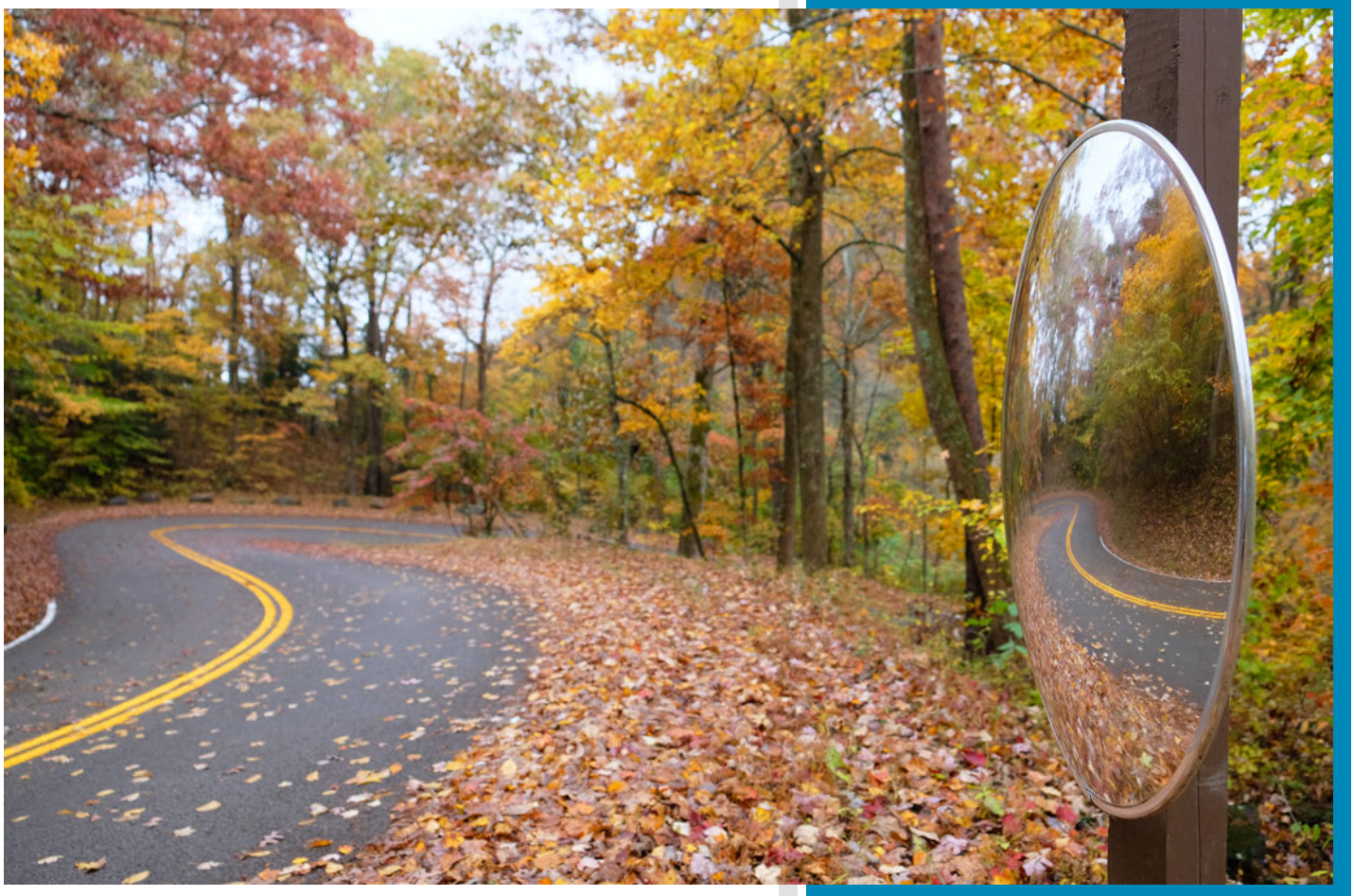
CUGA
Cycle 6

Final Report

Road Inventory and Condition Assessment of Paved Routes
Cumberland Gap National Historical Park

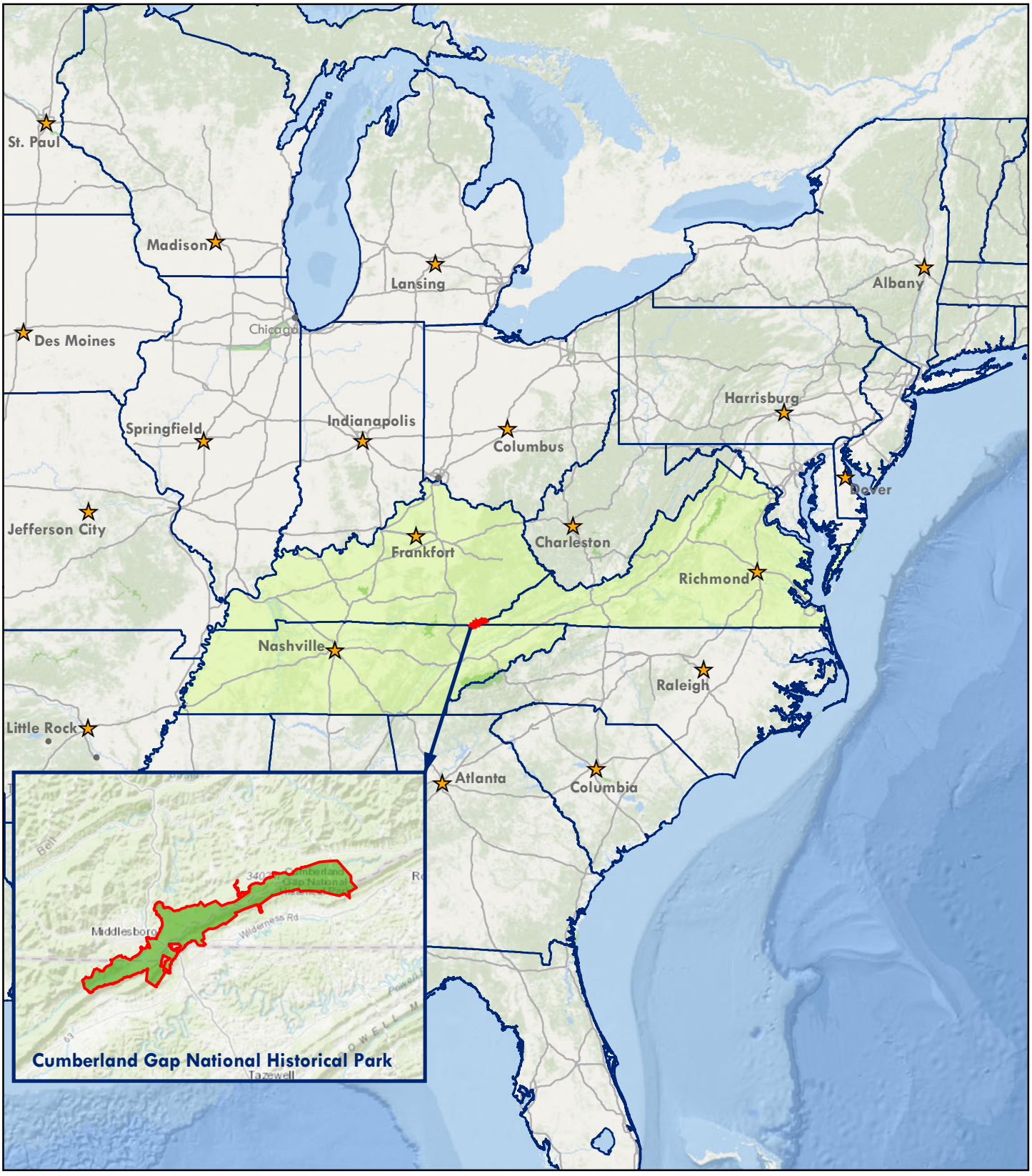


Federal Lands Highway
Road Inventory Program

Prepared By:
Federal Highway Administration
Eastern Federal Lands Highway Division
Road Inventory Program (RIP)

Report Date: March 2022

Cumberland Gap National Historical Park
in
Kentucky, Tennessee, and Virginia



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

N

Table of Contents

Section 1
Introduction

Cumberland Gap National Historical Park

Federal Lands Highway
Road Inventory Program

Introduction

The Federal Highway Administration's (FHWA), Road Inventory Program (RIP) inventories all roads and parking areas in the National Park System, and performs condition inspections on all paved roads and parking areas for the National Park Service (NPS). This report contains the results of the Cycle 6 condition assessment of paved roads and parking lots for this park unit. This assessment was done using an automated, state-of-the-art pavement inspection vehicle as well as manual ratings. This information represents the condition of the paved assets at the time of the inspection. The pavement management system utilized by FHWA and the NPS uses these assessments to estimate future conditions and help prioritize pavement maintenance and rehabilitation projects. Further information about RIP data and its role in managing paved roads and bridges can be obtained by contacting the NPS Regional Transportation Program Manager.

A History of the Road Inventory Program:

The FHWA, in the mid-1970s, was charged with the task of identifying surface condition deficiencies and corrective priorities on 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 a Memorandum of Agreement (MOA) which established the RIP. This MOA was revised in 1980 to update RIP data collection standards and develop a long-range program to improve and maintain NPS roads to designated condition standards and establish a pavement management program.

The FHWA completed the initial phase of inventory in the early 1980s. As a result of this effort, each NPS unit included in the collection received a RIP Report known as the "Brown Book" which contained information that was inventoried during this first RIP phase. In the 1990s, a cyclical program was developed, and since then five cycles of collection have been completed. Cycle 6 is currently in progress. A summary of the RIP collection cycles is shown in the table below.

Cycle	Years	Parks Collected
Cycle 1	1994 - 1997	° 44 Large Parks
Cycle 2	1997 - 2001	° 79 Large Parks ° 5 Small Parks
Cycle 3	2001 - 2004	° All Large Parks ° All Small Parks
Cycle 4	2006 - 2010	° 86 Large Parks ° Several Small Parks
Cycle 5	2010 - 2014	° All Large Parks (Only functional class 1, 2, 7, and new/modified routes collected) ° All Small Parks (all roads and parking areas collected)
Cycle 6	2014 – 2020 (±)	° All roads and parking areas collected at all Parks ° Additional partial collections of functional class 1, 2, and 7 roads at Large Parks ° Cycle 6 is expected to last 6 years

Note: Large Parks have ≥ 10 Paved Miles; Small Parks have < 10 Paved Miles

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 Federal Lands Highway (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.

In 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) amended Title 23 U.S.C., and under Section 203(c)(1-2) stated that the National Park Service in cooperation with the DOT/FHWA, shall maintain a comprehensive national inventory of their transportation facilities, with the goal of quantifying transportation infrastructure needs within the National Park System.

A History of the Pavement Management System:

In 2005, the FHWA began implementing the use of a pavement management system to assist the NPS in prioritizing Pavement Maintenance and Rehabilitation activities. The system used by FHWA is the Highway Pavement Management Application (HPMA), which 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. Regional prioritized lists and optimizations have been produced for most regions, and the Service's overall roadway Deferred Maintenance is calculated via the HPMA.

Overview of Cycle 6:

Cycle 6 launched in the spring of 2014 and will again comprise all NPS park units that are served by paved roads and/or parking areas. For Cycle 6, all paved roads (approximately 5,700 miles) and parking areas will be collected in all parks at least once, while the primary routes (functional class 1, 2, and 7 roads) at Large Parks will have additional collections. These multiple collections will provide updated condition data on a majority of the NPS's primary road network and help build a better pavement management system, allowing for more accurate pavement performance prediction models.

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 Ashburn, Virginia.

Respectfully,

FHWA RIP Team

FHWA/Eastern Federal Lands
22001 Loudoun County Parkway
Building E-2, Suite 200
Ashburn, VA 20147
(571) 434-1574

FHWA/Central Federal Lands
12300 West Dakota Ave
Lakewood, CO 80228
(720) 963-3556

Section 2
Park Route Inventory

Cumberland Gap National Historical Park

Federal Lands Highway
Road Inventory Program

Report Date: 03/01/2022

Cycle 6 NPS / RIP Route ID Report

(Numerical By Summary Route and Subcomponent #)

Federal Lands Highway
Road Inventory Program

Shading Color Key

White = Paved Routes, DCV Driven	Grey = Paved Routes, DCV not Driven	Black = Non-NPS Routes	= Concession Route
Yellow = Unpaved Routes, DCV not Driven	Blue = Paved Parking Areas	Green = Unpaved Parking Areas	

DCV = Data Collection Vehicle
MRL = Manually Rated Line
MRP = Manually Rated Polygon
PKG = Parking Areas
NC = Not Collected

CUGA *Cumberland Gap National Historical Park*

ROAD INVENTORY (1100 SERIES FMSS LOCATIONS)

Route No.	Cycle Collected	Iteration Collected	FMSS Number	Concession	Route Name	Route Description From	Route Description To	Maintenance District	FLTP	Paved Miles	Unpaved Miles	Total Mileage	Functional Class	Area (SQ FT)	Surf. Type	Area Map
0010	6	2	38600		PINNACLE ROAD	FROM ROUTE 5025 (U.S. HIGHWAY 25E) NORTHBOUND	TO ROUTE 0913 (PINNACLE PARKING)		YES	3.99	0.00	3.99	1		AS	1,2
0012	6	2	38590		BARTLETT PARK ROAD	FROM ROUTE 0010 (PINNACLE ROAD) AT MP 0.64	TO BEGINNING OF ROUTE 0104AZ (CEMETERY ROAD UNPAVED)		YES	0.49	0.00	0.49	1		AS	1
0013	6	2	101467		U.S. HIGHWAY 25E SOUTHBOUND ACCESS ROAD	FROM ROUTE 5025 (U.S. HIGHWAY 25E) SOUTHBOUND	TO ROUTE 5025 (U.S. HIGHWAY 25E) SOUTHBOUND		YES	0.33	0.00	0.33	1		AS	1
0100	6	2	38592		HIGHWAY 988 (SUGAR RUN ROAD)	FROM ROUTE 0010 (PINNACLE ROAD) AT MP 1.60	TO PARK BOUNDARY		YES	2.77	0.00	2.77	1		AS	2
0102	6	2	102565		LITTLE YELLOW CREEK ROAD	FROM ROUTE 0010 (PINNACLE ROAD)	TO ROUTE 0910 (LITTLE YELLOW CREEK OVERFLOW PARKING)		YES	0.07	0.00	0.07	3		AS	1
0103	6	2	225928		DANIEL BOONE (N CUMBERLAND DRIVE) PARKING ACCESS ROAD	FROM U.S. HIGHWAY 58	TO PARK BOUNDARY		YES	0.36	0.00	0.36	1		AS	2
0104ZZ	6	2	239274		CEMETERY ROAD	FROM END OF ROUTE 0012 (BARTLETT PARK ROAD)	TO CEMETERY		YES	0.08	0.37	0.45	3		AS	1
0105	6	2	38593		WILDERNESS ROAD CAMPGROUND ACCESS ROAD	FROM U.S. HIGHWAY 58	TO BEGINNING OF ROUTE 0202ZZ (WILDERNESS ROAD CAMPGROUND)		YES	0.80	0.00	0.80	2		AS	3
0200	6	2	38591		LEWIS HOLLOW PICNIC AREA ROAD	FROM ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)	TO END OF LOOP		YES	0.49	0.00	0.49	3		AS	3
0202ZZ	6	2	100394		WILDERNESS ROAD CAMPGROUND	FROM END OF ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)	THROUGH CAMPGROUND		YES	1.74	0.00	1.74	3		AS	3
0203	6	2	99965		ENTRANCE ROAD AT TWCP	FROM STATE HIGHWAY 724 / PARK BOUNDARY	TO ROUTE 0927ZZ (TWCP PARKING AREAS)		YES	0.19	0.00	0.19	3		AS	4
0204	NC		38595		SHILLALAH CREEK ROAD	FROM STATE HIGHWAY 217	TO BROWNIES CREEK ROAD		NO	0.00	5.72	5.72	6		GR	KEY

Report Date: 03/012022

Cycle 6 NPS / RIP Route ID Report

(Numerical By Summary Route and Subcomponent #)

Federal Lands Highway
Road Inventory Program

Shading Color Key

White = Paved Routes, DCV Driven	Grey = Paved Routes, DCV not Driven	Black = Non-NPS Routes	= Concession Route
Yellow = Unpaved Routes, DCV not Driven	Blue = Paved Parking Areas	Green = Unpaved Parking Areas	

DCV = Data Collection Vehicle
MRL = Manually Rated Line
MRP = Manually Rated Polygon
PKG = Parking Areas
NC = Not Collected

CUGA *Cumberland Gap National Historical Park*

ROAD INVENTORY (1100 SERIES FMSS LOCATIONS)

Route No.	Cycle Collected	Iteration Collected	FMSS Number	Concession	Route Name	Route Description From	Route Description To	Maintenance District	FLTP	Paved Miles	Unpaved Miles	Total Mileage	Functional Class	Area (SQ FT)	Surf. Type	Area Map
0403	6	2	102573		PUMP HOUSE SERVICE ROAD	FROM ROUTE 0010 (PINNACLE ROAD)	TO END		NO	0.04	0.00	0.04	6		AS	2
0409	NC		102521		DAVIS BRANCH ROAD	FROM ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))	TO END		NO	0.00	0.87	0.87	6		GR	2
0411	NC		100402		CUMBERLAND COLLEGE ROAD	FROM ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))	TO END		NO	0.00	0.74	0.74	6		NV	KEY,2
0421	6	2	100403		DUPLEX DRIVE	FROM ROUTE 0012 (BARTLETT PARK ROAD) AT MP 0.37	TO DEAD END		YES	0.11	0.00	0.11	5		AS	1
0422ZZ	NC		38601		COLSON LANE	FROM U.S. HIGHWAY 58	TO END		NO	0.00	0.55	0.55	6		GR	3
0424	NC		38775		HOOT OWL HOLLOW ROAD	FROM TIPRELL ROAD	TO END		NO	0.00	1.08	1.08	6		GR	KEY
0425	NC		253902		MEAT PACKING PLANT ROAD	FROM ROUTE 0102 (LITTLE YELLOW CREEK ROAD)	TO ROUTE 5025 (U.S. HIGHWAY 25E)		NO	0.00	0.30	0.30	6		GR	1
0426	NC		255298		HENSLEY MAINTENANCE RD	FROM BROWNIES CREEK ROAD	TO END OF LOOP		NO	0.00	0.15	0.15	6		GR	KEY

NON-NPS ROADS INVENTORY

Route No.	Cycle Collected	Iteration Collected	FMSS Number	Concession	Route Name	Route Description From	Route Description To	Maintenance District	FLTP	Paved Miles	Unpaved Miles	Total Mileage	Functional Class	Area (SQ FT)	Surf. Type	Area Map
5025	5	1			U.S. HIGHWAY 25E	FROM EAST CUMBERLAND AVENUE	TO INTERSECTION WITH NETTLETON ROAD		NO	3.35	0.00	3.35			AS	KEY,1,2

Report Date: 03/01/2022

Cycle 6 NPS / RIP Route ID Report

(Numerical By Summary Route and Subcomponent #)

Federal Lands Highway
Road Inventory Program

Shading Color Key

White = Paved Routes, DCV Driven
Grey = Paved Routes, DCV not Driven
Black = Non-NPS Routes
= Concession Route
Yellow = Unpaved Routes, DCV not Driven
Blue = Paved Parking Areas
Green = Unpaved Parking Areas

DCV = Data Collection Vehicle
MRL = Manually Rated Line
MRP = Manually Rated Polygon
PKG = Parking Areas
NC = Not Collected

CUGA *Cumberland Gap National Historical Park*

PARKING AREA INVENTORY (1300 SERIES FMSS LOCATIONS)

Route No.	Cycle Collected	Iteration Collected	FMSS Number	Concession	Route Name	Route Description From	Route Description To	Maintenance District	FLTP	Access Level	Area (SQ FT)	Surf. Type	Area Map
0900	6	2	100247		VISITOR CENTER PARKING	FROM ROUTE 0010 (PINNACLE ROAD)	TO ROUTE 0010 (PINNACLE ROAD)		YES	PUBLIC	94,302	AS	1
0901A	6	2	100406		RANGER STATION GOVERNMENT PARKING A	FROM ROUTE 0012 (BARTLETT PARK ROAD)	TO PARKING		NO	NONPUBLIC	4,935	AS	1
0901B	6	2	100407		RANGER STATION GOVERNMENT PARKING B	FROM ROUTE 0012 (BARTLETT PARK ROAD)	TO PARKING		NO	NONPUBLIC	10,924	AS	1
0902	6	2	100408		VIP CAMPSITE PARKING	FROM ROUTE 0903 (HEADQUARTERS PARKING A)	TO PARKING		NO	NONPUBLIC	1,893	AS	1
0903	6	2	100409		HEADQUARTERS PARKING A	FROM ROUTE 0012 (BARTLETT PARK ROAD)	TO PARKING		YES	PUBLIC	11,577	AS	1
0904	6	2	100410		HEADQUARTERS PARKING B	FROM ROUTE 0012 (BARTLETT PARK ROAD)	TO ROUTE 0012 (BARTLETT PARK ROAD)		NO	PUBLIC	10,033	AS	1
0905ZZ	6	2	100411		BARTLETT PARK PICNIC AREA PARKING	ADJACENT TO ROUTE 0012 (BARTLETT PARK ROAD)			YES	PUBLIC	11,400	AS	1
0906	6	2	100414		HEADQUARTERS HANDICAPPED PARKING	FROM ROUTE 0421 (DUPLEX DRIVE)	TO PARKING		YES	PUBLIC	970	AS	1
0907A	6	2	100416		MAINTENANCE AREA A	FROM ROUTE 0012 (BARTLETT PARK ROAD)	TO PARKING		NO	NONPUBLIC	22,448	AS	1
0907B	6	2	100576		MAINTENANCE AREA B	FROM ROUTE 0012 (BARTLETT PARK ROAD)	TO PARKING		NO	NONPUBLIC	11,916	AS	1
0908A	6	2	100578		FACILITY MANAGEMENT EMPLOYEE PARKING	FROM ROUTE 0012 (BARTLETT PARK ROAD)	TO PARKING		NO	NONPUBLIC	3,539	AS	1
0908B	6	2	100592		RESOURCE MANAGEMENT PARKING	FROM ROUTE 0012 (BARTLETT PARK ROAD)	TO PARKING		NO	NONPUBLIC	1,654	AS	1
0909ZZ	NC		102574		GYMNASIUM STORAGE AREA	FROM ROUTE 0012 (BARTLETT PARK ROAD)	TO PARKING		NO	NONPUBLIC	32,207	GR	1
0910	6	2	102571		LITTLE YELLOW CREEK OVERFLOW PARKING	FROM END OF ROUTE 0102 (LITTLE YELLOW CREEK ROAD)	TO PARKING		NO	PUBLIC	42,466	GR	1

Report Date: 03/01/2022

Cycle 6 NPS / RIP Route ID Report

(Numerical By Summary Route and Subcomponent #)

Federal Lands Highway
Road Inventory Program

Shading Color Key

White = Paved Routes, DCV Driven	Grey = Paved Routes, DCV not Driven	Black = Non-NPS Routes	= Concession Route
Yellow = Unpaved Routes, DCV not Driven	Blue = Paved Parking Areas	Green = Unpaved Parking Areas	

DCV = Data Collection Vehicle
MRL = Manually Rated Line
MRP = Manually Rated Polygon
PKG = Parking Areas
NC = Not Collected

CUGA *Cumberland Gap National Historical Park*

PARKING AREA INVENTORY (1300 SERIES FMSS LOCATIONS)

Route No.	Cycle Collected	Iteration Collected	FMSS Number	Concession	Route Name	Route Description From	Route Description To	Maintenance District	FLTP	Access Level	Area (SQ FT)	Surf. Type	Area Map
0911	6	2	100593		FORT MCCOOK PARKING	FROM ROUTE 0010 (PINNACLE ROAD)	TO PARKING		YES	PUBLIC	3,732	AS	2
0912	6	2	101151		MIDWAY PARKING	FROM ROUTE 0010 (PINNACLE ROAD)	TO PARKING		YES	PUBLIC	6,056	AS	2
0913	6	2	101152		PINNACLE PARKING	FROM END OF ROUTE 0010 (PINNACLE ROAD)	TO PARKING		YES	PUBLIC	41,735	AS	2
0914	6	2	93475		THOMAS WALKER PARKING	FROM ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))	TO PARKING		YES	PUBLIC	51,382	AS	2
0915	6	2	101153		DARK RIDGE OVERLOOK PARKING	FROM ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))	TO ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))		YES	PUBLIC	4,653	AS	2
0916	6	2	101154		SUGAR RUN TURNAROUND	FROM ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))	TO ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))		YES	PUBLIC	5,559	AS	2
0917	6	2	101155		SUGAR RUN PICNIC AREA PARKING	FROM ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))	TO PARKING		YES	PUBLIC	17,060	AS	2
0918A	6	2	101156		WILDERNESS ROAD TRAILHEAD PARKING A	FROM ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)	TO ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)		YES	PUBLIC	15,637	AS	3
0918B	6	2	101157		WILDERNESS ROAD TRAILHEAD PARKING B	FROM ROUTE 0918A (WILDERNESS ROAD TRAILHEAD PARKING A)	TO ROUTE 0918A (WILDERNESS ROAD TRAILHEAD PARKING A)		NO	PUBLIC	8,206	GR	3
0919	6	2	101158		WILDERNESS ROAD CAMPGROUND DUMP STATION	ADJACENT TO ROUTE 0202ZZ (WILDERNESS ROAD CAMPGROUND)			YES	PUBLIC	8,987	AS	3
0920	6	2	101159		GROUP CAMPING PARKING	ADJACENT TO ROUTE 0202ZZ (WILDERNESS ROAD CAMPGROUND)			YES	PUBLIC	4,852	AS	3
0921	6	2	101160		AMPHITHEATER HANDICAPPED PARKING	ADJACENT TO ROUTE 0202ZZ (WILDERNESS ROAD CAMPGROUND)			YES	PUBLIC	1,238	AS	3
0922ZZ	6	2	101161		LEWIS HOLLOW PICNIC AREAS	ADJACENT TO ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)			YES	PUBLIC	10,738	AS	3
0923	6	2	101166		WILDERNESS ROAD CAMPGROUND REGISTRATION PARKING	ADJACENT TO ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)			YES	PUBLIC	2,076	AS	3

Report Date: 03/01/2022

Cycle 6 NPS / RIP Route ID Report

(Numerical By Summary Route and Subcomponent #)

Federal Lands Highway
Road Inventory Program

Shading Color Key

White = Paved Routes, DCV Driven	Grey = Paved Routes, DCV not Driven	Black = Non-NPS Routes	= Concession Route
Yellow = Unpaved Routes, DCV not Driven	Blue = Paved Parking Areas	Green = Unpaved Parking Areas	

DCV = Data Collection Vehicle
MRL = Manually Rated Line
MRP = Manually Rated Polygon
PKG = Parking Areas
NC = Not Collected

CUGA *Cumberland Gap National Historical Park*

PARKING AREA INVENTORY (1300 SERIES FMSS LOCATIONS)

Route No.	Cycle Collected	Iteration Collected	FMSS Number	Concession	Route Name	Route Description From	Route Description To	Maintenance District	FLTP	Access Level	Area (SQ FT)	Surf. Type	Area Map
0925	6	2	101389		IRON FURNACE PARKING LOT	FROM PENNLYN AVENUE	TO PENNLYN AVENUE		YES	PUBLIC	15,218	AS	2
0926	6	2	93433		DANIEL BOONE PARKING	FROM ROUTE 0103 (DANIEL BOONE (N CUMBERLAND DRIVE) PARKING ACCESS ROAD)	TO PARKING		YES	PUBLIC	54,489	AS	2
0927ZZ	6	2	240421		TWCP PARKING AREAS	FROM ROUTE 0203 (ENTRANCE ROAD AT TWCP)	TO PARKING		YES	PUBLIC	3,688	AS	4
0928	6	2	240416		DUPLEX PARKING	ADJACENT TO ROUTE 0421 (DUPLEX DRIVE)			NO	NONPUBLIC	1,569	CO	1
0929	6	2	240418		AMPHITHEATER BUS PARKING	FROM ROUTE 0202ZZ (WILDERNESS ROAD CAMPGROUND)	TO PARKING		YES	PUBLIC	1,503	AS	3
0930	6	2	252217		CHADWELL GAP TRAILHEAD PARKING LOT	FROM STATE HIGHWAY 688	TO PARKING		NO	PUBLIC	8,304	GR	KEY
0931	6	2	255797		TWCP UNPAVED PARKING	FROM ROUTE 0203 (ENTRANCE ROAD AT TWCP)	TO PARKING		NO	PUBLIC	7,935	GR	4

Report Date: 03/01/2022

Cycle 6 NPS / RIP Route ID Report

(Numerical By Summary Route and Subcomponent #)

Federal Lands Highway
Road Inventory Program

Shading Color Key

White = Paved Routes, DCV Driven	Grey = Paved Routes, DCV not Driven	Black = Non-NPS Routes
Yellow = Unpaved Routes, DCV not Driven	Blue = Paved Parking Areas	Green = Unpaved Parking Areas

= Concession Route

DCV = Data Collection Vehicle
MRL = Manually Rated Line
MRP = Manually Rated Polygon
PKG = Parking Areas
NC = Not Collected

Cycle 6 Summary Totals for Cumberland Gap National Historical Park

Cycle 6 Route Totals

	NPS Maintained	Concessionaire Maintained	Park Totals
Paved Roads, Data Collection Vehicle Rated (Miles)	11.26	0	**11.26**
Paved Roads, Manually Rated Length (Miles)	0.20	0	**0.20**
Paved Roads, Manually Rated Area (Sq. Ft.)	0	0	**0**
Unpaved Roads (Miles)	9.78	0	**9.78**
Paved Parking (Sq. Ft.)	435,763	0	**435,763**
Unpaved Parking (Sq. Ft.)	99,118	0	**99,118**

Cycle 6 Lane Miles and Overall Pavement Condition

	Lanes Miles*	Pavement Condition Rating**
Data Collection Vehicle Routes	22.01	85
Manually Rated Roads	0.23	86
Parking Areas	7.51	74

* Equivalent Lane Miles are calculated by route using the following equations:
- DCV and MRLs = (PAVE_WIDTH x PAVED_MI) / 11 foot lane
- MRPs and PKGs = SQ_FEET / 5280 / 11 foot lane

**Parking and Manually Rated Routes are assigned the following PCR values based on the type of observed distresses:
-Excellent = 97 -Good = 90 -Fair = 73
-Poor = 53, 30, or 0 -Construction / Not Rated = -1

Report Date: 03/01/2022

Cycle 6 NPS / RIP Route ID Report

(Numerical By Summary Route and Subcomponent #)

Federal Lands Highway
Road Inventory Program

Shading Color Key

White = Paved Routes, DCV Driven	Grey = Paved Routes, DCV not Driven	Black = Non-NPS Routes
Yellow = Unpaved Routes, DCV not Driven	Blue = Paved Parking Areas	Green = Unpaved Parking Areas

= Concession Route

DCV = Data Collection Vehicle
MRL = Manually Rated Line
MRP = Manually Rated Polygon
PKG = Parking Areas
NC = Not Collected

General Park Road Functional Classification (FC) Table

FC	Type	User Access	Description	Route Numbers
1	Principal Park Road Rural Parkway	Public	Roads which constitute the main access route, circulatory tour, or thoroughfare for park visitors. Rural Parkways (e.g. Natchez Trace) are numbered 0001 - 0009.	0001 - 0009 0010 - 0099
2	Connector Park Road	Public	Roads which provide access within a park to areas of scenic, scientific, recreational or cultural interest, such as overlooks, campgrounds, etc.	0100 - 0199
3	Special Purpose Park Road	Public	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.	0200 - 0299
4	Primitive Park Road	Public	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. Note: Functional Classes 3 and 4 have the same route numbers because, historically, they were numbered similarly.	0200 - 0299
5	Administrative Park Road	Public	All public roads intended for access to administrative developments or structures such as park offices, employee quarters, or utility areas.	0400 - 0499
6	Administrative Park Road (Restricted Access)	Nonpublic	All roads normally closed to the public, including patrol roads, truck trails, and other similar roads. 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.	0400 - 0499
7	Urban Parkway	Public	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.	0001 - 0009
8	City Street	Public	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.	0600 - 0699
N/A	Non-NPS Roads	Public	State, County, or City owned roads which border, traverse, or provide access to Park Facilities or Locations. Non-NPS roads are not assigned functional classes and are driven for GPS and Video Log only.	5000 - 5999

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

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 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.

Report Date: 03/01/2022

NPS / RIP Subcomponent Details for CUGA

(Numerical By Summary Route and Subcomponent #)

Federal Lands Highway
Road Inventory Program

Shading Color Key

White = Paved Routes, DCV Driven

Grey = Paved Routes, DCV not Driven

Black = Paved Routes, Non-NPS

= Concession Route

Yellow = Unpaved Routes, DCV not Driven

Blue = Paved Parking Areas

Green = Unpaved Parking Areas

DCV = Data Collection Vehicle
MRL = Manually Rated Line
MRP = Manually Rated Polygon
PKG = Parking Areas
NC = Not Collected

CUGA *Cumberland Gap National Historical Park*

SUMMARY ROUTE INVENTORY FOR ROADS (1100 SERIES FMSS LOCATIONS)

Route Number	FMSS Number	Cycle Collected	Iteration Collected	Concession	Route Name	Route Description From	Route Description To	FLTP	Paved Miles	Unpaved Miles	Total Mileage	Functional Class	Area (SQ FT)
0104ZZ	239274	6	2		CEMETERY ROAD	FROM END OF ROUTE 0012 (BARTLETT PARK ROAD)	TO CEMETERY	YES	0.08	0.37	0.45	3	
0202ZZ	100394	6	2		WILDERNESS ROAD CAMPGROUND	FROM END OF ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)	THROUGH CAMPGROUND	YES	1.74	0.00	1.74	3	
0422ZZ	38601				COLSON LANE	FROM U.S. HIGHWAY 58	TO END	NO	0.00	0.55	0.55	6	

SUMMARY ROUTE INVENTORY FOR PARKING AREAS (1300 SERIES FMSS LOCATIONS)

Route Number	FMSS Number	Cycle Collected	Iteration Collected	Concession	Route Name	Route Description From	Route Description To	FLTP	User Access	Area (SQ FT)
0905ZZ	100411	6	2		BARTLETT PARK PICNIC AREA PARKING	ADJACENT TO ROUTE 0012 (BARTLETT PARK ROAD)		YES	PUBLIC	11,400
0909ZZ	102574	NC			GYMNASIUM STORAGE AREA	FROM ROUTE 0012 (BARTLETT PARK ROAD)	TO PARKING	NO	NONPUBLIC	32,207
0922ZZ	101161	6	2		LEWIS HOLLOW PICNIC AREAS	ADJACENT TO ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)		YES	PUBLIC	10,738
0927ZZ	240421	6	2		TWCP PARKING AREAS	FROM ROUTE 0203 (ENTRANCE ROAD AT TWCP)	TO PARKING	YES	PUBLIC	3,688

NPS / RIP Subcomponent Details for CUGA

(Numerical By Summary Route and Subcomponent #)

Federal Lands Highway
Road Inventory Program

Shading Color Key

White = Paved Routes, DCV Driven	Grey = Paved Routes, DCV not Driven	Black = Paved Routes, Non-NPS
Yellow = Unpaved Routes, DCV not Driven	Blue = Paved Parking Areas	Green = Unpaved Parking Areas

■ = Concession Route

DCV = Data Collection Vehicle
MRL = Manually Rated Line
MRP = Manually Rated Polygon
PKG = Parking Areas
NC = Not Collected

CUGA *Cumberland Gap National Historical Park*

CUGA-0104ZZ Subcomponent Breakdown

Route Number	FMSS Number	Cycle Collected	Iteration Collected	Concession	Route Name	Route Description From	Route Description To	FLTP	Paved Miles	Unpaved Miles	Total Mileage	Functional Class	Area (SQ FT)
0104AZ	239274	6	2		CEMETERY ROAD UNPAVED	FROM END OF ROUTE 0012 (BARTLETT PARK ROAD)	TO BEGINING OF ROUTE 0104BZ (CEMETERY ROAD PAVED)	YES	0.00	0.37	0.37	3	
0104BZ	239274	6	2		CEMETERY ROAD PAVED	FROM END OF ROUTE 0104AZ (CEMETERY ROAD UNPAVED)	TO CEMETERY	YES	0.08	0.00	0.08	3	

CUGA-0202ZZ Subcomponent Breakdown

Route Number	FMSS Number	Cycle Collected	Iteration Collected	Concession	Route Name	Route Description From	Route Description To	FLTP	Paved Miles	Unpaved Miles	Total Mileage	Functional Class	Area (SQ FT)
0202AZ	100394	6	2		WILDERNESS ROAD CAMPGROUND LOOP A	FROM ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)	TO ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)	YES	0.09	0.00	0.09	3	
0202BZ	100394	6	2		WILDERNESS ROAD CAMPGROUND LOOP B	FROM ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)	TO ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)	YES	0.12	0.00	0.12	3	
0202CZ	100394	6	2		WILDERNESS ROAD CAMPGROUND LOOP C	FROM ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)	TO ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)	YES	0.18	0.00	0.18	3	
0202DZ	100394	6	2		WILDERNESS ROAD CAMPGROUND LOOP D	FROM ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)	TO ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)	YES	0.23	0.00	0.23	3	
0202EZ	100394	6	2		WILDERNESS ROAD CAMPGROUND LOOP E	FROM ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)	TO ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)	YES	0.19	0.00	0.19	3	
0202FZ	100394	6	2		WILDERNESS ROAD CAMPGROUND LOOP F	FROM ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)	TO ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)	YES	0.14	0.00	0.14	3	
0202GZ	100394	6	2		WILDERNESS ROAD CAMPGROUND LOOP G	FROM END OF ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)	TO END OF LOOP	YES	0.79	0.00	0.79	3	

Report Date: 03/01/2022

NPS / RIP Subcomponent Details for CUGA

(Numerical By Summary Route and Subcomponent #)

Federal Lands Highway
Road Inventory Program

Shading Color Key

White = Paved Routes, DCV Driven

Grey = Paved Routes, DCV not Driven

Black = Paved Routes, Non-NPS

= Concession Route

Yellow = Unpaved Routes, DCV not Driven

Blue = Paved Parking Areas

Green = Unpaved Parking Areas

DCV = Data Collection Vehicle
MRL = Manually Rated Line
MRP = Manually Rated Polygon
PKG = Parking Areas
NC = Not Collected

CUGA *Cumberland Gap National Historical Park*

CUGA-0422ZZ Subcomponent Breakdown

Route Number	FMSS Number	Cycle Collected	Iteration Collected	Concession	Route Name	Route Description From	Route Description To	FLTP	Paved Miles	Unpaved Miles	Total Mileage	Functional Class	Area (SQ FT)
0422AZ	38601				COLSON LANE A	FROM U.S. HIGHWAY 58	TO END	NO	0.00	0.43	0.43	6	
0422BZ	38601				COLSON LANE B	FROM ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)	TO ROUTE 0422AZ (COLSON LANE A)	NO	0.00	0.13	0.13	6	

CUGA-0905ZZ Subcomponent Breakdown

Route Number	FMSS Number	Cycle Collected	Iteration Collected	Concession	Route Name	Route Description From	Route Description To	FLTP	User Access	Area (SQ FT)
0905AZ	100411	6	2		BARTLETT PARK PICNIC AREA PARKING A	ADJACENT TO ROUTE 0012 (BARTLETT PARK ROAD)		YES	PUBLIC	2,005
0905BZ	100411	6	2		BARTLETT PARK PICNIC AREA PARKING B	FROM ROUTE 0012 (BARTLETT PARK ROAD)	TO PARKING	YES	PUBLIC	8,250
0905CZ	100411	6	2		BARTLETT PARK PICNIC AREA PARKING C	ADJACENT TO ROUTE 0012 (BARTLETT PARK ROAD)		YES	PUBLIC	1,145

CUGA-0909ZZ Subcomponent Breakdown

Route Number	FMSS Number	Cycle Collected	Iteration Collected	Concession	Route Name	Route Description From	Route Description To	FLTP	User Access	Area (SQ FT)
0909AZ	102574	NC			GYMNASIUM STORAGE AREA A	FROM ROUTE 0012 (BARTLETT PARK ROAD)	TO PARKING	NO	NONPUBLIC	18,082
0909BZ	102574	NC			GYMNASIUM STORAGE AREA B	FROM ROUTE 0012 (BARTLETT PARK ROAD)	TO PARKING	NO	NONPUBLIC	14,125

Report Date: 03/01/2022

NPS / RIP Subcomponent Details for CUGA

(Numerical By Summary Route and Subcomponent #)

Federal Lands Highway
Road Inventory Program

Shading Color Key

White = Paved Routes, DCV Driven	Grey = Paved Routes, DCV not Driven	Black = Paved Routes, Non-NPS
Yellow = Unpaved Routes, DCV not Driven	Blue = Paved Parking Areas	Green = Unpaved Parking Areas

■ = Concession Route

DCV = Data Collection Vehicle
MRL = Manually Rated Line
MRP = Manually Rated Polygon
PKG = Parking Areas
NC = Not Collected

CUGA *Cumberland Gap National Historical Park*

CUGA-0922ZZ Subcomponent Breakdown

Route Number	FMSS Number	Cycle Collected	Iteration Collected	Concession	Route Name	Route Description From	Route Description To	FLTP	User Access	Area (SQ FT)
0922AZ	101161	6	2		LEWIS HOLLOW PICNIC AREA PARKING A	ADJACENT TO ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)		YES	PUBLIC	2,654
0922BZ	101161	6	2		LEWIS HOLLOW PICNIC AREA PARKING B	ADJACENT TO ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)		YES	PUBLIC	2,130
0922CZ	101161	6	2		LEWIS HOLLOW PICNIC AREA PARKING C	ADJACENT TO ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)		YES	PUBLIC	1,814
0922DZ	101161	6	2		LEWIS HOLLOW PICNIC AREA PARKING D	ADJACENT TO ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)		YES	PUBLIC	2,145
0922EZ	101161	6	2		LEWIS HOLLOW PICNIC AREA PARKING E	ADJACENT TO ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)		YES	PUBLIC	1,995

CUGA-0927ZZ Subcomponent Breakdown

Route Number	FMSS Number	Cycle Collected	Iteration Collected	Concession	Route Name	Route Description From	Route Description To	FLTP	User Access	Area (SQ FT)
0927AZ	240421	6	2		TWCP PARKING A	FROM END OF ROUTE 0203 (ENTRANCE ROAD AT TWCP)	TO PARKING	YES	PUBLIC	1,866
0927BZ	240421	6	2		TWCP PARKING B	ADJACENT TO ROUTE 0203 (ENTRANCE ROAD AT TWCP)		YES	PUBLIC	1,822

Route Identification Changes from Previous Cycle
Cumberland Gap National Historical Park

ROUTES REMOVED FROM PREVIOUS INVENTORY:			
Route No.	**Route Name**	**Type of Change**	**Comments**
0423	CUPP CABIN ROAD	OTHER	UNPAVED ROAD REMOVED IN CYCLE 6 BECAUSE IT IS A TRAIL, NOT A ROAD.

ROUTES ADDED FROM PREVIOUS INVENTORY:			
Route No.	**Route Name**	**Type of Change**	**Comments**
0425	MEAT PACKING PLANT ROAD	OTHER	UNPAVED ROAD ADDED IN CYCLE 6.
0426	HENSLEY MAINTENANCE RD	OTHER	UNPAVED ROAD ADDED IN CYCLE 6.
0930	CHADWELL GAP TRAILHEAD PARKING LOT	OTHER	UNPAVED PARKING ADDED IN CYCLE 6.
0931	TWCP UNPAVED PARKING	OTHER	UNPAVED PARKING ADDED IN CYCLE 6.

ROUTES MODIFIED FROM PREVIOUS INVENTORY:			
Route No.	**Route Name**	**Type of Change**	**Comments**
0104ZZ	CEMETERY ROAD	ROUTES COMBINED	FORMER ROUTE 0104 CHANGED TO 0104BZ AND COMBINED WITH AN UNPAVED ROAD (0104AZ). FUNCTIONAL CLASS CHANGED FROM 1 TO 3.
0200	LEWIS HOLLOW PICNIC AREA ROAD	ROUTE NAME	ROUTE NAME CHANGED FROM "WILDERNESS ROAD PICNIC AREA".
0204	SHILLALAH CREEK ROAD	FUNCTIONAL CLASS CHANGE	FUNCTIONAL CLASS CHANGED FROM 4 TO 6.
0901A	RANGER STATION GOVERNMENT PARKING A	ROUTE NAME	ROUTE NAME CHANGED FROM "RANGER STATION EMPLOYEE PARKING A".
0901B	RANGER STATION GOVERNMENT PARKING B	ROUTE NAME	ROUTE NAME CHANGED FROM "RANGER STATION EMPLOYEE PARKING B".
0904	HEADQUARTERS PARKING B	ROUTE NAME	ROUTE NAME CHANGED FROM "HEADQUARTERS EMPLOYEE PARKING".
0908A	FACILITY MANAGEMENT EMPLOYEE PARKING	ROUTE NAME	ROUTE NAME CHANGED FROM "RESOURCE MANAGEMENT PARKING A".
0912	MIDWAY PARKING	SQ FEET CHANGE	IMPROVED GPS AND SQUARE FOOTAGE COLLECTED IN CYCLE 6.

Route Identification Changes from Previous Cycle
Cumberland Gap National Historical Park

ROUTES MODIFIED FROM PREVIOUS INVENTORY:			
Route No.	**Route Name**	**Type of Change**	**Comments**
0913	PINNACLE PARKING	SQ FEET CHANGE	IMPROVED GPS AND SQUARE FOOTAGE COLLECTED IN CYCLE 6.
0922ZZ	LEWIS HOLLOW PICNIC AREAS	ROUTE NAME	ROUTE NAME CHANGED FROM "WILDERNESS ROAD PICNIC AREAS".
0923	WILDERNESS ROAD CAMPGROUND REGISTRATION PARKING	SQ FEET CHANGE	IMPROVED GPS AND SQUARE FOOTAGE COLLECTED IN CYCLE 6.
0927ZZ	TWCP PARKING AREAS	SQ FEET CHANGE	IMPROVED GPS AND SQUARE FOOTAGE COLLECTED IN CYCLE 6.

Section 3
Park Summary Information

Cumberland Gap National Historical Park

Federal Lands Highway
Road Inventory Program

Parkwide Paved Route Condition Summary
Cumberland Gap National Historical Park

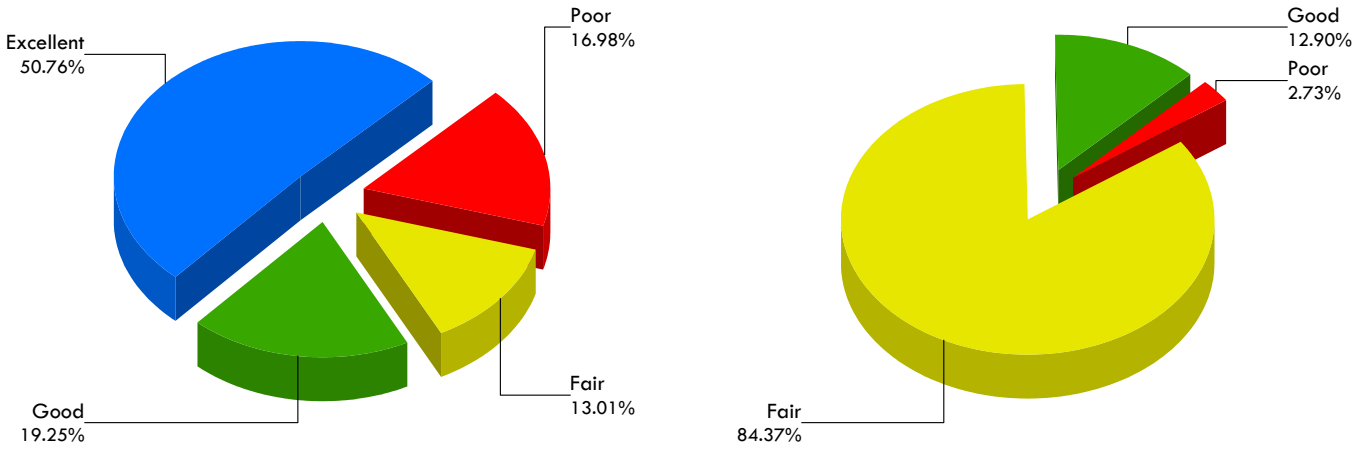
Table 1: Paved Route Miles and Parking Area Square Footages by Access Level and PCR

Breakdown of Pavement Condition Rating (PCR) Based on Access Level

	POOR (PCR of 0 - 60)	FAIR (PCR of 61 - 84)	GOOD (PCR of 85 - 94)	EXCELLENT (PCR of 95 -100)	
PAVED ROADS					
Functional Class	**Length (miles)**	**Length (miles)**	**Length (miles)**	**Length (miles)**	**Total Mileage by FC**
1	1.79	1.28	1.65	3.22	7.94
2		0.04	0.12	0.64	0.80
3	0.14	0.17	0.39	1.88	2.58
4					
5	0.02		0.05	0.04	0.11
6				0.04	0.04
7					
8					
Total Mileage by PCR	**1.95**	**1.49**	**2.21**	**5.82**	**11.46**
PAVED PARKING					
Access Level	**Area (sq. ft.)**	**Area (sq. ft.)**	**Area (sq. ft.)**	**Area (sq. ft.)**	**Total Area**
PUBLIC		344,699	32,186		376,885
NONPUBLIC	11,916	22,945	24,017		58,878
Total Area by PCR	**11,916**	**367,644**	**56,203**	**0**	**435,763**

NOTES:
1. Data are reported in the table only for paved roads and parking lots that received a condition rating.
2. Non-linear roads (MRP collected routes) are measured by area and converted to equivalent route miles based on a 22-ft pavement width in order to be included in the mileage totals for paved roads shown above.
3. Quantities in the table above are derived from the route condition data within the PMS_20, PMS_MRL, PMS_MRP, and PMS_PKG tables in the Park geodatabase.

Parkwide Condition Percentages



Road Condition Percentages **Parking Area Condition Percentages**

Figure 1: Pavement Condition Rating Breakdown for Paved Roads and Parking Areas

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

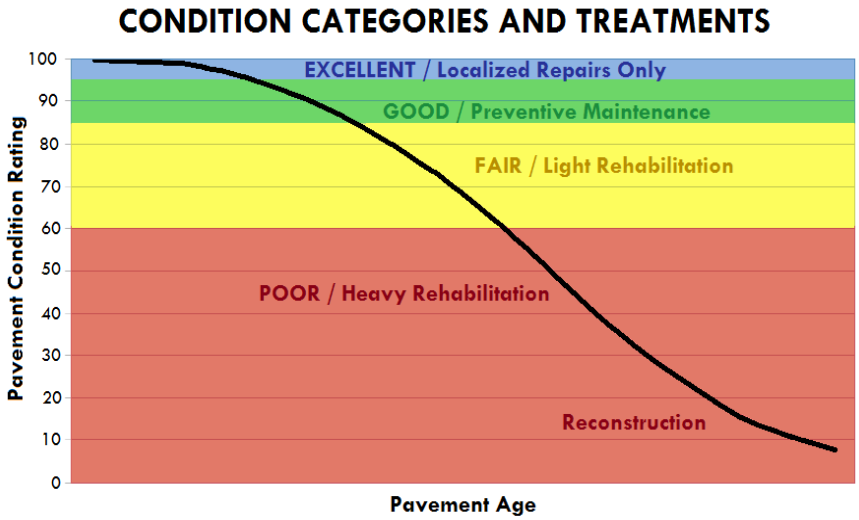
The Road Inventory Program aims to provide assistance in translating the excellent / good / fair / poor rating categories into pavement needs categories. The PCR can be used to indicate the place in the Pavement Life Cycle and the type of treatments that should be considered now and into the future.

- 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 singlelift 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 at the time in which the data were 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.

Federal Lands Highway
Road Inventory Program

Cycle 6 - Road Inventory Program
Road Condition Summary Report for Data Collection Vehicle (DCV) Rated Roads
Cumberland Gap National Historical Park

Condition (Rating / Index) Legend

- EXCELLENT (95 - 100)
- GOOD (85 - 94)
- FAIR (61 - 84)
- POOR (0 - 60)
- NR = NOT RATED

Notes:

- This condition summary report contains only the roads rated with the Data Collection Vehicle (DCV).
- Condition on roads that were manually rated and parking areas are shown in separate reports.
- Route-level scores shown on this page may not represent scores at smaller intervals (due to rollup calculations).
- Additional details on individual road ratings at 0.10-mile and 1-mile intervals can be found in Section 5 of the Cycle 6 RIP Report.
- Refer to the RIP Report Appendix for an explanation of the rating system and rating methods.

Route-Level Condition for Roads Rated with the Data Collection Vehicle (DCV)

Route No.	FMSS No.	Route Name	Functional Class	Surf. Type	Paved Length (Miles)	Pavement Condition Rating (PCR)	Roughness Condition Index (RCI)	Surface Condition Rating (SCR)	Structural Crack Index	Alligator Crack Index	Longitudinal Cracking Index	Transverse Cracking Index	Patch / Pothole Index	Rutting Index
CUGA-0010	38600	PINNACLE ROAD	1	AS	3.99	96	95	96	97	100	97	100	100	96
CUGA-0012	38590	BARTLETT PARK ROAD	1	AS	0.49	94	NR	94	94	100	94	100	99	96
CUGA-0013	101467	U.S. HIGHWAY 25E SOUTHBOUND ACCESS ROAD	1	AS	0.33	98	NR	98	99	100	99	98	100	99
CUGA-0100	38592	HIGHWAY 988 (SUGAR RUN ROAD)	1	AS	2.77	59	64	55	55	100	55	96	95	87
CUGA-0103	225928	DANIEL BOONE (N CUMBERLAND DRIVE) PARKING ACCESS ROAD	1	AS	0.36	57	NR	57	57	100	57	87	95	97
CUGA-0105	38593	WILDERNESS ROAD CAMPGROUND ACCESS ROAD	2	AS	0.80	98	100	97	97	100	97	100	100	100
CUGA-0200	38591	LEWIS HOLLOW PICNIC AREA ROAD	3	AS	0.49	98	NR	98	99	100	99	100	100	98
CUGA-0202AZ	100394	WILDERNESS ROAD CAMPGROUND LOOP A	3	AS	0.09	99	NR	99	99	100	99	100	100	100
CUGA-0202BZ	100394	WILDERNESS ROAD CAMPGROUND LOOP B	3	AS	0.12	99	NR	99	100	100	100	100	100	99
CUGA-0202CZ	100394	WILDERNESS ROAD CAMPGROUND LOOP C	3	AS	0.18	98	NR	98	98	99	99	100	100	99
CUGA-0202DZ	100394	WILDERNESS ROAD CAMPGROUND LOOP D	3	AS	0.23	100	NR	100	100	100	100	100	100	100
CUGA-0202EZ	100394	WILDERNESS ROAD CAMPGROUND LOOP E	3	AS	0.19	99	NR	99	99	100	99	100	100	100
CUGA-0202FZ	100394	WILDERNESS ROAD CAMPGROUND LOOP F	3	AS	0.14	99	NR	99	100	100	100	100	100	99
CUGA-0202GZ	100394	WILDERNESS ROAD CAMPGROUND LOOP G	3	AS	0.79	97	NR	97	97	100	97	100	100	100
CUGA-0203	99965	ENTRANCE ROAD AT TWCP	3	AS	0.19	42	NR	42	42	71	71	89	100	78
CUGA-0421	100403	DUPLEX DRIVE	5	AS	0.11	88	NR	88	88	100	88	99	100	97

Data Collection Date: 07/2021

Federal Lands Highway
Road Inventory Program

Cycle 6 - Road Inventory Program
Road Condition Summary Report for Manually Rated Roads

Cumberland Gap National Historical Park

Condition (Rating / Index) Legend

- EXCELLENT (95 - 100)
- GOOD (85 - 94)
- FAIR (61 - 84)
- POOR (0 - 60)
- NR = NOT RATED

Notes:

- This condition summary report contains only the roads that were manually rated.
  - MRL: Manually Rated Line (a linear road)
  - MRP: Manually Rated Polygon (a non-linear road)
- Condition on roads that were rated with the Data Collection Vehicle (DCV) are shown in a separate report.
- A road is manually rated when it is determined to be unsuitable for the DCV to drive.
- Additional details on individual road ratings at 0.10-mile and 1-mile intervals can be found in Section 5 of the Cycle 6 RIP Report.
- Refer to the RIP Report Appendix for an explanation of the rating system and rating methods.

Route-Level Condition for Manually Rated Line (MRL) Roads

Route No.	FMSS No.	Route Name	Functional Class	Surf. Type	Paved Length (Miles)	Pavement Condition Rating (PCR)	Roughness Condition Index (RCI)	Surface Condition Rating (SCR)	Structural Crack Index	Alligator Crack Index	Longitudinal Cracking Index	Transverse Cracking Index	Patch / Pothole Index	Rutting Index
CUGA-0102	102565	LITTLE YELLOW CREEK ROAD	3	AS	0.07	90	NR	90	NR	90	90	90	90	97
CUGA-0104BZ	239274	CEMETERY ROAD PAVED	3	AS	0.08	72	NR	72	72	72	100	100	100	95
CUGA-0403	102573	PUMP HOUSE SERVICE ROAD	6	AS	0.04	97	NR	97	NR	97	97	97	97	97

Data Collection Date: 04/2021

Federal Lands Highway
Road Inventory Program

Cycle 6 - Road Inventory Program

Parking Area Condition Summary Report

Cumberland Gap National Historical Park

Condition (Rating / Index) Legend

- EXCELLENT (97)
- GOOD (90)
- FAIR (73)
- POOR* (0, 30, 53)
- NR = NOT RATED

Notes:

- A PCR of 0 indicates a paved parking area in very poor condition. Individual distresses could not be identified.
- Additional details on individual parking areas can be found in Section 6 of the Cycle 6 RIP Report.
- Refer to the RIP Report Appendix for an explanation of the rating system and rating methods.

Condition Rating Details for Paved Parking Areas

Route No.	FMSS No.	Route Name	User Access	Surf. Type	Area (Sq. Ft.)	Pavement Condition Rating (PCR)	Asphalt Surface Distresses: Alligator Cracking	Asphalt Surface Distresses: Longitudinal / Tranverse Cracking	Asphalt Surface Distresses: Rutting / Distortions	Asphalt Surface Distresses: Potholes / Patching	Asphalt Surface Distresses: HMA Patching	Asphalt Surface Distresses: Surface Raveling / Bleeding	Concrete Surface Distresses: Joint Faulting	Concrete Surface Distresses: Slab Cracking	Concrete Surface Distresses: Joint Distresses	Concrete Surface Distresses: Delamination / Pop-Outs	Concrete Surface Distresses: Potholes / Patching
CUGA-0900	100247	VISITOR CENTER PARKING	PUBLIC	AS	94,302	73	90	90	97	90	97	73					
CUGA-0901A	100406	RANGER STATION GOVERNMENT PARKING A	NONPUBLIC	AS	4,935	73	90	90	97	97	90	73					
CUGA-0901B	100407	RANGER STATION GOVERNMENT PARKING B	NONPUBLIC	AS	10,924	73	90	90	97	97	97	73					
CUGA-0902	100408	VIP CAMPSITE PARKING	NONPUBLIC	AS	1,893	73	90	90	97	97	97	73					
CUGA-0903	100409	HEADQUARTERS PARKING A	PUBLIC	AS	11,577	73	90	90	97	97	90	73					
CUGA-0904	100410	HEADQUARTERS PARKING B	PUBLIC	AS	10,033	73	90	90	97	97	97	73					
CUGA-0905AZ	100411	BARTLETT PARK PICNIC AREA PARKING A	PUBLIC	AS	2,005	73	90	90	97	97	97	73					
CUGA-0905BZ	100411	BARTLETT PARK PICNIC AREA PARKING B	PUBLIC	AS	8,250	73	90	90	97	97	97	73					
CUGA-0905CZ	100411	BARTLETT PARK PICNIC AREA PARKING C	PUBLIC	AS	1,145	73	97	90	97	97	97	73					
CUGA-0906	100414	HEADQUARTERS HANDICAPPED PARKING	PUBLIC	AS	970	90	97	90	97	97	97	90					
CUGA-0907A	100416	MAINTENANCE AREA A	NONPUBLIC	AS	22,448	90	90	90	97	90	97	90					
CUGA-0907B	100576	MAINTENANCE AREA B	NONPUBLIC	AS	11,916	30	97	97	30	53	97	73					
CUGA-0908A	100578	FACILITY MANAGEMENT EMPLOYEE PARKING	NONPUBLIC	AS	3,539	73	97	90	97	97	97	73					
CUGA-0908B	100592	RESOURCE MANAGEMENT PARKING	NONPUBLIC	AS	1,654	73	97	90	97	97	97	73					
CUGA-0911	100593	FORT MCCOOK PARKING	PUBLIC	AS	3,732	73	97	90	97	97	97	73					
CUGA-0912	101151	MIDWAY PARKING	PUBLIC	AS	6,056	73	97	90	97	97	97	73					
CUGA-0913	101152	PINNACLE PARKING	PUBLIC	AS	41,735	73	90	90	97	97	97	73					
CUGA-0914	93475	THOMAS WALKER PARKING	PUBLIC	AS	51,382	73	97	90	97	97	97	73					
CUGA-0915	101153	DARK RIDGE OVERLOOK PARKING	PUBLIC	AS	4,653	73	97	90	97	97	97	73					
CUGA-0916	101154	SUGAR RUN TURNAROUND	PUBLIC	AS	5,559	73	97	90	97	97	97	73					
CUGA-0917	101155	SUGAR RUN PICNIC AREA PARKING	PUBLIC	AS	17,060	73	90	90	97	97	97	73					
CUGA-0918A	101156	WILDERNESS ROAD TRAILHEAD PARKING A	PUBLIC	AS	15,637	73	97	90	97	97	97	73					
CUGA-0919	101158	WILDERNESS ROAD CAMPGROUND DUMP STATION	PUBLIC	AS	8,987	90	97	97	97	97	97	90					
CUGA-0920	101159	GROUP CAMPING PARKING	PUBLIC	AS	4,852	90	97	97	97	97	97	90					
CUGA-0921	101160	AMPHITHEATER HANDICAPPED PARKING	PUBLIC	AS	1,238	90	97	97	97	97	97	90					
CUGA-0922AZ	101161	LEWIS HOLLOW PICNIC AREA PARKING A	PUBLIC	AS	2,654	90	97	97	97	97	97	90					

Data Collection Date: 04/2021

Federal Lands Highway
Road Inventory Program

Cycle 6 - Road Inventory Program

Parking Area Condition Summary Report

Cumberland Gap National Historical Park

Condition (Rating / Index) Legend

- EXCELLENT (97)
- GOOD (90)
- FAIR (73)
- POOR* (0, 30, 53)
- NR = NOT RATED

Notes:

- A PCR of 0 indicates a paved parking area in very poor condition. Individual distresses could not be identified.
- Additional details on individual parking areas can be found in Section 6 of the Cycle 6 RIP Report.
- Refer to the RIP Report Appendix for an explanation of the rating system and rating methods.

Condition Rating Details for Paved Parking Areas

Route No.	FMSS No.	Route Name	User Access	Surf. Type	Area (Sq. Ft.)	Pavement Condition Rating (PCR)	Asphalt Surface Distresses						Concrete Surface Distresses				
							Alligator Cracking	Longitudinal / Tranverse Cracking	Rutting / Distortions	Potholes / Patching	HMA Patching	Surface Raveling / Bleeding	Joint Faulting	Slab Cracking	Joint Distresses	Delamination / Pop-Outs	Potholes / Patching
CUGA-0922BZ	101161	LEWIS HOLLOW PICNIC AREA PARKING B	PUBLIC	AS	2,130	90	97	97	97	97	97	90					
CUGA-0922CZ	101161	LEWIS HOLLOW PICNIC AREA PARKING C	PUBLIC	AS	1,814	90	97	97	97	97	97	90					
CUGA-0922DZ	101161	LEWIS HOLLOW PICNIC AREA PARKING D	PUBLIC	AS	2,145	90	97	97	97	97	97	90					
CUGA-0922EZ	101161	LEWIS HOLLOW PICNIC AREA PARKING E	PUBLIC	AS	1,995	90	97	97	97	97	97	90					
CUGA-0923	101166	WILDERNESS ROAD CAMPGROUND REGISTRATION PARKING	PUBLIC	AS	2,076	90	97	97	90	97	97	90					
CUGA-0925	101389	IRON FURNACE PARKING LOT	PUBLIC	AS	15,218	73	97	90	97	97	97	73					
CUGA-0926	93433	DANIEL BOONE PARKING	PUBLIC	AS	54,489	73	90	90	97	90	97	73					
CUGA-0927AZ	240421	TWCP PARKING A	PUBLIC	AS	1,866	73	97	97	97	90	97	73					
CUGA-0927BZ	240421	TWCP PARKING B	PUBLIC	AS	1,822	90	90	90	97	97	97	90					
CUGA-0928	240416	DUPLEX PARKING	NONPUBLIC	CO	1,569	90							97	97	97	90	97
CUGA-0929	240418	AMPHITHEATER BUS PARKING	PUBLIC	AS	1,503	90	97	97	97	97	97	90					

Data Collection Date: 04/2021

Section 4
Park Route Location Maps

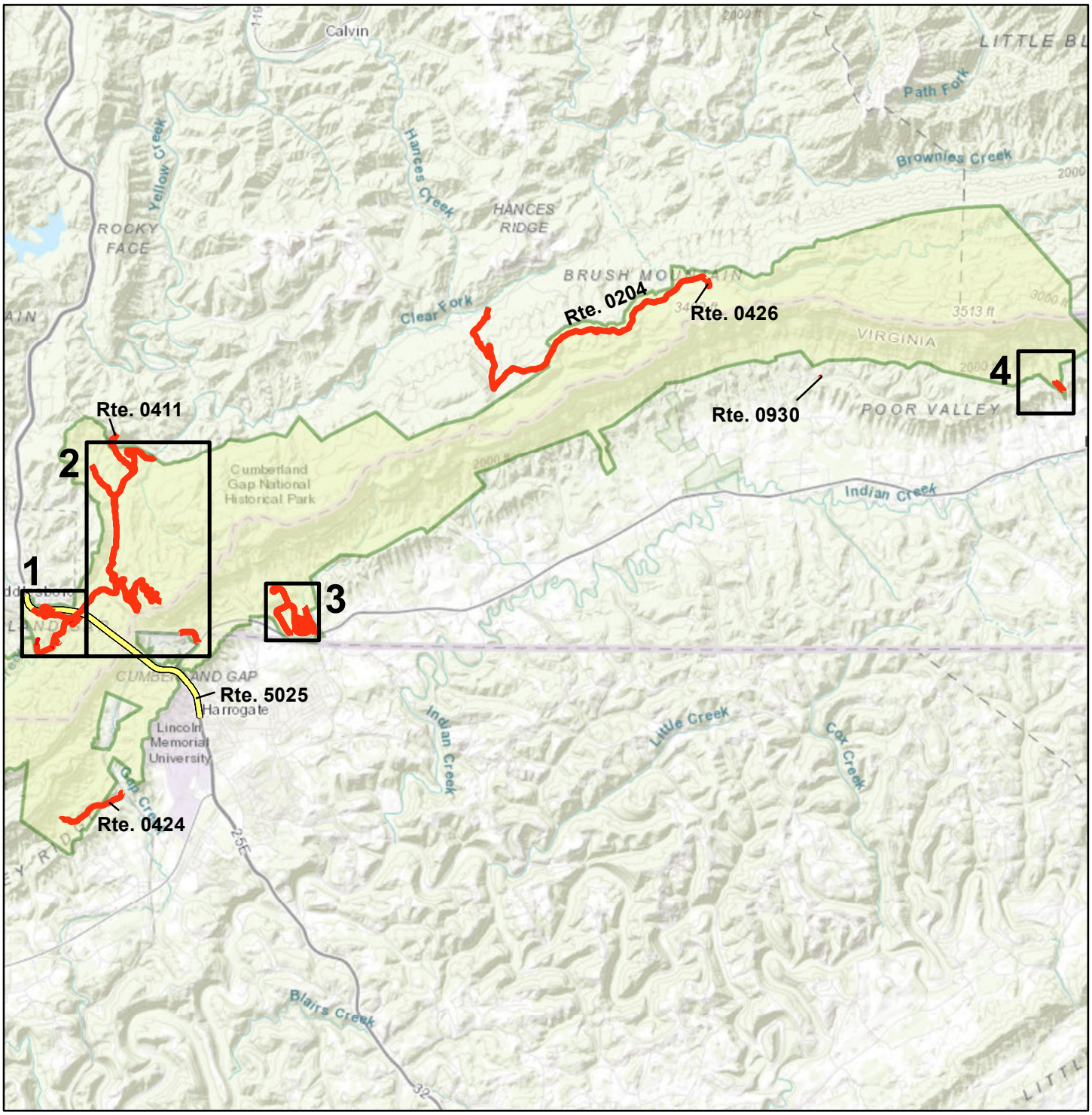
Cumberland Gap National Historical Park

Federal Lands Highway
Road Inventory Program

Cumberland Gap National Historical Park

ROUTE LOCATION MAP

Key Map



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

NPS Collected Routes

Non-NPS Collected Routes

Miles

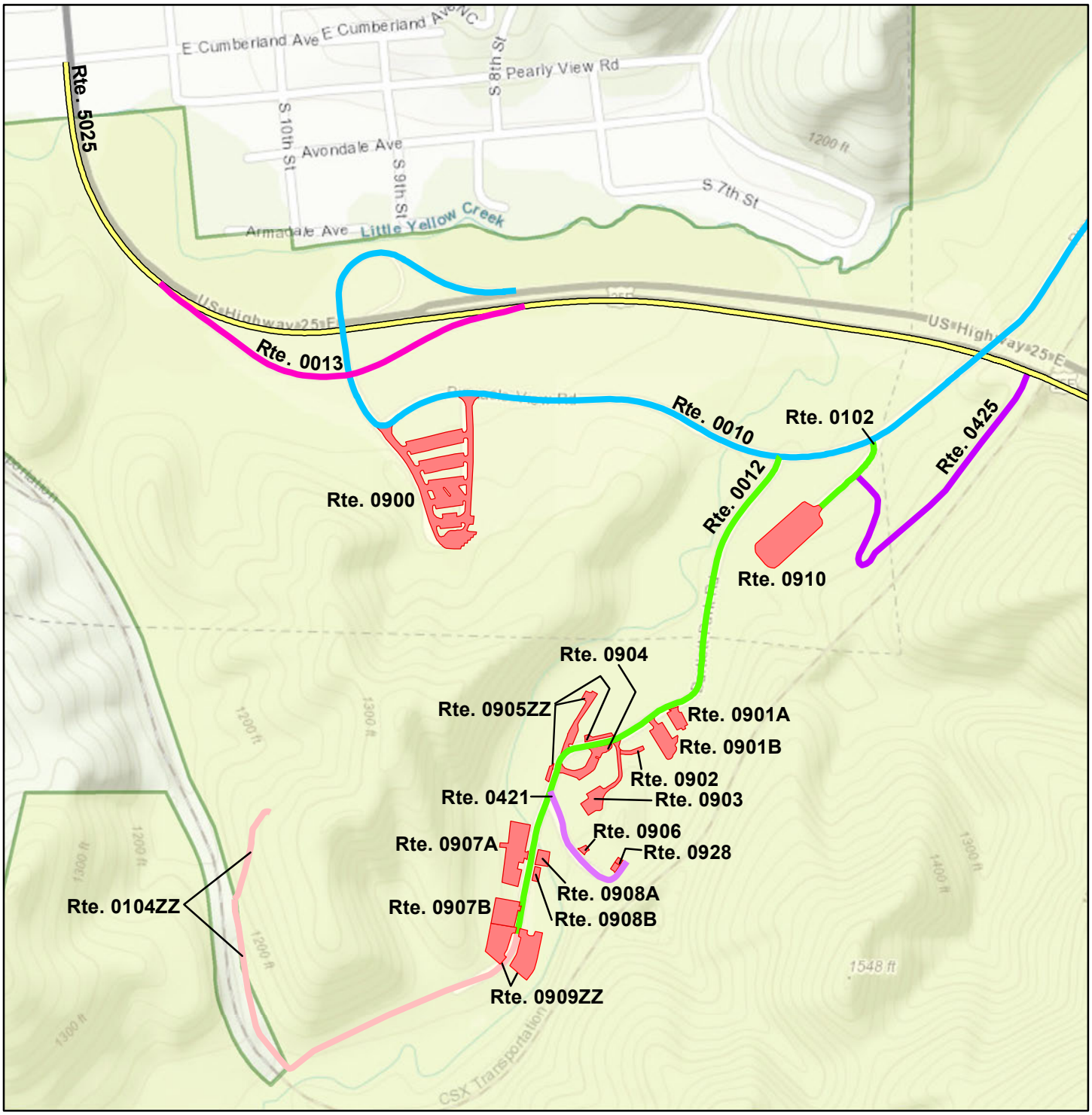
0 4 8

N

Cumberland Gap National Historical Park

ROUTE LOCATION MAP

Area Map 1



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Note: Unique colors are used to differentiate roads

Non-NPS Collected Routes

Miles

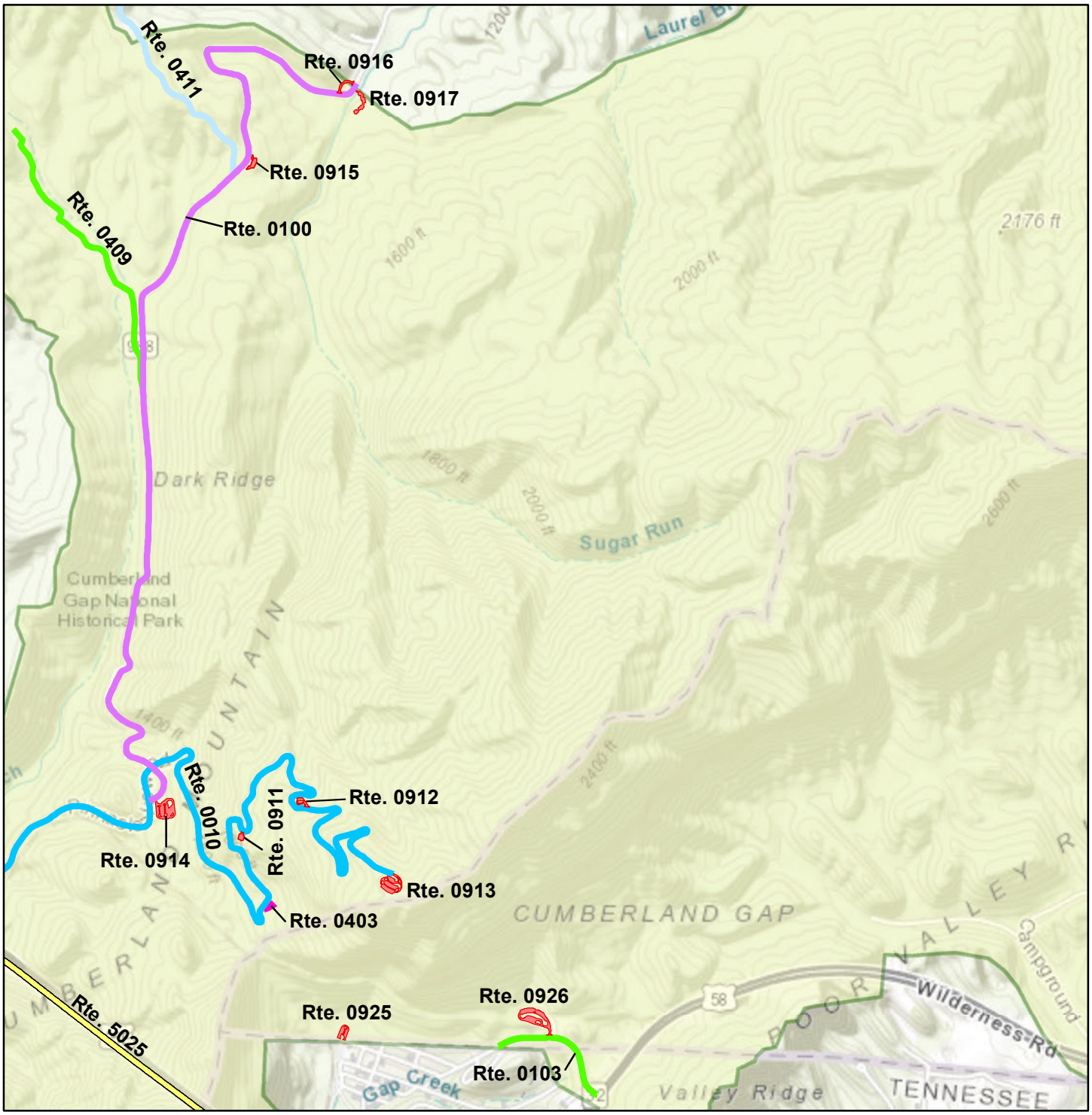
0 0.2 0.4

N

Cumberland Gap National Historical Park

ROUTE LOCATION MAP

Area Map 2



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Note: Unique colors are used to differentiate roads

Non-NPS Collected Routes

Miles

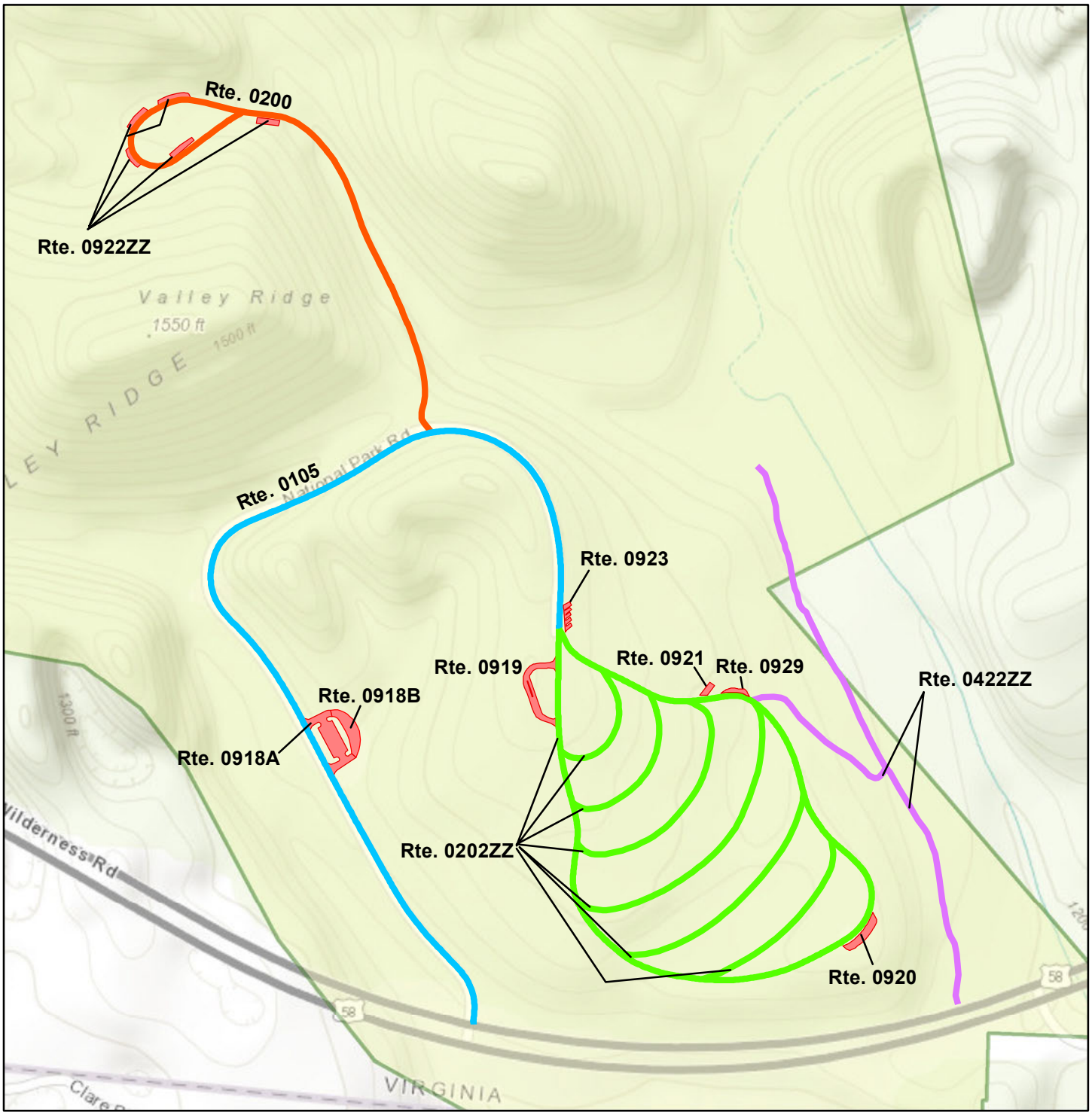
0 0.5 1

N

Cumberland Gap National Historical Park

ROUTE LOCATION MAP

Area Map 3



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Note: Unique colors are used to differentiate roads

Non-NPS Collected Routes

Miles

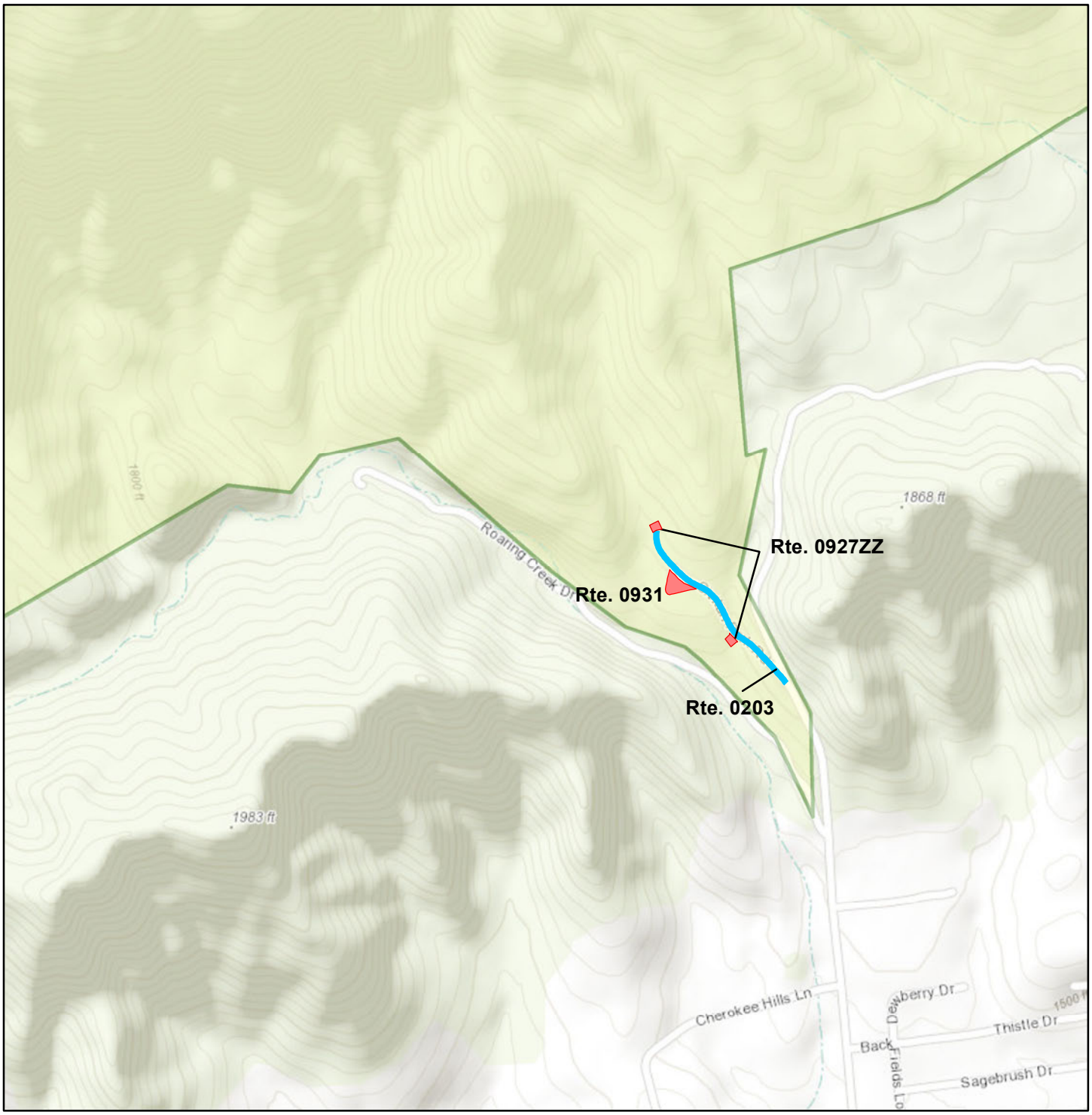
0 0.1 0.2

N

Cumberland Gap National Historical Park

ROUTE LOCATION MAP

Area Map 4



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Note: Unique colors are used to differentiate roads

Non-NPS Collected Routes

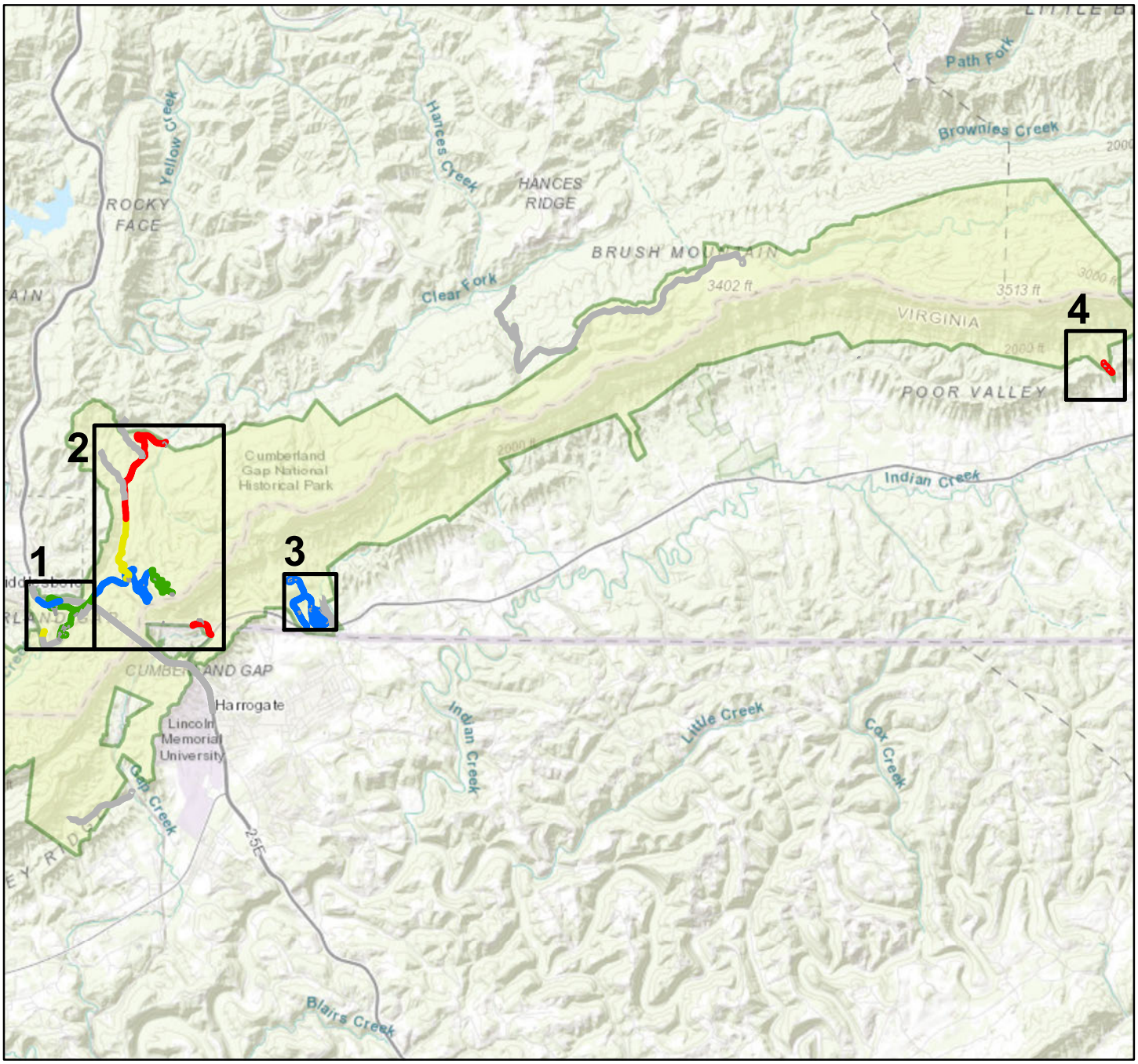
Miles

0 0.2 0.4

N

Cumberland Gap National Historical Park

ROUTE CONDITION MAP
PCR - MILE BY MILE
Key Map



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

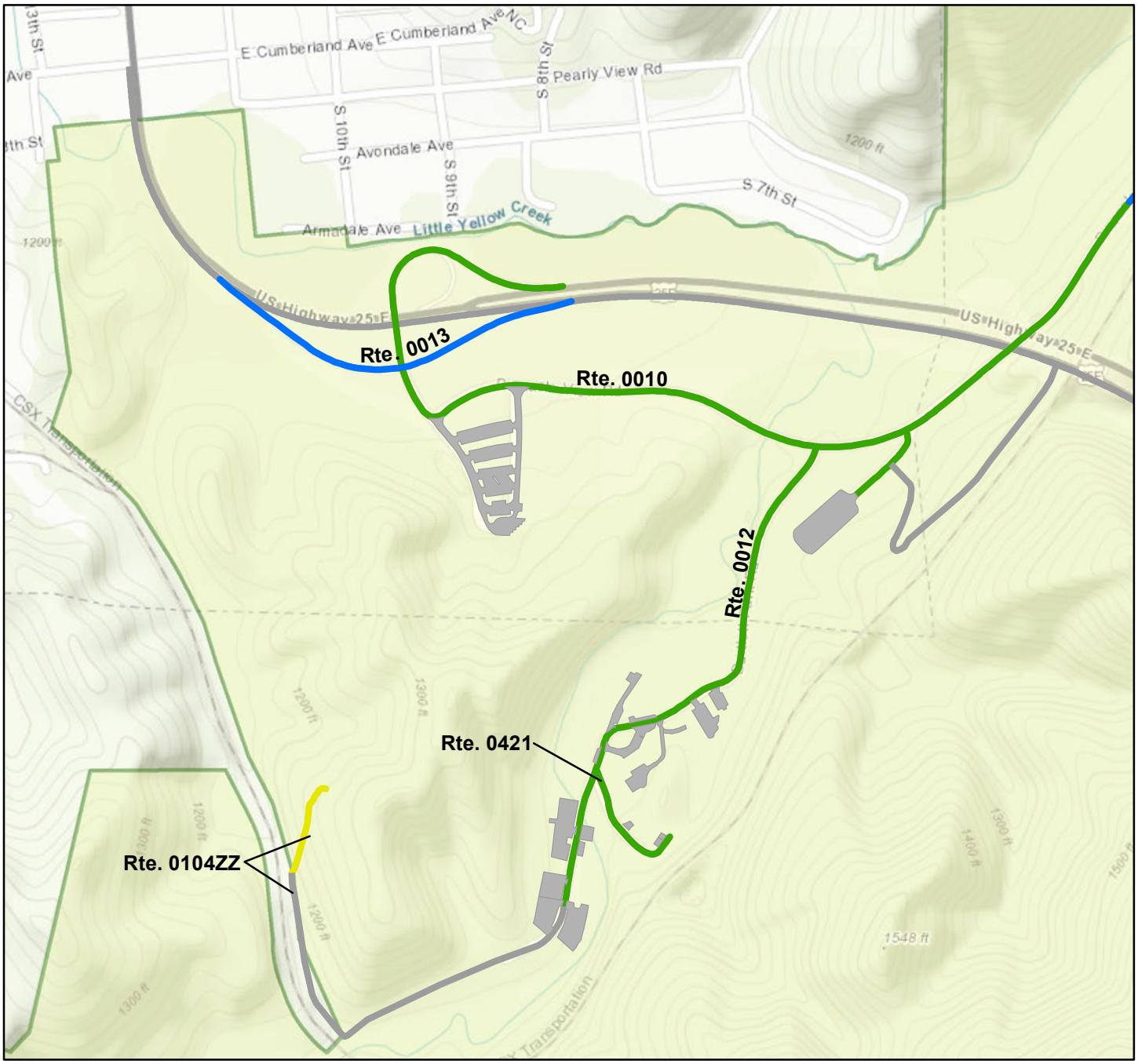
Colors on map represent condition scores at 1-mile intervals. See Appendix for definitions and formulas
Only Data Collection Vehicle and Manually Rated Roads are displayed

Miles
0 4 8

N

Cumberland Gap National Historical Park

ROUTE CONDITION MAP
PCR - MILE BY MILE
Area Map 1



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

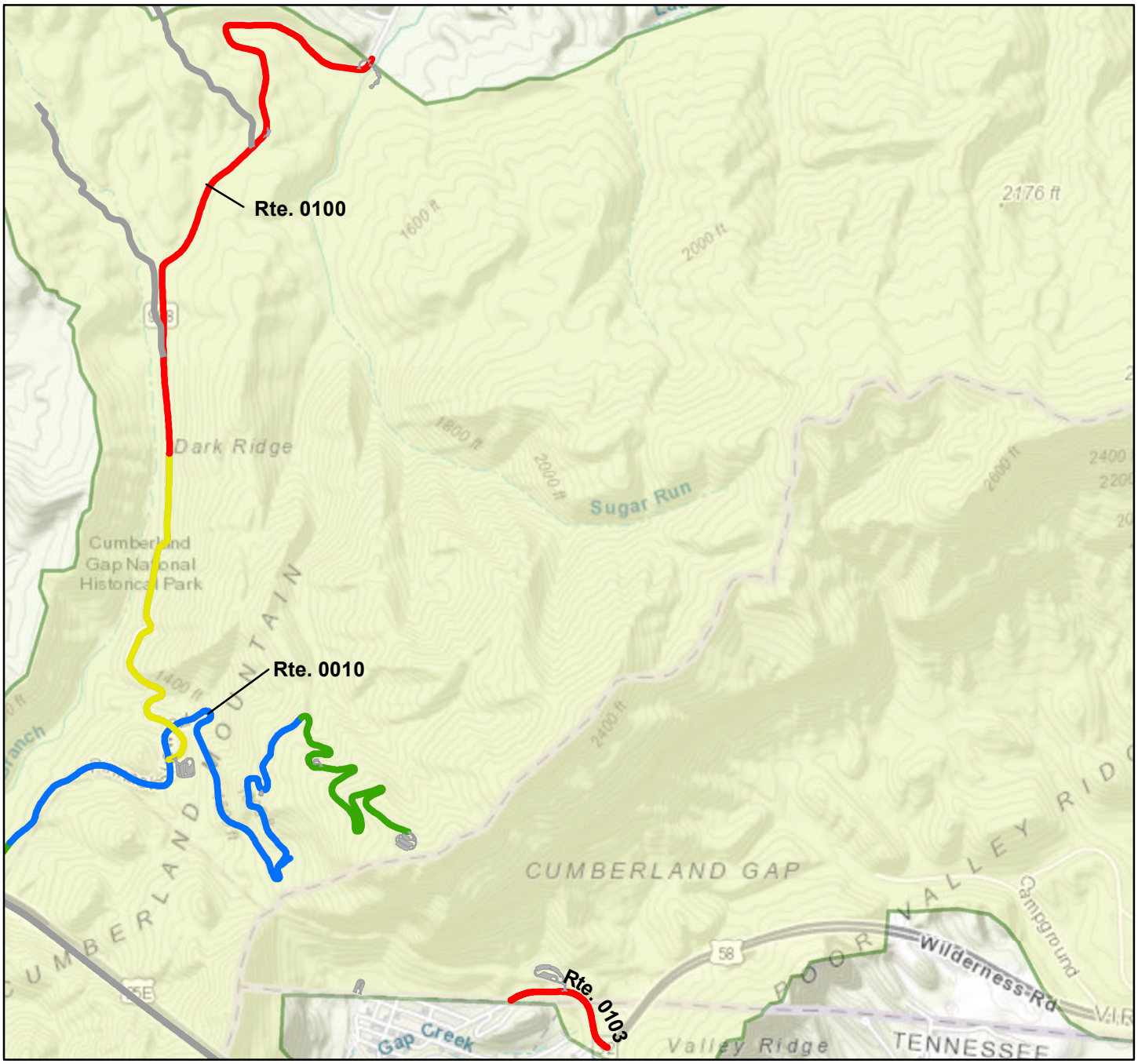
Colors on map represent condition scores at 1-mile intervals. See Appendix for definitions and formulas
Only Data Collection Vehicle and Manually Rated Roads are displayed

Miles
0 0.2 0.4

N

Cumberland Gap National Historical Park

ROUTE CONDITION MAP
PCR - MILE BY MILE
Area Map 2



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

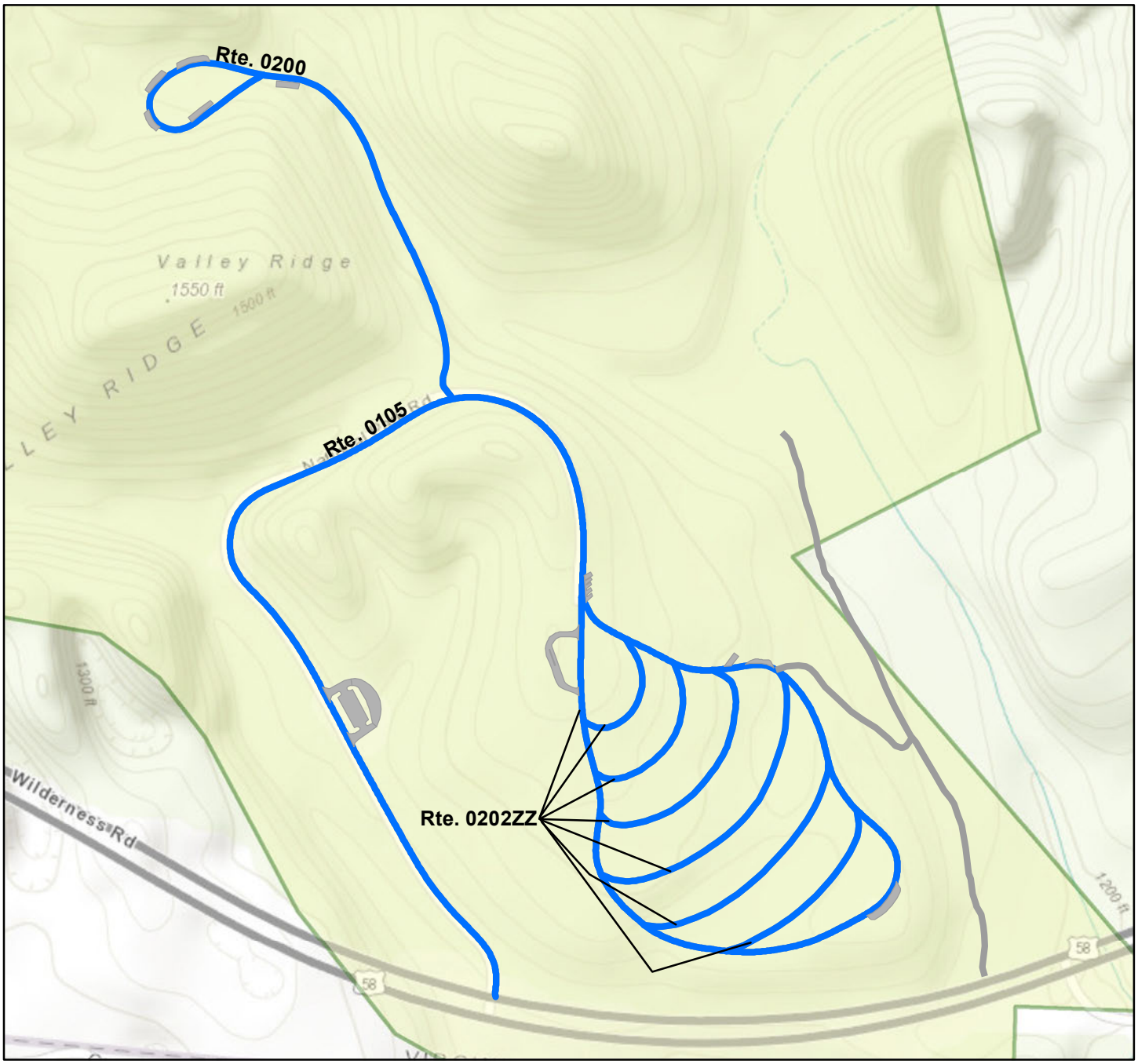
Colors on map represent condition scores at 1-mile intervals. See Appendix for definitions and formulas
Only Data Collection Vehicle and Manually Rated Roads are displayed

Miles
0 0.5 1

N

Cumberland Gap National Historical Park

ROUTE CONDITION MAP
PCR - MILE BY MILE
Area Map 3



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

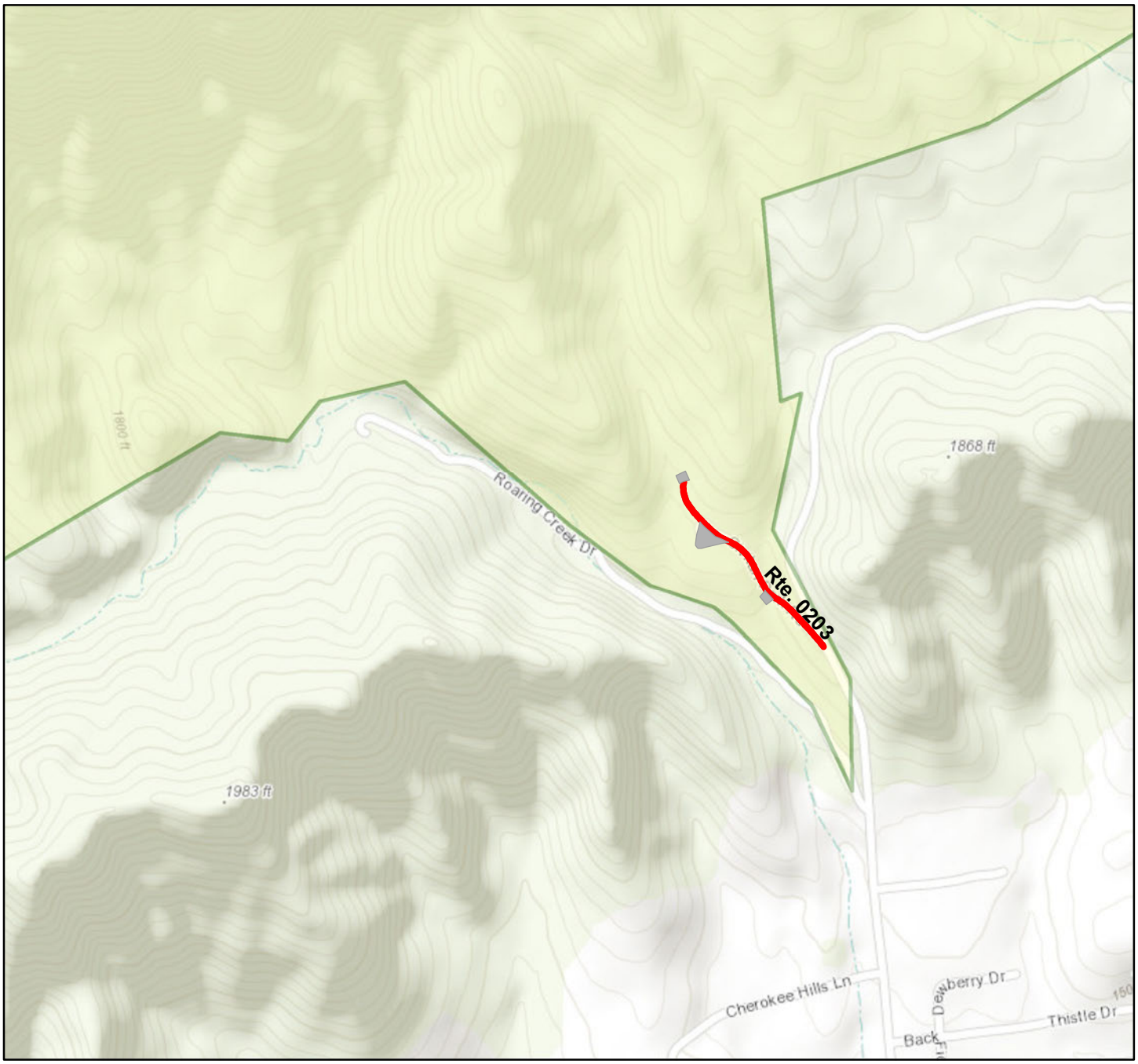
Colors on map represent condition scores at 1-mile intervals. See Appendix for definitions and formulas
Only Data Collection Vehicle and Manually Rated Roads are displayed

Miles
0 0.1 0.2

N

Cumberland Gap National Historical Park

ROUTE CONDITION MAP
PCR - MILE BY MILE
Area Map 4



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

Colors on map represent condition scores at 1-mile intervals. See Appendix for definitions and formulas
Only Data Collection Vehicle and Manually Rated Roads are displayed

Miles
0 0.2 0.4

N

Section 5
Paved Road Condition Rating Sheets

Cumberland Gap National Historical Park

Federal Lands Highway
Road Inventory Program

Cumberland Gap National Historical Park

ROUTE 0010: PINNACLE ROAD

Data Collection Vehicle (DCV) Rating

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

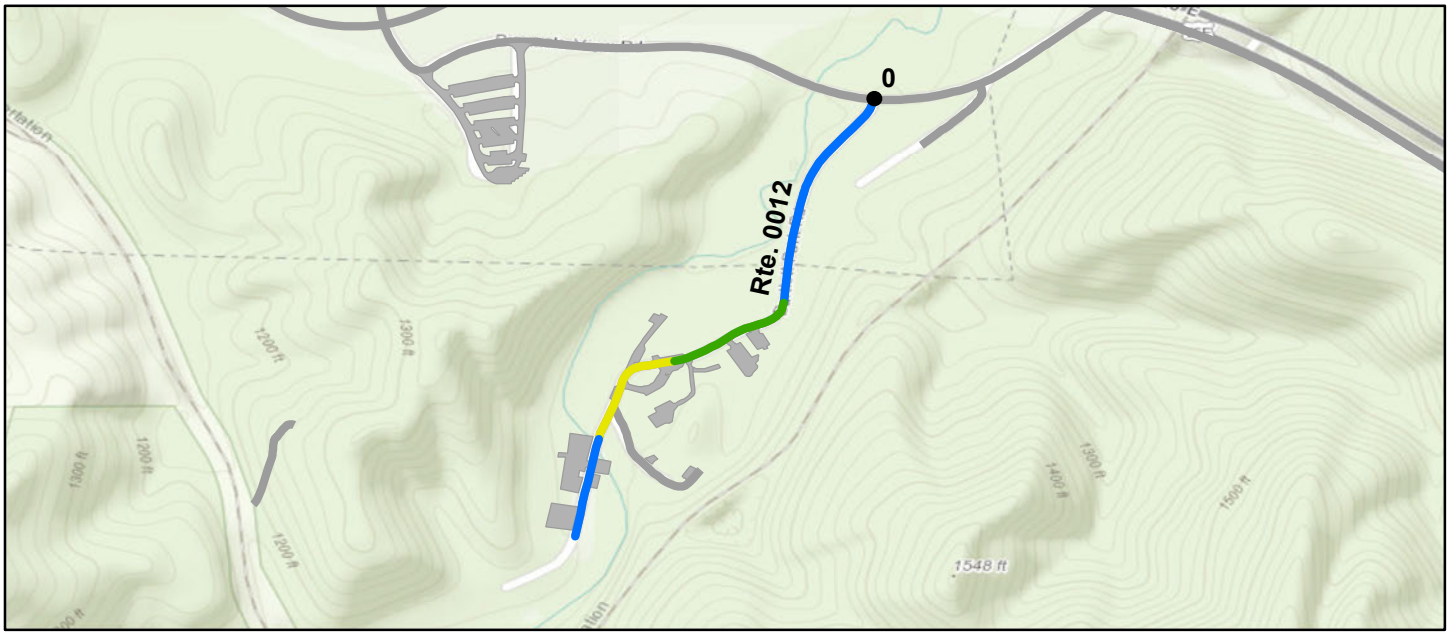
Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

Inspection Date: 7/15/2021	**Beginning Section MP**	0	1	2	3	
Paved Length (Miles): 3.99	**Section Length (MI)**	1	1	1	0.99	
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	96	94	97	95	93	
Surface Condition Rating (SCR)	96	92	95	97	95	
Roughness Condition Index (RCI)	95	97	100	91	90	
Distress Index Values						
Structural Crack Index	97	92	95	100	100	
Alligator Crack Index	100	100	100	100	100	
Longitudinal Crack Index	97	92	95	100	100	
Transverse Cracking Index	100	99	100	100	100	
Patching Index	100	100	99	100	100	
Rutting Index	96	96	98	97	95	
International Roughness Index (IRI)	127	122	113	138	140	
Lane & Width Information						
Number of Lanes	2	2	2	2	2	
Paved Width (ft)	23.3	27.4	24.1	21	20.7	
Lane Width (ft)	9.6	11.1	9.7	8.8	8.8	

Cumberland Gap National Historical Park

ROUTE 0012: BARTLETT PARK ROAD

Data Collection Vehicle (DCV) Rating



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

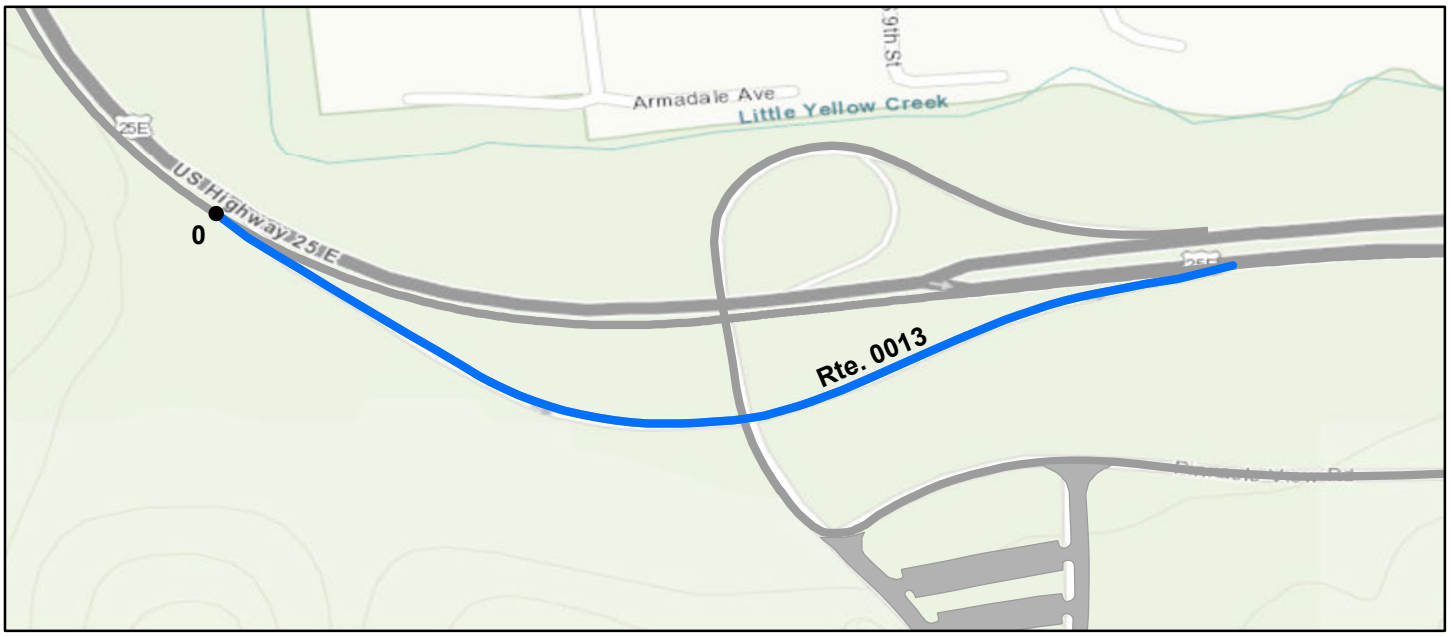
Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.49	**Section Length (MI)**	0.49				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	94	94				
Surface Condition Rating (SCR)	94	94				
Roughness Condition Index (RCI)	N/A	N/A				
Distress Index Values						
Structural Crack Index	94	94				
Alligator Crack Index	100	100				
Longitudinal Crack Index	94	94				
Transverse Cracking Index	100	100				
Patching Index	99	99				
Rutting Index	96	96				
International Roughness Index (IRI)	N/A	N/A				
Lane & Width Information						
Number of Lanes	2	2				
Paved Width (ft)	19.3	19.3				
Lane Width (ft)	8.6	8.6				

Cumberland Gap National Historical Park

ROUTE 0013: U.S. HIGHWAY 25E SOUTHBOUND ACCESS ROAD

Data Collection Vehicle (DCV) Rating



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

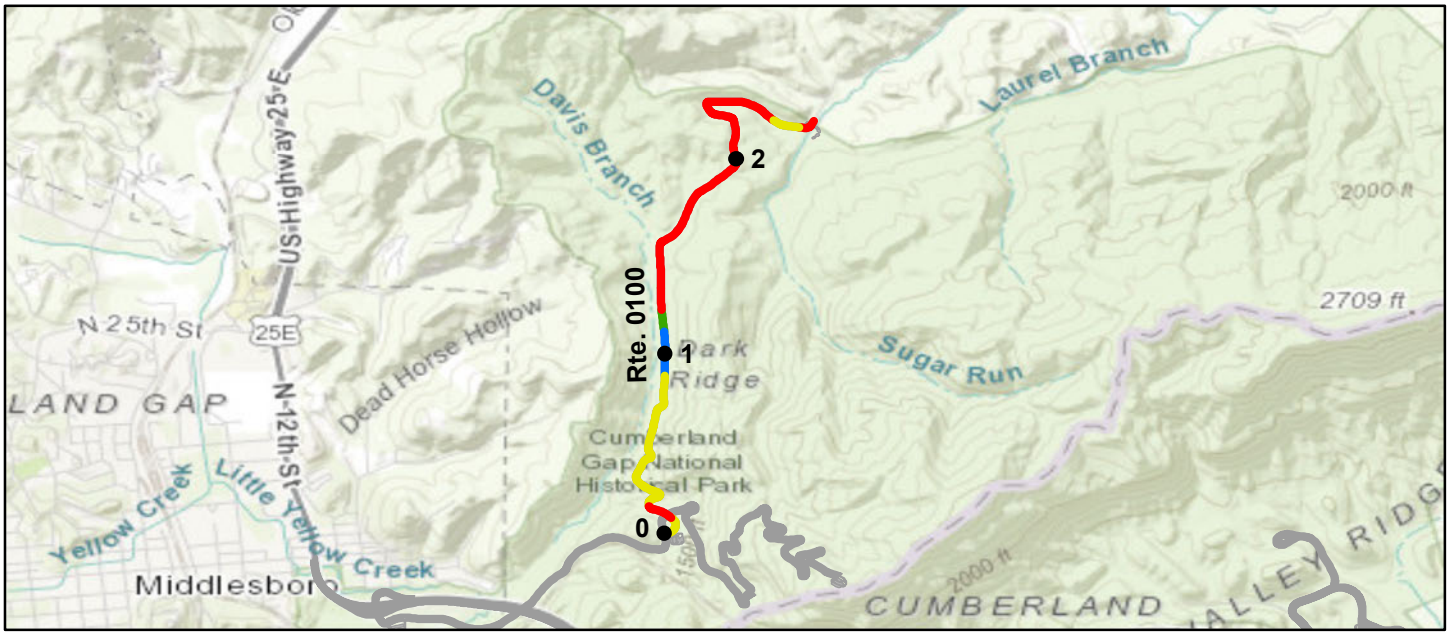
Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.33	**Section Length (MI)**	0.33				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	98	98				
Surface Condition Rating (SCR)	98	98				
Roughness Condition Index (RCI)	N/A	N/A				
Distress Index Values						
Structural Crack Index	99	99				
Alligator Crack Index	100	100				
Longitudinal Crack Index	99	99				
Transverse Cracking Index	98	98				
Patching Index	100	100				
Rutting Index	99	99				
International Roughness Index (IRI)	N/A	N/A				
Lane & Width Information						
Number of Lanes	1	1				
Paved Width (ft)	29.2	29.2				
Lane Width (ft)	17.8	17.8				

Cumberland Gap National Historical Park

ROUTE 0100: HIGHWAY 988 (SUGAR RUN ROAD)

Data Collection Vehicle (DCV) Rating



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

Inspection Date: 7/15/2021	**Beginning Section MP**	0	1	2		
Paved Length (Miles): 2.77	**Section Length (MI)**	1	1	0.77		
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	59	72	56	48		
Surface Condition Rating (SCR)	55	67	53	43		
Roughness Condition Index (RCI)	64	80	60	55		
Distress Index Values						
Structural Crack Index	55	67	53	43		
Alligator Crack Index	100	100	100	100		
Longitudinal Crack Index	55	67	53	43		
Transverse Cracking Index	96	95	97	97		
Patching Index	95	94	96	94		
Rutting Index	87	91	86	85		
International Roughness Index (IRI)	223	168	238	261		
Lane & Width Information						
Number of Lanes	2	2	2	2		
Paved Width (ft)	21.4	22	21.1	21.3		
Lane Width (ft)	9.5	9.7	9.3	9.5		

Cumberland Gap National Historical Park

ROUTE 0102: LITTLE YELLOW CREEK ROAD

Manual Rating

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas

Inspection Date: 4/13/2021	**Beginning Section MP**	0.00					
Paved Length (Miles): 0.07	**Section Length (MI)**	0.07					
Surface Type: ASPHALT	**Route Summary**						
Roadway Condition Information							
Pavement Condition Rating (PCR)	90	90					
Surface Condition Rating (SCR)	90	90					
Roughness Condition Index (RCI)	N/A	N/A					
Distress Index Values							
Structural Crack Index	N/A	N/A					
Alligator Crack Index	90	90					
Longitudinal Crack Index	90	90					
Transverse Cracking Index	90	90					
Patching Index	90	90					
Rutting Index	97	97					
International Roughness Index (IRI)	N/A	N/A					
Lane & Width Information							
Number of Lanes	2	2					
Paved Width (ft)	21	21					
Lane Width (ft)	10.5	10.5					

Cumberland Gap National Historical Park

ROUTE 0102: LITTLE YELLOW CREEK ROAD

Condition Photos

Condition photos are shown only for manually rated roads. Use the PathView program to see images of DCV rated roads.

CUGA_0102_1.jpg

CUGA_0102_3.jpg

CUGA_0102_4.jpg

CUGA_0102_5.jpg

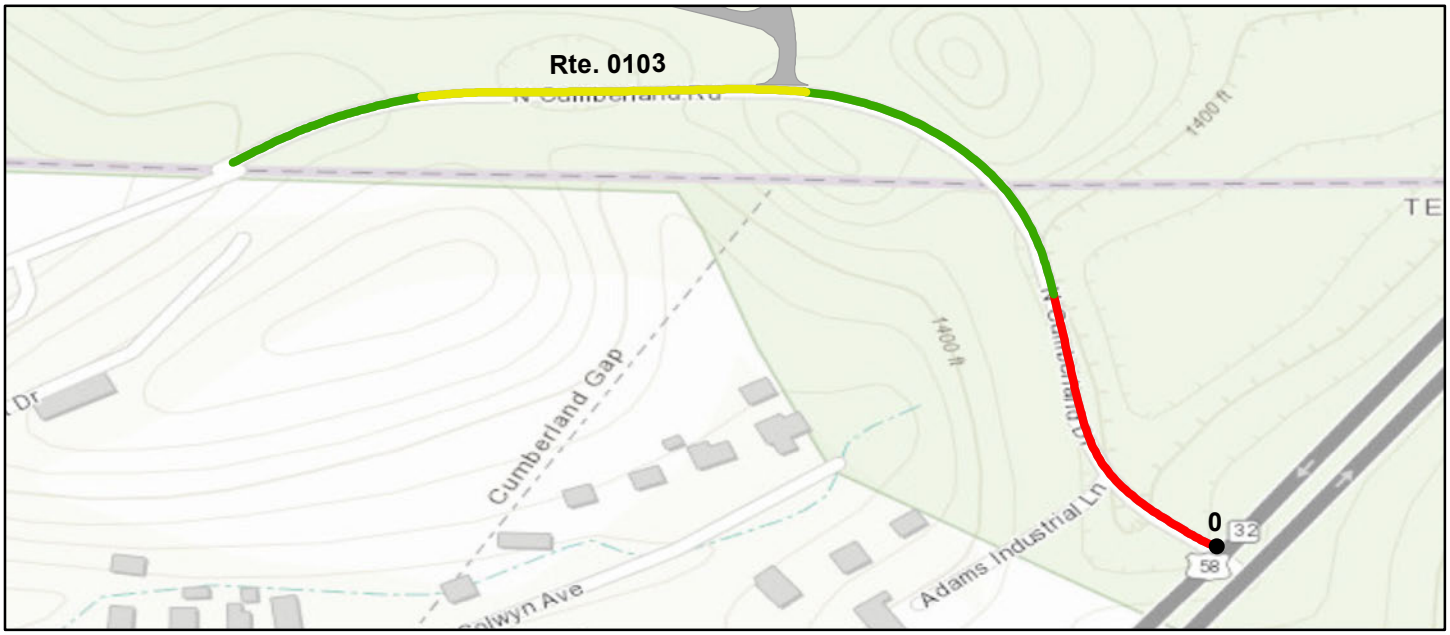
CUGA_0102_6.jpg

CUGA_0102_7.jpg

Cumberland Gap National Historical Park

ROUTE 0103: DANIEL BOONE (N CUMBERLAND DRIVE) PARKING ACCESS ROAD

Data Collection Vehicle (DCV) Rating



Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

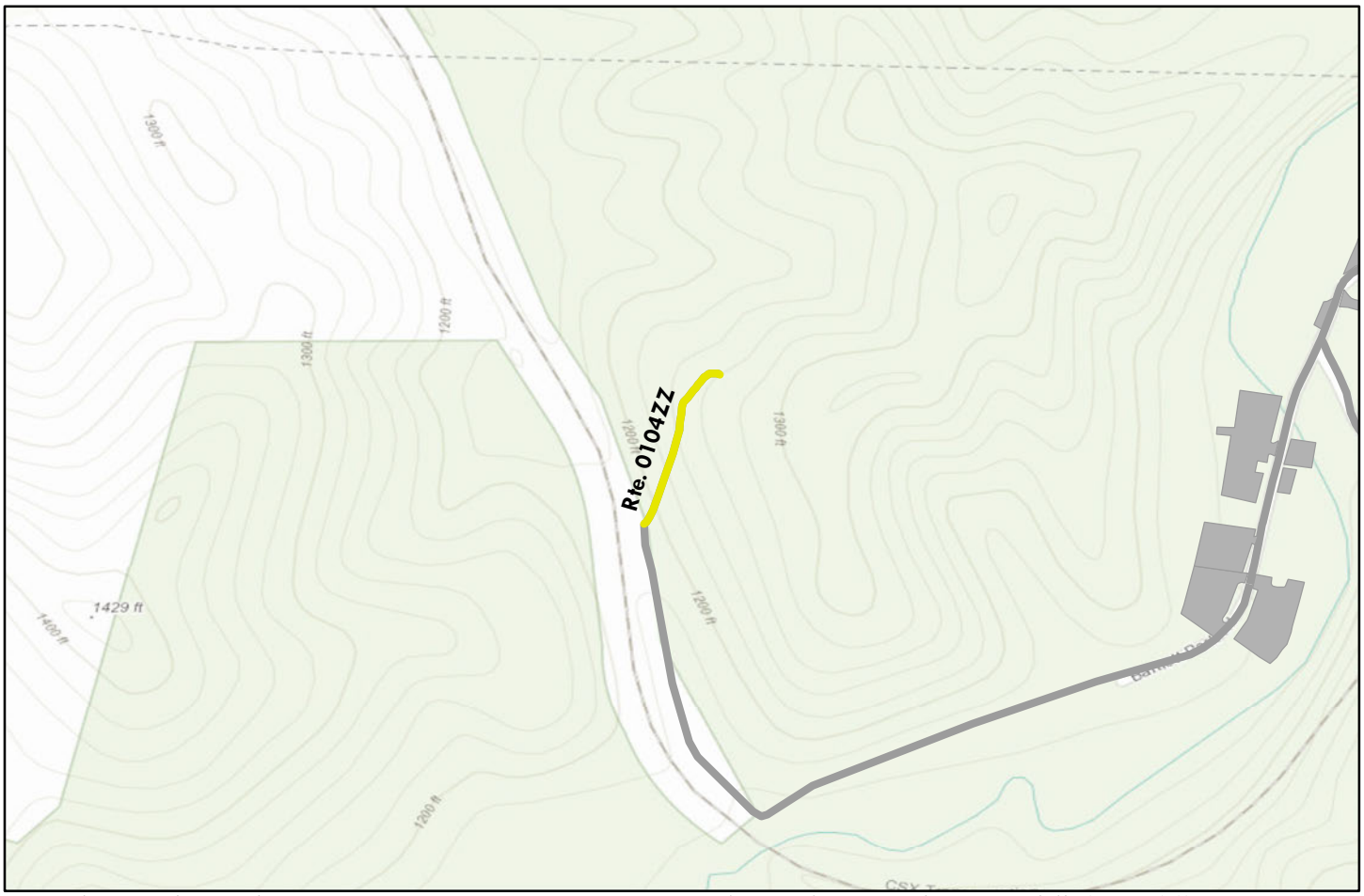
Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.36	**Section Length (MI)**	0.36				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	57	57				
Surface Condition Rating (SCR)	57	57				
Roughness Condition Index (RCI)	N/A	N/A				
Distress Index Values						
Structural Crack Index	57	57				
Alligator Crack Index	100	100				
Longitudinal Crack Index	57	57				
Transverse Cracking Index	87	87				
Patching Index	95	95				
Rutting Index	97	97				
International Roughness Index (IRI)	N/A	N/A				
Lane & Width Information						
Number of Lanes	2	2				
Paved Width (ft)	32.3	32.3				
Lane Width (ft)	12.2	12.2				

Cumberland Gap National Historical Park

ROUTE 0104ZZ: CEMETERY ROAD

Summary Route



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Note: The weighted average summary PCR value is calculated from only the sections of road where the PCR was collected. The overall PCR for the summary route may not reflect individual subcomponent ratings.

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas

Inspection Date:	4/13/2021
Paved Length (Miles):	0.08
Surface Type:	ASPHALT
Roadway Condition Information	
Pavement Condition Rating (PCR)	72
Lane & Width Information	
Number of Lanes	1
Paved Width (ft)	8
Lane Width (ft)	8

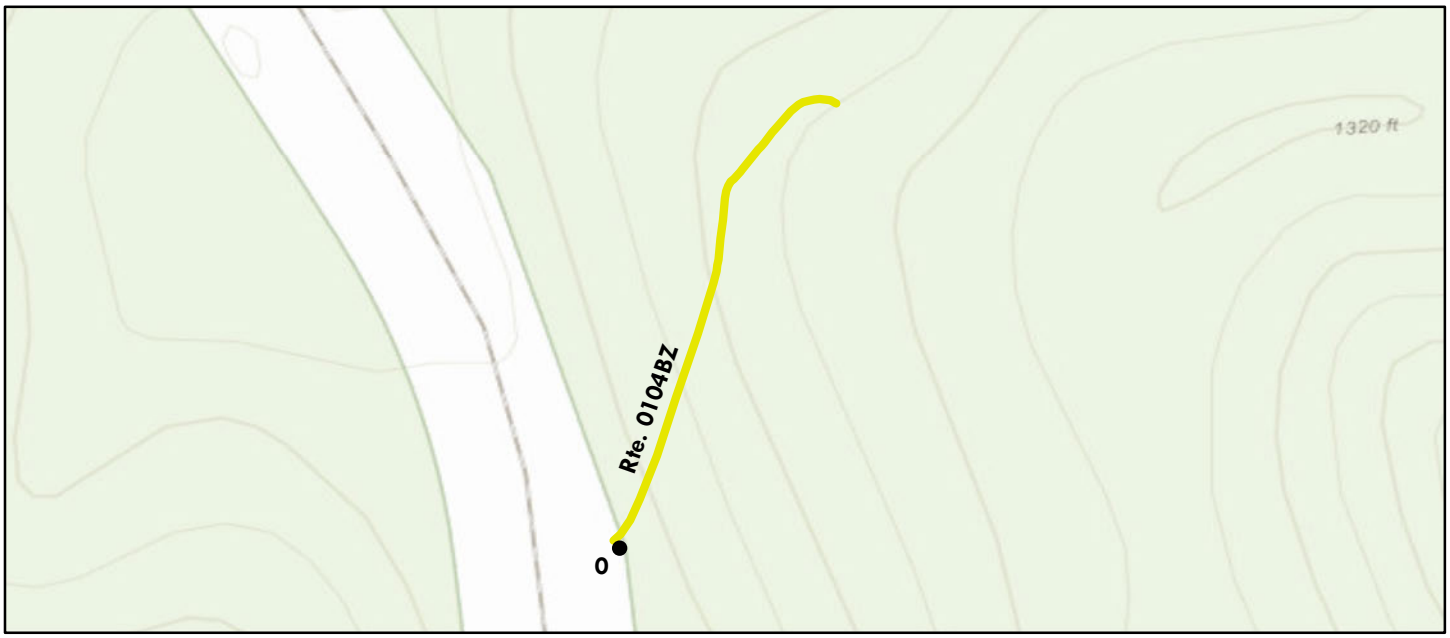
Note: Subcomponent 0104AZ is unpaved and not included in this report.

Cumberland Gap National Historical Park

ROUTE 0104BZ: CEMETERY ROAD PAVED

Subcomponent of Route CUGA-0104ZZ

Manual Rating



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas

Inspection Date: 4/13/2021	**Beginning Section MP**	0.00					
Paved Length (Miles): 0.08	**Section Length (MI)**	0.08					
Surface Type: ASPHALT	**Route Summary**						
Roadway Condition Information							
Pavement Condition Rating (PCR)	72	72					
Surface Condition Rating (SCR)	72	72					
Roughness Condition Index (RCI)	N/A	N/A					
Distress Index Values							
Structural Crack Index	72	72					
Alligator Crack Index	72	72					
Longitudinal Crack Index	100	100					
Transverse Cracking Index	100	100					
Patching Index	100	100					
Rutting Index	95	95					
International Roughness Index (IRI)	N/A	N/A					
Lane & Width Information							
Number of Lanes	1	1					
Paved Width (ft)	8	8					
Lane Width (ft)	8	8					

Cumberland Gap National Historical Park

ROUTE 0104BZ: CEMETERY ROAD PAVED

Condition Photos

Condition photos are shown only for manually rated roads. Use the PathView program to see images of DCV rated roads.

CUGA_0104BZ_10.jpg

CUGA_0104BZ_11.jpg

CUGA_0104BZ_12.jpg

CUGA_0104BZ_4.jpg

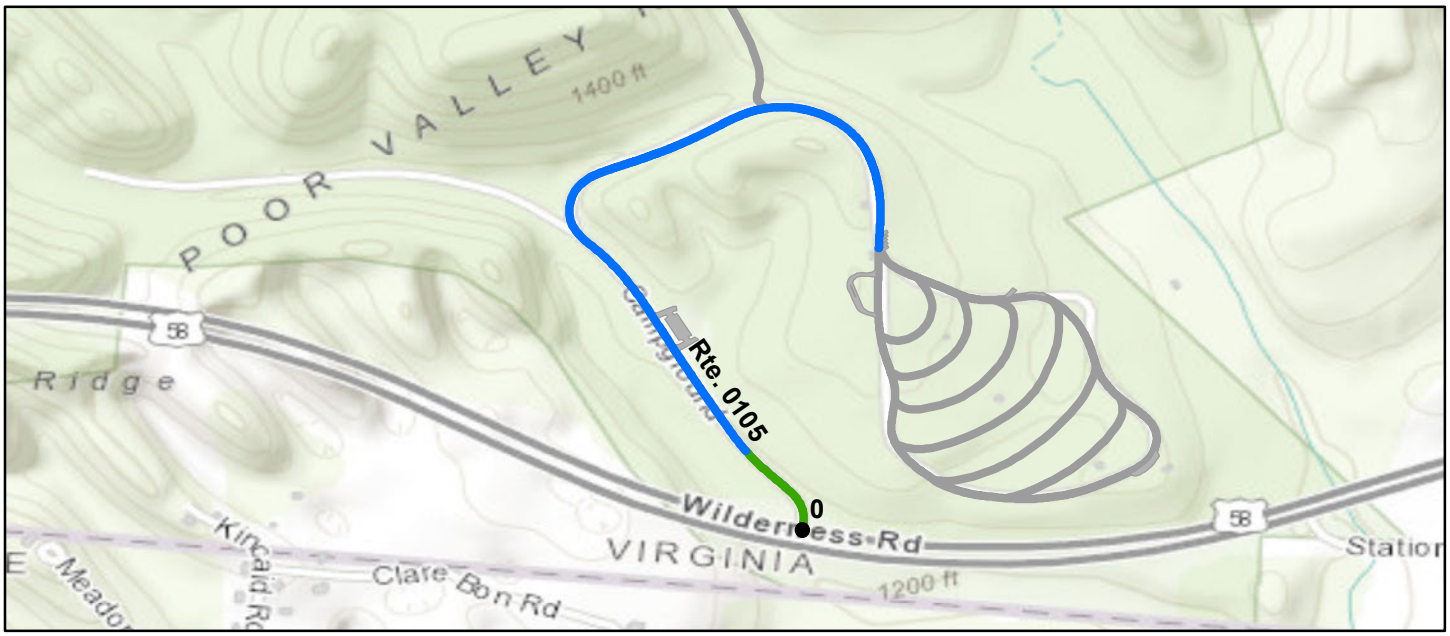
CUGA_0104BZ_5.jpg

CUGA_0104BZ_7.jpg

Cumberland Gap National Historical Park

ROUTE 0105: WILDERNESS ROAD CAMPGROUND ACCESS ROAD

Data Collection Vehicle (DCV) Rating



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.8	**Section Length (MI)**	0.8				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	98	98				
Surface Condition Rating (SCR)	97	97				
Roughness Condition Index (RCI)	100	100				
Distress Index Values						
Structural Crack Index	97	97				
Alligator Crack Index	100	100				
Longitudinal Crack Index	97	97				
Transverse Cracking Index	100	100				
Patching Index	100	100				
Rutting Index	100	100				
International Roughness Index (IRI)	112	112				
Lane & Width Information						
Number of Lanes	2	2				
Paved Width (ft)	23.5	23.5				
Lane Width (ft)	9.7	9.7				

Cumberland Gap National Historical Park

ROUTE 0200: LEWIS HOLLOW PICNIC AREA ROAD

Data Collection Vehicle (DCV) Rating

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

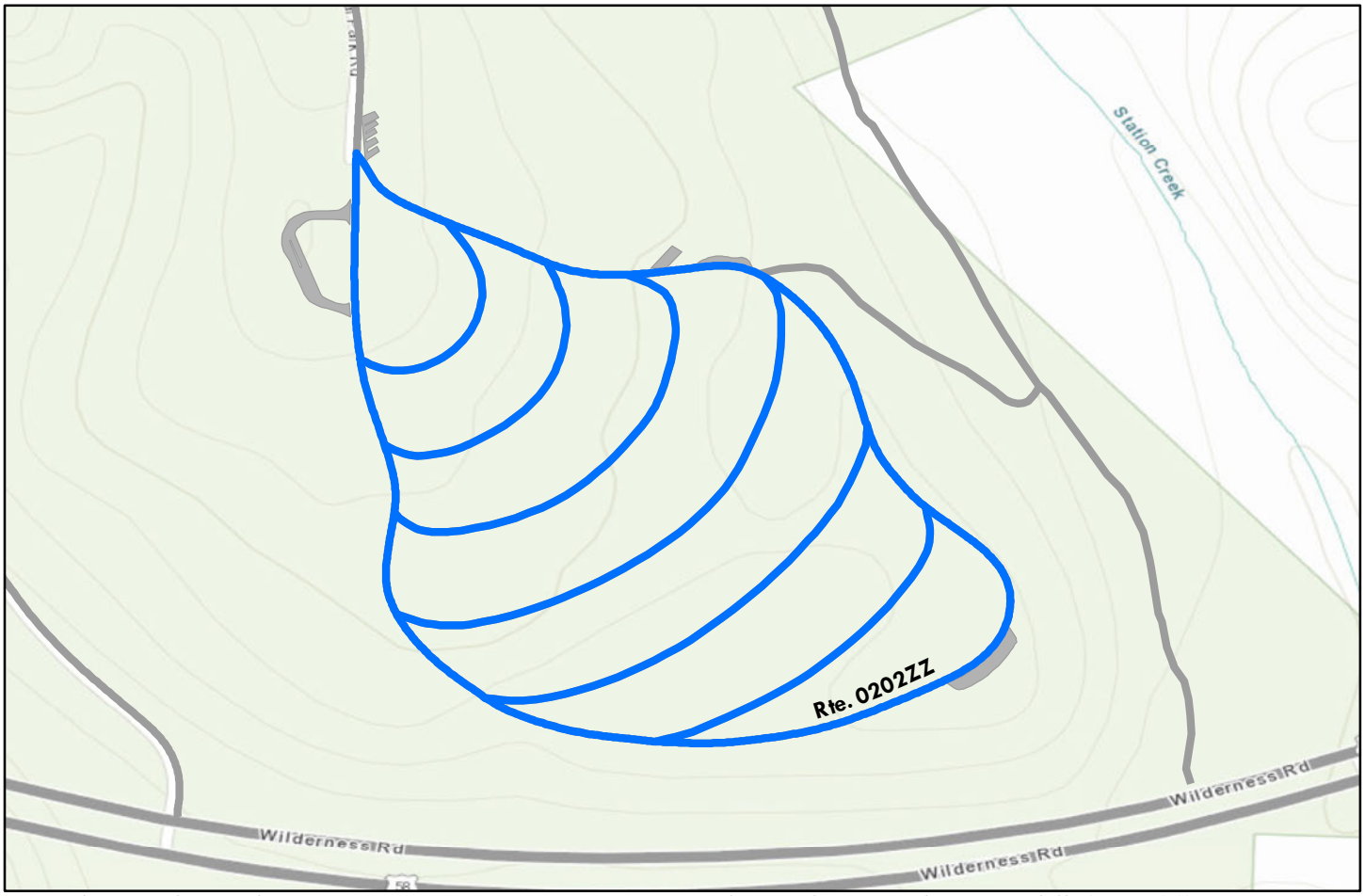
Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.49	**Section Length (MI)**	0.49				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	98	98				
Surface Condition Rating (SCR)	98	98				
Roughness Condition Index (RCI)	N/A	N/A				
Distress Index Values						
Structural Crack Index	99	99				
Alligator Crack Index	100	100				
Longitudinal Crack Index	99	99				
Transverse Cracking Index	100	100				
Patching Index	100	100				
Rutting Index	98	98				
International Roughness Index (IRI)	N/A	N/A				
Lane & Width Information						
Number of Lanes	2	2				
Paved Width (ft)	17.3	17.3				
Lane Width (ft)	9.7	9.7				

Cumberland Gap National Historical Park

ROUTE 0202ZZ: WILDERNESS ROAD CAMPGROUND

Summary Route



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Note: The weighted average summary PCR value is calculated from only the sections of road where the PCR was collected. The overall PCR for the summary route may not reflect individual subcomponent ratings.

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas

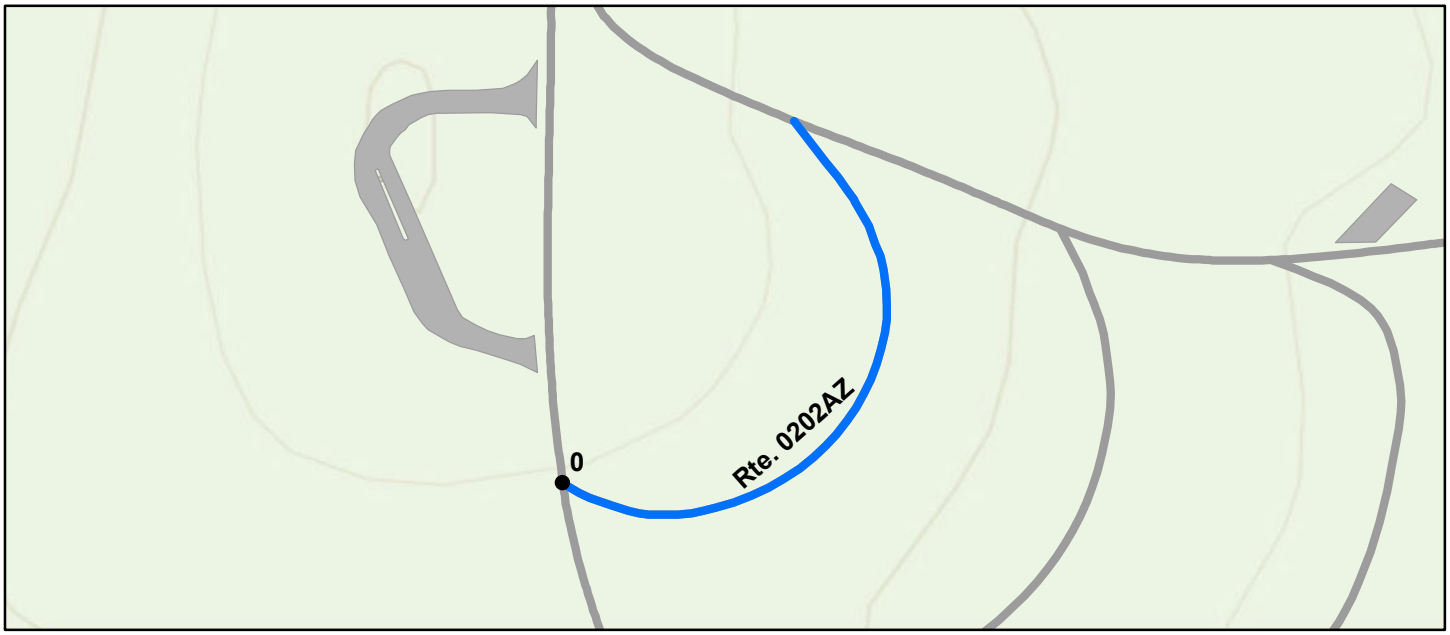
Inspection Date: 7/15/2021	
Paved Length (Miles): 1.74	
Surface Type: ASPHALT	**Route Summary**
Roadway Condition Information	
Pavement Condition Rating (PCR)	98
Lane & Width Information	
Number of Lanes	1
Paved Width (ft)	15.8
Lane Width (ft)	14.4

Cumberland Gap National Historical Park

ROUTE 0202AZ: WILDERNESS ROAD CAMPGROUND LOOP A

Subcomponent of Route CUGA-0202ZZ

Data Collection Vehicle (DCV) Rating



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

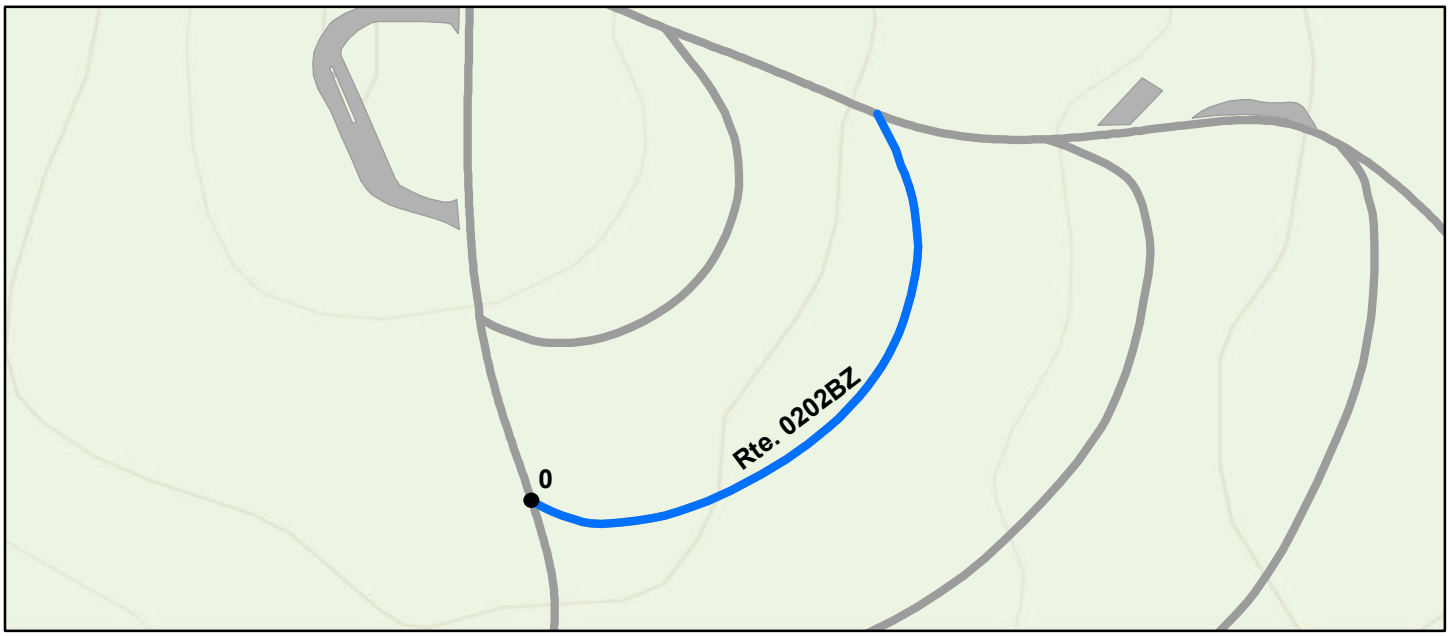
Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.09	**Section Length (MI)**	0.09				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	99	99				
Surface Condition Rating (SCR)	99	99				
Roughness Condition Index (RCI)	N/A	N/A				
Distress Index Values						
Structural Crack Index	99	99				
Alligator Crack Index	100	100				
Longitudinal Crack Index	99	99				
Transverse Cracking Index	100	100				
Patching Index	100	100				
Rutting Index	100	100				
International Roughness Index (IRI)	N/A	N/A				
Lane & Width Information						
Number of Lanes	1	1				
Paved Width (ft)	15.2	15.2				
Lane Width (ft)	15.2	15.2				

Cumberland Gap National Historical Park

ROUTE 0202BZ: WILDERNESS ROAD CAMPGROUND LOOP B

Subcomponent of Route CUGA-0202ZZ

Data Collection Vehicle (DCV) Rating



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

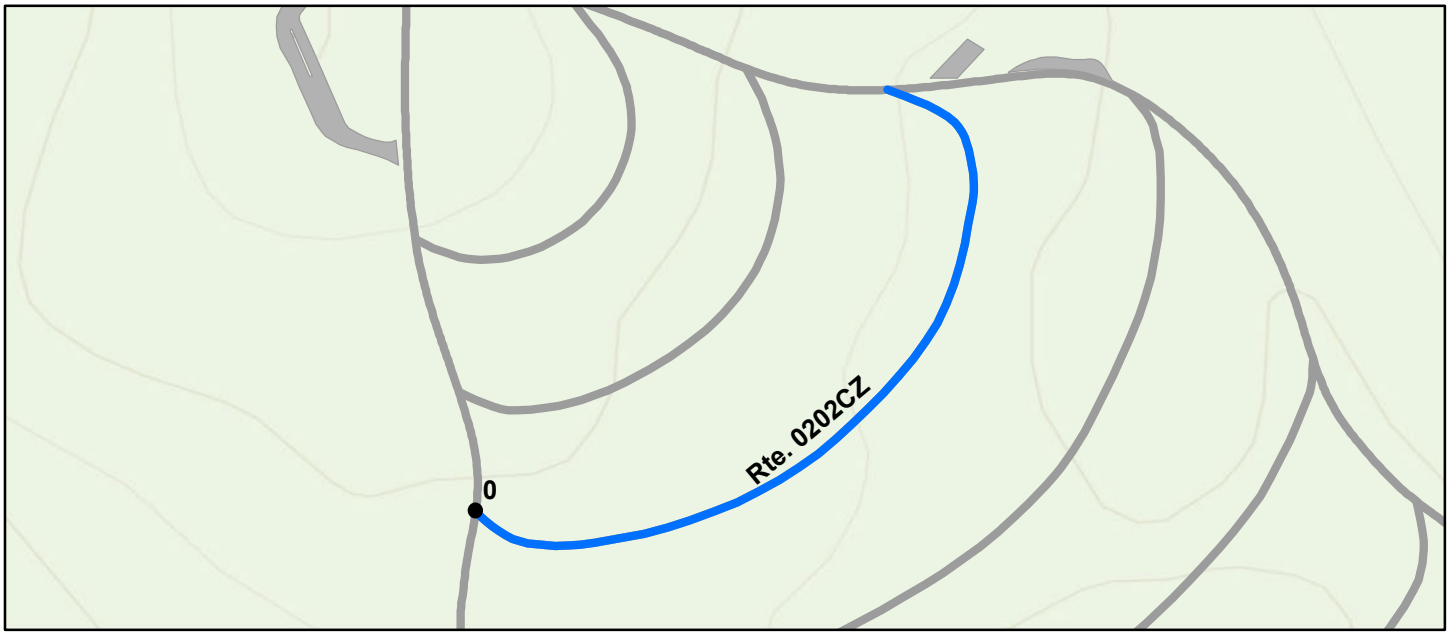
Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.12	**Section Length (MI)**	0.12				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	99	99				
Surface Condition Rating (SCR)	99	99				
Roughness Condition Index (RCI)	N/A	N/A				
Distress Index Values						
Structural Crack Index	100	100				
Alligator Crack Index	100	100				
Longitudinal Crack Index	100	100				
Transverse Cracking Index	100	100				
Patching Index	100	100				
Rutting Index	99	99				
International Roughness Index (IRI)	N/A	N/A				
Lane & Width Information						
Number of Lanes	1	1				
Paved Width (ft)	14.5	14.5				
Lane Width (ft)	14.5	14.5				

Cumberland Gap National Historical Park

ROUTE 0202CZ: WILDERNESS ROAD CAMPGROUND LOOP C

Subcomponent of Route CUGA-0202ZZ

Data Collection Vehicle (DCV) Rating



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

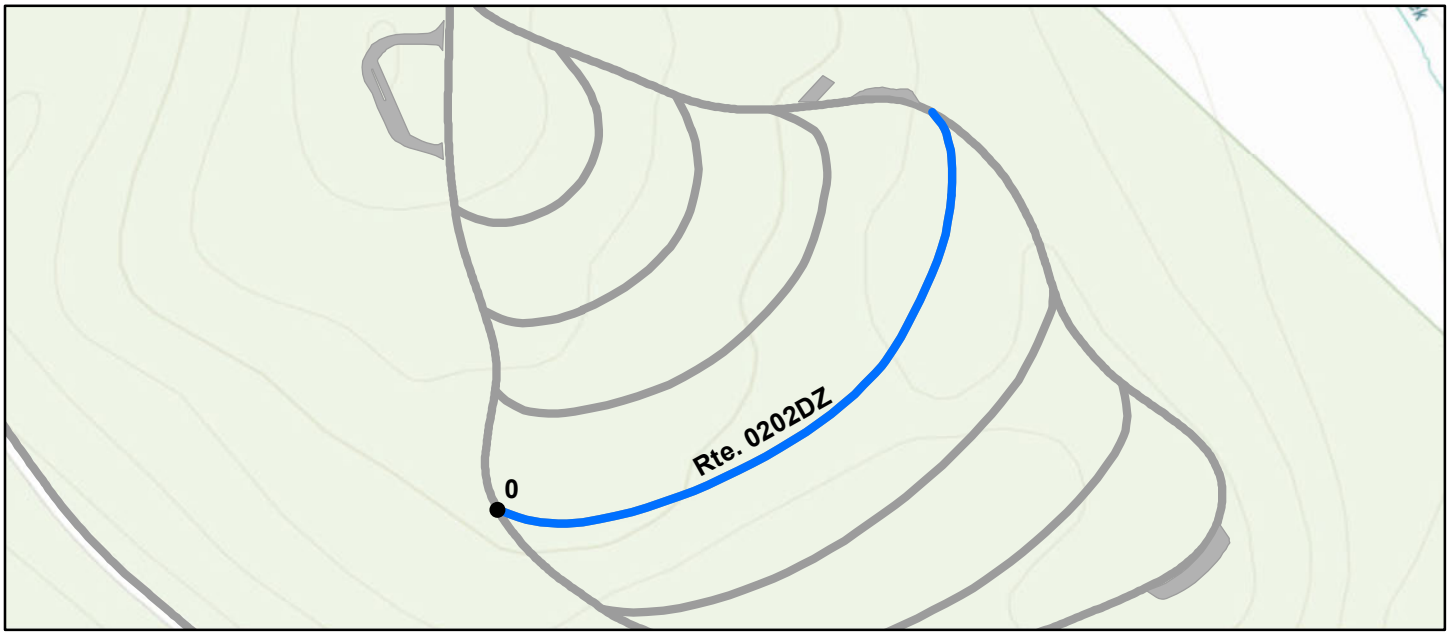
Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.18	**Section Length (MI)**	0.18				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	98	98				
Surface Condition Rating (SCR)	98	98				
Roughness Condition Index (RCI)	N/A	N/A				
Distress Index Values						
Structural Crack Index	98	98				
Alligator Crack Index	99	99				
Longitudinal Crack Index	99	99				
Transverse Cracking Index	100	100				
Patching Index	100	100				
Rutting Index	99	99				
International Roughness Index (IRI)	N/A	N/A				
Lane & Width Information						
Number of Lanes	1	1				
Paved Width (ft)	18.2	18.2				
Lane Width (ft)	18.2	18.2				

Cumberland Gap National Historical Park

ROUTE 0202DZ: WILDERNESS ROAD CAMPGROUND LOOP D

Subcomponent of Route CUGA-0202ZZ

Data Collection Vehicle (DCV) Rating



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

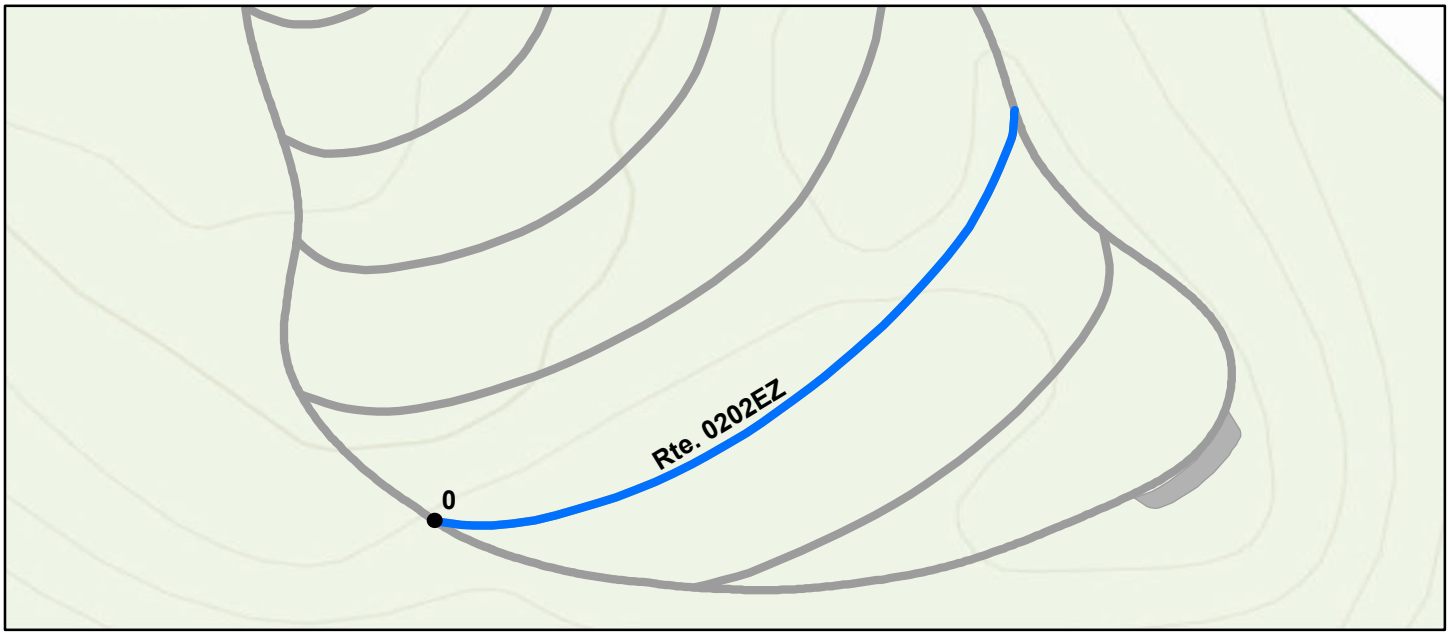
Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.23	**Section Length (MI)**	0.23				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	100	100				
Surface Condition Rating (SCR)	100	100				
Roughness Condition Index (RCI)	N/A	N/A				
Distress Index Values						
Structural Crack Index	100	100				
Alligator Crack Index	100	100				
Longitudinal Crack Index	100	100				
Transverse Cracking Index	100	100				
Patching Index	100	100				
Rutting Index	100	100				
International Roughness Index (IRI)	N/A	N/A				
Lane & Width Information						
Number of Lanes	1	1				
Paved Width (ft)	16.5	16.5				
Lane Width (ft)	16.5	16.5				

Cumberland Gap National Historical Park

ROUTE 0202EZ: WILDERNESS ROAD CAMPGROUND LOOP E

Subcomponent of Route CUGA-0202ZZ

Data Collection Vehicle (DCV) Rating



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

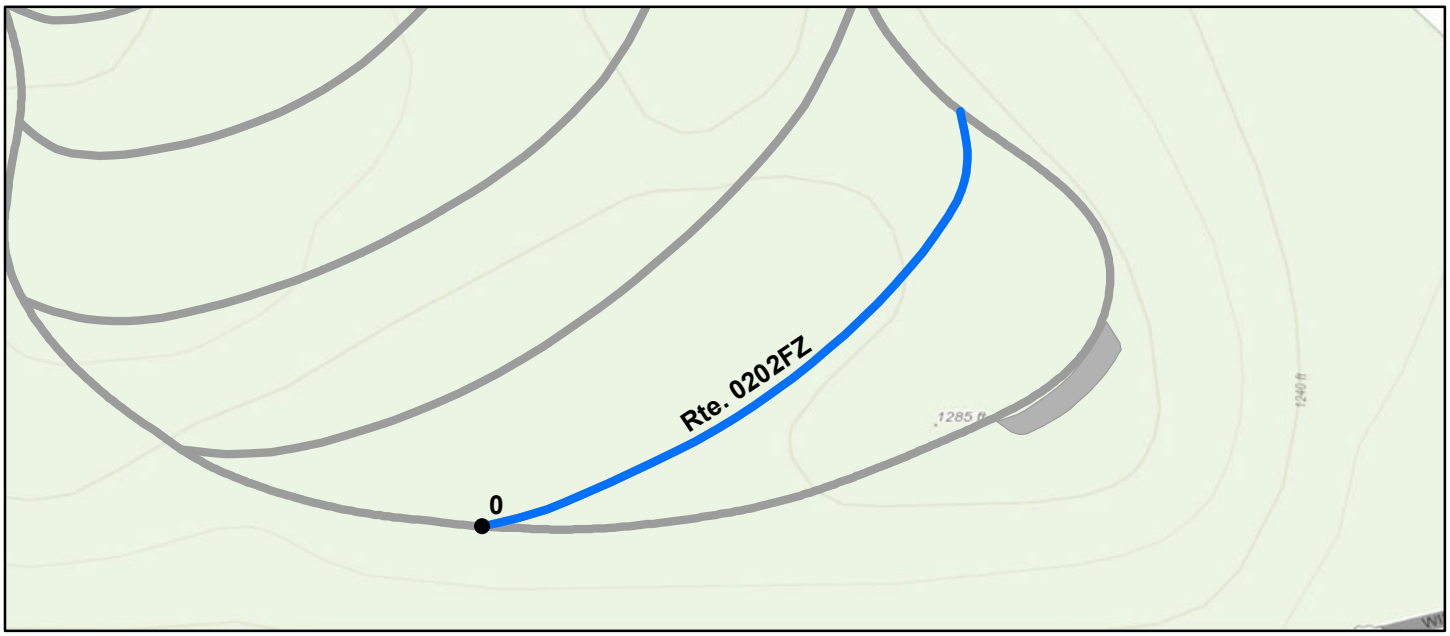
Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.19	**Section Length (MI)**	0.19				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	99	99				
Surface Condition Rating (SCR)	99	99				
Roughness Condition Index (RCI)	N/A	N/A				
Distress Index Values						
Structural Crack Index	99	99				
Alligator Crack Index	100	100				
Longitudinal Crack Index	99	99				
Transverse Cracking Index	100	100				
Patching Index	100	100				
Rutting Index	100	100				
International Roughness Index (IRI)	N/A	N/A				
Lane & Width Information						
Number of Lanes	1	1				
Paved Width (ft)	16.2	16.2				
Lane Width (ft)	16.2	16.2				

Cumberland Gap National Historical Park

ROUTE 0202FZ: WILDERNESS ROAD CAMPGROUND LOOP F

Subcomponent of Route CUGA-0202ZZ

Data Collection Vehicle (DCV) Rating



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

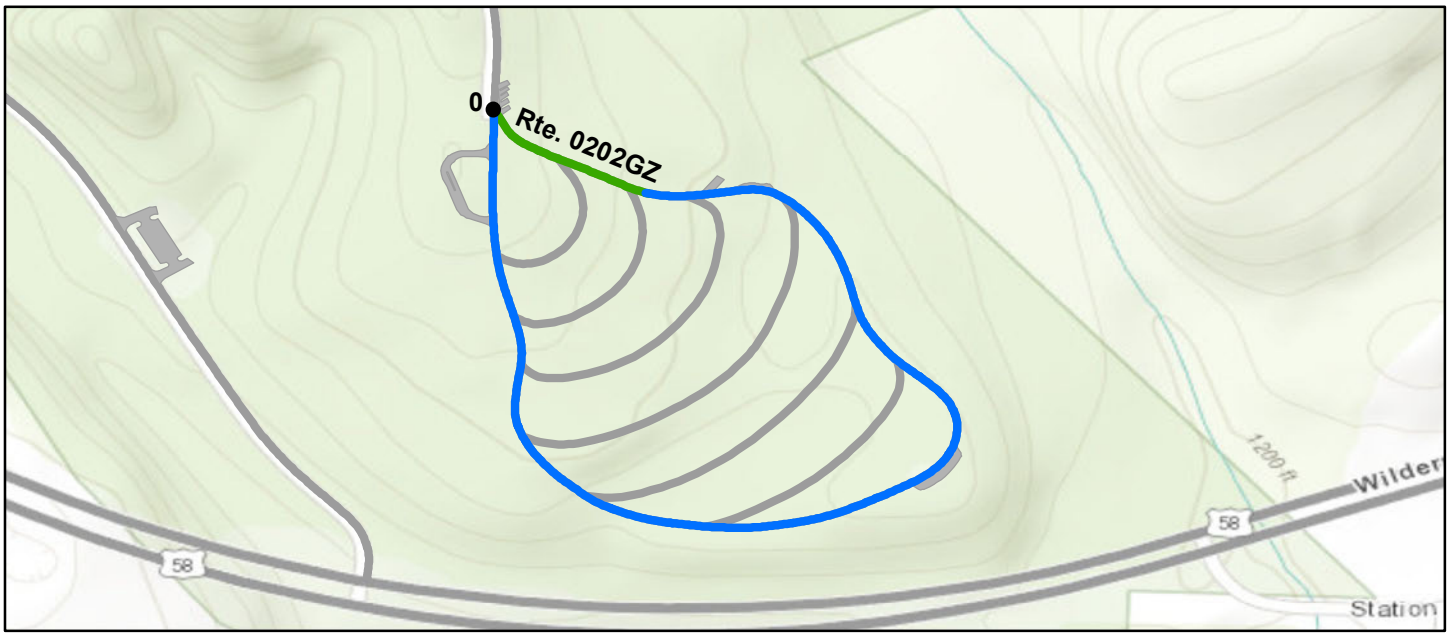
Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.14	**Section Length (MI)**	0.14				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	99	99				
Surface Condition Rating (SCR)	99	99				
Roughness Condition Index (RCI)	N/A	N/A				
Distress Index Values						
Structural Crack Index	100	100				
Alligator Crack Index	100	100				
Longitudinal Crack Index	100	100				
Transverse Cracking Index	100	100				
Patching Index	100	100				
Rutting Index	99	99				
International Roughness Index (IRI)	N/A	N/A				
Lane & Width Information						
Number of Lanes	1	1				
Paved Width (ft)	15.2	15.2				
Lane Width (ft)	15.2	15.2				

Cumberland Gap National Historical Park

ROUTE 0202GZ: WILDERNESS ROAD CAMPGROUND LOOP G

Subcomponent of Route CUGA-0202ZZ

Data Collection Vehicle (DCV) Rating



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.79	**Section Length (MI)**	0.79				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	97	97				
Surface Condition Rating (SCR)	97	97				
Roughness Condition Index (RCI)	N/A	N/A				
Distress Index Values						
Structural Crack Index	97	97				
Alligator Crack Index	100	100				
Longitudinal Crack Index	97	97				
Transverse Cracking Index	100	100				
Patching Index	100	100				
Rutting Index	100	100				
International Roughness Index (IRI)	N/A	N/A				
Lane & Width Information						
Number of Lanes	1	1				
Paved Width (ft)	15.3	15.3				
Lane Width (ft)	12.2	12.2				

Cumberland Gap National Historical Park

ROUTE 0203: ENTRANCE ROAD AT TWCP

Data Collection Vehicle (DCV) Rating

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.19	**Section Length (MI)**	0.19				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	42	42				
Surface Condition Rating (SCR)	42	42				
Roughness Condition Index (RCI)	N/A	N/A				
Distress Index Values						
Structural Crack Index	42	42				
Alligator Crack Index	71	71				
Longitudinal Crack Index	71	71				
Transverse Cracking Index	89	89				
Patching Index	100	100				
Rutting Index	78	78				
International Roughness Index (IRI)	N/A	N/A				
Lane & Width Information						
Number of Lanes	1	1				
Paved Width (ft)	14.8	14.8				
Lane Width (ft)	10.2	10.2				

Cumberland Gap National Historical Park

ROUTE 0403: PUMP HOUSE SERVICE ROAD

Manual Rating

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas

Inspection Date:	4/13/2021	**Beginning Section MP**	0.00				
Paved Length (Miles):	0.04	**Section Length (MI)**	0.04				
Surface Type:	ASPHALT	**Route Summary**					
Roadway Condition Information							
Pavement Condition Rating (PCR)		97	97				
Surface Condition Rating (SCR)		97	97				
Roughness Condition Index (RCI)		N/A	N/A				
Distress Index Values							
Structural Crack Index		N/A	N/A				
Alligator Crack Index		97	97				
Longitudinal Crack Index		97	97				
Transverse Cracking Index		97	97				
Patching Index		97	97				
Rutting Index		97	97				
International Roughness Index (IRI)		N/A	N/A				
Lane & Width Information							
Number of Lanes		1	1				
Paved Width (ft)		9	9				
Lane Width (ft)		9	9				

Cumberland Gap National Historical Park

ROUTE 0403: PUMP HOUSE SERVICE ROAD

Condition Photos

Condition photos are shown only for manually rated roads. Use the PathView program to see images of DCV rated roads.

CUGA_0403_1.jpg

CUGA_0403_2.jpg

CUGA_0403_3.jpg

CUGA_0403_4.jpg

CUGA_0403_6.jpg

CUGA_0403_7.jpg

Cumberland Gap National Historical Park

ROUTE 0421: DUPLEX DRIVE

Data Collection Vehicle (DCV) Rating

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

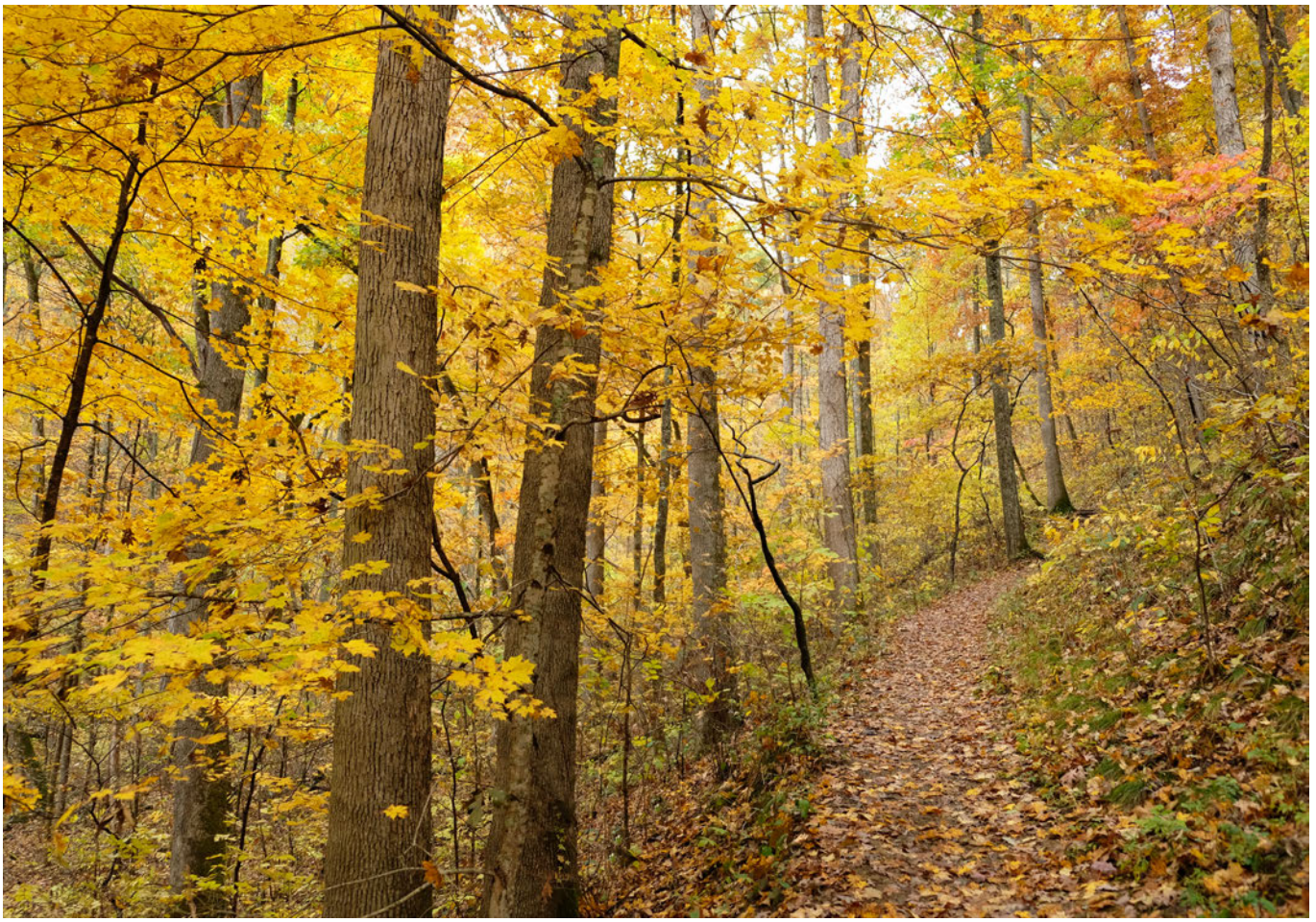
Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

Colors on map represent condition scores at 0.10-mile intervals. See Appendix for definitions and formulas.

Inspection Date: 7/15/2021	**Beginning Section MP**	0				
Paved Length (Miles): 0.11	**Section Length (MI)**	0.11				
Surface Type: ASPHALT	**Route Summary**					
Roadway Condition Information						
Pavement Condition Rating (PCR)	88	88				
Surface Condition Rating (SCR)	88	88				
Roughness Condition Index (RCI)	N/A	N/A				
Distress Index Values						
Structural Crack Index	88	88				
Alligator Crack Index	100	100				
Longitudinal Crack Index	88	88				
Transverse Cracking Index	99	99				
Patching Index	100	100				
Rutting Index	97	97				
International Roughness Index (IRI)	N/A	N/A				
Lane & Width Information						
Number of Lanes	2	2				
Paved Width (ft)	16.7	16.7				
Lane Width (ft)	8.3	8.3				

Section 6
Paved Parking Area Condition Rating Sheets



Cumberland Gap National Historical Park

Federal Lands Highway
Road Inventory Program

Cumberland Gap National Historical Park

ROUTE 0900: VISITOR CENTER PARKING

Manual Rating

FROM ROUTE 0010 (PINNACLE ROAD)

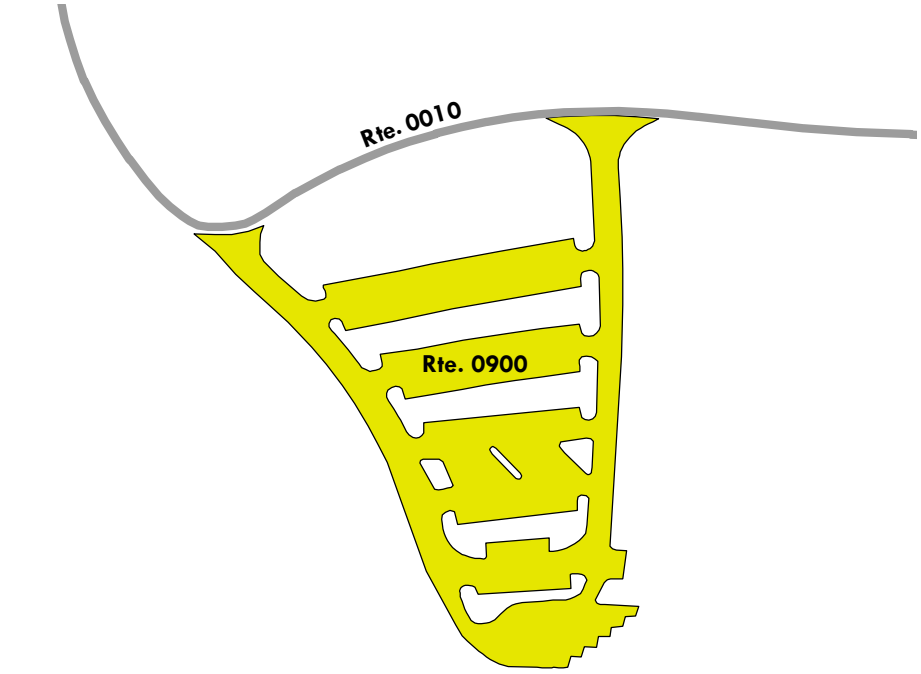
TO ROUTE 0010 (PINNACLE ROAD)

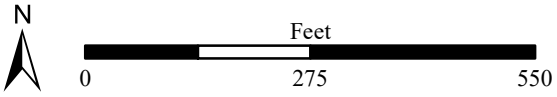
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100247	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
94,302	1.624	NOT APPLICABLE	DO NOTHING
Curb Type		**Curb & Gutter Type**	
NO CURB		CONCRETE	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

See Appendix for definitions and formulas





Cumberland Gap National Historical Park

ROUTE 0901A: RANGER STATION GOVERNMENT PARKING A

Manual Rating

FROM ROUTE 0012 (BARTLETT PARK ROAD)

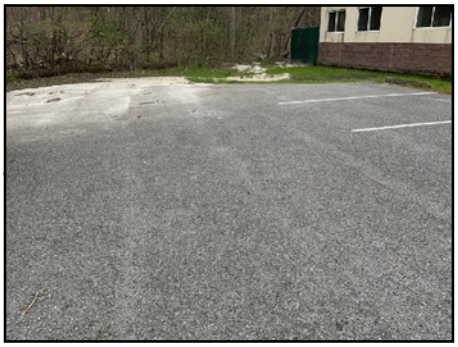
TO PARKING

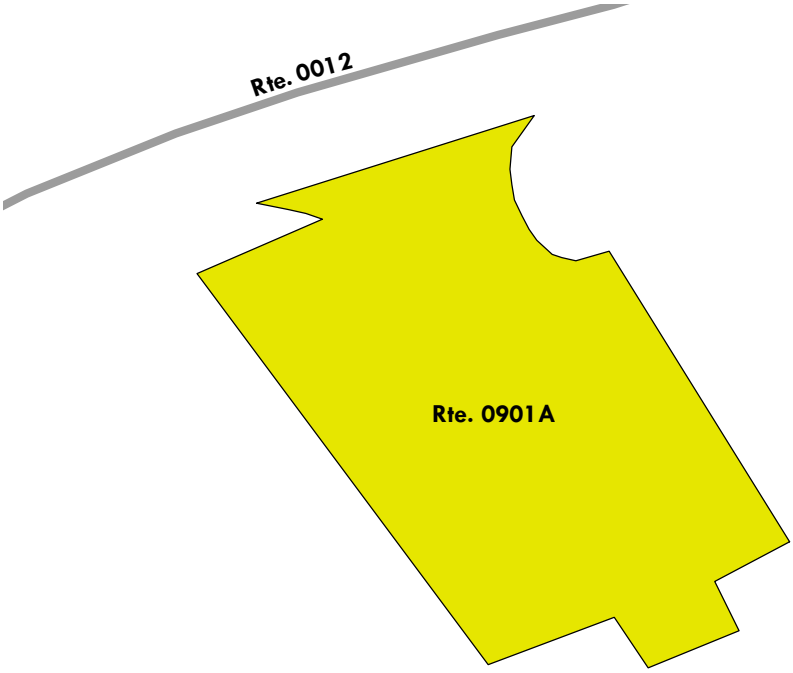
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100406	NONPUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
4,935	0.085	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

See Appendix for definitions and formulas





Cumberland Gap National Historical Park

ROUTE 0901B: RANGER STATION GOVERNMENT PARKING B

Manual Rating

FROM ROUTE 0012 (BARTLETT PARK ROAD)

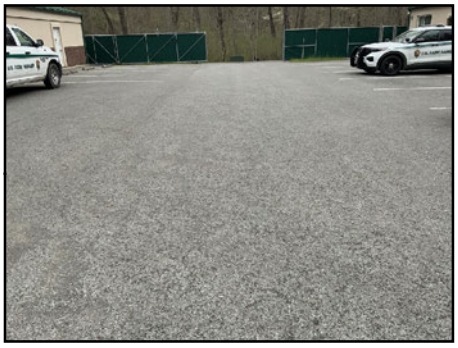
TO PARKING

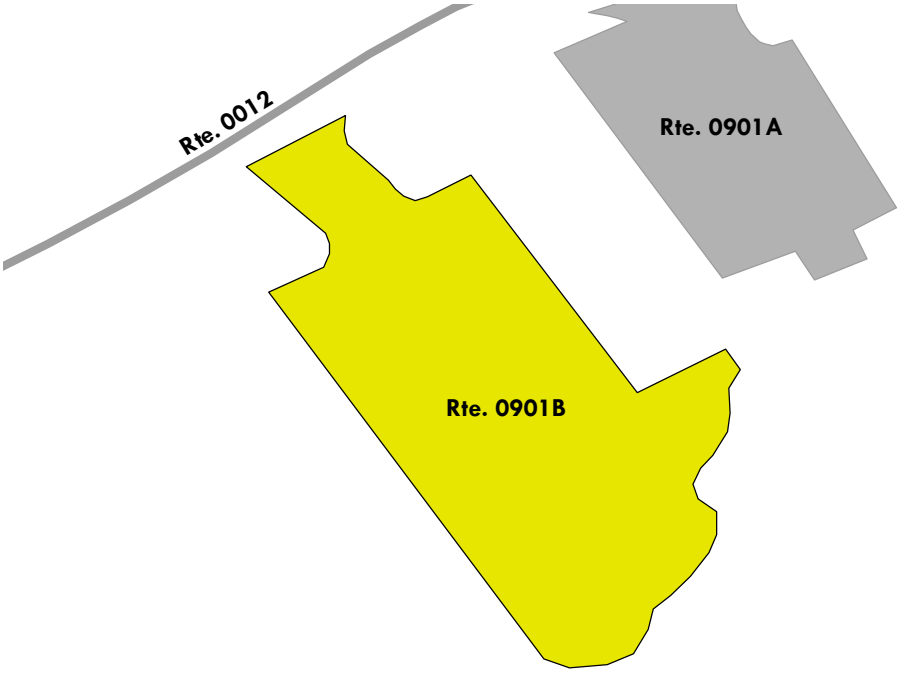
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100407	NONPUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
10,924	0.188	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

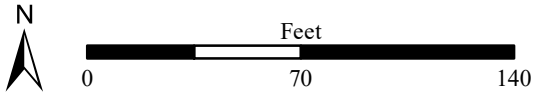
Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas







Cumberland Gap National Historical Park

ROUTE 0902: VIP CAMPSITE PARKING

Manual Rating

FROM ROUTE 0903 (HEADQUARTERS PARKING A)

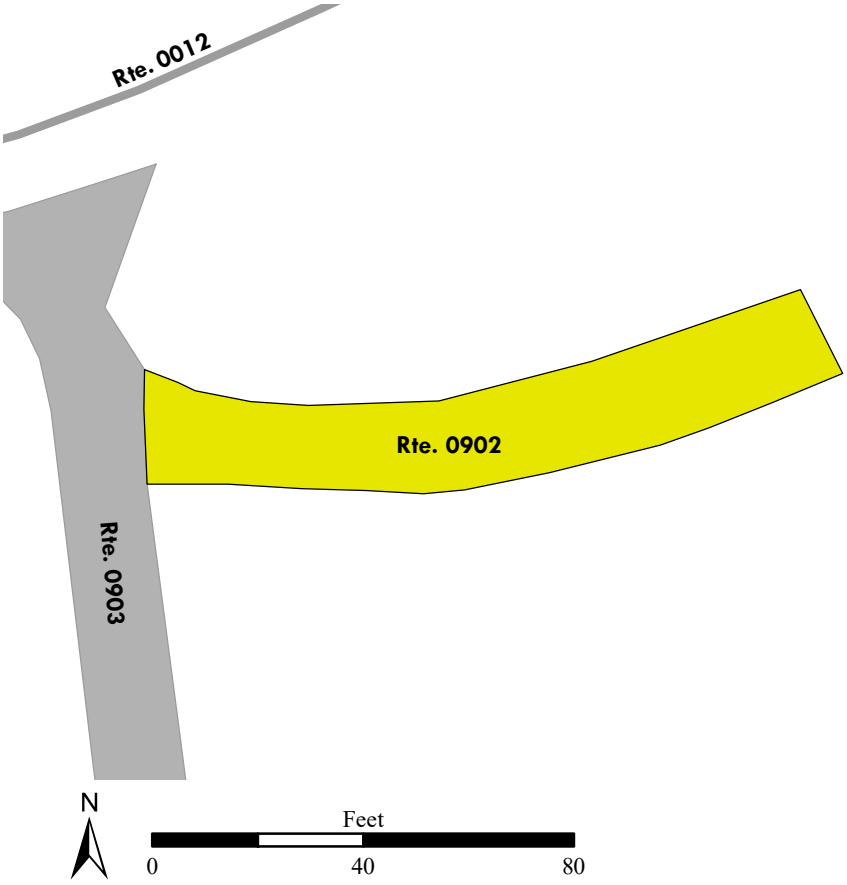
TO PARKING

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100408	NONPUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
1,893	0.033	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0903: HEADQUARTERS PARKING A

Manual Rating

FROM ROUTE 0012 (BARTLETT PARK ROAD)

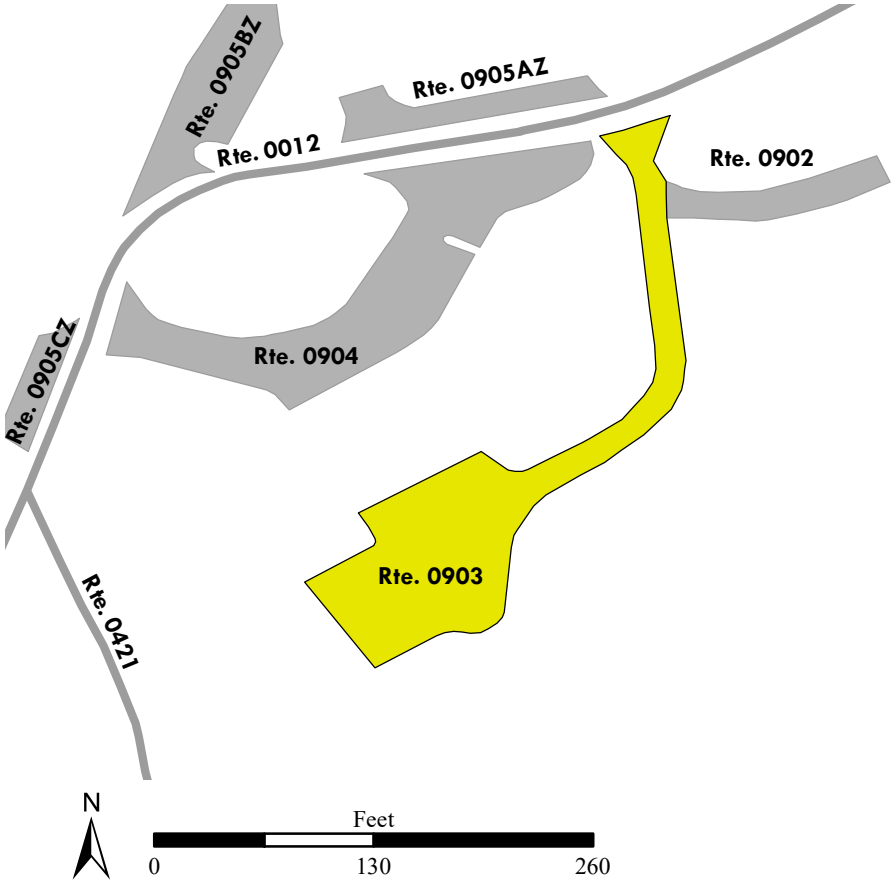
TO PARKING

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100409	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
11,577	0.199	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0904: HEADQUARTERS PARKING B

Manual Rating

FROM ROUTE 0012 (BARTLETT PARK ROAD)

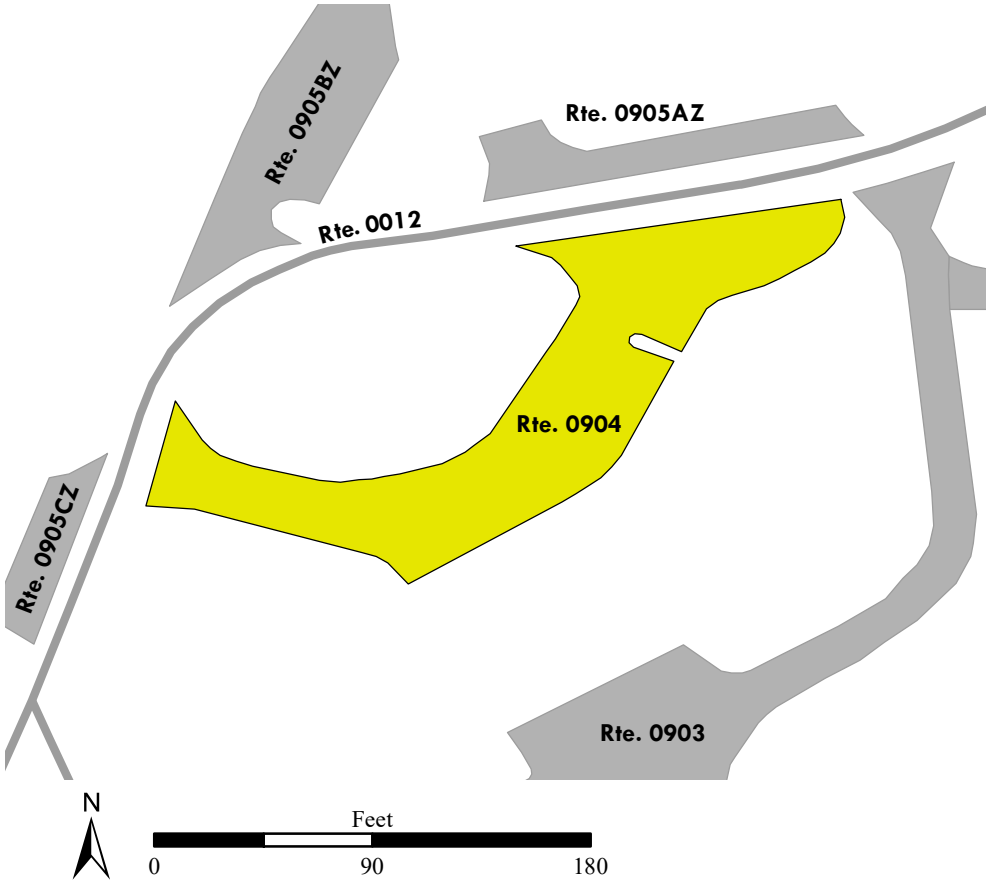
TO ROUTE 0012 (BARTLETT PARK ROAD)

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100410	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
10,033	0.173	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0905ZZ: BARTLETT PARK PICNIC AREA PARKING

Summary Route
Manual Rating

ADJACENT TO ROUTE 0012 (BARTLETT PARK ROAD)

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100411	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Condition Rating / PCR**	
11,400	0.197	SUMMARY / 73	

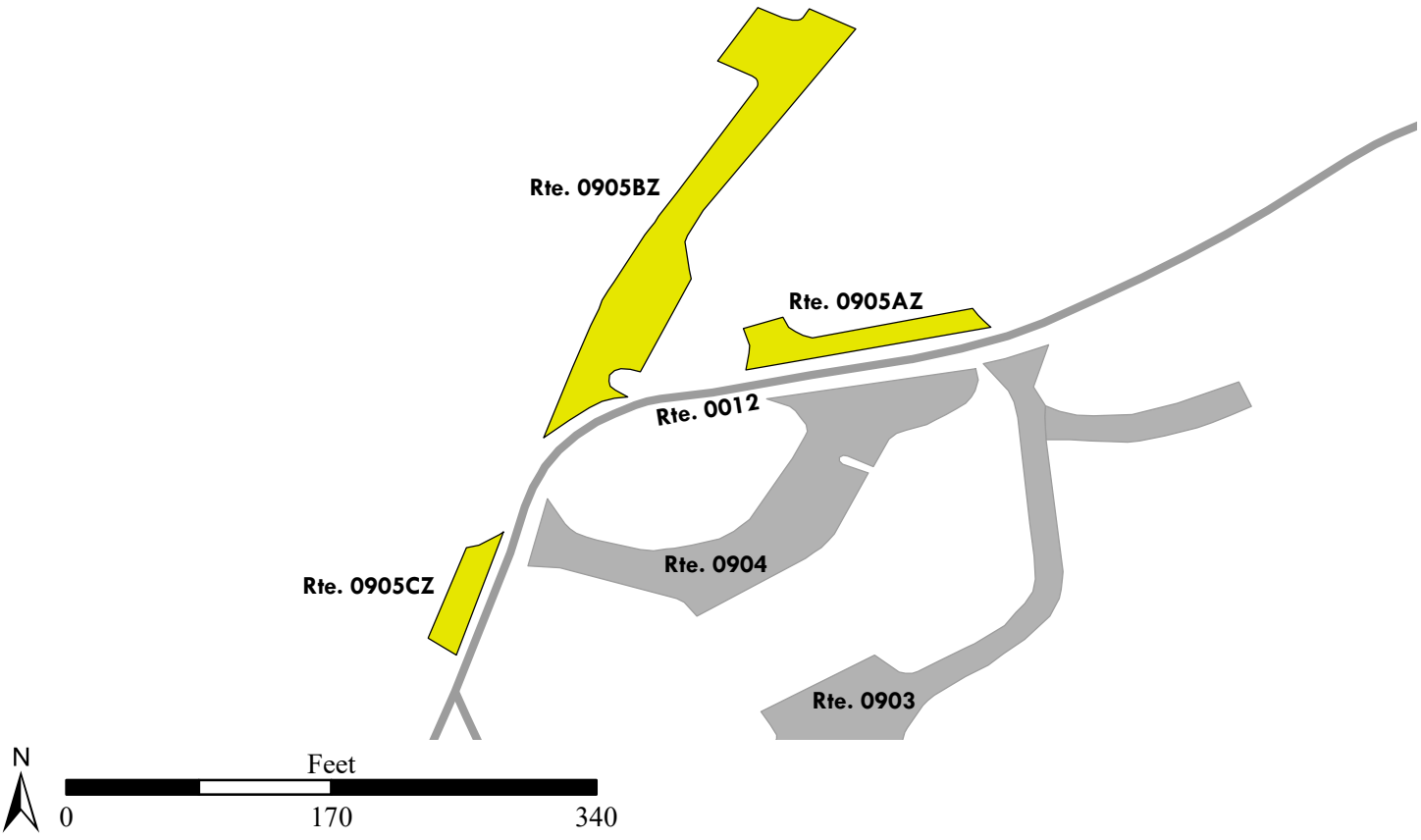
Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas

The condition shown on this page reflects the overall route condition and may not reflect individual subcomponent ratings.

Rte. 0905ZZ
(3 Subcomponents)



Cumberland Gap National Historical Park

ROUTE 0905AZ: BARTLETT PARK PICNIC AREA PARKING A

Subcomponent of Route CUGA-0905ZZ
Manual Rating

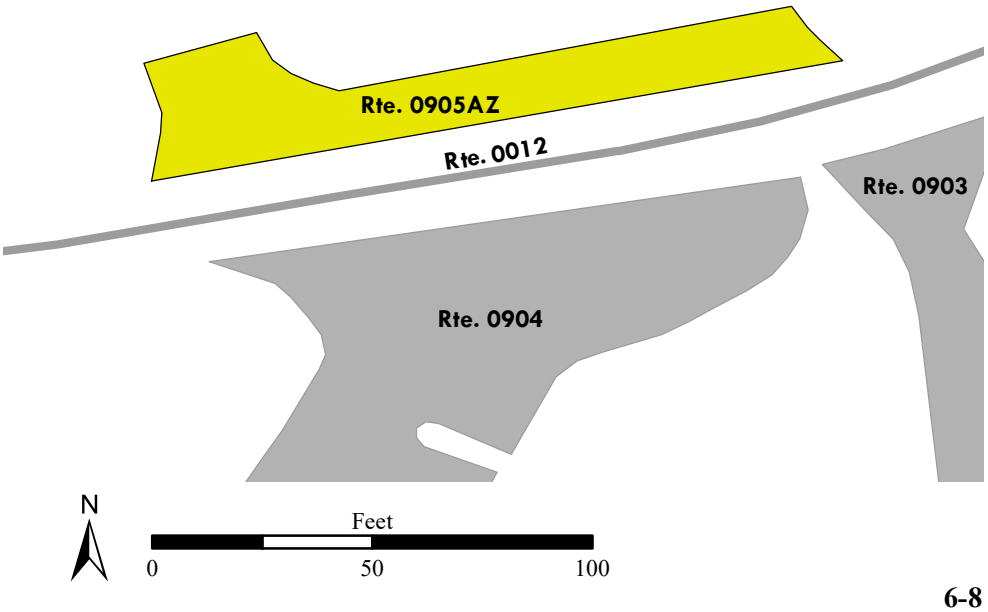
ADJACENT TO ROUTE 0012 (BARTLETT PARK ROAD)

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100411	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
2,005	0.035	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0905BZ: BARTLETT PARK PICNIC AREA PARKING B

Subcomponent of Route CUGA-0905ZZ
Manual Rating

FROM ROUTE 0012 (BARTLETT PARK ROAD)

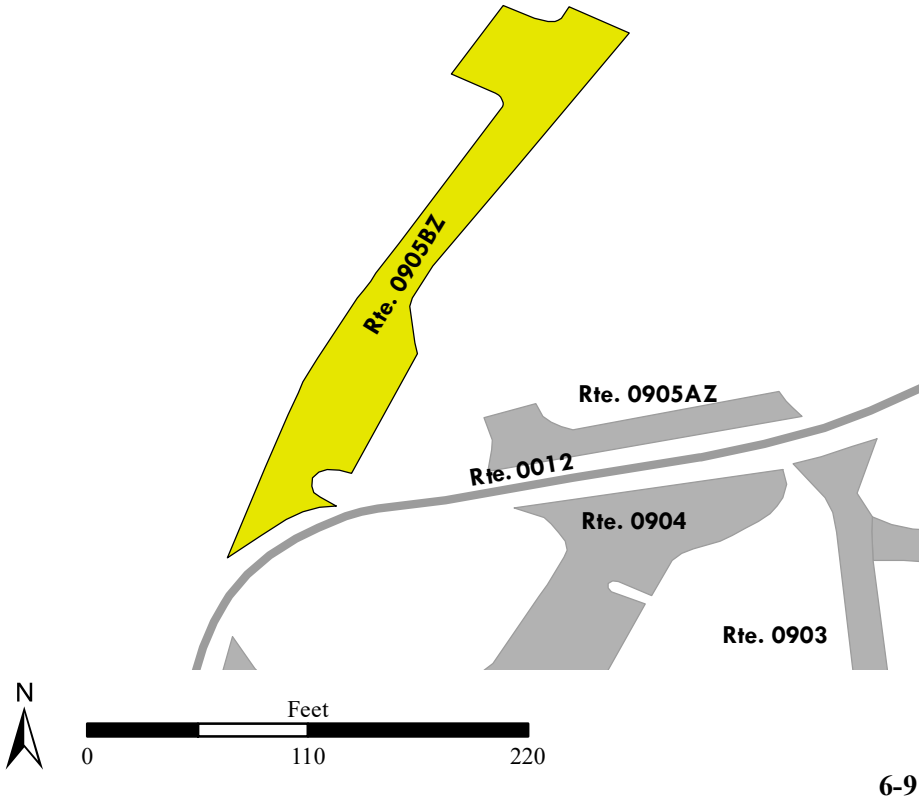
TO PARKING

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100411	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
8,250	0.142	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0905CZ: BARTLETT PARK PICNIC AREA PARKING C

Subcomponent of Route CUGA-0905ZZ
Manual Rating

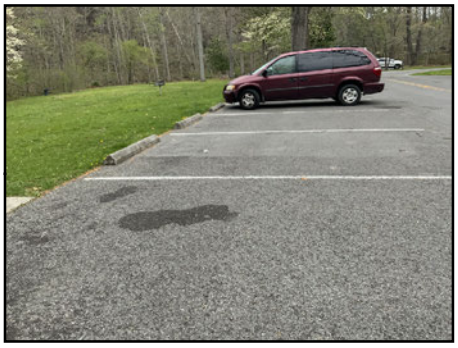
ADJACENT TO ROUTE 0012 (BARTLETT PARK ROAD)

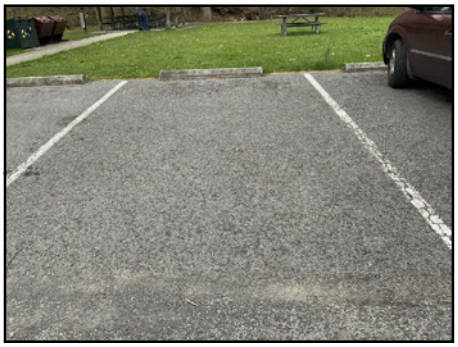
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100411	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
1,145	0.02	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

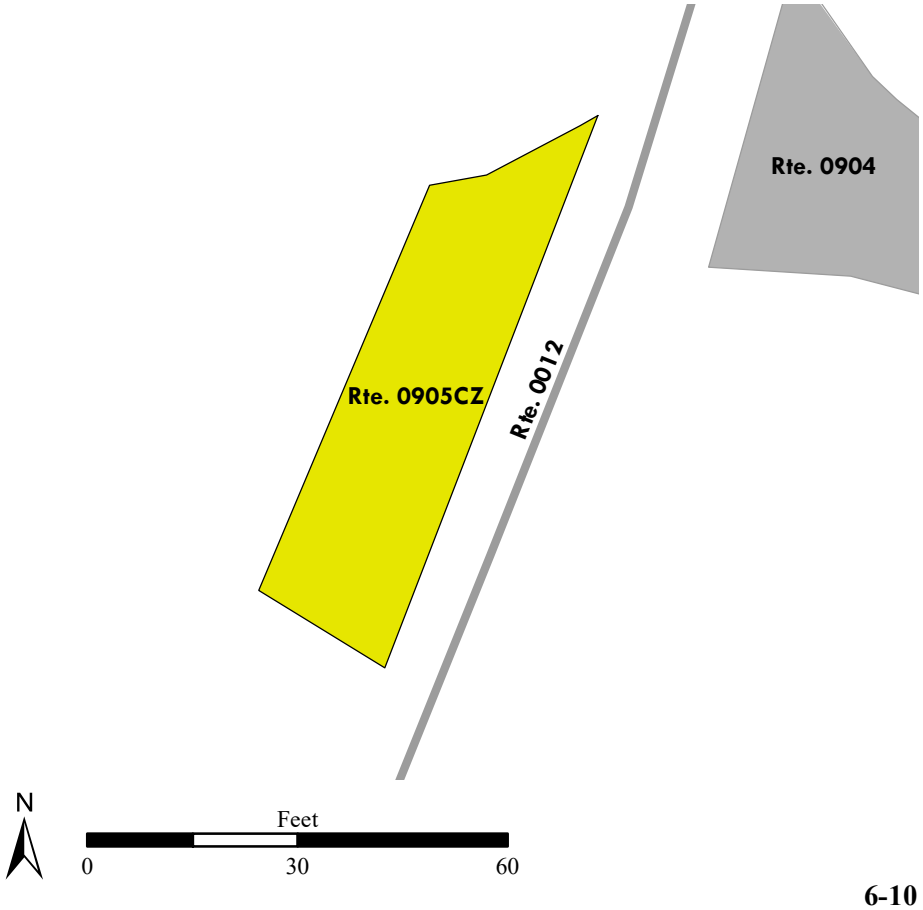
Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas







Cumberland Gap National Historical Park

ROUTE 0906: HEADQUARTERS HANDICAPPED PARKING

Manual Rating

FROM ROUTE 0421 (DUPLEX DRIVE)

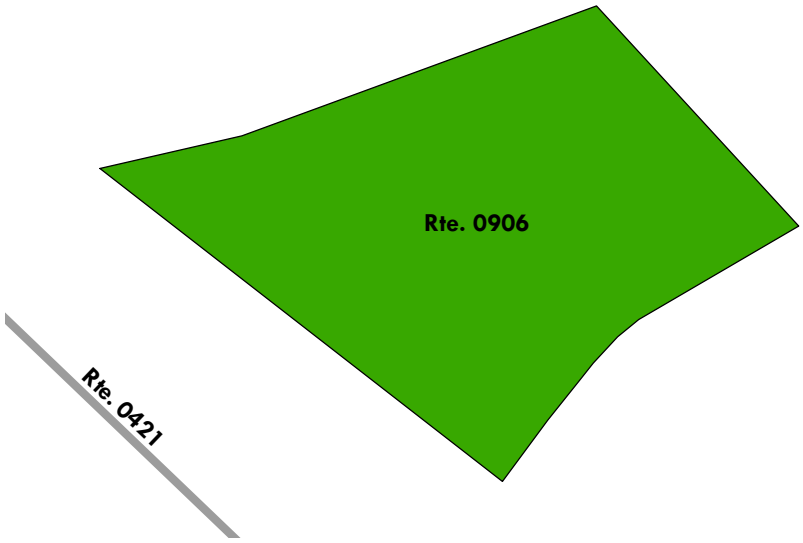
TO PARKING

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100414	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
970	0.017	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0907A: MAINTENANCE AREA A

Manual Rating

FROM ROUTE 0012 (BARTLETT PARK ROAD)

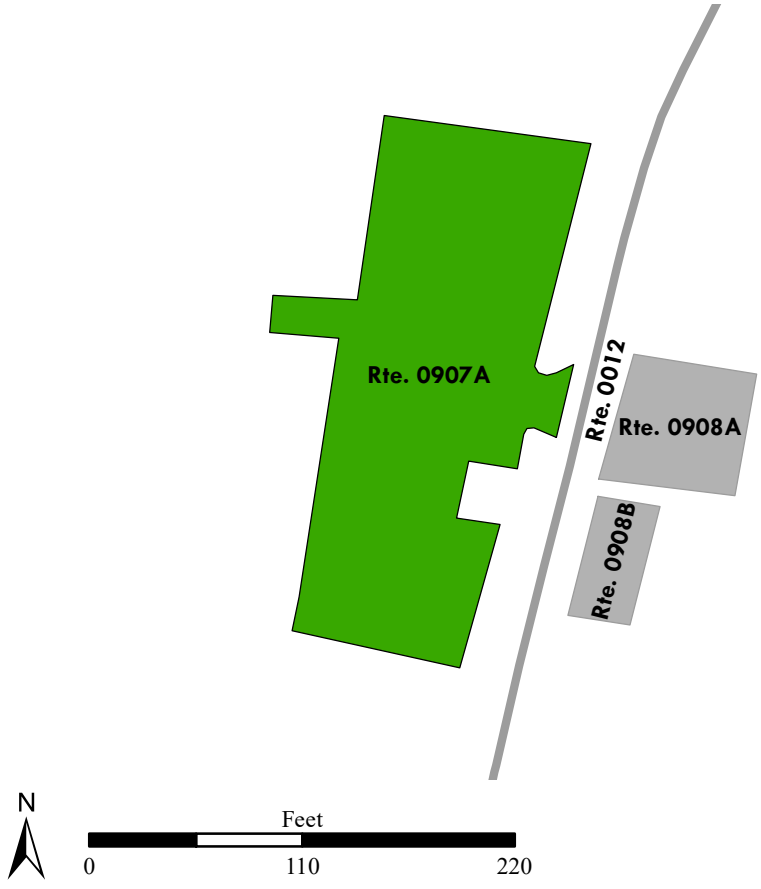
TO PARKING

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100416	NONPUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
22,448	0.387	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0907B: MAINTENANCE AREA B

Manual Rating

FROM ROUTE 0012 (BARTLETT PARK ROAD)

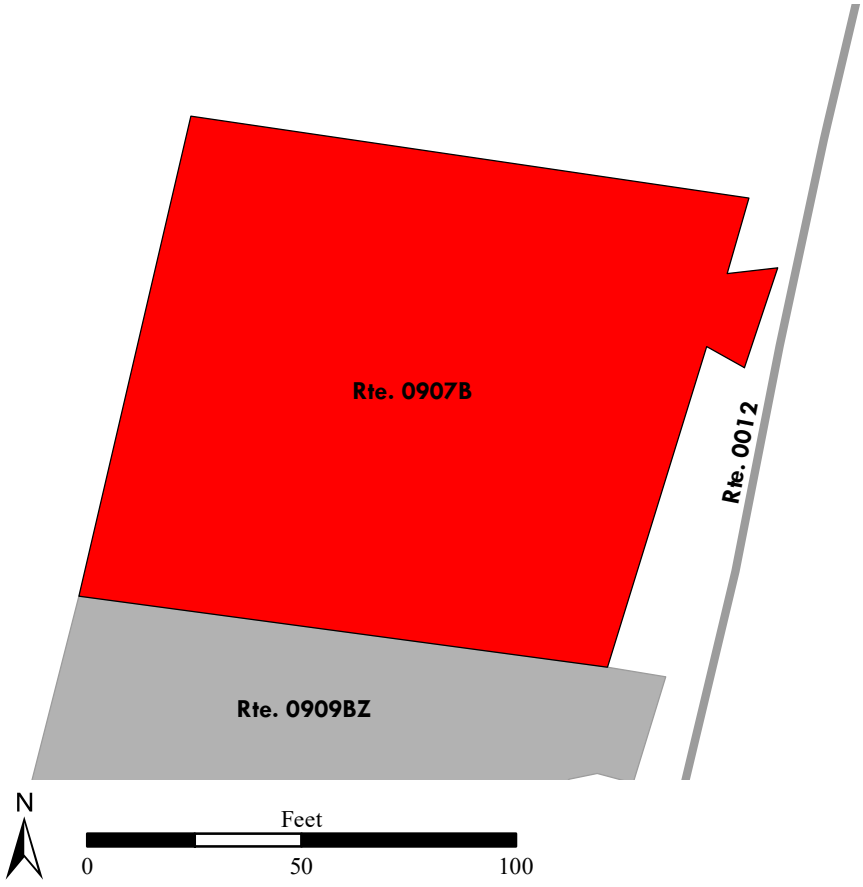
TO PARKING

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100576	NONPUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
11,916	0.205	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
RECONSTRUCTION		POOR / 30	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0908A: FACILITY MANAGEMENT EMPLOYEE PARKING

Manual Rating

FROM ROUTE 0012 (BARTLETT PARK ROAD)

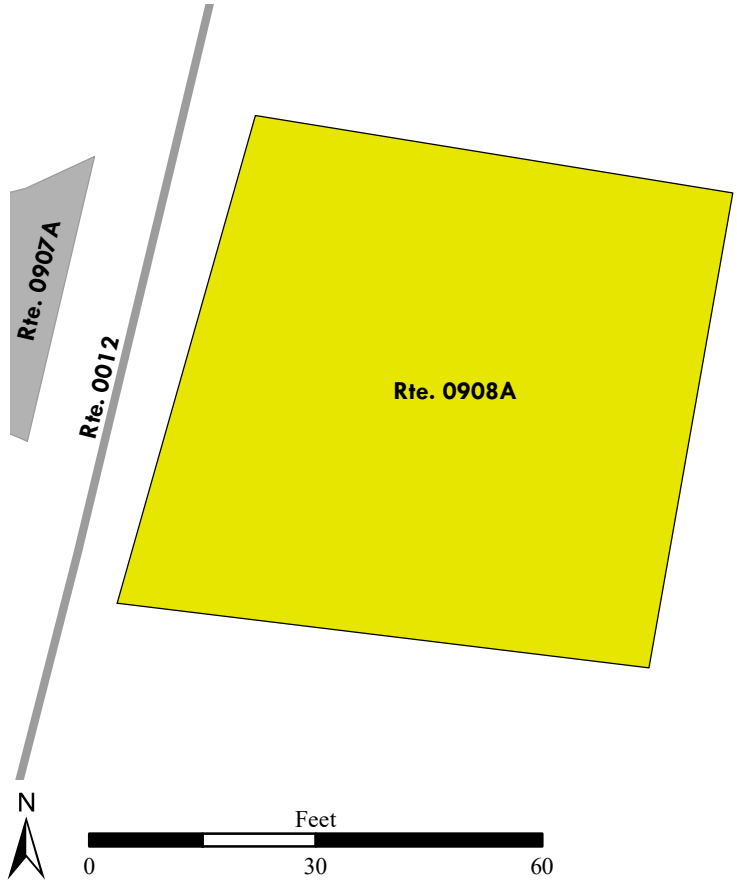
TO PARKING

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100578	NONPUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
3,539	0.061	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0908B: RESOURCE MANAGEMENT PARKING

Manual Rating

FROM ROUTE 0012 (BARTLETT PARK ROAD)

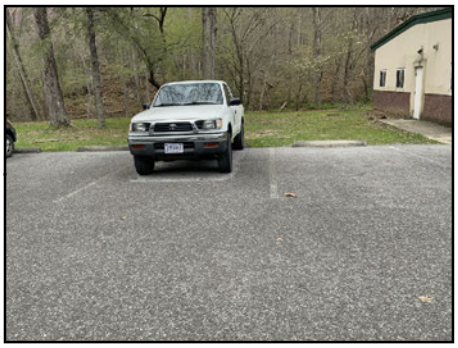
TO PARKING

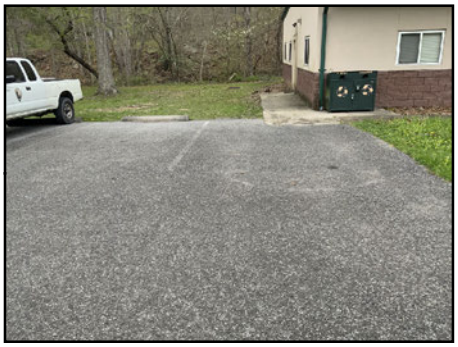
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100592	NONPUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
1,654	0.028	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

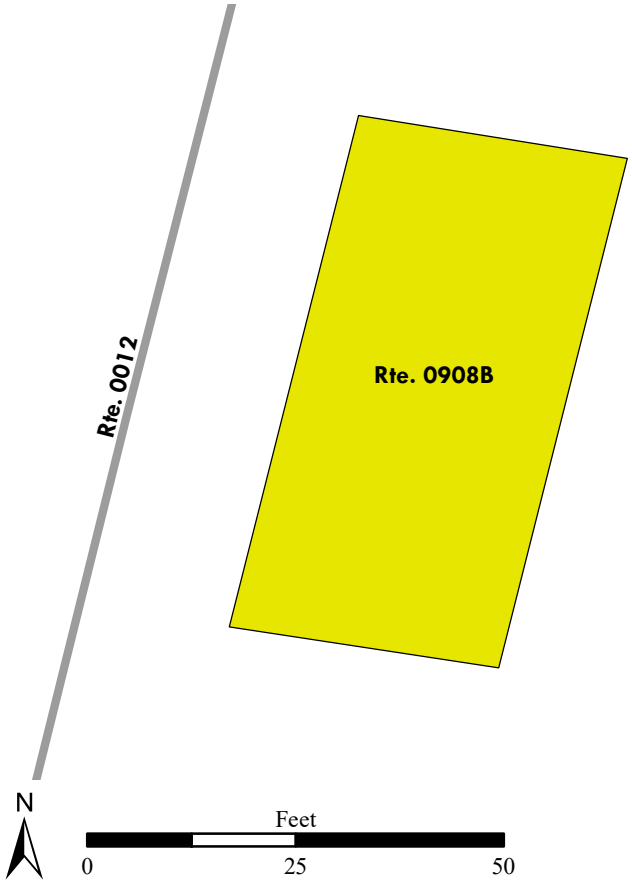
Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas







Cumberland Gap National Historical Park

ROUTE 0911: FORT MCCOOK PARKING

Manual Rating

FROM ROUTE 0010 (PINNACLE ROAD)

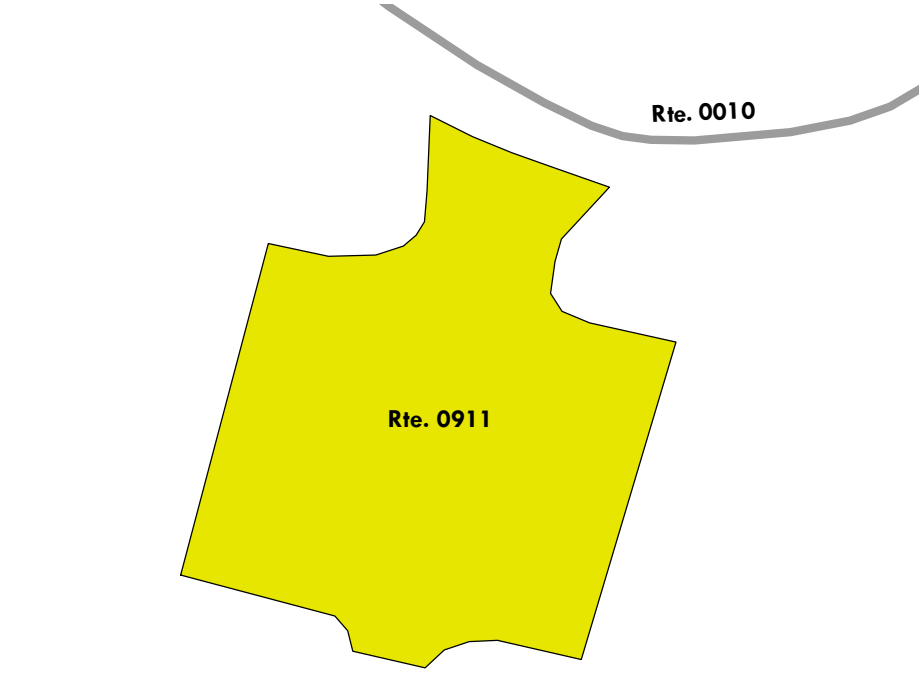
TO PARKING

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	100593	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
3,732	0.064	8	DO NOTHING
Curb Type		**Curb & Gutter Type**	
STONE		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0912: MIDWAY PARKING

Manual Rating

FROM ROUTE 0010 (PINNACLE ROAD)

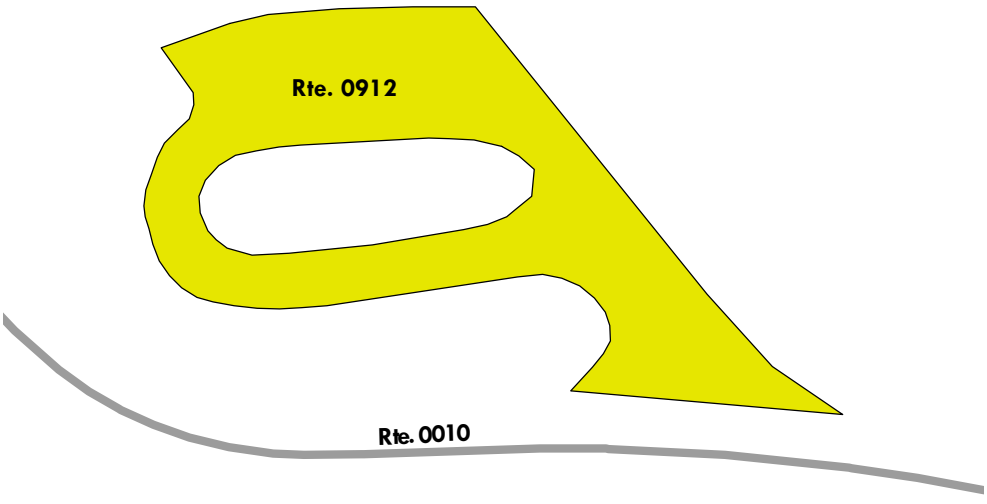
TO PARKING

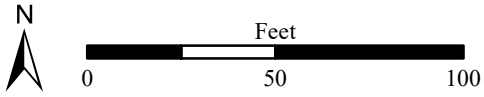
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101151	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
6,056	0.104	8	DO NOTHING
Curb Type		**Curb & Gutter Type**	
STONE		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas





Cumberland Gap National Historical Park

ROUTE 0913: PINNACLE PARKING

Manual Rating

FROM END OF ROUTE 0010 (PINNACLE ROAD)

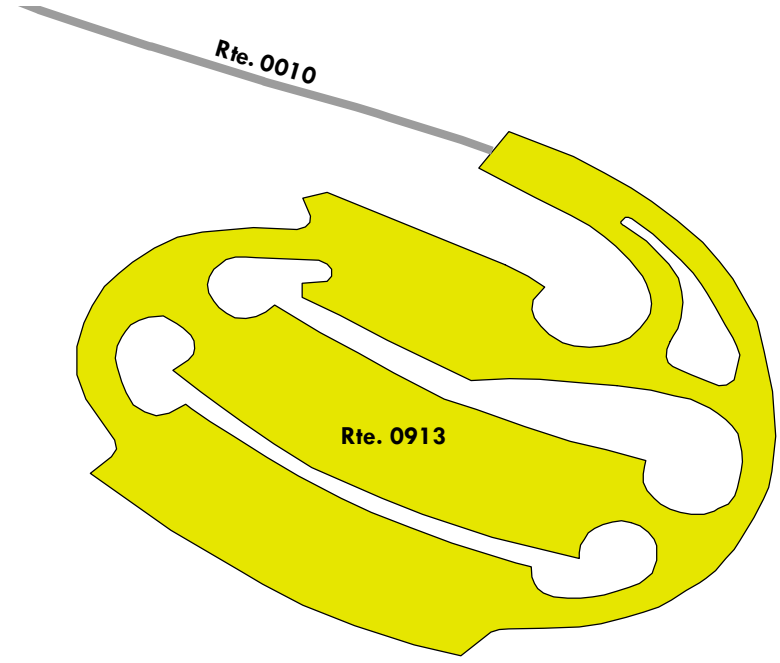
TO PARKING

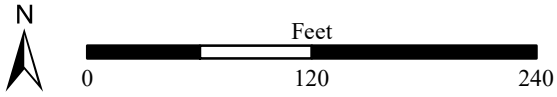
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101152	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
41,735	0.719	8	DO NOTHING
Curb Type		**Curb & Gutter Type**	
STONE		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas





Cumberland Gap National Historical Park

ROUTE 0914: THOMAS WALKER PARKING

Manual Rating

FROM ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))

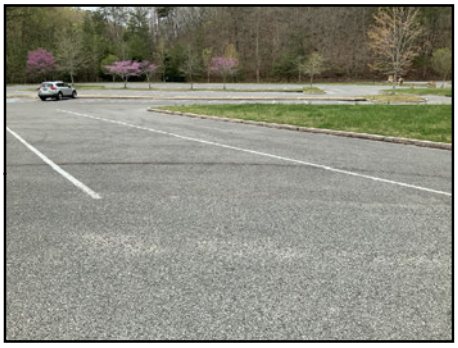
TO PARKING

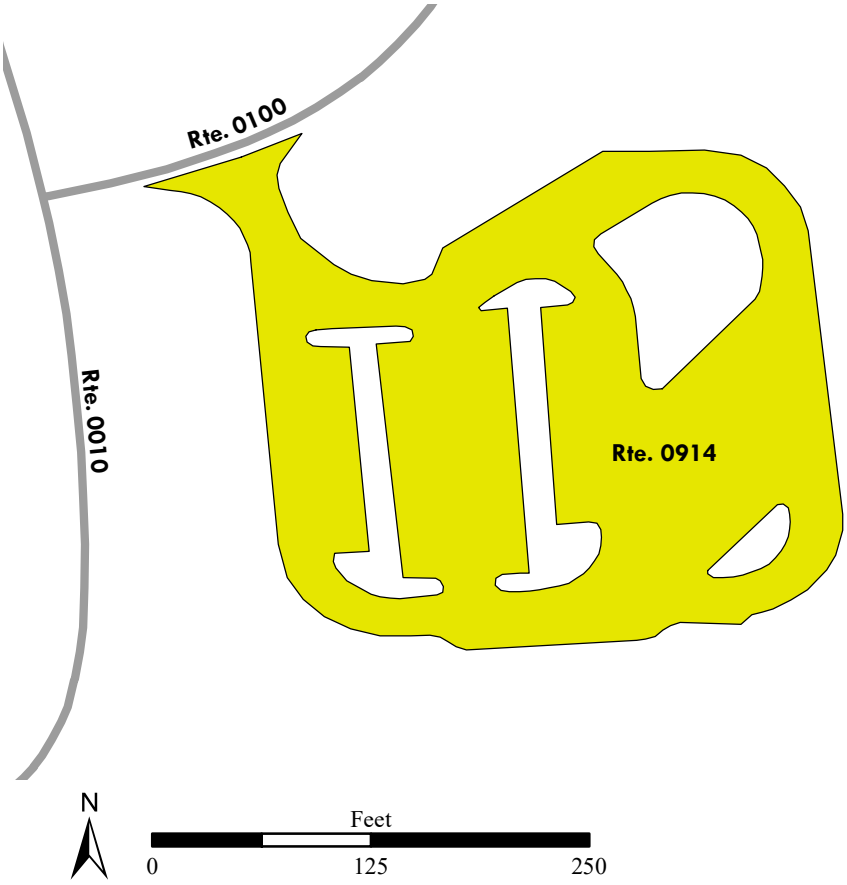
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	93475	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
51,382	0.885	8	DO NOTHING
Curb Type		**Curb & Gutter Type**	
STONE		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas





Cumberland Gap National Historical Park

ROUTE 0915: DARK RIDGE OVERLOOK PARKING

Manual Rating

FROM ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))

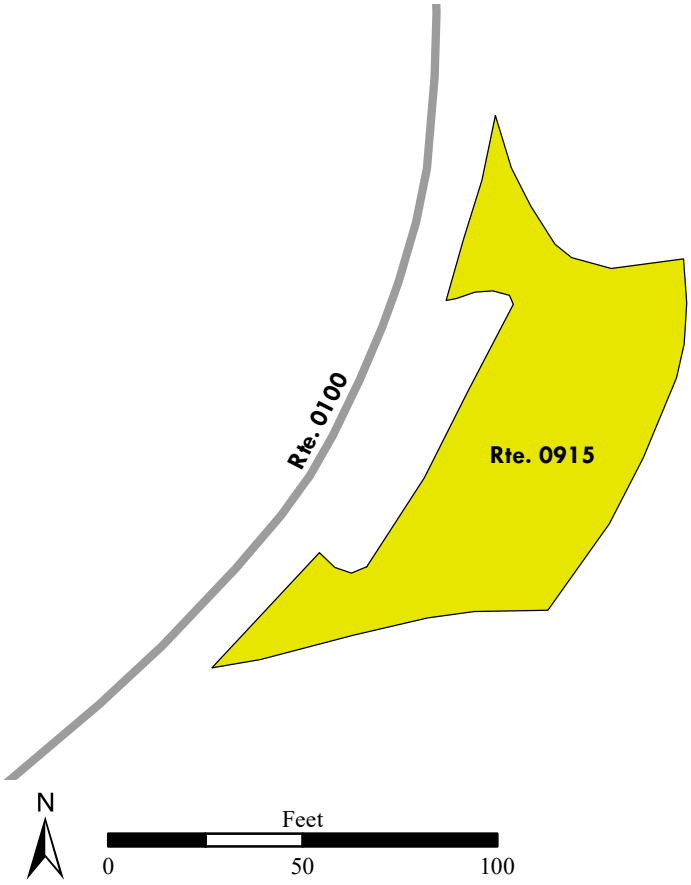
TO ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101153	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
4,653	0.08	4	DO NOTHING
Curb Type		**Curb & Gutter Type**	
CONCRETE		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0916: SUGAR RUN TURNAROUND

Manual Rating

FROM ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))

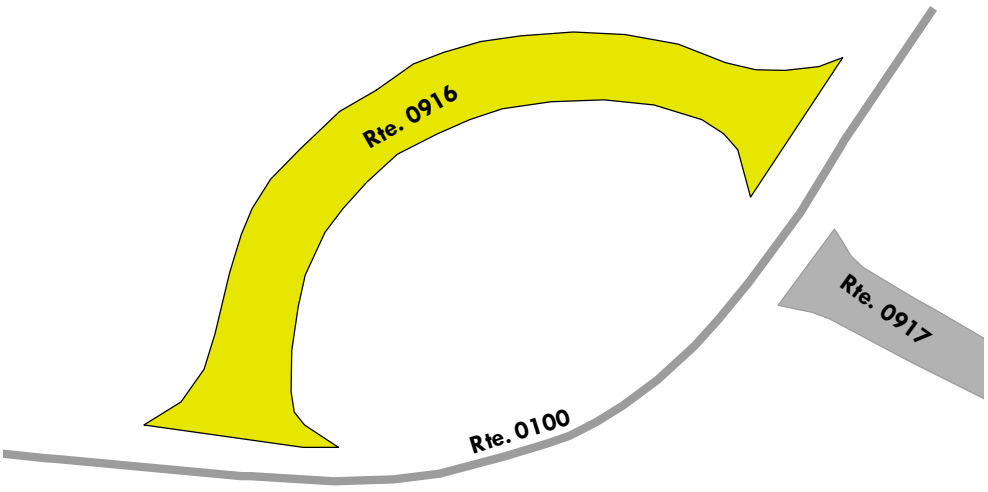
TO ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))

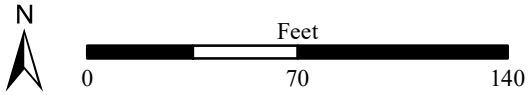
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101154	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
5,559	0.096	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas





Cumberland Gap National Historical Park

ROUTE 0917: SUGAR RUN PICNIC AREA PARKING

Manual Rating

FROM ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))

TO PARKING

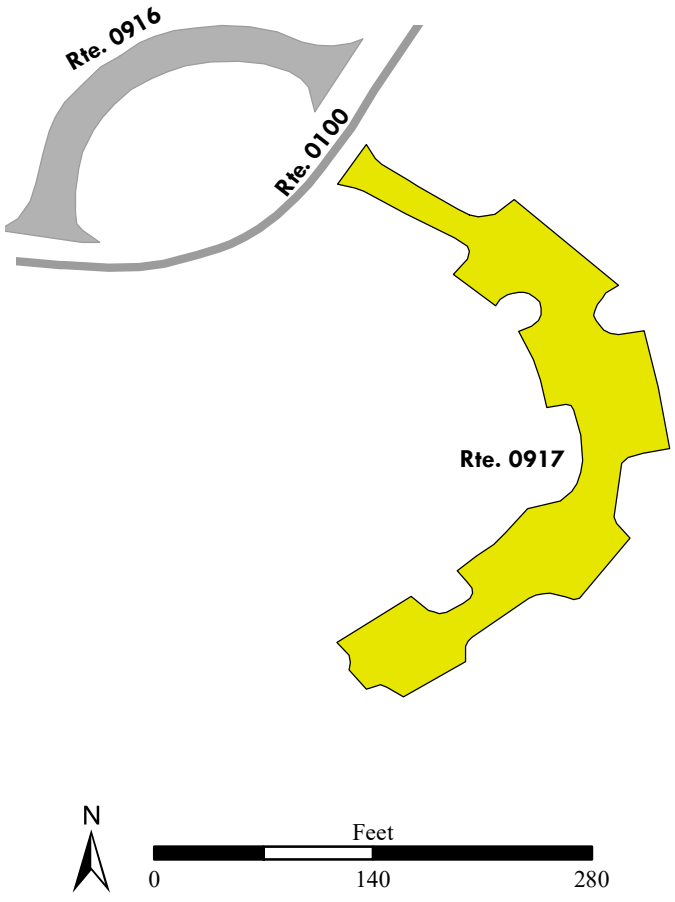
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101155	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
17,060	0.294	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas

Note: Parking area consists of multiple surface types: 1 part Asphalt at 16,285 square feet; 1 part Concrete at 775 square feet.



Cumberland Gap National Historical Park

ROUTE 0918A: WILDERNESS ROAD TRAILHEAD PARKING A

Manual Rating

FROM ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)

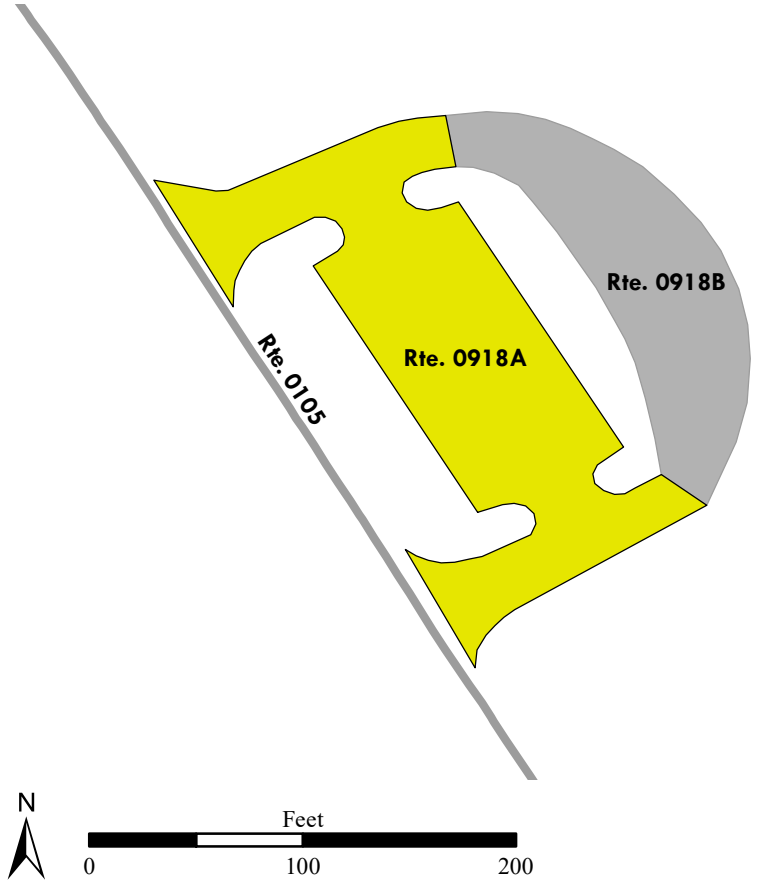
TO ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101156	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
15,637	0.269	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0919: WILDERNESS ROAD CAMPGROUND DUMP STATION

Manual Rating

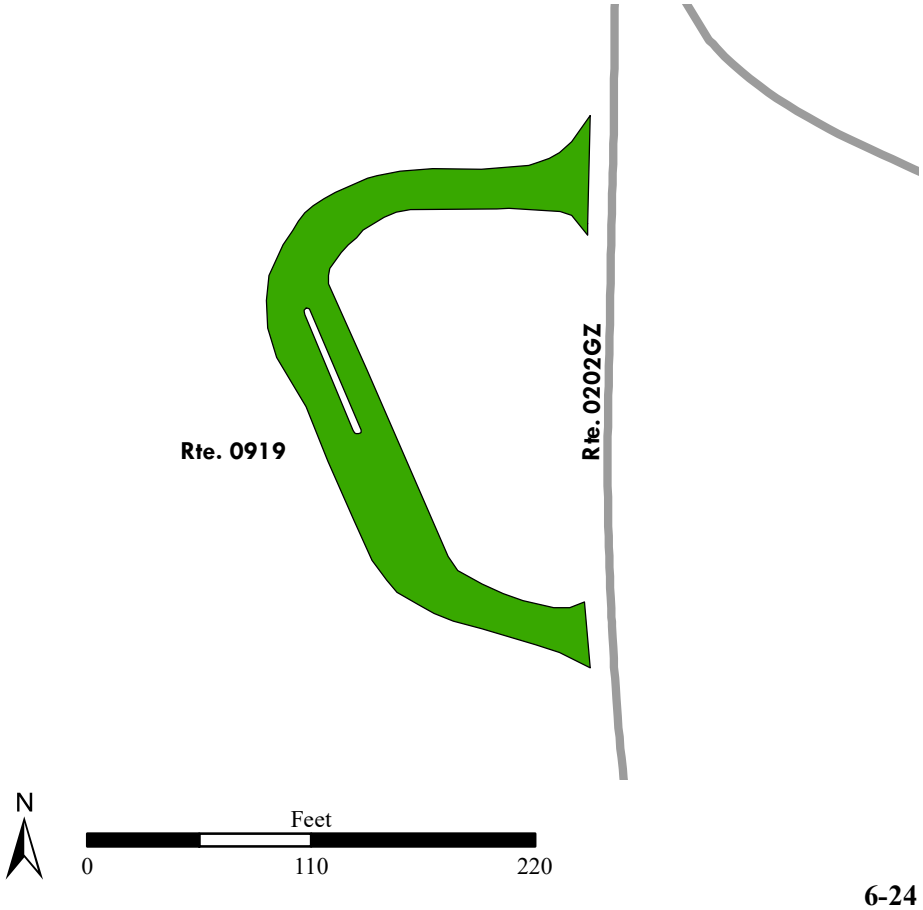
ADJACENT TO ROUTE 0202ZZ (WILDERNESS ROAD CAMPGROUND)

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101158	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
8,987	0.155	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0920: GROUP CAMPING PARKING

Manual Rating

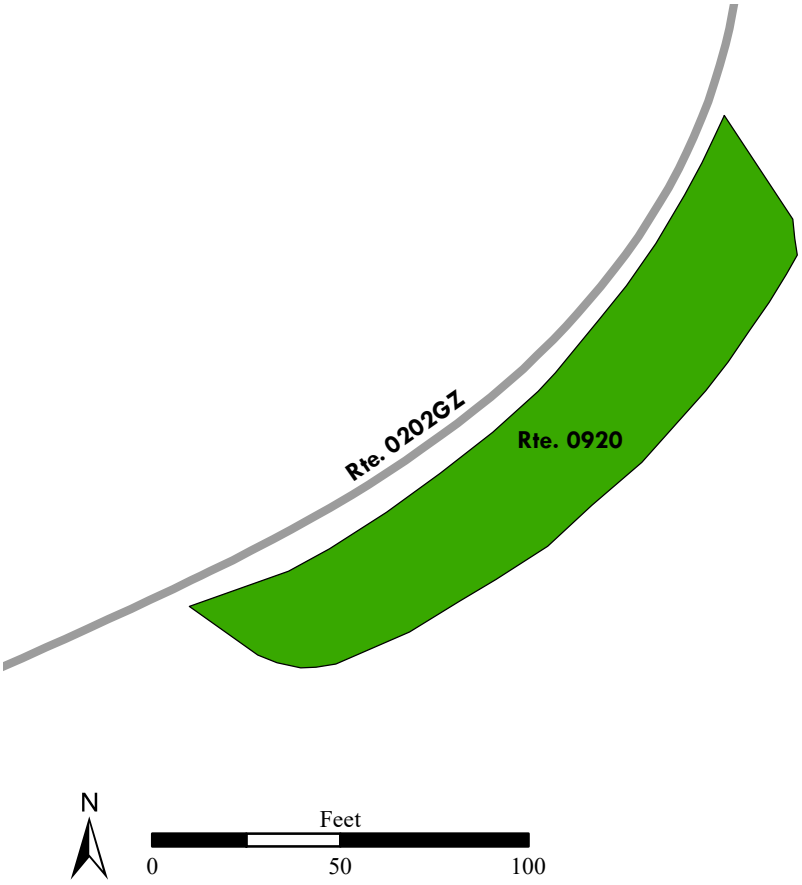
ADJACENT TO ROUTE 0202ZZ (WILDERNESS ROAD CAMPGROUND)

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101159	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
4,852	0.084	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0921: AMPHITHEATER HANDICAPPED PARKING

Manual Rating

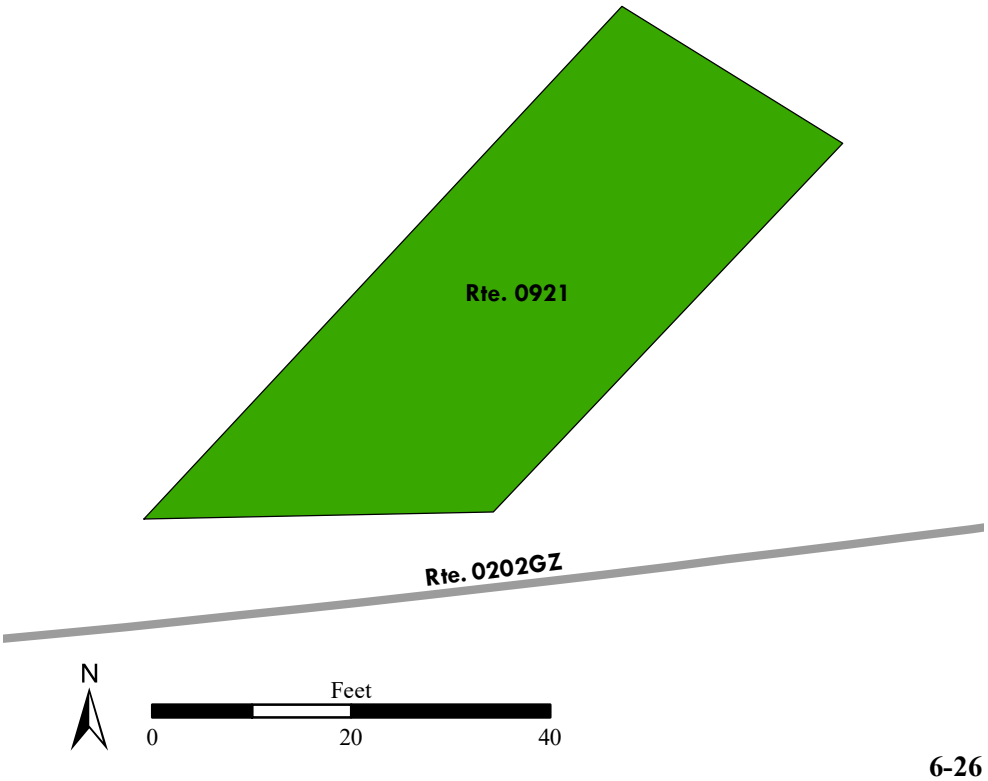
ADJACENT TO ROUTE 0202ZZ (WILDERNESS ROAD CAMPGROUND)

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101160	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
1,238	0.021	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0922ZZ: LEWIS HOLLOW PICNIC AREAS

Summary Route
Manual Rating

ADJACENT TO ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101161	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Condition Rating / PCR**	
10,738	0.185	SUMMARY / 90	

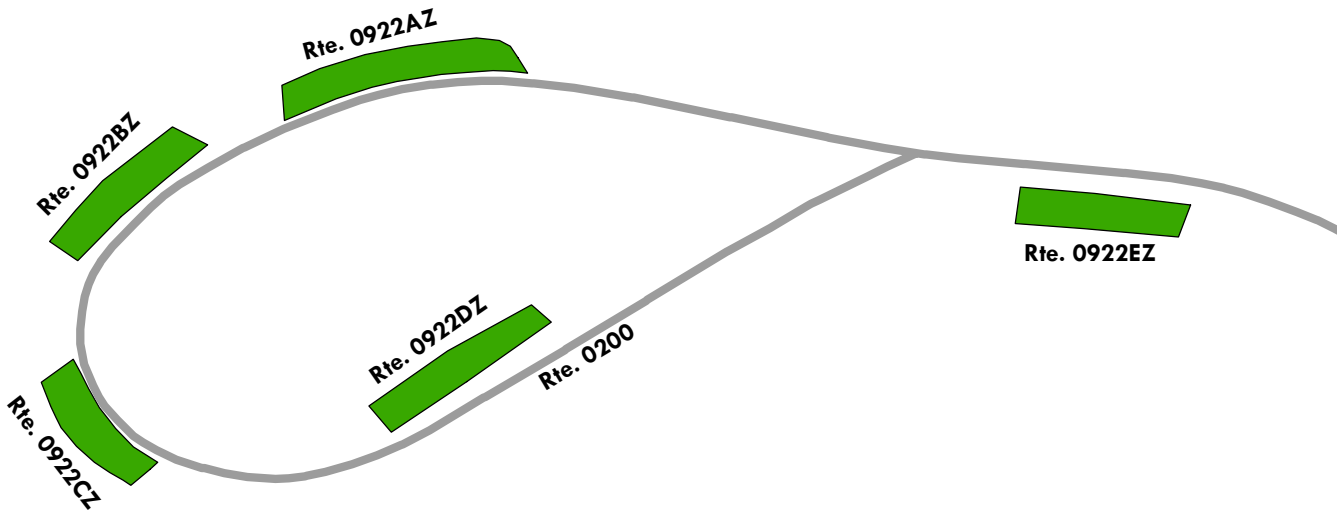
Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas

The condition shown on this page reflects the overall route condition and may not reflect individual subcomponent ratings.

Rte. 0922ZZ
(5 Subcomponents)



Cumberland Gap National Historical Park

ROUTE 0922AZ: LEWIS HOLLOW PICNIC AREA PARKING A

Subcomponent of Route CUGA-0922ZZ
Manual Rating

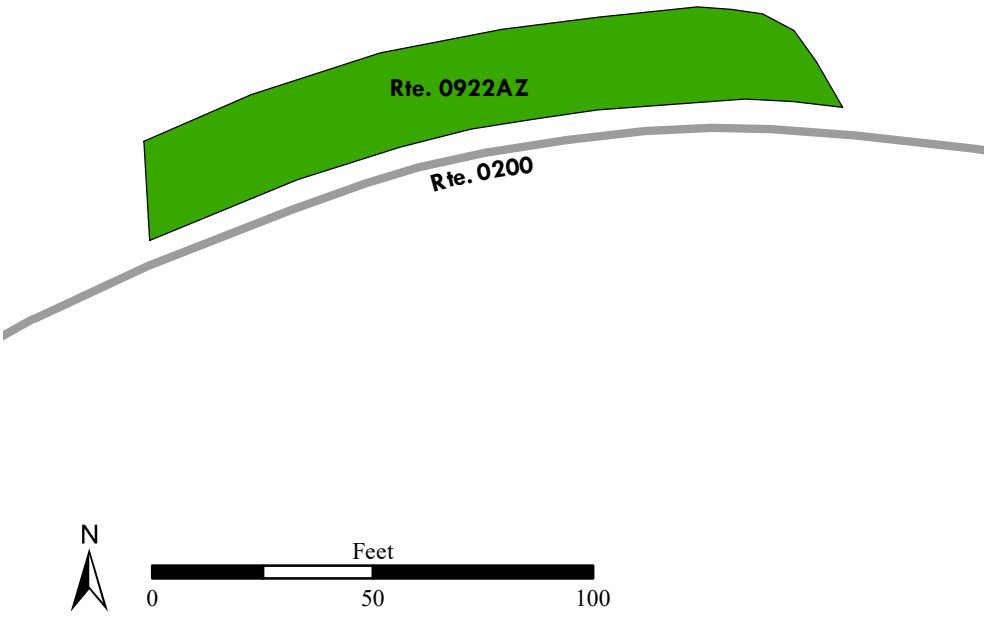
ADJACENT TO ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101161	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
2,654	0.046	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0922BZ: LEWIS HOLLOW PICNIC AREA PARKING B

Subcomponent of Route CUGA-0922ZZ
Manual Rating

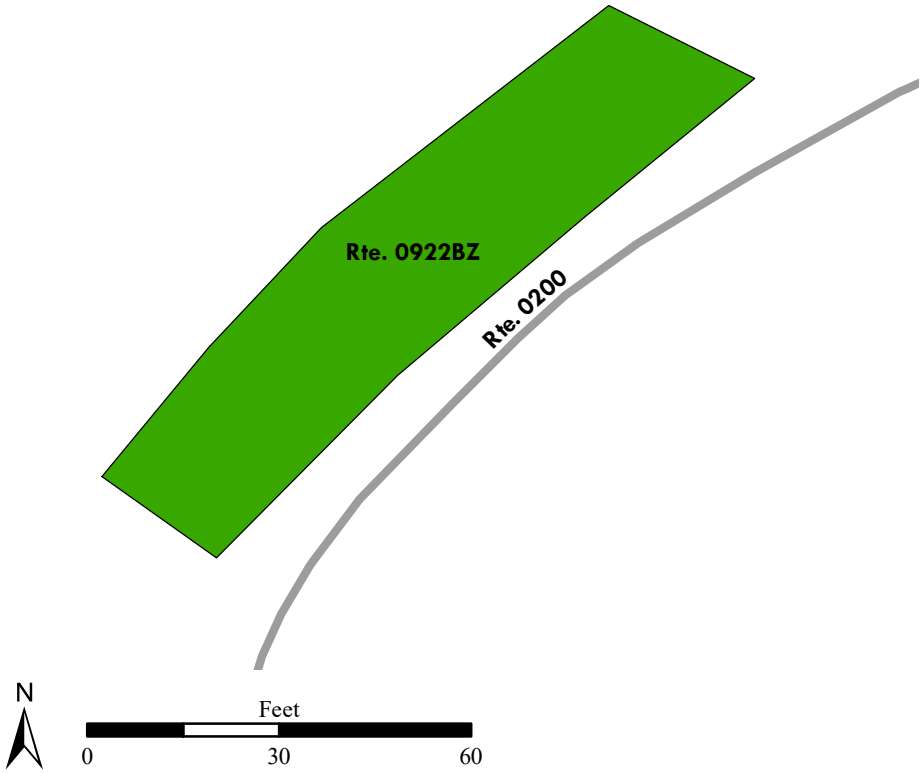
ADJACENT TO ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101161	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
2,130	0.037	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0922CZ: LEWIS HOLLOW PICNIC AREA PARKING C

Subcomponent of Route CUGA-0922ZZ
Manual Rating

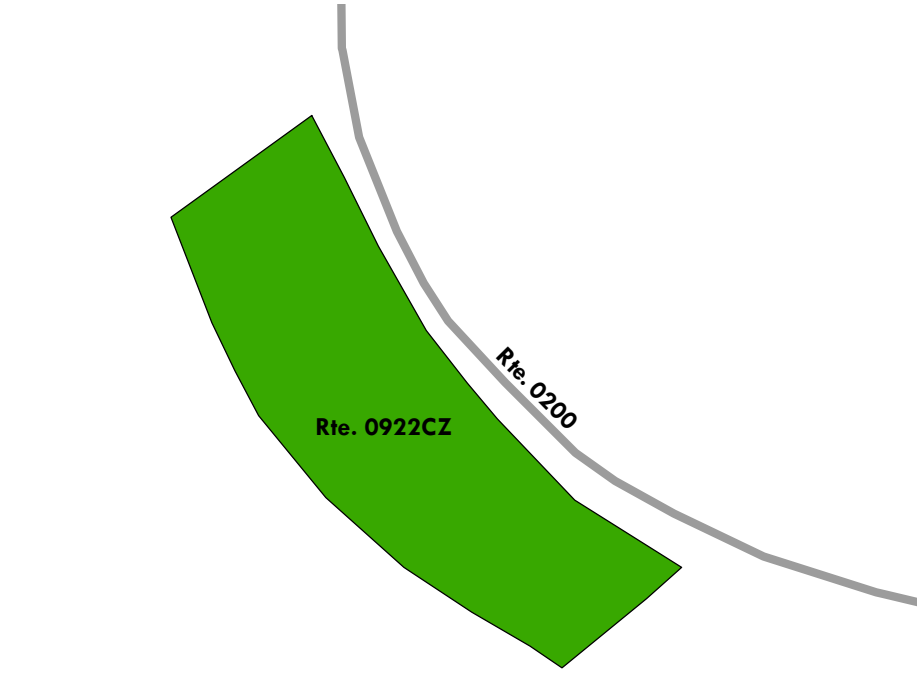
ADJACENT TO ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101161	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
1,814	0.031	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0922DZ: LEWIS HOLLOW PICNIC AREA PARKING D

Subcomponent of Route CUGA-0922ZZ
Manual Rating

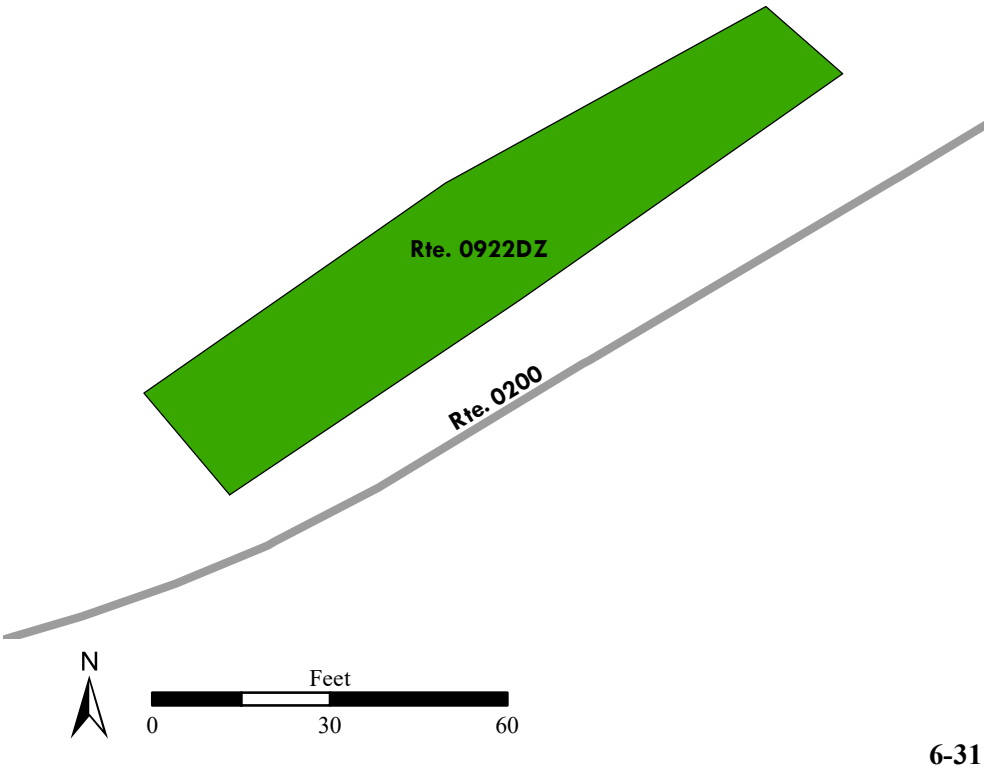
ADJACENT TO ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101161	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
2,145	0.037	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0922EZ: LEWIS HOLLOW PICNIC AREA PARKING E

Subcomponent of Route CUGA-0922ZZ
Manual Rating

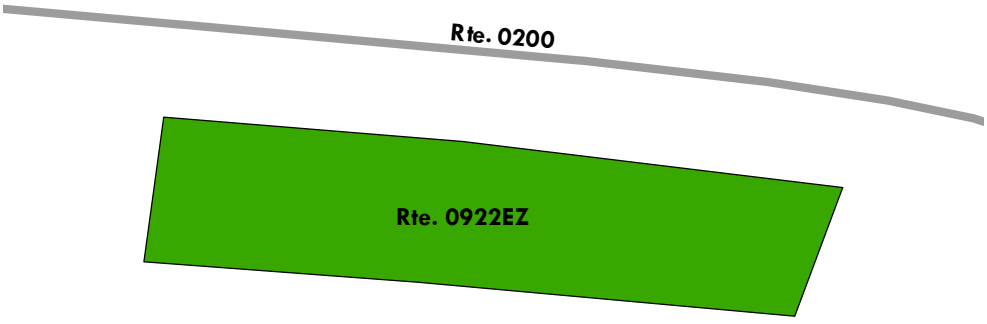
ADJACENT TO ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)

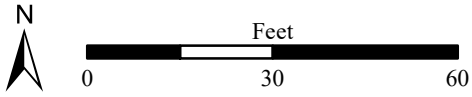
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101161	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
1,995	0.034	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

See Appendix for definitions and formulas





Cumberland Gap National Historical Park

ROUTE 0923: WILDERNESS ROAD CAMPGROUND REGISTRATION PARKING

Manual Rating

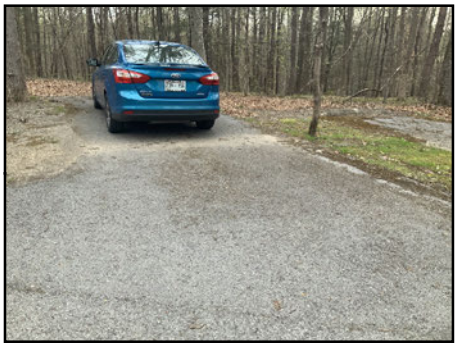
ADJACENT TO ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)

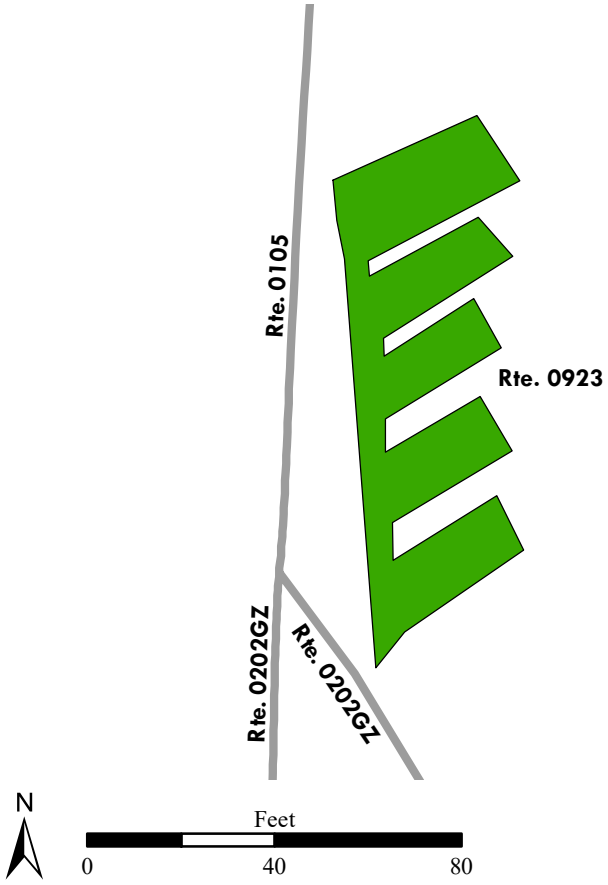
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101166	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
2,076	0.036	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas





Cumberland Gap National Historical Park

ROUTE 0925: IRON FURNACE PARKING LOT

Manual Rating

FROM PENNLYN AVENUE

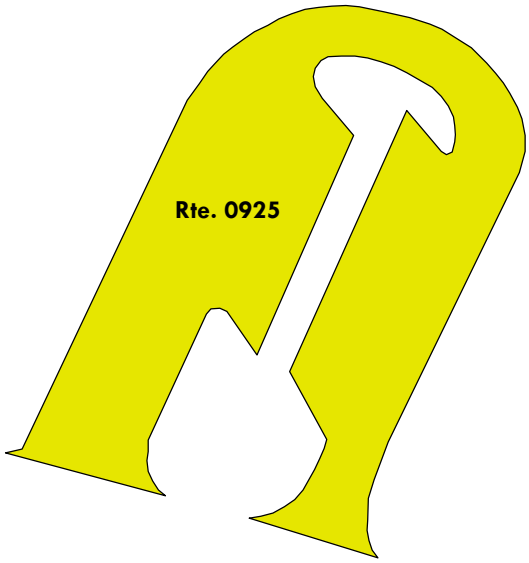
TO PENNLYN AVENUE

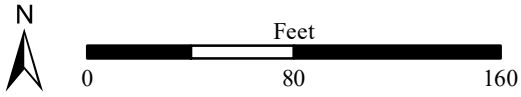
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	101389	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
15,218	0.262	7	DO NOTHING
Curb Type		**Curb & Gutter Type**	
STONE		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

See Appendix for definitions and formulas





Cumberland Gap National Historical Park

ROUTE 0926: DANIEL BOONE PARKING

Manual Rating

FROM ROUTE 0103 (DANIEL BOONE (N CUMBERLAND DRIVE) PARKING ACCESS ROAD)

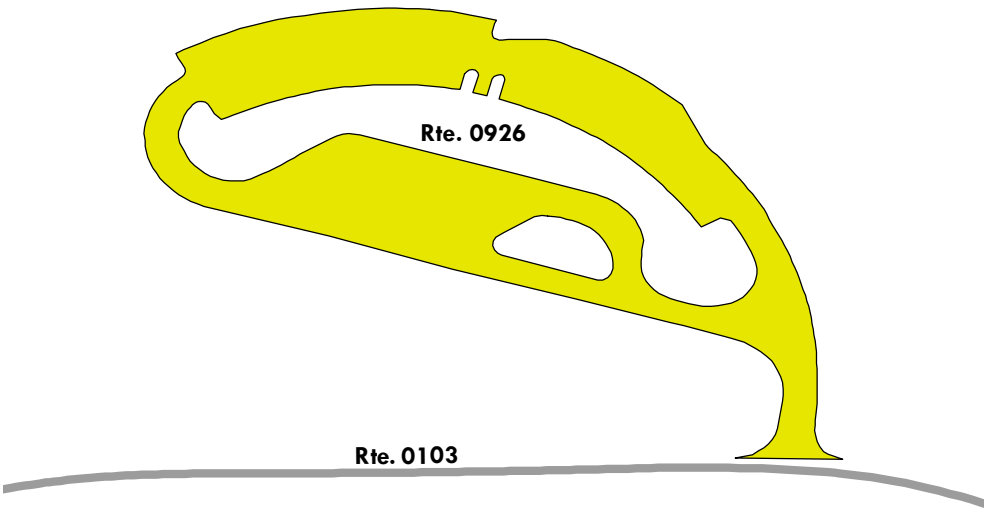
TO PARKING

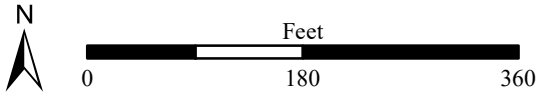
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	93433	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
54,489	0.938	7	DO NOTHING
Curb Type		**Curb & Gutter Type**	
STONE		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

See Appendix for definitions and formulas





Cumberland Gap National Historical Park

ROUTE 0927ZZ: TWCP PARKING AREAS

Summary Route
Manual Rating

FROM ROUTE 0203 (ENTRANCE ROAD AT TWCP)

TO PARKING

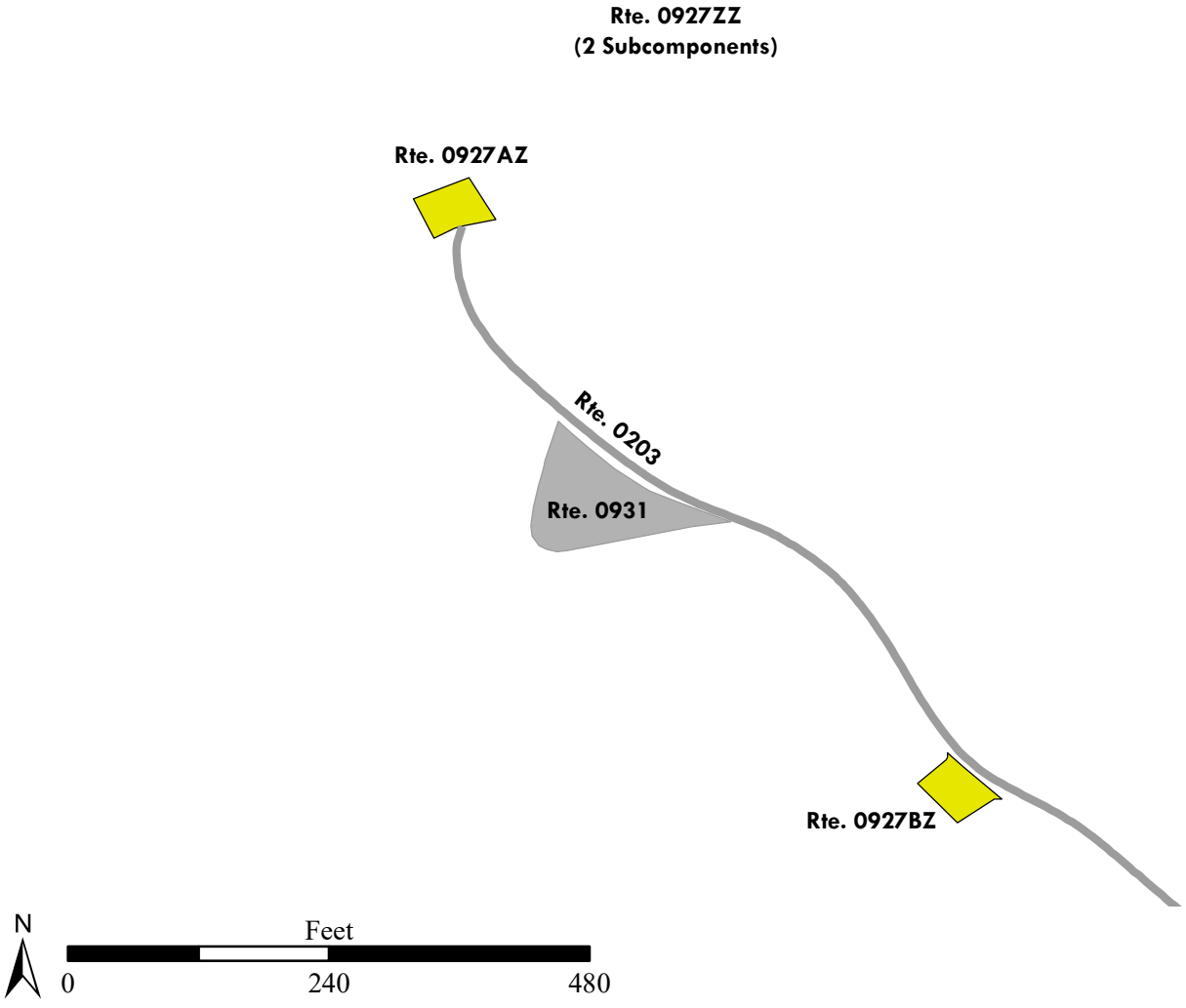
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	240421	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Condition Rating / PCR**	
3,688	0.063	SUMMARY / 81	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas

The condition shown on this page reflects the overall route condition and may not reflect individual subcomponent ratings.



Cumberland Gap National Historical Park

ROUTE 0927AZ: TWCP PARKING A

Subcomponent of Route CUGA-0927ZZ
Manual Rating

FROM END OF ROUTE 0203 (ENTRANCE ROAD AT TWCP)

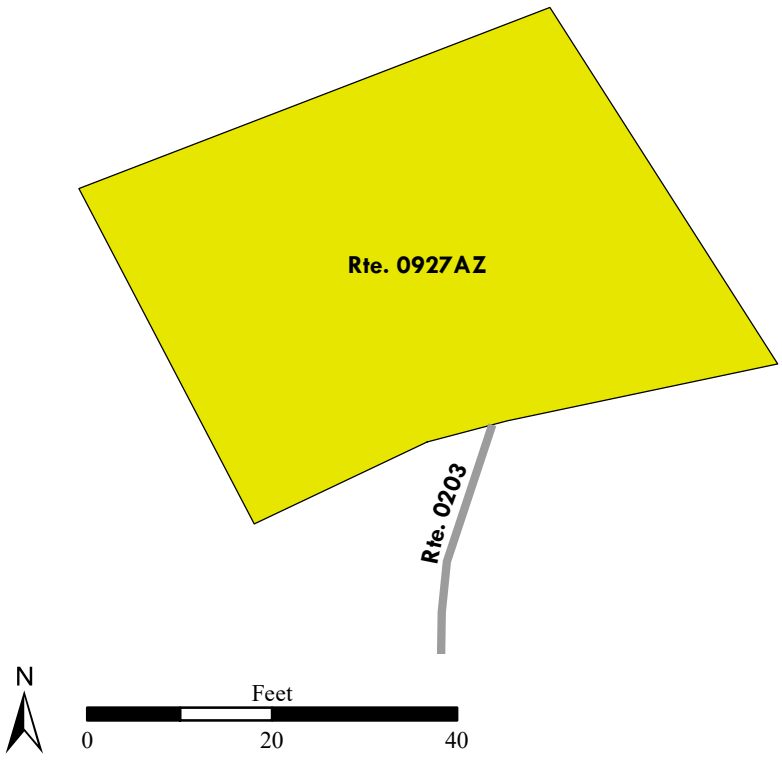
TO PARKING

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	240421	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
1,866	0.032	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
LIGHT 3R TREATMENTS		FAIR / 73	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0927BZ: TWCP PARKING B

Subcomponent of Route CUGA-0927ZZ
Manual Rating

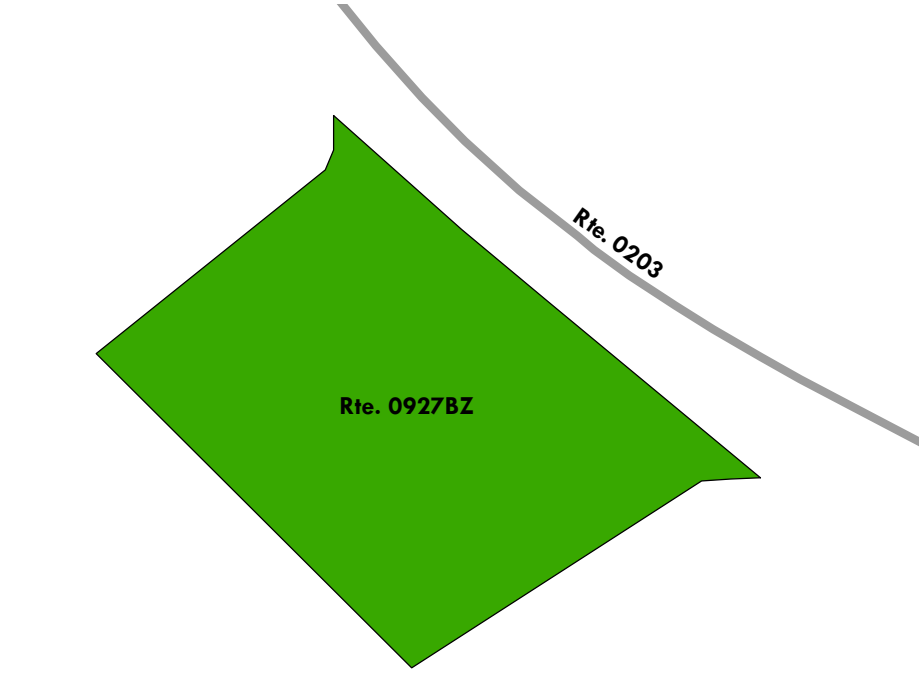
ADJACENT TO ROUTE 0203 (ENTRANCE ROAD AT TWCP)

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	240421	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
1,822	0.031	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas



Cumberland Gap National Historical Park

ROUTE 0928: DUPLEX PARKING

Manual Rating

ADJACENT TO ROUTE 0421 (DUPLEX DRIVE)

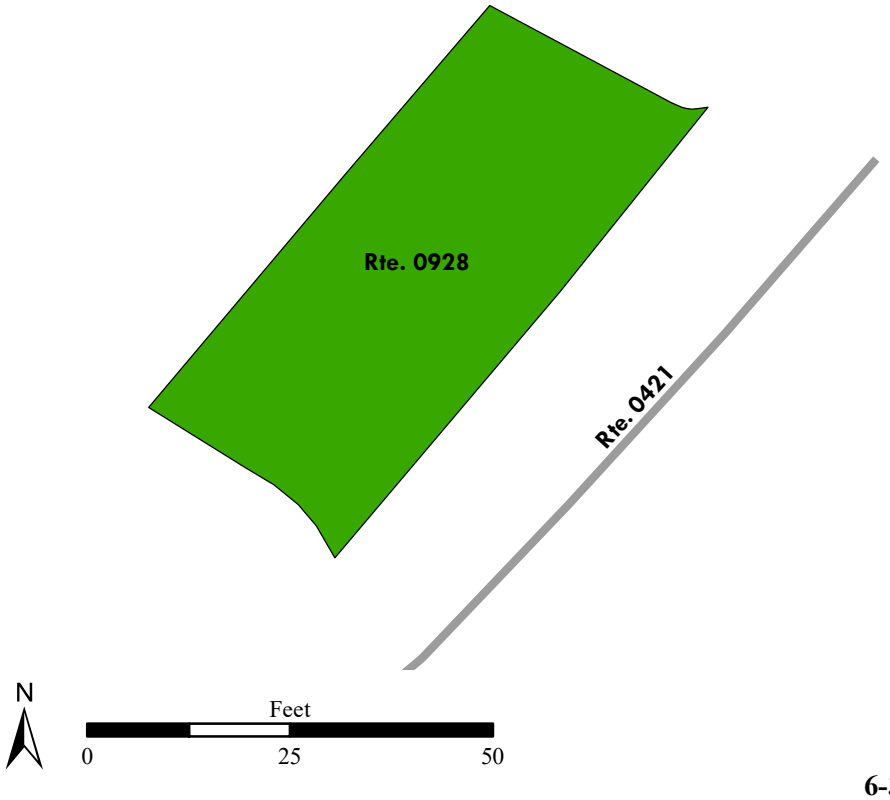
Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	240416	NONPUBLIC	CONCRETE
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
1,569	0.027	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60)	Fair (61- 84)	Good (85 - 94)	Excellent (95 - 100)	Not Rated

See Appendix for definitions and formulas

Note: Parking area consists of multiple surface types: 1 part Asphalt at 645 square feet; 1 part Concrete at 924 square feet.



Cumberland Gap National Historical Park

ROUTE 0929: AMPHITHEATER BUS PARKING

Manual Rating

FROM ROUTE 0202ZZ (WILDERNESS ROAD CAMPGROUND)

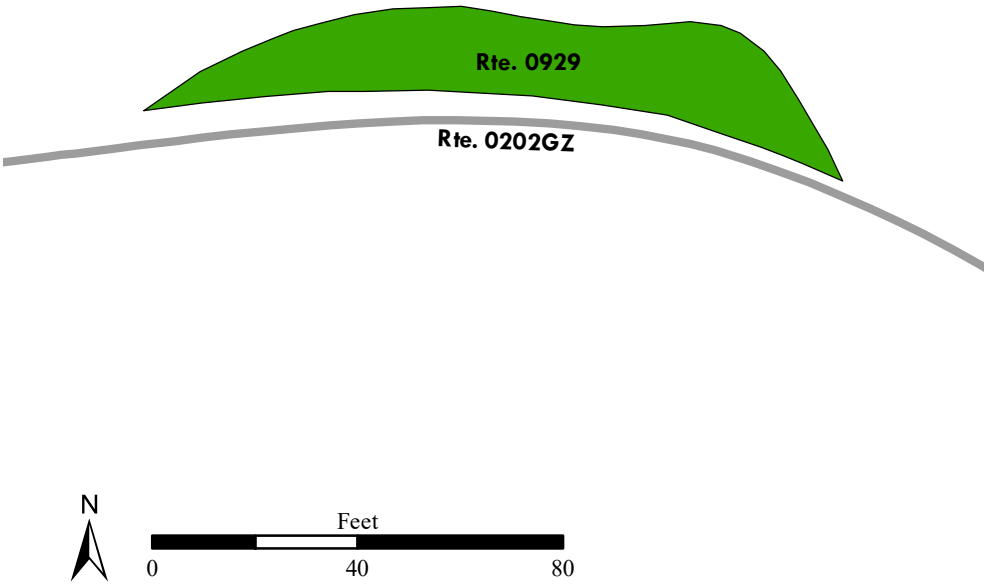
TO PARKING

Inspection Date	FMSS Number	User Access	Surface Type
4/13/2021	240418	PUBLIC	ASPHALT
Area (Sq. Ft.)	**Lane Miles (11' Widths)**	**Curb Reveal (Inches)**	**Curb Recommendation**
1,503	0.026	NOT APPLICABLE	NOT APPLICABLE
Curb Type		**Curb & Gutter Type**	
NO CURB		NO CURB AND GUTTER	
Pavement Recommendation		**Condition Rating / PCR**	
PREVENTIVE MAINTENANCE		GOOD / 90	

Route Condition Legend – Pavement Condition Rating (PCR)

Poor (0 - 60) | **Fair (61- 84)** | **Good (85 - 94)** | **Excellent (95 - 100)** | **Not Rated**

See Appendix for definitions and formulas



Section 7
Road Milepost Information

Cumberland Gap National Historical Park

Federal Lands Highway
Road Inventory Program

Road Milepost Information

This report section contains road milepost information for all paved roads in the park that were collected with the Data Collection Vehicle (DCV). The milepost data is obtained from the DCV by using a distance measuring instrument (DMI) that is calibrated to record mileage to the nearest thousandth of a mile. Park roads that were manually rated did not have milepost data collected, and thus are not included in this report section.

For Cycle 6, the information presented in this section differs from previous RIP cycles in that it does not contain the roadside features inventories for the paved park roads. Some examples of the features previously collected are signs, culverts/drop inlets, guardrails, curbing, pullouts, etc. If the park was collected in a previous RIP cycle, then the latest features data can be obtained by referencing the following:

Where to find the latest Features Inventories for NPS Parks:

- For Small Parks (parks with less than 10 miles of paved roads):
    - Refer to Cycle 5 data (collected 2010 - 2014)
        - Features were reported in Section 9 of the ***Cycle 5*** RIP report
        - Video of features can be viewed using the ***PathViewVO*** program and ***Cycle 5*** data

- For Large Parks (parks with more than 10 miles of paved roads):
    - Refer to Cycle 4 data (collected 2006 - 2009)
        - Features were reported in Section 9 of the ***Cycle 4*** RIP report
        - Video of features can be viewed using the ***VisiData*** program and ***Cycle 4*** data
    - Note: Features inventories were updated in Large Parks in ***Cycle 5*** only on a route by route basis if the route was new or modified in ***Cycle 5***. If this is the case for a particular route, then features for the route can be obtained using the ***PathViewVO*** program and ***Cycle 5*** data (same as above for Small parks).

Milepost Events Verified in Cycle 6

In Cycle 6, the following events were collected and reported in Section 7 of this report:

- Intersections with roads and parking areas
- All bridges and culverts with BIP Numbers (bridge inspection program numbers)
- Mile Marker Signs
- One-Way travel directions
- Overpasses
- Tunnels
- Low Water Crossings (LWCR)
- Surface type changes
- Construction areas where no pavement condition data was obtained

GPS Mileage Matching

A consistent survey milepost and constant route length as recorded by the Data Collection Vehicle (DCV) is a challenge to maintain from one collection cycle to the next. The challenge is due to many factors such as driver characteristics, DMI calibration, tire pressure etc. After Cycle 4 (~2010), a decision was made to hold constant the length of roads so long as there was no physical change from reconstruction projects or realignments that would result in a change to the length of a road. Consequently, the "GPS Mileage Match" was implemented to specify which cycle the route length is being matched. Route mileages and GPS are matched to a previous collection whenever there is no physical change to a route alignment. The route mileage and GPS is not matched to previous cycles whenever it is determined that a road length and GPS needs to be updated. When this happens the GPS and length is updated to the cycle that displays the change, and that collection cycle is used as the matching cycle in subsequent collections of the road. Thus, the Cycle 6 GIS could be either the survey length collected in Cycle 4, Cycle 5, or Cycle 6 and therefore, may not match the survey milepost displayed in the latest Cycle 6 DCV video which is viewable in ***PathView VO***.

The features inventories and road logs collected on NPS routes contain mileposts that are determined from the corresponding cycle that the GPS is matched to. Therefore, the mileposts contained in the Cycle 4 or 5 features inventories or the Cycle 6 road logs may not exactly match the survey milepost collected in the latest Cycle 6 video of the road.

Locating Mile Marker Signs

For routes that have mile marker signs along them, the milepost reported by RIP will most likely not line up exactly with the sign located in the field. This could be happening for many reasons, most likely due to either the error falling within the acceptable calibration range of the vehicle, or the level of accuracy that the mile marker signs were placed in the field.

Because mile marker signs are important features in many project plans and location descriptions, RIP is reporting locations of mile marker signs in three ways in Cycle 6:

1. Mileposts from Cycle 6 GIS: the official RIP milepost taken from the features inventories and the matching GPS/mileage cycle as described above. This is the milepost that should be used on project plans and when finding locations in the field

2. Mileposts from Cycle 6 Video: milepost shown to help locate the mile marker sign in the latest ***PathView VO*** video.

3. Latitude / Longitude: a constant way of locating a mile marker sign so long as the park has not moved the sign

The mileposts from Cycle 6 Video and GIS should be nearly the same, but on longer roads it has been observed that the Video milepost deviates more from the official GIS milepost that comes from the matching cycle.

CUGA: Route Milepost Log

ROUTE 0010: PINNACLE ROAD

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 4.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	INTERSECTION	N/A	PAVED ROUTE (US HIGHWAY 25E NORTHBOUND / NON NPS)
0.00	0.00	INTERSECTION	L	PAVED ROUTE (US HIGHWAY 25E NORTHBOUND / NON NPS)
0.15	0.15	CULVERT	N/A	5230-008 (LITTLE YELLOW CREEK CULVERT #3)
0.18	0.21	BRIDGE	N/A	5230-005 (U.S. ROUTE 25E BRIDGE #2)
0.24	0.24	INTERSECTION	R	ROUTE 0013 (U.S. HIGHWAY 25E SOUTHBOUND ACCESS ROAD)
0.24	0.24	INTERSECTION	L	ROUTE 0013 (U.S. HIGHWAY 25E SOUTHBOUND ACCESS ROAD)
0.29	0.29	INTERSECTION	R	ROUTE 0900 (VISITOR CENTER PARKING)
0.37	0.37	INTERSECTION	R	ROUTE 0900 (VISITOR CENTER PARKING)
0.60	0.60	CULVERT	N/A	5230-003 (LITTLE YELLOW CREEK CULVERT #1)
0.64	0.64	INTERSECTION	R	ROUTE 0012 (BARTLETT PARK ROAD)
0.72	0.72	INTERSECTION	R	ROUTE 0102 (LITTLE YELLOW CREEK ROAD)
0.84	0.84	OVERPASS	N/A	5230-010 (SKYLAND ROAD BRIDGE #2)
0.86	0.86	OVERPASS	N/A	5230-009 (SKYLAND ROAD BRIDGE #1)
1.60	1.60	INTERSECTION	R	ROUTE 0100 (HIGHWAY 988 (SUGAR RUN ROAD))
1.67	1.71	BRIDGE	N/A	5230-001 (SUGAR RUN ROAD BRIDGE)
2.41	2.41	INTERSECTION	R	ROUTE 0403 (PUMP HOUSE SERVICE ROAD)
2.62	2.62	INTERSECTION	L	PAVED PARKING (PULLOUT PARKING)
2.75	2.75	INTERSECTION	R	ROUTE 0911 (FORT MCCOOK PARKING)
3.27	3.27	INTERSECTION	L	ROUTE 0912 (MIDWAY PARKING)
3.96	3.96	INTERSECTION	L	UNPAVED ROUTE (GATED)
3.99	3.99	INTERSECTION	N/A	ROUTE 0913 (PINNACLE PARKING)

CUGA: Route Milepost Log

ROUTE 0012: BARTLETT PARK ROAD

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 4.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	INTERSECTION	L	ROUTE 0010 (PINNACLE ROAD)
0.00	0.00	INTERSECTION	R	ROUTE 0010 (PINNACLE ROAD)
0.23	0.23	INTERSECTION	L	ROUTE 0901A (RANGER STATION GOVERNMENT PARKING A)
0.26	0.26	INTERSECTION	L	ROUTE 0901B (RANGER STATION GOVERNMENT PARKING B)
0.29	0.29	INTERSECTION	L	ROUTE 0903 (HEADQUARTERS PARKING A)
0.30	0.30	INTERSECTION	R	ROUTE 0905AZ (BARTLETT PARK PICNIC AREA PARKING A)
0.31	0.31	INTERSECTION	L	ROUTE 0904 (HEADQUARTERS PARKING B)
0.33	0.33	INTERSECTION	R	ROUTE 0905BZ (BARTLETT PARK PICNIC AREA PARKING B)
0.35	0.35	INTERSECTION	L	ROUTE 0904 (HEADQUARTERS PARKING B)
0.36	0.36	INTERSECTION	R	ROUTE 0905CZ (BARTLETT PARK PICNIC AREA PARKING C)
0.37	0.37	INTERSECTION	L	ROUTE 0421 (DUPLEX DRIVE)
0.39	0.40	BRIDGE	N/A	5230-002 (LITTLE YELLOW CREEK BRIDGE #1)
0.42	0.42	INTERSECTION	L	ROUTE 0908A (FACILITY MANAGEMENT EMPLOYEE PARKING)
0.42	0.42	INTERSECTION	R	ROUTE 0907A (MAINTENANCE AREA A)
0.44	0.44	INTERSECTION	L	ROUTE 0908B (RESOURCE MANAGEMENT PARKING)
0.47	0.47	INTERSECTION	R	ROUTE 0907B (MAINTENANCE AREA B)
0.49	0.49	INTERSECTION	R	ROUTE 0909BZ (GYMNASIUM STORAGE AREA B)
0.49	0.49	INTERSECTION	N/A	ROUTE 0104AZ (CEMETERY ROAD UNPAVED)
0.49	0.49	INTERSECTION	L	ROUTE 0909AZ (GYMNASIUM STORAGE AREA A)

CUGA: Route Milepost Log

ROUTE 0013: U.S. HIGHWAY 25E SOUTHBOUND ACCESS ROAD

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 4.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	INTERSECTION	N/A	PAVED ROUTE (US HIGHWAY 25E SOUTHBOUND / NON NPS)
0.00	0.00	INTERSECTION	L	PAVED ROUTE (US HIGHWAY 25E SOUTHBOUND / NON NPS)
0.00	0.00	ONE-WAY START	N/A	N/A
0.18	0.18	INTERSECTION	L	ROUTE 0010 (PINNACLE ROAD)
0.18	0.18	INTERSECTION	R	ROUTE 0010 (PINNACLE ROAD)
0.33	0.33	INTERSECTION	N/A	PAVED ROUTE (US HIGHWAY 25E SOUTHBOUND / NON NPS)
0.33	0.33	INTERSECTION	L	PAVED ROUTE (US HIGHWAY 25E SOUTHBOUND / NON NPS)
0.33	0.33	ONE-WAY END	N/A	N/A

ROUTE 0100: HIGHWAY 988 (SUGAR RUN ROAD)

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 4.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	INTERSECTION	R	ROUTE 0010 (PINNACLE ROAD)
0.00	0.00	INTERSECTION	L	ROUTE 0010 (PINNACLE ROAD)
0.02	0.02	INTERSECTION	R	ROUTE 0914 (THOMAS WALKER PARKING)
0.12	0.12	OVERPASS	N/A	5230-001 (SUGAR RUN ROAD BRIDGE)
1.26	1.26	INTERSECTION	L	ROUTE 0409 (DAVIS BRANCH ROAD)
1.91	1.91	INTERSECTION	L	ROUTE 0411 (CUMBERLAND COLLEGE ROAD)
1.96	1.96	INTERSECTION	R	ROUTE 0915 (DARK RIDGE OVERLOOK PARKING)
1.98	1.98	INTERSECTION	R	ROUTE 0915 (DARK RIDGE OVERLOOK PARKING)
2.70	2.70	INTERSECTION	L	ROUTE 0916 (SUGAR RUN TURNAROUND)
2.73	2.73	INTERSECTION	R	ROUTE 0917 (SUGAR RUN PICNIC AREA PARKING)
2.74	2.74	INTERSECTION	L	ROUTE 0916 (SUGAR RUN TURNAROUND)
2.77	2.77	PARK BOUNDARY	N/A	PAVED ROUTE (US HIGHWAY 988 / NON NPS

ROUTE 0103: DANIEL BOONE (N CUMBERLAND DRIVE) PARKING ACCESS ROAD

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 5.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	INTERSECTION	L	PAVED ROUTE (US HIGHWAY 58 / NON NPS)
0.00	0.00	INTERSECTION	R	PAVED ROUTE (US HIGHWAY 58 / NON NPS)
0.03	0.03	INTERSECTION	L	PAVED ROUTE (ADAMS INDUSTRIAL LANE / NON NPS)
0.21	0.21	INTERSECTION	R	ROUTE 0926 (DANIEL BOONE PARKING)
0.36	0.36	INTERSECTION	N/A	PAVED ROUTE (N CUMBERLAND DRIVE / NON NPS)
0.36	0.36	PARK BOUNDARY	N/A	N/A

ROUTE 0105: WILDERNESS ROAD CAMPGROUND ACCESS ROAD

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 5.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	INTERSECTION	R	PAVED ROUTE (US HIGHWAY 58 / NON NPS)
0.00	0.00	INTERSECTION	L	PAVED ROUTE (US HIGHWAY 58 / NON NPS)
0.00	0.00	PARK BOUNDARY	N/A	N/A
0.22	0.22	INTERSECTION	R	ROUTE 0918A (WILDERNESS ROAD TRAILHEAD PARKING A)
0.26	0.26	INTERSECTION	R	ROUTE 0918A (WILDERNESS ROAD TRAILHEAD PARKING A)
0.58	0.58	INTERSECTION	L	ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD) SPUR
0.59	0.59	INTERSECTION	L	ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)
0.79	0.79	INTERSECTION	L	ROUTE 0923 (WILDERNESS ROAD CAMPGROUND REGISTRATION PARKING)
0.80	0.80	INTERSECTION	N/A	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.80	0.80	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)

CUGA: Route Milepost Log

ROUTE 0200: LEWIS HOLLOW PICNIC AREA ROAD

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 4.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	INTERSECTION	L	ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)
0.00	0.00	INTERSECTION	R	ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)
0.01	0.01	INTERSECTION	L	ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD) SPUR
0.27	0.27	INTERSECTION	L	ROUTE 0922EZ (LEWIS HOLLOW PICNIC AREA PARKING E)
0.29	0.29	ONE-WAY START	N/A	N/A
0.29	0.29	INTERSECTION	L	ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)
0.34	0.34	INTERSECTION	R	ROUTE 0922AZ (LEWIS HOLLOW PICNIC AREA PARKING A)
0.37	0.37	INTERSECTION	R	ROUTE 0922BZ (LEWIS HOLLOW PICNIC AREA PARKING B)
0.40	0.40	INTERSECTION	R	ROUTE 0922CZ (LEWIS HOLLOW PICNIC AREA PARKING C)
0.45	0.45	INTERSECTION	L	ROUTE 0922DZ (LEWIS HOLLOW PICNIC AREA PARKING D)
0.49	0.49	INTERSECTION	L	ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)
0.49	0.49	ONE-WAY END	N/A	N/A
0.49	0.49	INTERSECTION	N/A	ROUTE 0200 (LEWIS HOLLOW PICNIC AREA ROAD)

CUGA: Route Milepost Log

ROUTE 0202AZ: WILDERNESS ROAD CAMPGROUND LOOP A

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 4.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.00	0.00	INTERSECTION	R	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.00	0.00	ONE-WAY START	N/A	N/A
0.09	0.09	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.09	0.09	INTERSECTION	R	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.09	0.09	ONE-WAY END	N/A	N/A

ROUTE 0202BZ: WILDERNESS ROAD CAMPGROUND LOOP B

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 4.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	INTERSECTION	R	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.00	0.00	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.00	0.00	ONE-WAY START	N/A	N/A
0.12	0.12	ONE-WAY END	N/A	N/A
0.12	0.12	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.12	0.12	INTERSECTION	R	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)

CUGA: Route Milepost Log

ROUTE 0202CZ: WILDERNESS ROAD CAMPGROUND LOOP C

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 4.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	ONE-WAY START	N/A	N/A
0.00	0.00	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.00	0.00	INTERSECTION	R	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.18	0.18	INTERSECTION	R	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.18	0.18	ONE-WAY END	N/A	N/A
0.18	0.18	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)

ROUTE 0202DZ: WILDERNESS ROAD CAMPGROUND LOOP D

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 4.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	ONE-WAY START	N/A	N/A
0.00	0.00	INTERSECTION	R	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.00	0.00	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.23	0.23	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.23	0.23	ONE-WAY END	N/A	N/A
0.23	0.23	INTERSECTION	R	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)

CUGA: Route Milepost Log

ROUTE 0202EZ: WILDERNESS ROAD CAMPGROUND LOOP E

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 4.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.00	0.00	INTERSECTION	R	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.00	0.00	ONE-WAY START	N/A	N/A
0.19	0.19	INTERSECTION	R	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.19	0.19	ONE-WAY END	N/A	N/A
0.19	0.19	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)

ROUTE 0202FZ: WILDERNESS ROAD CAMPGROUND LOOP F

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 4.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	INTERSECTION	R	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.00	0.00	ONE-WAY START	N/A	N/A
0.00	0.00	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.14	0.14	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.14	0.14	ONE-WAY END	N/A	N/A
0.14	0.14	INTERSECTION	R	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)

CUGA: Route Milepost Log

ROUTE 0202GZ: WILDERNESS ROAD CAMPGROUND LOOP G

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 5.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	ONE-WAY START	N/A	N/A
0.00	0.00	INTERSECTION	N/A	ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)
0.00	0.00	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.03	0.03	INTERSECTION	R	ROUTE 0919 (WILDERNESS ROAD CAMPGROUND DUMP STATION)
0.04	0.04	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G) CUT-THRU
0.07	0.07	INTERSECTION	R	ROUTE 0919 (WILDERNESS ROAD CAMPGROUND DUMP STATION)
0.09	0.09	INTERSECTION	L	ROUTE 0202AZ (WILDERNESS ROAD CAMPGROUND LOOP A)
0.13	0.13	INTERSECTION	L	ROUTE 0202BZ (WILDERNESS ROAD CAMPGROUND LOOP B)
0.16	0.16	INTERSECTION	L	ROUTE 0202CZ (WILDERNESS ROAD CAMPGROUND LOOP C)
0.21	0.21	INTERSECTION	L	ROUTE 0202DZ (WILDERNESS ROAD CAMPGROUND LOOP D)
0.26	0.26	INTERSECTION	L	ROUTE 0202EZ (WILDERNESS ROAD CAMPGROUND LOOP E)
0.32	0.32	INTERSECTION	L	ROUTE 0202FZ (WILDERNESS ROAD CAMPGROUND LOOP F)
0.44	0.44	INTERSECTION	R	ROUTE 0920 (GROUP CAMPING PARKING)
0.51	0.51	INTERSECTION	L	ROUTE 0202FZ (WILDERNESS ROAD CAMPGROUND LOOP F)
0.55	0.55	INTERSECTION	L	ROUTE 0202EZ (WILDERNESS ROAD CAMPGROUND LOOP E)
0.63	0.63	INTERSECTION	L	ROUTE 0202DZ (WILDERNESS ROAD CAMPGROUND LOOP D)
0.64	0.64	INTERSECTION	R	ROUTE 0422BZ (COLSON LANE B)
0.65	0.65	INTERSECTION	R	ROUTE 0929 (AMPHITHEATER BUS PARKING)
0.67	0.67	INTERSECTION	R	ROUTE 0921 (AMPHITHEATER HANDICAPPED PARKING)
0.68	0.68	INTERSECTION	L	ROUTE 0202CZ (WILDERNESS ROAD CAMPGROUND LOOP C)
0.71	0.71	INTERSECTION	L	ROUTE 0202BZ (WILDERNESS ROAD CAMPGROUND LOOP B)

CUGA: Route Milepost Log

ROUTE 0202GZ: WILDERNESS ROAD CAMPGROUND LOOP G

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 5.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.75	0.75	INTERSECTION	L	ROUTE 0202AZ (WILDERNESS ROAD CAMPGROUND LOOP A)
0.77	0.77	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G) CUT-THRU
0.79	0.79	INTERSECTION	N/A	ROUTE 0105 (WILDERNESS ROAD CAMPGROUND ACCESS ROAD)
0.79	0.79	INTERSECTION	L	ROUTE 0202GZ (WILDERNESS ROAD CAMPGROUND LOOP G)
0.79	0.79	ONE-WAY END	N/A	N/A

ROUTE 0203: ENTRANCE ROAD AT TWCP

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 5.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	INTERSECTION	R	PAVED ROUTE (STATE ROUTE 724 / NON NPS)
0.00	0.00	PARK BOUNDARY	N/A	N/A
0.00	0.00	INTERSECTION	N/A	PAVED ROUTE (STATE ROUTE 724 / NON NPS)
0.06	0.06	INTERSECTION	L	ROUTE 0927BZ (TWCP PARKING B)
0.13	0.13	INTERSECTION	L	ROUTE 0931 (TWCP UNPAVED PARKING)
0.19	0.19	INTERSECTION	N/A	ROUTE 0927AZ (TWCP PARKING A)

ROUTE 0421: DUPLEX DRIVE

Road logs are verified in Cycle 6 and mileposts for this route are matched to GPS collected in Cycle 4.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.00	0.00	INTERSECTION	R	ROUTE 0012 (BARTLETT PARK ROAD)
0.00	0.00	INTERSECTION	L	ROUTE 0012 (BARTLETT PARK ROAD)
0.05	0.05	INTERSECTION	L	ROUTE 0906 (HEADQUARTERS HANDICAPPED PARKING)
0.11	0.11	INTERSECTION	N/A	DEAD END
0.11	0.11	INTERSECTION	L	ROUTE 0928 (DUPLEX PARKING)

Data Collected on 7/2021

Section 8
Appendix

Cumberland Gap National Historical Park

Federal Lands Highway
Road Inventory Program

Improvements to the RIP Index Equations and Determination of PCR

In 2005, the Federal Highway Administration (FHWA) began implementing the use of a Pavement Management System (PMS) to assist the National Park Service (NPS) in prioritizing Pavement Maintenance and Rehabilitation activities. The PMS used by FHWA is the Highway Pavement Management Application (HPMA) which has the ability to store inventory and condition data from the Road Inventory Program (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 the distresses and indexes that comprise the Pavement Condition Rating (PCR), an extensive study was completed throughout 2010 that has resulted in changes to the RIP 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.

Additionally, methodologies were updated in 2013 for Manually Rated Routes (paved routes that the collection vehicle is unable to drive) as well as Parking Areas to provide more accurate condition data to the HPMA. These updated methodologies allow for the efficient assessment of pavement conditions using a visual inspection method to denote specific distresses. These distresses are indicative of current conditions, the causes for current and future deterioration, and identify the level of targeted repair and rehabilitation practices required.

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 in early 2014 to ensure that an improvement was achieved between the relationship of PCR and the actual Maintenance and Rehabilitation needs that were represented. The 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.

Description of the Rating System

The Federal Highway Administration, National Park Service Road Inventory Program (NPS-RIP), collects roadway condition data on paved surfaces (asphalt, concrete, brick, and cobblestone) on roads, parkways, and parking areas in national parks nationwide. The road surface condition data is collected using an automated Data Collection Vehicle (DCV) and manually using Manually Rated Route (MRR) procedures. Roads having brick or cobblestone surfacing are not normally surveyed with the DCV, but are manually rated for condition rating.

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 quality digital photography and automated crack detection software, FHWA RIP is tasked with executing a pavement condition assessment on a network of roughly 5,700 miles of National Park Service roads and parkways. Because a subset of roads will be collected multiple times this cycle, the total collection length will be around 13,000 miles. 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. In truth, the FHWA RIP distress types are similar to those described in the LTPP manual with some modifications. This document, "*Distress Identification Manual for the NPS Road Inventory Program, Cycle 6, 2014-2020"* 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 RIP.

Cycle 6 has launched in the spring of 2014 and will again comprise all parks, large and small, that are served by paved roads and/or parking areas. For Cycle 6, roughly 333 large and small parks will have all paved routes and parking areas collected at least once in the cycle, some will have multiple collections depending on the size of the park and the functional class of the route.

This "*Distress Identification Manual for the NPS Road Inventory Program, Cycle 6, 2014-2020*" 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 6.

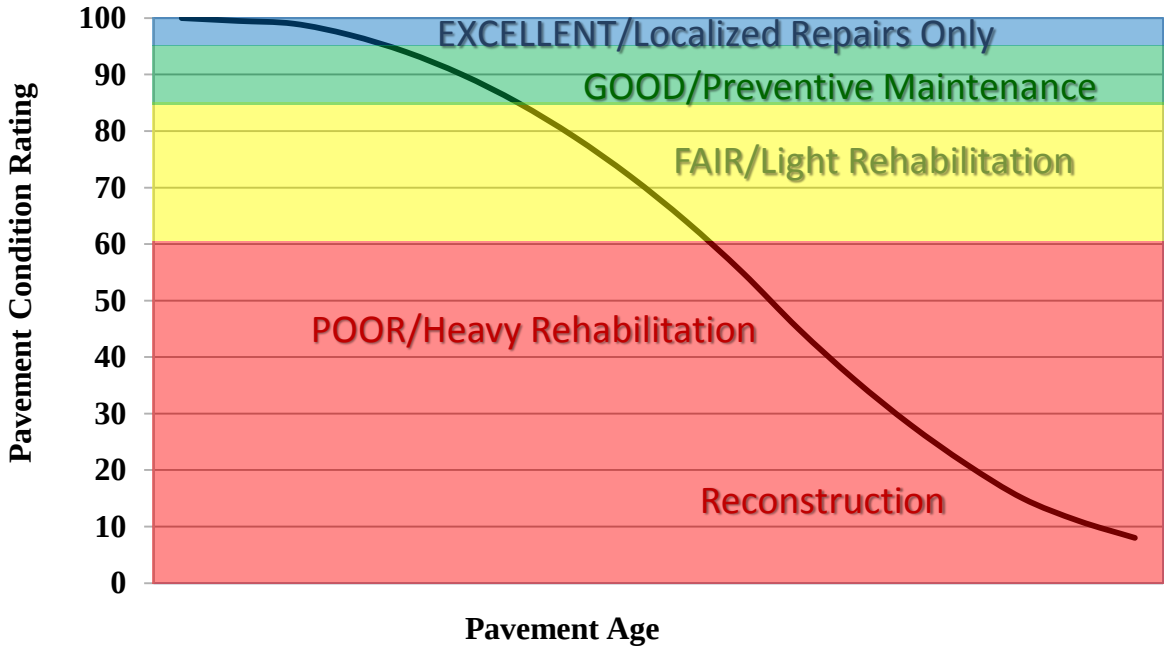
Explanation of the Condition Descriptions

In addition to the RIP Index changes that were implemented in Cycle 5, we will also aim to 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.

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 PMS data from our (HPMA) please contact the Eastern Federal Lands pavement team.

Condition Categories and Treatments



Description of Pavement Treatment Types

1. **Preventive Maintenance** is a planned strategy of cost-effective treatments to an existing roadway system and its appurtenances that preserves the system, retards future deterioration, and maintains or improves the functional condition of the system (without significantly increasing the structural capacity). Preventive maintenance is typically applied to pavements in good condition having significant remaining service life. As a major component of pavement preservation, preventive maintenance is a strategy of extending the service life by applying cost-effective treatments to the surface or near-surface of structurally sound pavements. Examples of preventive treatments include asphalt crack sealing, chip sealing, slurry or micro-surfacing, thin and ultra-thin hot-mix asphalt overlay, concrete joint sealing, diamond grinding, dowel-bar retrofit, and isolated, partial and/or full-depth concrete repairs to restore functionality of individual slabs.

2. Pavement Rehabilitation consists of structural enhancements that extend the service life of an existing pavement and/or improve its load carrying capacity. Rehabilitation techniques include restoration treatments and structural overlays. Rehabilitation projects extend the life of existing pavement structures either by restoring existing structural capacity through the elimination of age-related, environmental cracking of embrittled pavement surface or by increasing pavement thickness to strengthen existing pavement sections to accommodate existing or projected traffic loading conditions. Two sub-categories result from these distinctions, which are directly related to the restoration or increase of structural capacity.

    - **Light Rehabilitation (L3R)** - Examples include single-lift overlays up to 2.5 inches in total thickness and milling and overlays for flexible pavements

    - **Heavy Rehabilitation (H3R)** – Requires rehabilitation with grade improvement. H3R stands for resurfacing, restoration, and rehabilitation projects. H3R projects typically involve multi-depth (overlays greater than 2.5 inches) pavement improvement work (short of full-depth replacement) and targeted safety improvements. H3R projects generally involve retention of the existing three-dimensional alignment.

3. **Reconstruction (4R)** is defined as the replacement of the entire existing pavement structure by the placement of the equivalent or increased pavement structure. Reconstruction usually requires the complete removal and replacement of the existing pavement structure. Reconstruction may utilize either new or recycled materials incorporated into the materials used for the reconstruction of the complete pavement section. Reconstruction is required when a pavement has either failed or has become functionally obsolete.

Appendix A

Methodology for Determining Condition Ratings with the Data Collection Vehicle (DCV)

Surface Distresses Identified by the Data Collection Vehicle

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 and rutting are determined from digital images that provide both the longitudinal and transverse profile. The images also provide an elevation profile of the road, creating a 3-dimensional image of the paved surface.

- Transverse Cracks
- Longitudinal Cracks
- Alligator Cracks
- Patching/Potholes
- 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 Surface Condition Rating (SCR).

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.

Each classified surface distress will fall into one or more severity - LOW, MEDIUM, or HIGH based on criteria listed. For each severity, an extent 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 mile interval before it reaches MAE and fails.

The index formulas are based on a scale of 0 to 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 = (less than or equal to 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 less than 0 defaults to 0. Index values greater than 100 defaults 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.

ASPHALT-SURFACED PAVEMENT DISTRESS TYPES WITH RUTTING AND ROUGHNESS				
Distress Type	**Units Of Measure**	**Converted To**	**Defined Severity Levels?**	**Measured By**
Alligator Cracking	Square Feet	Percent of Lane Per 0.02 Mile	Yes	3 Dimensional pavement imaging system
Transverse Cracking	Linear feet	Number of Cracks Per 0.02 Mile	Yes	3 Dimensional pavement imaging system
Longitudinal Cracking	Linear feet	Percent of Lane Length Per 0.02 Mile	Yes	3 Dimensional pavement imaging system
Patching / Potholes	Square Feet	Percent of Lane Per 0.02 Mile	No	3 Dimensional pavement imaging system
Rutting	Inches	Rut Depth Per 0.02 Mile	Yes	3 Dimensional pavement imaging system
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*

Table 1. Distress summary

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 with little to no interconnecting cracks with no visible spalling. Cracks are less than or equal to a mean width of 0.25 in. (6mm). 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 greater than 0.25 in. (6 mm) but less than or equal to 0.75 in. (19 mm) or any crack with a mean width less than or equal to 0.75 in. (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 greater than 0.75 in. (19mm) or any crack with a mean width less than or equal to 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 as shown in Table 2.

ALLIGATOR CRACKING SEVERITY LEVELS				
	CRACK SEVERITY	**CRACK PATTERN**		
		LOW	**MED**	**HIGH**
CRACK WIDTH	LOW	LOW	MED	HIGH
	MED	MED	MED	HIGH
	HIGH	HIGH	HIGH	HIGH

Table 2. Alligator Crack Severity Levels

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 less than or equal to 0.25 in. (6 mm). This also includes sealed cracks with sealant in good condition and a width that cannot be determined.

MEDIUM
Cracks with a mean width greater than 0.25 in. (6 mm) but less than 0.75 in. (19 mm). Also, any crack with a mean width less than 0.75 in. (19 mm) and adjacent random low severity cracking.

HIGH
Cracks with a mean width greater than 0.75 in. (19 mm). Also, any crack with a mean width less than 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 less than or equal to 0.25 in. (6 mm). Sealed cracks with sealant in good condition and a width that cannot be determined.

MEDIUM
Cracks with a mean width greater 0.25 in. (6 mm) and less than or equal to 0.75 in. (19 mm). Also, any crack with a mean width less than 0.75 in. (19 mm) and adjacent random low severity cracking.

HIGH
Cracks with a mean width greater than 0.75 in. (19 mm). Also, any crack with a mean width less than 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 patch may not exceed 0.100 mi. (0.161 km). (Any full-lane patch exceeding 0.100 mi. in length is considered a pavement change). Patching must have a quantifiable area.

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

Manhole covers should not be rated as patches unless there is obvious patching around the manhole.

Speed bumps should not be rated as patches

Severity Levels:

There are no stratified severities for Patching and 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 of 0.20 inches to 0.49 inches
Ruts less than 0.20 in. are not included in the distress calculations.

MEDIUM

Ruts with a measured depth of 0.50 inches to 0.99 inches

HIGH

Ruts with a measured depth greater than 1.00 inch

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.

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

Table 3. International Roughness Index

Roughness Collection Parameters

On shorter roads with a lower speed limit the usefulness in collecting and reporting IRI is negligible. Lower, inconsistent speeds can lead to a less accurate IRI value. Therefore RIP has put in place the following protocols for reporting IRI.

International Roughness Index (IRI) is not reported on routes with the following criteria:

- Posted speed limit is less than 25 mph
- Length of route is less than 0.50 miles

When a collected route has a posted speed limit of at least 25 mph and length of at least 0.50 miles, IRI will be collected except on road sections where the speed is less than 20 mph

Other situations may arise where the speed and length factors are met, but reporting IRI could lead to an inaccurate PCR. RIP will determine whether or not it is reasonable to report IRI on these routes on a case by case basis.

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:

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

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 greater than or equal to 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:

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

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 longitudinal 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 greater than or equal to 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.

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 report the percentage of the 40 measurements within that 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 wheel path based on 20 ruts.

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

$$\frac{\textbf{(total number of ruts within each severity in both wheelpaths)}}{\textbf{20}} \times \textbf{100}$$

In RUT_INDEX, the denominators 535, 205, and 40 are the Maximum Allowable Extents for each severity; Low, Medium, and High, respectively. Only the MAE for high severity rutting can fail a section, since 200% of *only* low severity ruts would yield a rut index of 85 and 200% of *only* medium severity ruts would yield a rut index of 61.

Roughness Condition Index (Asphalt)

RCI = 32 * [5 * ($2.718282^{(-.0041 * \text{AVG IRI})}$)]

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 = $(-0.0012)(\text{IRI}^2) + (0.0499)(\text{IRI}) + 99.542$

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 is collected by FHWA using a Pathway Services Inc. Data Collection Vehicle (DCV), called a 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 jpeg digital imagery files at a frequency of every 26.4feet.

Two forward-facing cameras are mounted above the vehicle cab, one pointed straight ahead and the other to the right shoulder providing seamless roughly 120 degree viewing. A third camera is mounted in the rear of the vehicle, recording the left shoulder.

CAMERA SPECIFICATIONS TWO FORWARD / ONE REAR FACING CAMERA	
Camera lens/type	Prosilica GT 2750 (GigE Technology)
Image format	*.jpg
Image resolution	2750 x 2200, 18 frames/second
Image pixel size	depends on distance
Zoom ratio	16mm Fixed
Iris range	Aperture Range F 1.8 – Infinity (P-Iris, Automatic

Pavement Imaging and Rutting

High resolution rutting data and surface imaging are collected in a single data stream using a three-dimensional (3D) pavement surface transverse profile data acquisition system. The 3D camera captures a laser line as it is projected over the pavement surface and uses the location of this line to measure the height deviations of the pavement surface. These height deviations can be used to calculate rutting in both wheelpaths. These deviations also provide a grayscale image detailing the change in height throughout the surface, i.e. providing depth measurements for cracking.

THREE-DIMENSIONAL PAVEMENT SURFACE AND TRANSVERSE PROFILE DATA ACQUISITION SYSTEM	
Surface Image Specifications	
Image size	1536 pixels/scan @3000 Hz
Image width	4 meters (3950 mm nominal)
Laser class	3B
Power	16W (Two lasers @ 8W Ea)
Vehicle speed limitations	62 mph
Environment	Dry pavement, day or night
Sensor size (approximate)	1536 pixels x 512 pixels
Image display length	26.4 feet
Rutting Specifications	
Reported rut depth units	Inches
Vehicle speed limitations	Up to 62 mph
Sampling rate	3000 profiles/second
Transverse resolution	1536 points/profile
Transverse field-of-view	14 feet
Depth accuracy (nominal)	<1mm
Environment	Dry pavement, day or night, above 32 degrees F
Adherence to specifications	ASTM E1703M-95 (reapproved 2005)

Distance Measuring Instrument (DMI)

The DMI (Distance Measuring Instrument) obtains road length measurements that are accurate to 0.15% 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)

IRI SPECIFICATIONS	
Reported IRI units	Inches/mile
Vehicle speed limitations	12-62 mph
IRI equipment certification	Texas Transportation Institute (TTI)
Wavelengths accommodated	0.5 feet to 300 feet
IRI computed & reported	World Bank Technical Paper Number 46
Environment	Dry pavement, day or night, above 32 degrees
Adherence to specifications	ASTM E950 Class 1 & AASHTO M 328

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.

GPS & Inertial Systems

GPS is collected by an onboard system employing Omnistar real time correction and a spinning gyroscope to provide accurate positioning data in instances of satellite obstruction. All GPS coordinates are tied to an 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	± 1.75%
Grade	± 1.75%
Adherence to specifications	ASTM E1703M-95 (reapproved 2005)

*NOTE – GPS accuracy is dependent on many different factors. Satellite constellation, tree coverage, GPS receiver quality, and real-time correction availability can all affect the locational and elevation accuracies. The elevation (z coordinate) accuracy is less dependable than locational or horizontal accuracy (x/y coordinates or latitude/longitude). In areas of heavy tree coverage or poor satellite constellations, elevation data can vary by as much as +/- 100 feet.

Appendix B

Methodology for Determining Condition Ratings Using Manual Rating Procedures

Description of Manual Rating Methods

In 2013, the Federal Highway Administration updated existing Manual Rating Procedures in an effort to better align pavement conditions for Manually Rated Routes and Parking with the Highway Pavement Management Application (HPMA). HPMA is the Pavement Management System used by the FHWA to store inventory and condition data from the Road Inventory Program (RIP) and forecast future performance using prediction models. HPMA uses pavement condition data (collected by the Road Inventory Program) to develop life cycles for pavements and recommend treatments to maximize useable pavement life while minimizing costs associated with maintenance and repair.

The Federal Highway Administration (FHWA) developed a set of manual rating methods for pavement that are appropriate for Federal Roadways. Two different methods were developed for linear roads and a separate method was developed for parking areas and nonlinear roads. These methods employ a 0 to 100 rating scale and improve consistency and objectivity in the manual evaluation of surface distresses. They are compatible with ratings that are collected by the automated Data Collection Vehicle (DCV).

- The first of the two manual evaluation methods for roads uses rating criteria to assign index values to each distress type based on a visual evaluation of severity and extent.

- The second manual evaluation method for roads is very time demanding and is best employed on only a select set of routes which may have the highest visitor use and require a more intensive assessment. This method will be used for the Manual Rating of Function Class 1, 2, 7, and 8 Roads. This method is based on measurements that are recorded for each instance of a surface distress. These measurements are converted into index values using conversion formulas.

- Parking areas and non-linear roads are rated similar to the first method shown above, however, there are some slight differences due to the non-linear nature.

The details and criteria used for each of these rating methods are outlined below.

Visual Inspection Method for Manually Rating Secondary Roads

The visual inspection method for manually rated roads uses condition rating criteria that have been developed by FHWA. This criteria is based on a visual evaluation of the severity and extent of distresses to determine the overall condition of the roadway. This method is used for secondary roads that are Functional Class 3, 4, 5, and 6. This constitutes the majority of manually rated roads collected by the Road Inventory Program.

Rating Section Lengths

For this method, Manually Rated Roads are rated in sections. These sections may be made based on length of changes in surface type or condition as described below. The ratings are then aggregated to give an overall rating for the Route:

- Rating sections should be no longer than 0.25 miles in order to keep the area being rated manageable.
- A new rating section may be started based on changes in condition, width, or surface type if these changes represent a significant portion of the route (are not isolated instances).
- If the road condition, width, and surface type remain constant then new sections do not need to be created unless the road exceeds 0.25 miles.

Rating Criteria

For this method, Manually Rated Roads are evaluated using a visual inspection of the six distress types listed below. Each distress is assigned one of five index values. An overall Surface Condition Rating (SCR) and Pavement Condition Rating (PCR) are calculated based on these index values.

- Alligator Cracking
    - Rating based on percentage of road surface affected
- Longitudinal Cracking
    - Rating based on severity level (crack width) and percentage of road section length of longitudinal cracks
- Transverse Cracking
    - Rating based on crack width, crack spacing, and percentage of surface affected
- Patching
    - Rating based on percentage of road surface affected
- Rutting
    - Rating based on percentage of road section length affected by visible rutting (>1 inch depth) that requires remediation
- Roughness
    - Manual assessments of roughness are not made due to the subjectivity of the measurement. Therefore, roughness is not incorporated into the PCR calculation of manually rated roads.

Concrete Routes also receive a PCR rating based on visual evaluation of the following six distress types.

- Slab Faulting at Joints
- Slab Cracking and breakup
- Surface Delamination and Pop-outs
- Joint Distresses
- Patching

Distress Measurement Method for Manually Rating Primary Roads

A more intensive and time demanding assessment than our standard method was developed for Primary roads that are functional class 1, 2, 7, or 8. These high visitation roads are usually accessible by the automated Data Collection Vehicle but in rare instances may need to be manually rated. The method developed is based on measuring each instance of a distress. These measurements are totaled over each section length being measured and are then converted into index values between 0 and 100 (100 being a road with no distress) using index formula equations outlined below. The goal of this method is to produce measured index values which are directly comparable to the automated DCV.

Rating Section Lengths

For the distress measurement method roads are broken into sections in order to rate. Distress measurements are totaled for each section separately in order to determine the index value for that particular section. The section length to be rated is determined based on the following rules:

- Rating sections are between 0.25 and 0.50 miles long
- A new rating section is created if there is a significant change in condition or pavement width
- If there are no significant changes in condition or pavement width, rating sections are broken at equal intervals, typically 0.50 miles

Manual Distress Measurements

Alligator Cracking

- Alligator cracking is measured by area (square feet). Instances of Alligator cracking are measured along the length and multiplied by the average width of the distressed area.
- The index for alligator cracking takes the total area of cracking compared to the interval length and converts it to a percentage. That percentage is then input into an index formula that yields a value between 0 and 100 (0 being the most distressed).
- Severity levels are not defined for manually measured Alligator cracks. The Alligator Crack Index formula is calculated based on an assumption of medium severity.

Longitudinal Cracking

- Longitudinal cracking (cracking in the direction parallel to the roadway) is measured by length (ft.).
- The index for longitudinal cracking takes the total length of cracking compared to the interval length and converts it to a percentage broken down by severity. That percentage is then input into a formula that yields a value between 0 and 100 (0 being the most distressed).
- Two severity levels are defined for manually measured Longitudinal Cracks. Lower severity cracks are those with a mean width of less than 0.25 inches. Sealed cracks with sealant in good condition are also considered lower severity. Higher severity cracks are those with a mean width of greater than 0.25 inches.

Transverse Cracking

- Transverse cracking (cracking in the direction perpendicular to the roadway) is measured by length (ft).
- The index for transverse cracking takes the total number of cracks (1 crack would encompass the full lane) broken down by severity. The total numbers of each severity are then put into a formula that yields a value between 0 and 100 (0 being the most distressed).
- Two severity levels are defined for manually measured Transverse Cracks. Lower severity cracks are those with a mean width of less than or equal to 0.25 inches. Sealed cracks with sealant in

good condition are also considered lower severity. Higher severity cracks are those with a mean width of greater than 0.25 inches.

Patching and Potholes

- Patching and Potholes are measured by area (square feet). Instances of Patching are measured along the length and multiplied by the average width of the patch.
- Instances of full lane width patching cannot be longer than 0.100 miles, otherwise is should be considered a pavement change rather than a distress.
- There are no stratified severities for Patching. It is either present or it is not.

Rutting

- Visible rutting is measured by length (ft.) in each wheel path. Only visible ruts are rated, which are ruts greater than 1 inch deep.
- All rutting recorded in a manual rating is considered to be high severity (> 1 inch). Lesser severities are generally not distinguishable in a visual inspection.

Roughness

- Manual assessments of roughness are not made due to the subjectivity of the measurement. Therefore, roughness is not incorporated into the PCR calculation of manually rated roads.

Index Formulas for Distress Measurement Method:

The method used to convert distress measurements into index values is shown below. The Surface Condition Rating and Pavement Condition Rating are calculated based on these index values.

Alligator Crack Index for Manual Rating:

AC_INDEX = 100 – 40 * (%ALLIGATOR / 15)

Where:

%ALLIGATOR = Percent of total area of section being rated that contains Alligator cracking.

Longitudinal Crack Index for Manual Rating:

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

Where:

%LOW = Percent length of longitudinal cracks where crack width less than or equal to 0.25 inches

%HIGH = Percent length of longitudinal cracks where crack width greater than 0.25 inches

Transverse Crack Index for Manual Rating:

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

Where:

LOW = Count of the total number of transverse cracks within the section length where one transverse crack is equal to the lane width and the crack width <= 0.25 inches

HIGH = Count of the total number of transverse cracks within the section length where one transverse crack is equal to the lane width and the crack width > 0.25 inches

Number of cracks is computed as:

Total length of transverse cracks/Lane width

Patching Index for Manual Rating:

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

Where:

%PATCHING = Percentage of pavement section that contains patching/potholes.

Rutting Index for Manual Rating:

RUT_INDEX = 100 – 40 * (%RUTTING / 40)

Where:

%RUTTING = Percentage length of high severity rutting within the section being measured.

Method for Manually Rating Paved Parking Areas and Non-Linear Roads

Parking areas are evaluated based on a visual inspection using condition rating criteria that has been developed by FHWA. This criteria is based on a visual evaluation of the severity and extent of distresses to determine the overall condition of the parking area. This overall condition rating is linked to the level of repair and rehabilitation practices required.

A distress index is determined for each of the distresses listed below for Asphalt and Concrete Parking areas. The overall Pavement Condition Rating (PCR) of the parking lot is driven by the most severe distress present.

Rating Criteria:

Asphalt Parking Distress Types

- Alligator Cracking
  - Rating based on percentage of road surface affected
- Longitudinal, Transverse and Block cracking
  - Rating based on crack width, crack spacing, and percentage of surface affected
- Rutting and Distortions
  - Rating based on percentage of road surface affected
- Hot Mix Asphalt Patches
  - Rating based on overall percentage of HMA patches
- Potholes and Cold Patches
  - Rating based on percentage of road surface affected
- Surface Raveling and Bleeding
  - Rating based on percentage of road surface affected

Concrete Parking Distress Types

- Slab Faulting at Joints
  - Rating based on height differential between adjacent slabs or pieces of broken slabs
- Slab Cracking and breakup
  - Rating based on quantity of cracks and if slab is acting to able distribute load as designed
- Surface Delamination and Pop-outs
  - Rating based on percentage of road surface affected to include pop-outs, spalls and surface delamination
- Joint Distresses
  - Rating based on sealant condition and concrete distresses at/or adjacent to joints
- Patching
  - Rating based on percentage of road surface affected

Curb Inspection and Treatments

During inspections of manually rated parking lots and routes, the curb reveal and overall curb condition are evaluated. The curb condition is used to determine a recommendation.

Curb Reveal
The vertical distance on the curb face from the gutter flow line or pavement surface to the top of curb. When resurfacing adjacent to curb, the resulting curb reveal should be no less than 4 inches. Additionally, when resurfacing adjacent to a gutter, the resulting pavement surface should be flush with the gutter pan. In cases where a resurfacing would violate either of these parameters, the surface may need to be milled or removed to adjust to these field conditions.

Curb Recommendations
The following treatment categories are based on the overall percentage of distresses along the entire curb structure for a specific pavement structure. Distresses include spalling, cracking, loss of material and any other damage which prevents the curb from conveying storm runoff or failing to perform in its intended function.

- Overall curb damage ranging 0%-5%:
    - DO NOTHING
- Overall curb damage ranging 5%-20%
    - LIGHT REPAIR
- Overall curb damage ranging 20%-50%
    - MODERATE REPAIR
- Overall curb damage greater than 50%:
    - REPLACE

GPS for Manually Rated Roads and Parking

GPS information for Manually Collected Cycle 6 Routes will be recorded using the latest hardware and software by TRIMBLE 6000 Series GeoXT. Cycle 6 GPS collection units will allow access to GPS and GLONASS, improving overall GPS reliability, accuracy and precision to submeter accuracy. Additionally, the new GPS units have an enhanced ability to collect accurate signals underneath tree cover or adjacent to buildings or natural terrain with extreme vertical gradations that typically reduce GPS accuracy. Trees and buildings create "satellite shadows", limiting the areas where you can reliably collect high-accuracy GPS data. The updated GPS receiver will deliver improved usable data under tree canopy or in natural or urban canyons. Routes that were previously collected accurately will not be recollected in Cycle 6.

TRIMBLE 6000 SERIES GeoXT GPS SPECIFICATIONS	
Receiver	Trimble Maxwell™ 6 GNSS chipset
Channels	220 channels
Systems	GPS / GLONASS / WAAS
Accuracy	Sub-meter
Operation Temperature	–20 °C to +60 °C (–4 ºF to +140 ºF)
Cellular and Wireless	UMTS / HSDPA / GPRS / EDGE / Wi-Fi / Bluetooth
Internal Still Camera w/ GEOTAG ability	Autofocus 5 MP (JPG) and WMV w/ Audio

Appendix C

Description of Cycle 6 Deliverables

Final Report Delivery

The Final Report will contain all data collected by Manual Inspection and the Data Collection Vehicle. All information provided in the Interim Report will be included in the Final report. Manually collected information reported in the Interim Report may be updated in the Final Report if pavement conditions have substantially changed between the Manual Inspection and Data Collection Vehicle Inspection or other unforeseen circumstances.

The final report will be released approximately 8 months after the Data Collection Vehicle completes its collection of that specific park.

Data included in the Final Report package consists of the following:

- **Condition Photos:** All photos taken during Cycle 6.
- **Data Video:** Data and video of each route collected by the DCV will viewable through PATHVIEW software. PATHVIEW Software and training will be provided to NPS personnel by Eastern Federal Lands.
- **GPS on All Rated Routes:** All GPS data collected from the DCV will be provided. 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 units.
    - GPS will be provided as Shapefiles and KMLs
    - All GPS data related to road collection with be linear referenced to the collected length
- **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 tables and geographic data. It allows RIP to facilitate easier updates and enhancements in the future. A geodatabase can be thought of as simply a database containing spatial data. 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.
- **Report (RIP Report and Route ID):** A PDF report will be provided that includes a list of all routes and key data. Condition reports for each route will be included. All changes, additions and deletions to any route will be included in the report. Features along routes will not be collected in Cycle 6.

Partial DCV Collections

Additional Partial DCV Collections may be done on specific parks depending on their size and overall mileage of routes within its boundaries during Cycle 6. Parks with greater than 10 miles of paved roadways will receive at least one additional Partial DCV collection during Cycle 6. Data collected during these Partial DCV Collections will not result in the delivery of an additional report to the park.

Data collected by the DCV during Partial DCV Collection will be used to improve HPMA modeling by providing additional "snapshots in time" of park pavement conditions. This improved HMPA modeling will assist in the programing and budgeting of future projects which will help maximize the life of pavement infrastructures.

Instead of receiving a report of conditions collected during the Partial DCV collection, the park will receive a formal letter from the Road Inventory Program requesting coordination for the additional Partial DCV collection, identifying the dates of the Partial DCV Collection and will reinforce the purpose and importance of the Partial DCV Collection.

Appendix D

Glossary of Terms and Abbreviations

Glossary of Terms and Abbreviations

TERM OR ABBREVIATION	DESCRIPTION OR DEFINITION
AC	Alligator Cracking
CRS	Condition Rating Sheets (Section 5)
Curb Recommendation	Curb remediation based on overall percentage of curb distress
Curb Reveal	Height of curb exposed from gutter flow line to top of curb
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
HPMA	Highway Pavement Management Application
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