFT	ROUTE 0204 (OWENS CREEK CAMPGROUND)
0.077	0.077	INTERSECTION	N/A	ROUTE 0204 (OWENS CREEK CAMPGROUND)
0.077	0.077	SIGN	N/A	REGULATORY, ONE WAY
0.077	0.077	ROUTE END	N/A	TO ROUTE 0204 (OWENS CREEK CAMPGROUND)

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0207: FOXVILLE PLAZA

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0300 (MANAHAN ROAD)
0.000	0.000	INTERSECTION	LEFT	ROUTE 0300 (MANAHAN ROAD)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0300 (MANAHAN ROAD)
0.027	0.027	INTERSECTION	RIGHT	ROUTE 0207 (FOXVILLE PLAZA)
0.027	0.300	ONE-WAY	N/A	N/A
0.037	0.037	SIGN	RIGHT	GUIDE, FOXVILLE PLAZA
0.045	0.045	SIGN	LEFT	REGULATORY, NO PARKING ANY TIME
0.048	0.048	SIGN	LEFT	REGULATORY, NO PARKING ANY TIME
0.245	0.245	INTERSECTION	LEFT	UNPAVED ROUTE
0.300	0.300	INTERSECTION	LEFT	ROUTE 0300 (MANAHAN ROAD)
0.300	0.300	INTERSECTION	RIGHT	ROUTE 0300 (MANAHAN ROAD)
0.300	0.300	ROUTE END	N/A	TO END OF LOOP

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0300: MANAHAN ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM WEST PARK BOUNDARY AT PARK SIGN
0.000	0.000	INTERSECTION	N/A	PAVED ROUTE (MAHAN ROAD / NON NPS)
0.000	0.000	PARK BOUNDARY	N/A	N/A
0.139	0.139	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
0.139	0.139	SIGN	LEFT	REGULATORY, SPEED LIMIT 35
0.166	0.166	INTERSECTION	LEFT	ROUTE 0404AZ (ROUND MEADOW ROAD)
0.175	0.175	SIGN	LEFT	GUIDE, ROUND MEADOW
0.225	0.225	SIGN	RIGHT	REGULATORY, SPEED LIMIT 30
0.226	0.226	SIGN	LEFT	REGULATORY, SPEED LIMIT 30
0.303	0.303	INTERSECTION	LEFT	ROUTE 0207 (FOXVILLE PLAZA)
0.315	0.315	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
0.320	0.320	INTERSECTION	LEFT	ROUTE 0921 (CROSS COUNTRY SKIING PARKING A)
0.356	0.356	SIGN	RIGHT	REGULATORY, STOP
0.363	0.363	SIGN	RIGHT	GUIDE, PARK CENTRAL RD
0.364	0.364	SIGN	LEFT	REGULATORY, STOP
0.364	0.364	INTERSECTION	LEFT	ROUTE 0010 (PARK CENTRAL DRIVE)
0.364	0.364	INTERSECTION	RIGHT	ROUTE 0010 (PARK CENTRAL DRIVE)
0.368	0.368	CULVERT	N/A	N/A
0.374	0.374	GATE	N/A	N/A
0.375	0.375	SIGN	LEFT	REGULATORY, NO PARKING ANY TIME
0.375	0.375	SIGN	RIGHT	REGULATORY, ROAD CLOSED
0.378	0.378	INTERSECTION	N/A	ROUTE 0300 (MANAHAN ROAD) UNPAVED SECTION
0.378	0.378	ROUTE END	N/A	TO NORTH PARK BOUNDARY AT MP 1.88

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0401: JIM BROWN ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0010 (PARK CENTRAL DRIVE)
0.000	0.000	INTERSECTION	LEFT	ROUTE 0010 (PARK CENTRAL DRIVE)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0010 (PARK CENTRAL DRIVE)
0.006	0.006	CULVERT	N/A	N/A
0.006	0.006	SIGN	LEFT	REGULATORY, STOP
0.036	0.036	INTERSECTION	LEFT	PAVED PARKING
0.040	0.040	GATE	N/A	N/A
0.054	0.054	CULVERT	N/A	N/A
0.062	0.062	INTERSECTION	LEFT	PAVED DRIVEWAY
0.072	0.072	INTERSECTION	LEFT	PAVED DRIVEWAY
0.103	0.103	INTERSECTION	N/A	ROUTE 0919 (JIM BROWN ROAD PARKING)
0.103	0.103	ROUTE END	N/A	TO END AT MP 0.35

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0402: QUARTERS #6 ACCESS ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)
0.000	0.000	CULVERT	N/A	N/A
0.000	0.000	INTERSECTION	LEFT	ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0011 (FOXVILLE - DEERFIELD ROAD)
0.010	0.010	SIGN	LEFT	REGULATORY, AUTHORIZED VEHICLES ONLY
0.016	0.016	INTERSECTION	RIGHT	ROUTE 0402 (QUARTERS #6 ACCESS ROAD) SPUR
0.043	0.043	CULVERT	N/A	N/A
0.053	0.053	CULVERT	N/A	N/A
0.140	0.140	INTERSECTION	LEFT	PAVED DRIVEWAY
0.142	0.142	INTERSECTION	N/A	TO END
0.142	0.142	ROUTE END	N/A	TO QUARTERS #6

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0404AZ: ROUND MEADOW ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0300 (MANAHAN ROAD)
0.000	0.000	INTERSECTION	LEFT	ROUTE 0300 (MANAHAN ROAD)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0300 (MANAHAN ROAD)
0.006	0.006	GATE	N/A	N/A
0.008	0.008	SIGN	LEFT	REGULATORY, STOP
0.008	0.008	SIGN	RIGHT	GUIDE, SLOW WATCH FOR CHILDREN
0.042	0.042	SIGN	RIGHT	REGULATORY, SPEED LIMIT 15
0.042	0.042	SIGN	RIGHT	REGULATORY, PARKING
0.048	0.048	INTERSECTION	LEFT	ROUTE 0411 (QUARTER #7 ACCESS ROAD)
0.048	0.048	INTERSECTION	RIGHT	ROUTE 0911 (ROUND MEADOW BUS TURN AROUND)
0.048	0.048	SIGN	LEFT	GUIDE, BROWNS FARM TRAIL
0.053	0.053	SIGN	RIGHT	GUIDE, GYMNASIUM VISITOR SERVICES WAREHOUSE RESOURCE MANAGEMENT
0.063	0.063	INTERSECTION	LEFT	ROUTE 0410 (VISITORS SERVICE ACCESS ROAD)
0.069	0.069	SIGN	LEFT	GUIDE, GRAPHIC SIGN NO TEXT
0.078	0.078	INTERSECTION	LEFT	ROUTE 0410 (VISITORS SERVICE ACCESS ROAD)
0.084	0.088	CURB	RIGHT	N/A
0.091	0.091	INTERSECTION	RIGHT	ROUTE 0912C (ROUND MEADOW GYM PARKING C)
0.093	0.096	CURB	RIGHT	N/A
0.095	0.095	SIGN	RIGHT	REGULATORY, PARKING
0.100	0.100	INTERSECTION	RIGHT	ROUTE 0912C (ROUND MEADOW GYM PARKING C)
0.102	0.105	CURB	RIGHT	N/A
0.109	0.109	INTERSECTION	RIGHT	ROUTE 0912C (ROUND MEADOW GYM PARKING C)
0.110	0.116	CURB	RIGHT	N/A
0.126	0.126	SIGN	RIGHT	REGULATORY, NO PARKING
0.131	0.131	SIGN	LEFT	REGULATORY, NO PARKING
0.146	0.146	SIGN	LEFT	REGULATORY, NO PARKING
0.165	0.165	SIGN	RIGHT	REGULATORY, NO PARKING
0.174	0.174	SIGN	LEFT	REGULATORY, NO PARKING
0.183	0.183	SIGN	RIGHT	REGULATORY, NO PARKING

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0404AZ: ROUND MEADOW ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.186	0.186	INTERSECTION	RIGHT	ROUTE 0404BZ (ROUND MEADOW TURN AROUND)
0.194	0.194	INTERSECTION	RIGHT	ROUTE 0404BZ (ROUND MEADOW TURN AROUND)
0.213	0.213	INTERSECTION	RIGHT	UNPAVED ROUTE
0.248	0.248	INTERSECTION	N/A	TO END
0.248	0.248	ROUTE END	N/A	TO USPP BUILDING

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0405AZ: ROUND MEADOW MAINTENANCE ROAD A

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0920 (ROUND MEADOW MAINTENANCE AREA)
0.000	0.000	INTERSECTION	N/A	ROUTE 0920 (ROUND MEADOW MAINTENANCE AREA)
0.022	0.022	INTERSECTION	RIGHT	ROUTE 0405BZ (ROUND MEADOW MAINTENANCE ROAD B)
0.059	0.059	SIGN	RIGHT	GUIDE, BROWNS FARM TRAIL
0.081	0.081	SIGN	LEFT	GUIDE, BROWNS FARM TRAIL
0.091	0.091	INTERSECTION	N/A	TO END
0.091	0.091	ROUTE END	N/A	TO END

CATO: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0405BZ: ROUND MEADOW MAINTENANCE ROAD B

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0405AZ (ROUND MEADOW MAINTENANCE ROAD A)
0.000	0.000	INTERSECTION	LEFT	ROUTE 0405AZ (ROUND MEADOW MAINTENANCE ROAD A)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0405AZ (ROUND MEADOW MAINTENANCE ROAD A)
0.010	0.010	SIGN	RIGHT	REGULATORY, NO PARKING ANY TIME
0.031	0.031	SIGN	RIGHT	REGULATORY, NO PARKING ANY TIME
0.033	0.033	INTERSECTION	N/A	TO END
0.033	0.033	ROUTE END	N/A	TO END

Section 10
Appendix

Catoctin Mountain Park

Federal Lands Highway
Road Inventory Program

Explanation of Changes to the RIP Index Equations and Determination of PCR

In 2005, the FHWA began implementing the use of a Pavement Management System to assist the National Park Service in prioritizing Pavement Maintenance and Rehabilitation activities. The PMS used by FHWA is the Highway Pavement Management Application (HPMA) and this software has the ability to store inventory and condition data from RIP and forecast future performance using prediction models. Outputs include performance and condition reports at the National, Region, Park, or Route level. A regional prioritized list and optimization have been produced for most regions and the Federal Highway Deferred Maintenance is calculated via the HPMA as well.

In an effort to improve the accuracy of treatment recommendations and pavement condition descriptions in relation to the distresses and indexes that comprise the Pavement Condition Rating (PCR), an extensive study was completed throughout 2010 that resulted in changes to the Road Inventory Program condition reporting method and specifically, the calculation of PCR. It was determined that a better representation of PCR could be achieved by modifying the relative impact certain distresses would have on the overall rating.

Through the use of HPMA data, it was noted that false failure indicators existed with the existing PCR model, and that it would be necessary to reduce their impact. The distresses affected in this way were Rutting and Roughness. Conversely, experience showed that roadways with extensive cracking present were often shown to have a high PCR. Therefore, the crack index models were adjusted to be more sensitive to changes in crack severity or quantity. It was also determined that these issues were not due to a problem with data acquisition (i.e. the RIP "van"), but with the way the collected data was processed. The final change was to provide guidance on when to use the Roughness Condition Index (RCI) in the PCR calculation. Roughness data is of little value to determining overall condition on routes that, due to their length or geometrics, have lower vehicle operating speeds. Therefore, in Cycle 5, only routes that have lengths of one half mile or greater and posted speed limits of 25 mph or greater will have RCI reported and included in the PCR calculations.

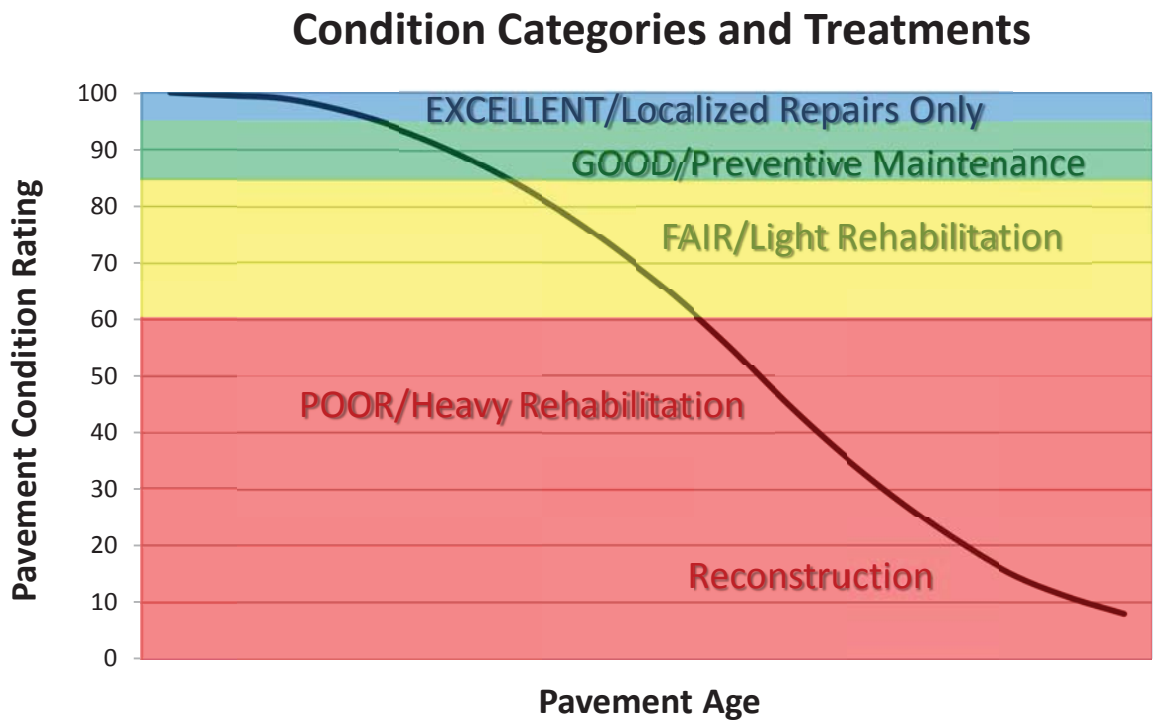
The changes that were implemented were endorsed by management at both the FHWA and NPS. In order to show the effectiveness of these changes, several sites were ground truth tested to ensure that an improvement was achieved between the relationship of PCR and the actual Maintenance and Rehabilitation needs that were represented. These changes will allow greater use of RIP and HPMA data for not simply condition data reporting, but also as a reliable tool for project identification and selection.

Explanation of the Excellent, Good, Fair and Poor Condition Descriptions

In addition to the RIP Index changes that were implemented in Cycle 5, we will provide greater assistance in translating good/fair/poor categories into pavement needs categories. The PCR can be used to indicate the place in the Pavement Life Cycle and the types of treatments that should be considered now and into the future.

- Excellent/New: PCR of 95-100. Pavements in this range will require only spot repairs.
- Good: PCR of 85-94. Pavements in this range will likely be candidates for Preventive Maintenance. Examples include Chip and Slurry Seals, Micro Surfacing and Thin Overlays.
- Fair: PCR of 61-84. Pavements in this range will likely be candidates of Light Rehabilitation (L3R). Examples include single-lift overlays up to 2.5 inches in total thickness, milling and overlays.
- Poor: PCR of 60 or below. Pavements in this range will likely be candidates of Heavy Rehabilitation or Reconstruction (H3R or 4R). Examples include Pulverization, Multiple Lift Overlays, and Reconstruction.

Specific Maintenance and Rehabilitation activities should be evaluated and recommended at the project level. Site-specific conditions that influence treatment type should be determined based on performing a subsurface investigation and/or pavement condition survey, and not be based solely on RIP data. Additionally, RIP produces a snapshot of conditions the year in which the data was collected. For further information or to obtain additional Pavement Management System's data from our Highway Pavement Management Application (HPMA) please contact the Eastern Federal Lands pavement team.



DESCRIPTION OF RATING SYSTEM

The Federal Highway Administration (FHWA), National Park Service Road Inventory Program (NPS-RIP), collects condition data on paved roads, parkways, and parking areas in park units nationwide. Road surface condition data is collected using an automated Data Collection Vehicle (DCV). Roads having brick, cobblestone, or wood surfaces are not normally surveyed with the DCV, but are manually rated for the purpose of assigning a condition rating. Unpaved roads, parkways, and parking areas are not currently being evaluated for condition. Paved campground pads and driveways are also not currently being evaluated for condition.

The FHWA RIP is implemented based on the premise that an accurate pavement surface condition assessment can be accomplished using automated crack detection technology as applied to digital images. Various methods of pavement condition assessment have been developed over the years with varying degrees of accuracy and acceptance. The use of digital photography to record pavement images and subsequent crack detection and classification has undergone continuous improvements over the past decade. Digital cameras with increasingly superior resolution and high definition have become more affordable, and the proprietary programming code and algorithms have been improved in crack detection software.

With the use of high quality digital photography and automated crack detection software, FHWA RIP is tasked with executing a pavement condition assessment on about 5000 miles of National Park Service roads and parkways. Foremost in setting up the basis of pavement distress identification is employing the distress identification protocols used by FHWA. There is no single distress identification system that is universal among entities conducting a program of distress identification. For the purpose of the NPS-RIP, FHWA employs distress identification protocols that are specific to this program.

FHWA has referenced the *"Distress Identification Manual for the Long-Term Pavement Performance Program", Publication No. FHWA-RD 03-031, June 2003,* as the point-of-reference for distress types on NPS pavement. The FHWA RIP distress types are similar to those described in the LTPP manual with some modifications. The document, *"Distress Identification Manual for the NPS Road Inventory Program, Cycle 5, 2010-2013"* was developed using the *"Distress Identification Manual for the Long-Term Pavement Performance Program"* as a guideline. Definitions of severity levels based on crack width contained in this document adhere to the LTPP Distress ID Manual. Modifications have been made to the definition of Alligator and Longitudinal Cracking and determination of Alligator Cracking severity. This manual also addresses Rutting and Roughness and its application to NPS-RIP.

In 2010, FHWA RIP began the fifth cycle of data collection in national parks. For Cycle 5, data will be collected in approximately 81 large parks (10 or more paved route miles) on Functional Class 1, 2, and 7 routes plus any new routes or parking areas previously not collected, totaling an estimated 4,459 paved route miles. Additionally, 231 small parks will be collected comprising approximately 529 paved route miles and associated paved parking areas. The data is used to support the National Park Service road maintenance program and Pavement Management System (PMS) developed and maintained by FHWA.

This ***"Distress Identification Manual for the NPS Road Inventory Program, Cycle 5, 2010-2013"*** will be used as a reference resource in crack detection and classification, determination of distress severity and extent, and in the calculation of distress index values for the FHWA RIP Cycle 5.

SURFACE DISTRESSES

Surface Condition Rating - SCR

Surface distresses are measured in the primary lane only. In the classification and measurement of all paved surface condition data, results will be reported in the database in record intervals of 0.02 miles (105.6 feet) (smallest granularity) along the route.

Surface distresses determined from digital images

- Transverse Cracks
- Longitudinal Cracks
- Alligator Cracks
- Patching/Potholes

Surface distress measured by DCV (Data Collection Vehicle) LRMS (Laser Rut Measuring System)

- Rutting

Each of the five surface distresses is assigned a computed surface distress index

- Transverse Crack Index
- Longitudinal Crack Index
- Alligator Crack Index
- Patching/Pothole Index
- Rutting Index

Surface distress data are classified as listed above, measured for severity, and quantified for extent. Classification, severity, and extent of these five surface distresses comprise the three main elements for calculation of SCR (Surface Condition Rating).

In addition to the five surface distresses, a **Structural Crack Index** is computed, which is a combination of the Longitudinal Crack Index and the Alligator Crack Index. The Structural Crack Index is then used in lieu of the LC and AC indices to compute SCR.

Roughness Condition Index - RCI

Additional condition data measured by DCV (lasers and accelerometers)

- Roughness (IRI)

Roughness is measured by FHWA's DCV and reported as International Roughness Index (IRI) in inches/mile. Using IRI, the Roughness Condition Index (RCI) is computed.

Pavement Condition Rating - PCR

Using the SCR (computed from the five surface distresses) and the RCI, an overall Pavement Condition Rating (PCR) is computed. The formula for PCR is:

Asphalt PCR = (0.60 * SCR) + (0.40 * RCI)
Concrete PCR = RCI

A detailed description of each distress index formula, roughness index formula, SCR and PCR is provided in this document beginning on page 8.

Each classified surface distress will fall into one or more s*everity*…LOW, MEDIUM, or HIGH based on criteria listed. For each severity, an e*xtent* is established based on the measured quantity of the distress within that severity. Within each *severity* individual distresses are assigned a *Maximum Allowable Extent* (MAE). For example, LOW severity transverse cracking may be allowed up to 21.1 cracks within a 0.02 interval before it reaches MAE and fails.

The index formulas are based on a scale of 0-100. A PCR index value of 100 would indicate a "new" road with no measurable distresses or rough ride. A PCR value of 60 is determined to be *terminable serviceability* and the road is considered failed. The range of index values with condition descriptors is:

POOR (<=60), FAIR (61 - 84), GOOD (85 - 94), EXCELLENT (95 - 100)

Index values are generally computed based on cumulative deducts of the measured severities. As shown in the index formulas below, as any single severity reaches or exceeds MAE, the index computes to a value of 60 or less, and the road fails for that 0.02 interval.

> **Note:** As a result of a unique combination of measured surface distresses and IRI, index values occasionally compute to less than 0 or greater than 100. In this instance, an index value < 0 defaults to 0. Index values > 100 default to 100. For all indices, a higher value indicates a better road condition, and a lower value indicates a poorer road condition.

On the following page, Table 1 summarizes the different types of distresses measured.

TABLE 1: Distress Summary

ASPHALT-SURFACED PAVEMENT DISTRESS TYPES with RUTTING and ROUGHNESS				
DISTRESS TYPE	**UNIT OF MEASURE…**	**…CONVERTED TO**	**DEFINED SEVERITY LEVELS?**	**MEASURED BY**
Alligator Cracking	**Square Feet**	**Percent of Lane Per 0.02 Mile**	**Yes**	**Digital Image Crack Detection Software**
Transverse Cracking	**Linear Feet**	**Number of Cracks Per 0.02 Mile**	**Yes**	**Digital Image Crack Detection Software**
Longitudinal Cracking	**Linear feet**	**Percent of Lane Length Per 0.02 Mile**	**Yes**	**Digital Image Crack Detection Software**
Patching/Potholes	**Square Feet**	**Percent of Lane Per 0.02 Mile**	**No**	**Digital Image Crack Detection Software**
Rutting	**Inches**	**Rut Depth Per 0.02 Mile**	**Yes**	**DCV – Laser Rut Measuring System (LRMS)**
Roughness	**IRI**	***RCI Per 0.02 Mile**	**No**	**DCV – Lasers /Accelerometers**

***Note: Roughness is measured on concrete roadways, but surface distresses and rutting are not measured. For concrete, PCR = RCI**

ALLIGATOR CRACKING

Description

Alligator cracking is considered a combination of fatigue and block cracking. It is a series of interconnected cracks in various stages of development. Alligator cracking develops into a many-sided pattern that resembles chicken wire or alligator skin. It can occur anywhere in the road lane. Alligator cracking must have a quantifiable area.

Severity Levels

LOW
An area of cracks with no or very few interconnecting cracks and the cracks are not spalled. Cracks are <= 0.25 in (6mm) in mean width. Cracks in the pattern are no further apart than 1 foot (0.328 m). May be sealed cracks with sealant in good condition and a crack width that cannot be determined.

MEDIUM
An area of interconnected cracks that form a complete pattern. Cracks may be slightly spalled. Cracks are >0.25 in. (6 mm) and <= 0.75 in. (19 mm) or any crack with a mean width <= 19 mm and adjacent low severity cracking. Cracks in the pattern are no further apart than 6 in. (150 mm).

HIGH
An area of interconnected cracks forming a complete pattern. Cracks are moderately or severely spalled. Cracks are >0.75 in (19mm) or any crack with a mean width <= 0.75 in (19mm) and adjacent medium to high severity random cracking.

A combination of observed crack width and crack pattern is used to determine overall severity of alligator cracking. Based on above description of each severity, the highest level of crack width and crack pattern determines overall severity. Table 2 illustrates this.

TABLE 2: Alligator Crack Severity Levels

ALLIGATOR CRACKING SEVERITY LEVELS		Crack Pattern		
		LOW	**MED**	**HIGH**
Crack Width	**LOW**	L	M	H
	MED	M	M	H
	HI	H	H	H

LONGITUDINAL CRACKING

Description

Longitudinal cracking occurs predominantly parallel to the pavement centerline. It can occur anywhere within the lane. Longitudinal cracks occurring in the wheelpath may be noteworthy.

Severity Levels

LOW
Cracks with a mean width of < 0.25 in. (6 mm). Sealed cracks with sealant in good condition and a width that cannot be determined.

MED
Cracks with a mean width > 0.25 in. (6 mm) and <= 0.75 in. (19 mm). Also, any crack with a mean width < 0.75 in. (19 mm) and adjacent random low severity cracking.

HIGH
Cracks with a mean width > 0.75 in. (19 mm). Also, any crack with a mean width < 0.75 in. (19 mm) and adjacent random medium to high severity cracking.

TRANSVERSE CRACKING

Description

Transverse cracking occurs predominantly perpendicular to the pavement centerline. It can occur anywhere within the lane.

Severity Levels

LOW
Cracks with a mean width of < 0.25 in. (6 mm). Sealed cracks with sealant in good condition and a width that cannot be determined.

MED
Cracks with a mean width > 0.25 in. (6 mm) and <= 0.75 in. (19 mm). Also, any crack with a mean width < 0.75 in. (19 mm) and adjacent random low severity cracking.

HIGH
Cracks with a mean width > 0.75 in. (19 mm). Also, any crack with a mean width < 0.75 in. (19 mm) and adjacent random medium to high severity cracking.

PATCHING AND POTHOLES

Description

Patching is an area of pavement surface that has been removed and replaced with patching material or an area of pavement surface that has had additional patching material applied. Patching may encompass partial-lane or full-lane width. On full-lane width patching; the total, contiguous length of a patch may not exceed 0.30 mi. (0.48 km). Any full-lane width patch exceeding 0.30 mi. in length is considered a pavement change, not a patch for the purposes of distress analysis. Patching must have a quantifiable area.

Potholes are bowl-shaped holes of various sizes occurring in the pavement surface.

Severity Levels

There are no stratified severities for Patching/Potholes. They either are present or they are not.

RUTTING

Description

Rutting is a longitudinal surface depression in the wheelpath.

Severity Levels

LOW
Ruts with a measured depth $\geq$ 0.20" and $\leq$ 0.49"

MED
Ruts with a measured depth $\geq$ 0.50" and $\leq$ 0.99"

HIGH
Ruts with a measured depth $\geq$ 1.00"

Ruts < 0.20" are not included in the distress calculations.

ROUGHNESS

Description

Roughness is the measurement of the unevenness of the pavement in the direction of travel. It is measured in units of IRI (International Roughness Index), inches per mile, and is indicative of ride comfort.

Severity Levels

There are no stratified severity levels for roughness. The roughness (or smoothness) of a road surface can be defined by IRI in the following table.

TABLE 3: IRI

IRI Descriptions	
Type of Road	**Typical IRI (in/mile)**
New Road, no noticeable roughness	<90
Small level of roughness	90 – 126
Road of average roughness	126 – 190
Road with above average roughness	190 – 253
Road with severe roughness	253 – 380
Nearly impassable	>380

INDEX FORMULAS

Note**:** All index formulas listed below contain MAE applicable to 0.02 mile (105.6 feet) interval.

Alligator Crack Index

AC_INDEX = 100 – 40 * [(%LOW / 35) + (%MED / 15) + (%HI / 5)]

Where:

The values *%LOW*, *%MED* and *%HI* report the percentage of the observed pavement (0.02 mile, primary lane) that contains alligator cracking within the respective severities. These values range from 0 to 100.

%LOW = Percent of total area (primary lane, 0.02 in length), low severity
%MED = Percent of total area (primary lane, 0.02 in length), medium severity
%HI = Percent of total area (primary lane, 0.02 in length), high severity

Percent of total area is computed as:

$$\frac{\text{square foot area of alligator crack severity}}{\text{0.02 mile * lane width}}$$

In AC_INDEX, the denominators 35, 15, and 5 are the Maximum Allowable Extents (MAE) for each severity. In other words, we will allow up to 35% of low severity alligator cracking for a 0.02 interval before failure, 15% for medium severity, and so on. As you can see, if any single severity reaches MAE the resulting index value is 60, or failure.

Longitudinal Crack Index

LC_INDEX = 100 – 40 * [(%LOW / 175) + (%MED / 75) + (%HI / 25)]

Where:

The values *%LOW*, *%MED*, and *%HI* report the length of longitudinal cracking within each severity as a percent of the section length (0.02 mile, primary lane).
These values are ≥ 0 and can exceed 100.

%LOW = Percent of interval length (primary lane, 0.02 in length), low severity
%MED = Percent of interval length (primary lane, 0.02 in length), medium severity
%HI = Percent of interval length (primary lane, 0.02 in length), high severity

Percent of interval length is computed as:

$$\frac{\text{length of respective longitudinal cracking}}{\text{0.02 mile (105.6 feet)}}$$

In LC_INDEX, the denominators 175, 75, and 25 are the Maximum Allowable Extents (MAE) for each severity. In other words, we will allow up to 175% of low severity alligator cracking for a 0.02 interval before failure, 75% for medium severity, and so on. As you can see, if any single severity reaches MAE the resulting index value is 60, or failure.

Structural Crack Index

SC_INDEX = [100 - ((100 - AC_INDEX) + (100 - LC_INDEX))]

Structural Crack Index is a combination of Alligator Cracking and Longitudinal Cracking, and is used in the SCR formula in lieu of AC and LC separately.

Transverse Crack Index

TC_INDEX = 100 – 40 * [(LOW / 21.1) + (MED / 4.4) + (HI / 2.6)]

Where:

The values *LOW*, *MED* and *HI* report a count of the total number of transverse cracks (reported to three decimals) within each severity level, where one transverse crack is equal to the lane width. These values are ≥ 0.

LOW = Number of cracks in interval (primary lane, 0.02 in length), low severity
MED = Number of cracks in interval (primary lane, 0.02 in length), medium severity
HI = Number of cracks in interval (primary lane, 0.02 in length), high severity

Number of cracks is computed as:

$$\frac{\text{Total length of transverse cracks}}{\text{Lane width}}$$

In TC_INDEX, the denominators 21.1, 4.4, and 2.6 are the Maximum Allowable Extents (MAE) for each severity. In other words, we will allow up to 21.1 low severity transverse cracks for a 0.02 interval before failure, 4.4 cracks for medium severity, and so on. As you can see, if any single severity reaches MAE the resulting index value is 60, or failure.

Patching Index

PATCH_INDEX = 100 – 40 * (%PATCHING / 80)

Where:

The value *%PATCHING* reports the percentage of the observed pavement (0.02 mile, primary lane) that contains patching/potholes. This value ranges from 0 to 100.

%PATCHING = Percent of total area (primary lane, 0.02 in length)

Percent of total area is computed as:

$$\frac{\text{square foot area of patching/potholes}}{\text{0.02 mile * lane width}}$$

There are no severity levels for patching. It either exists or does not.

In PATCH_INDEX, the denominator 80 is the Maximum Allowable Extent (MAE) for each severity. In other words, we will allow up to 80% patching for a 0.02 interval before failure. As you can see, if patching/potholes reaches MAE the resulting index value is 60, or failure.

Rutting Index

RUT_INDEX = 100 – 40 * [(%LOW / 535) + (%MED / 205) + (%HI / 40)]

Where:

20 rut depth measurements are taken per 0.02 interval for each of 2 wheel paths (left and right), resulting in a total of 40 measurements taken for both wheel paths. *Each wheelpath is analyzed independently for rut severities.* The values *%LOW*, *%MED* and *%HI* are a *total percentage* of left wheelpath percentage and right wheelpath percentage added together for the respective severity. These values range from 0 to 200.

%LOW = Percent of LOW ruts in left wheelpath based on 20 ruts, plus percent of LOW ruts in right wheelpath based on 20 ruts.
%MED = Percent of MED ruts in left wheelpath based on 20 ruts, plus percent of MED ruts in right wheelpath based on 20 ruts.
%HI = Percent of HI ruts in left wheelpath based on 20 ruts, plus percent of HI ruts in right wheelpath based on 20 ruts.

Percent of rut measurements within each severity can also be computed as:

$$\frac{\text{total number of ruts within each severity in both wheelpaths}}{20} * 100$$

In RUT_INDEX, the denominators 535, 205, and 40 are the Maximum Allowable Extents for each severity. In other words, the formula allows up to 535% low severity

ruts for a 0.02 interval before. However, since 200 is the highest measurable percentage allowed, 535% is unattainable and therefore, no amount of LOW severity rutting will cause the RUT_INDEX to fail a road. Similarly, since the MAE for MED severity rutting is 205, no amount of MED severity rutting will cause the RUT_INDEX to reach 60 and fail the road. As you can see, LOW severity rutting reaches MAE the resulting index value is 60, or failure. This formula was intentionally designed to minimize the impact of LOW and MED severity rutting on RUT_INDEX.

Roughness Condition Index (Asphalt)

RCI = 32 * [5 * (2.718282 ^ (-0.0041 * AVG IRI))]

Where:

The value *AVG IRI* reports the average value of the Left IRI and Right IRI measurements for the interval (0.02 mile, primary lane). This value can range from approximately 40 to 999.0.

Average IRI is computed as:

$$\frac{\text{Left wheelpath IRI + Right wheelpath IRI}}{2}$$

There is no applicable threshold for failure for this index.

Roughness Condition Index (Concrete)

RCI = $-0.0012(IRI^2) + 0.0499(IRI) + 99.542$

For concrete, PCR = RCI

Surface Condition Rating Index

SCR = *Lowest* Index Value Of: [SC_INDEX, TC_INDEX, PATCH_INDEX, RUT_INDEX]

Note: *The modified SCR equation above combines AC_INDEX and LC_INDEX, and considers that a single AC/LC index value of the Structural Crack Index (SC_INDEX). The lowest of the four computed index values (SC_INDEX, TC_INDEX, PATCH_INDEX, or RUT_INDEX) becomes the SCR.*

Where:

See above for determinations of SC_INDEX, TC_INDEX, PATCH_INDEX and RUT_INDEX.

The threshold for failure for this index is SCR = 60.

Data Collection Vehicle Subsystems

Data on paved roads in Cycle 5 is collected by FHWA using a Pathway Services Inc. Data Collection Vehicle (DCV), called PathRunner. The DCV is driven in the primary-direction lane at posted speed limits and less.

CAMERAS

Forward-facing and rear-facing video is collected as .jpg digital imagery at a frequency of 26.4 feet.

Two forward-facing cameras are mounted above the vehicle cab, one pointed straight ahead and the other to the right shoulder providing seamless 120 degree viewing.

CAMERA SPECIFICATIONS **Two Forward/ One Rear Facing**	
Camera lens/type	FUJINON CCTV LENS H16x10B-Y41
Focal length	10 mm – 160 mm
Image size	8.8 mm x 6.6mm
Image format	*.jpg
Image resolution	HD 2000 X 1200
Image pixel size	depends on distance
Zoom ratio	16x
Max Relative Aperture	1:2.5
Iris range	F25-T800 (Equivalent to F800)

Pavement images are created using a Laser Scan Imaging System. This system is composed of a single high resolution line-scan camera and two lasers configured to image an approximate 11-foot wide lane with 1 mm resolution.

CAMERA SPECIFICATIONS **Pavement Line Scan**	
Image size	4280 pixels/line
Image width	4 meters (3950 mm nominal)
Laser class	3B
Power	250W
Vehicle speed limitations	62 mph
Environment	Dry pavement, day or night
Sensor size (approx)	300 mm(H) x 375 mm(L) x 200 mm(D)
Image frame length	26.4 feet

DMI (Distance Measuring Instrument)

The DMI (Distance Measuring Instrument) obtains road length measurements that are accurate to 0.1% for speeds up to 60 mph. The DMI is connected to the hub of the rear wheel on the driver's side, and is calibrated to the revolutions of the rear vehicle axle on a regular basis.

ROUGHNESS (IRI)

The collection system includes a South Dakota type laser profiler manufactured based on active Class 1 ASTM E950 standards. The dynamic profile of the pavement surface is collected from which the IRI roughness data is computed. The sensors include one accelerometer on each wheelpath, one height sensor (laser) on each wheelpath, and a distance transducer.

IRI SPECIFICATIONS	
Reported IRI units	Inches/mile
Vehicle speed limitations	12-62 mph
IRI equipment certification	Texas Transportation Institute (TTI)
Wavelengths accommodated	6 in. – 300 feet
IRI computed & reported	World Bank Technical Paper Number 46
Environment	Dry pavement, day or night, above 32 degrees F
Adherence to specifications	ASTM E950-98 (2004), ASTM E 1926-08, AASHTO MP 11-08, AASHTO PP 49-08

RUTTING

Rutting depths are measured using an INO Laser Rut Measurement System (LRMS). This system is a transverse profiling device that detects and characterizes pavement rutting. The LRMS can acquire full 4 meter width profiles of a pavement lane at normal traffic speeds and uses two laser profilers that digitize transverse sections of the pavement.

RUTTING SPECIFICATIONS	
Reported rut depth units	Inches
Vehicle speed limitations	Up to 62 mph
Sampling rate	30-150 profiles/second
Transverse resolution	1280 points/profile
Transverse field-of-view	4 m
Depth accuracy (nominal)	+/- 1 mm
Environment	Dry pavement, day or night, above 32 degrees F
Adherence to specifications	ASTM E1703M-95 (reapproved 2005)

GPS & INERTIAL SYSTEMS

GPS is collected by an onboard system employing OmniSTAR real-time correction and a gyroscope (spin-type) to provide accurate positioning data (pitch/roll/heading) in instances of satellite obstruction. All GPS coordinates are tied to image and linear distance measurements.

GPS SPECIFICATIONS	
Static accuracy	Sub-meter
Dynamic accuracy	2-3 meters
Receiver	12 satellite tracking
Coordinate system	Lat Lon WGS 84
Environment	Day or night
Cross-slope	+- 0.5 degrees
Grade	+- 0.5 degrees

GPS on Manually Rated Roads (MRR)

Parking areas, some roads, and other paved areas that are not fully drivable with the DCV are collected manually by field technicians. GPS is collected for these routes using portable Trimble GPS backpack units. Paved campground pads and driveways are not typically included in the inventory or GPS.

Geodatabase – Background and Metadata

In addition to this park report, a ***geodatabase*** containing both tabular and spatial data specific to this park has been provided. All data disseminated in the preceding report has been obtained from the tables and fields within said geodatabase. The geodatabase can be referenced for tabular data via Microsoft Access or for both tabular and spatial data via ESRI's ArcGIS Suite of software which consists of; ArcMap, ArcCatalog and ArcExplorer. Consolidating the RIP data into one database creates a seamless relationship of tabular and geographic data. It will allow RIP to facilitate easier updates and enhancements in the future.

A geodatabase can be thought of as simply a database containing spatial data. Many different tables are contained with the park's geodatabase. A complete and thorough description of the tables and fields contained within this geodatabase can be found in the ***metadata***. The metadata is attached directly within the geodatabase and can be accessed via ESRI's ArcCatalog. The metadata portion of the geodatabase also includes data dictionary report functionality that formats the metadata into an easy to read report.

GLOSSARY OF TERMS AND ABBREVIATIONS

TERM OR ABBREVIATION	DESCRIPTION OR DEFINITION
AC	Alligator Cracking
CRS	Condition Rating Sheets (Section 5)
DCV	Data Collection Vehicle
Excellent	Excellent rating with an index value of 95 to 100
Fair	Fair rating with an index value from 61 to 84
FUNCT_CLASS	Functional Classification (see Route ID, Section 2)
Good	Good rating with an index value from 85 to 94
IRI	International Roughness Index
Lane Width	Width from road centerline to fogline, or from centerline to edge-of-pavement when no fogline exists
LC	Longitudinal Cracking
MRR	Manually Rated Route
MRL	Manually Rated Line
MRP	Manually Rated Polygon
N/A	Not Applicable
NC	Not Collected
PATCH	Patching and Potholes
Paved Width	Width from edge-of-pavement to edge-of-pavement
PCR	Pavement Condition Rating
PKG	Parking Area
Poor	Poor rating with an index value of 0 to 60
RCI	Roughness Condition Index
SC	Structural Cracking
SCR	Surface Condition Rating
TC	Transverse Cracking