Federal Lands Highway

Road Inventory Program

Road Inventory and Condition Assessment

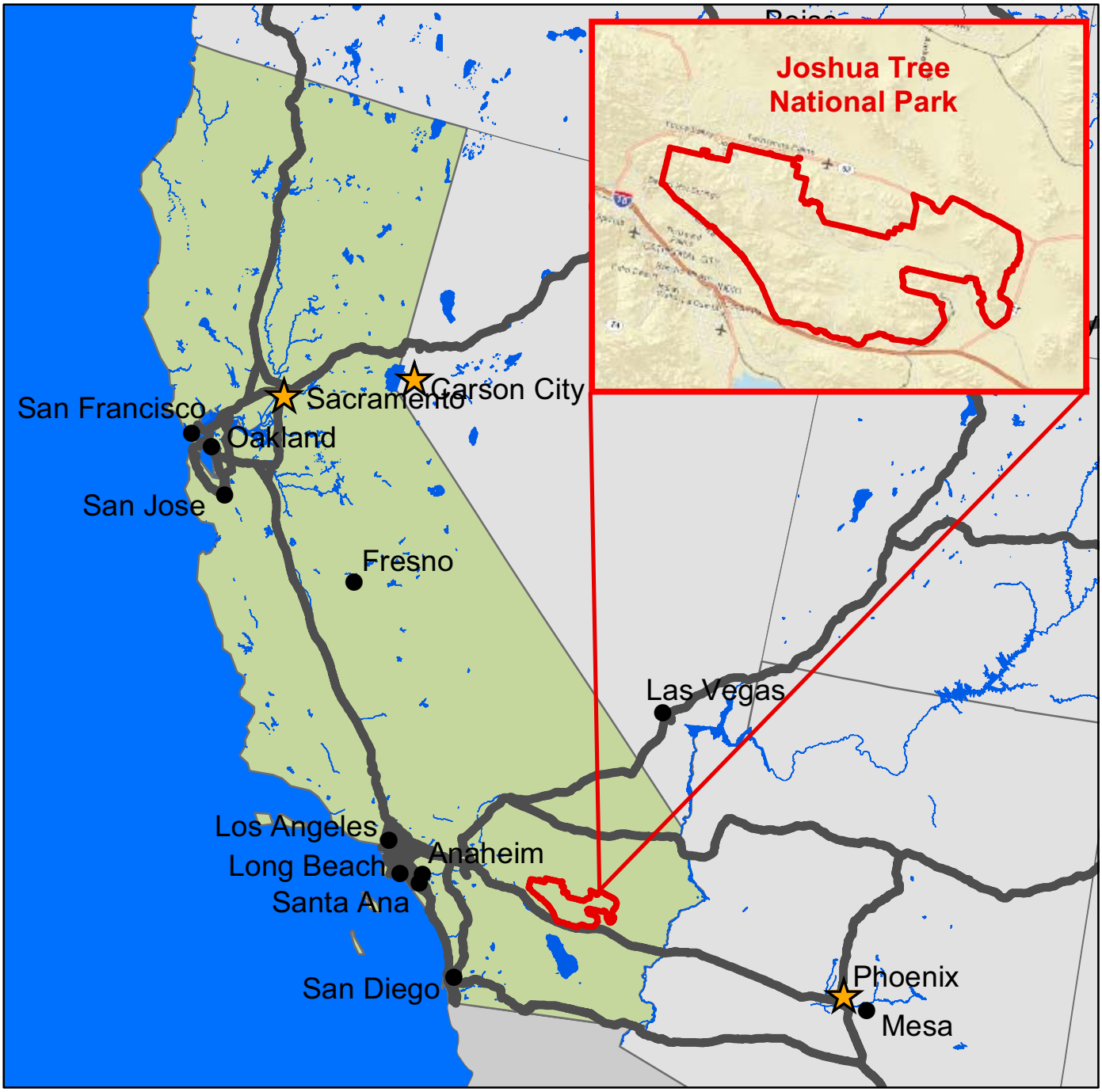
Joshua Tree National Park

JOTR

Cycle 5 Report

Prepared By: Federal Highway Administration
Road Inventory Program (RIP)
Data Collected: 04/2012
Report Date: 12/2012

Joshua Tree National Park
in
California



DCV = Data Collection Vehicle

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INTRODUCTION

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

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

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

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

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

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

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

Cycle 5 has launched in the summer of 2010 and will again comprise all parks, large and small, that are served by paved roads and/or parking areas. For Cycle 5, the decision was made to collect condition data in large parks on Functional Class 1, 2, and 7 paved routes only, as well as any new routes that were previously not collected. In small parks, all paved routes and parking areas will be collected. As a result, this will include 81 large parks with 4,459 paved route miles and 168 small parks with 529 paved route miles and associated paved parking areas.

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

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

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

Respectfully,

FHWA RIP Team

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Section 2
Park Route Inventory

Joshua Tree National Park

Federal Lands Highway
Road Inventory Program

Cycle 5 NPS/RIP Route ID Report

Shading Color Key:
Red text denotes approx. mileage

White = Paved Routes, DCV Driven | Yellow = Unpaved Routes, DCV not Driven | Blue = All Paved Parking Areas | Green = All Unpaved Parking Areas
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*Unpaved route data was obtained from NPS and was not inventoried by the Road Inventory Program (RIP).

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*** Only Functional Class 1, 2, & 7 routes, and previously uncollected routes were collected in Cycle 5

JOTR

JOSHUA TREE NATIONAL PARK

Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From	Route Description To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
0011	5	16798		PINTO BASIN ROAD	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 6.55 (ON LEFT)	TO ROUTE 5003 (COTTONWOOD ROAD (STATE ROUTE 195)	N/A	35.82	0.00	35.82	1		AS	1,2
0012	5	16832		EAST-WEST HIGHWAY	FROM ROUTE 5004 (UTAH TRAIL) / INTERSECTION OF ROUTE 0956 (NORTH ENTRANCE SIGN PARKING)	TO JOSHUA TREE ENTRANCE / QUAIL SPRINGS ROAD	N/A	25.46	0.00	25.46	1		AS	1
0013	5	19875		KEY'S VIEW ROAD	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 16.93 (ON LEFT)	TO ROUTE 0915B (KEYS VIEW PARKING B)	N/A	5.50	0.00	5.50	1		AS	1
0100	NC	19905		QUEENS VALLEY CONNECTOR	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 11.65 (ON RIGHT)	TO ROUTE 0105 (BIG HORN PASS ROAD)	N/A	0.00	4.20	4.20	2		OT	
0101	5	19903		BARKER DAM ROAD	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 18.51 (ON RIGHT)	TO ROUTE 0923 (BARKER DAM PARKING)	N/A	1.51	0.00	1.51	2		AS	1
0102	NC	58838		LOST HORSE RANGER STATION ROAD	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 19.99 (ON LEFT)	TO END AT ROUTE 0952 (LOST HORSE RANGER STATION PARKING)	N/A	0.00	1.18	1.18	3		NV	
0103	NC	19676		OLD DALE ROAD	FROM ROUTE 0104 (BLACK EAGLE MINE ROAD) AT MP 0.04 (ON LEFT)	TO NORTH PARK BOUNDARY	N/A	0.00	12.57	12.57	2		NV	
0104	NC	19710		BLACK EAGLE MINE ROAD	FROM ROUTE 0011 (PINTO BASIN ROAD) AT MP 23.09 (ON LEFT)	TO EAST PARK BOUNDARY	N/A	0.00	9.65	9.65	2		NV	
0105	NC	57402		BIG HORN PASS ROAD	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 12.36 (ON RIGHT)	TO ROUTE 0101 (BARKER DAM ROAD)	N/A	0.00	3.19	3.19	3		NV	
0106	NC	19910		LOST HORSE MINE ROAD	FROM ROUTE 0013 (KEY'S VIEW ROAD) AT MP 2.45 (ON LEFT)	TO END	N/A	0.00	1.01	1.01	3		NV	
0107	NC	93136		SOUTH PARK ROAD	FROM ROUTE 0214 (BLACK ROCK CAMPGROUND ROAD)	TO NORTH PARK BOUNDARY	N/A	0.00	0.40	0.40	2		NV	
0108	NC	57494		ODELL ROAD	FROM ROUTE 0105 (BIG HORN PASS ROAD)	TO ROUTE 0930 (QUEEN MOUNTAIN PARKING)	N/A	0.00	1.48	1.48	2		NV	
0109	NC	97835		WALL STREET MILL ROAD	FROM ROUTE 0105 (BIG HORN PASS ROAD)	TO ROUTE 0931 (WALL STREET MILL PARKING)	N/A	0.00	0.27	0.27	2		NV	

Cycle 5 NPS/RIP Route ID Report

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0110	NC	98046		NORTH ENTRANCE BACKCOUNTRY BOARD ROAD	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 2.41 (ON LEFT)	TO END OF LOOP	N/A	0.00	0.21	0.21	2		GR	
0200	NC	19814		SPLIT ROCK PICNIC AREA ROAD	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 8.76 (ON RIGHT)	TO ROUTE 0910 (SPLIT ROCK PICNIC AREA)	N/A	0.00	0.54	0.54	3		GR	
0201	NC	19816		LIVE OAK PICNIC AREA ROAD	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 8.76 (ON LEFT)	TO END OF LOOP	N/A	0.00	0.38	0.38	3		NV	
0202	NC	19701		BERDOO CANYON ROAD	FROM ONE-WAY LOOP PORTION OF ROUTE 0300 (GEOLOGY TOUR ROAD)	TO SOUTH PARK BOUNDARY	N/A	0.00	11.52	11.52	4		NV	
0203ZZ	4	19763		JUMBO ROCKS CAMPGROUND	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 8.1	THROUGH CAMPGROUND	N/A	1.32	0.00	1.32	3		AS	1
0204	4	16807		COTTONWOOD SPRINGS CAMPGROUND AND TRAILHEAD	FROM ROUTE 0011 (PINTO BASIN ROAD) AT MP 29.98 (ON LEFT)	TO ROUTE 0908 (COTTONWOOD SPRINGS OASIS PARKING)	N/A	1.14	0.00	1.14	3		AS	2
0205	4	16892		BELLE CAMPGROUND ROAD	FROM ROUTE 0011 (PINTO BASIN ROAD) AT MP 1.34 (ON LEFT)	TO BEGINNING OF ROUTE 0205A (BELLE CAMPGROUND LOOP ROAD)	N/A	0.12	0.00	0.12	3		AS	1
0205A	NC	97984		BELLE CAMPGROUND LOOP ROAD	FROM END OF ROUTE 0205 (BELLE CAMPGROUND ROAD)	TO END OF ONE WAY LOOP SECTION	N/A	0.00	0.37	0.37	3		NV	
0206	4	16893		WHITE TANK CAMPGROUND ENTRANCE ROAD	FROM ROUTE 0011 (PINTO BASIN ROAD) AT MP 2.72 (ON LEFT)	TO BEGINNING OF ROUTE 0206A (WHITE TANK CAMPGROUND LOOP ROAD)	N/A	0.14	0.00	0.14	3		AS	1
0206A	NC	104964		WHITE TANK CAMPGROUND LOOP ROAD	FROM END OF ROUTE 0206 (WHITE TANK CAMPGROUND ENTRANCE ROAD) ON LEFT	TO END OF LOOP	N/A	0.00	0.17	0.17	3		NV	
0207	4	97986		HIDDEN VALLEY CAMPGROUND ENTRANCE ROAD	FROM ROUTE 0101 (BARKER DAM ROAD) AT MP 0.07 (ON LEFT)	TO ROUTE 0207B (HIDDEN VALLEY CAMPGROUND LOOP ROAD B) AND ROUTE 0207C (HIDDEN VALLEY CAMPGROUND LOOP ROAD C)	N/A	0.12	0.00	0.12	3		AS	1

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0207A	NC	19880		HIDDEN VALLEY CAMPGROUND LOOP ROAD A	FROM END OF ROUTE 0207C (HIDDEN VALLEY CAMPGROUND LOOP ROAD C)	TO END OF LOOP	N/A	0.00	0.37	0.37	3		NV	
0207B	NC	104973		HIDDEN VALLEY CAMPGROUND LOOP ROAD B	FROM END OF ROUTE 0207 (HIDDEN VALLEY CAMPGROUND ENTRANCE ROAD) AND BEGINNING OF ROUTE 0207C (HIDDEN VALLEY CAMPGROUND LOOP ROAD)	TO END OF LOOP	N/A	0.00	0.13	0.13	3		NV	
0207BA	NC	104980		HIDDEN VALLEY CAMPGROUND LOOP B SPUR	FROM ROUTE 0207B (HIDDEN VALLEY CAMPGROUND LOOP ROAD B)	TO ROUTE 0207B (HIDDEN VALLEY CAMPGROUND LOOP ROAD B) LOOP	N/A	0.00	0.08	0.08	3		NV	
0207C	NC	104987		HIDDEN VALLEY CAMPGROUND LOOP ROAD C	FROM END OF ROUTE 0207 (HIDDEN VALLEY CAMPGROUND ENTRANCE ROAD)AND BEGINNING OF 0207B (HIDDEN VALLEY CAMPGROUND LOOP ROAD B)	TO BEGINNING OF ROUTE 0207A (HIDDEN VALLEY CAMPGROUND LOOP ROAD A)	N/A	0.00	0.31	0.31	3		NV	
0209	NC	19752		RYAN CAMPGROUND ROAD ENTRANCE ROAD	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 16.39 (ON LEFT)	TO ROUTE 0209A (RYAN CAMPGROUND LOOP A)	N/A	0.00	0.32	0.32	3		GR	
0209A	NC	104941		RYAN CAMPGROUND LOOP A	FROM END OF ROUTE 0209 (RYAN CAMPGROUND ROAD ENTRANCE ROAD)	TO END OF LOOP AT ROUTE 0209 (RYAN CAMPGROUND ROAD ENTRANCE ROAD)	N/A	0.00	0.42	0.42	3		GR	
0209B	NC	105501		RYAN CAMPGROUND HORSE CAMP 209 AA	FROM ROUTE 209A (RYAN CAMPGROUND LOOP A)	TO ROUTE 209A (RYAN CAMPGROUND LOOP A)	N/A	0.00	0.11	0.11	3		NV	
0210	NC	19682		LOWER COVINGTON ROAD	FROM NORTH PARK BOUNDARY	TO END OF LOOP	N/A	0.00	4.90	4.90	4		NV	
0211	4	39007		SHEEP PASS CAMPGROUND ENTRANCE ROAD	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 14.15 (ON LEFT)	TO BEGINNING OF ROUTE 0211A (SHEEP PASS CAMPGROUND LOOP A)	N/A	0.29	0.00	0.29	3		AS	1
0211A	NC	98236		SHEEP PASS CAMPGROUND LOOP A	FROM END OF ROUTE 0211 (SHEEP PASS CAMPGROUND ENTRANCE ROAD)	TO END OF LOOP	N/A	0.00	0.22	0.22	3		NV	

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0212A	**5**	**17237**		**INDIAN COVE CAMPGROUND ROAD A**	**FROM NORTH PARK BOUNDARY/END OF ROUTE 5002 (INDIAN COVE ROAD)**	**TO ROUTE 0212C (INDIAN COVE CAMPGROUND ROAD C)**	**N/A**	**1.96**	**0.00**	**1.96**	**2**		**AS**	**1**
0212B	NC	97988		INDIAN COVE CAMPGROUND ROAD B	FROM ROUTE 0212A (INDIAN COVE CAMPGROUND ROAD A) AT MP 1.68 ON RIGHT	TO END OF LOOP	N/A	0.00	0.65	0.65	2		GR	
0212C	NC	97989		INDIAN COVE CAMPGROUND ROAD C	FROM END OF ROUTE 0212A (INDIAN COVE CAMPGROUND ROAD A)	TO END OF LOOP AT END OF ROUTE 0212A	N/A	0.00	0.68	0.68	3		OT	
0212D	NC	97990		INDIAN COVE CAMPGROUND ROAD D	FROM ROUTE 0212C (INDIAN COVE CAMPGROUND ROAD C) ON RIGHT	TO END OF LOOP	N/A	0.00	0.62	0.62	3		OT	
0212E	NC	97991		INDIAN COVE CAMPGROUND ROAD E	FROM ROUTE 0212C (INDIAN COVE CAMPGROUND ROAD C) ON RIGHT	TO END OF LOOP	N/A	0.00	1.31	1.31	3		OT	
0212F	NC	97992		INDIAN COVE CAMPGROUND ROAD F	FROM ROUTE 0212E (INDIAN COVE CAMPGROUND ROAD E) ON LEFT	TO ROUTE 0212C (INDIAN COVE CAMPGROUND ROAD C)	N/A	0.00	0.23	0.23	3		OT	
0213	**5**	**19734**		**49 PALMS OASIS ACCESS ROAD**	**FROM NORTH PARK BOUNDARY/END OF ROUTE 5005 (CANYON ROAD)**	**TO ROUTE 0917 (49 PALMS OASIS PARKING)**	**N/A**	**0.47**	**0.00**	**0.47**	**2**		**AS**	**1**
0214	4	16853		BLACK ROCK CAMPGROUND ROAD	FROM NORTH PARK BOUNDARY	THROUGH CAMPGROUND	N/A	0.25	0.00	0.25	3	15,650	AS	1
0216	**5**	**38992**		**COTTONWOOD CAMPGROUND ENTRANCE ROAD**	**FROM ROUTE 0204 (COTTONWOOD SPRINGS CAMPGROUND AND TRAILHEAD)**	**TO ROUTE 0216A (COTTONWOOD CAMPGROUND LOOP A)**	**N/A**	**0.18**	**0.00**	**0.18**	**2**		**AS**	**2**
0216A	4	16896		COTTONWOOD CAMPGROUND LOOP A	FROM ROUTE 0216 (COTTONWOOD CAMPGROUND ENTRANCE ROAD) AND ROUTE 0216B (COTTONWOOD CAMPGROUND LOOP B)	TO END OF LOOP	N/A	0.27	0.00	0.27	3		AS	2

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0216B	4	16897		COTTONWOOD CAMPGROUND LOOP B	FROM ROUTE 0216A (COTTONWOOD CAMPGROUND LOOP A) AND END OF ROUTE 0216 (COTTONWOOD CAMPGROUND ENTRANCE ROAD)	TO END OF LOOP	N/A	0.34	0.00	0.34	3		AS	2
0217	NC	77023		BROOKLYN MINE JEEP TRAIL	FROM ROUTE 0103 (OLD DALE ROAD) AT MP 11.377 ON RIGHT	TO PARK BOUNDARY	N/A	0.00	2.61	2.61	4		NV	
0218	NC	97993		UPPER COVINGTON ROAD	FROM END OF ROUTE 0219 (COVINGTON CROSSOVER ROAD) ON LEFT	TO END AT CALIFORNIA RIDING AND HIKING TRAILHEAD	N/A	0.00	1.93	1.93	4		NV	
0219	NC	98041		COVINGTON CROSSOVER ROAD	FROM END OF ROUTE 0210 (LOWER COVINGTON ROAD) AT MP 4.24 ON RIGHT	TO ROUTE 0220 (EUREKA PEAK ROAD) AND ROUTE 0218 (UPPER COVINGTON ROAD)	N/A	0.00	1.81	1.81	4		NV	
0220	NC	98042		EUREKA PEAK ROAD	FROM END OF ROUTE 0219 (COVINGTON CROSSOVER ROAD) ON RIGHT	TO ROUTE 0948 (EUREKA PEAK PARKING)	N/A	0.00	1.36	1.36	4		NV	
0221	NC	19705		PINKHAM CANYON ROAD	FROM ROUTE 0011 (PINTO BASIN ROAD) AT MP 29.99 (ON RIGHT)	TO SOUTH PARK BOUNDARY	N/A	0.00	19.20	19.20	4		NV	
0222	NC	82727		STIRRUP TANK ROAD	FROM ROUTE 0011 (PINTO BASIN ROAD)	TO END OF LOOP	N/A	0.00	1.50	1.50	3		NV	
0223	NC	98235		IVANPAH ROAD	FROM ROUTE 0201 (LIVE OAK PICNIC AREA ROAD) AT MP 0.106 ON LEFT	TO END OF LOOP	N/A	0.00	0.09	0.09	3		NV	
0300	NC	19686		GEOLOGY TOUR ROAD	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 11.65 (ON LEFT)	TO END OF ONE WAY LOOP	N/A	0.00	11.66	11.66	4		NV	
0400	4	39008		MAINTENANCE ROAD	FROM ROUTE 0011 (PINTO BASIN ROAD) AT MP 0.05 (ON LEFT)	TO ROUTE 0901 (MAINTENANCE YARD PARKING)	N/A	0.52	0.00	0.52	5		AS	1
0401	NC	39009		SHEEP PASS BORROW PIT ROAD	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 13.65 (ON RIGHT)	TO END OF LOOP	N/A	0.00	0.24	0.24	6		NV	
0402	NC	39010		INDIAN COVE BORROW PIT ROAD	FROM ROUTE 0212E (INDIAN COVE CAMPGROUND ROAD E) AT MP 0.74 (ON LEFT)	TO BORROW PIT	N/A	0.00	0.47	0.47	6		NV	

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0403	NC	16905		SMOKE TREE WELL ROAD	FROM ROUTE 0221 (PINKHAM CANYON ROAD)	TO END AT SMOKE TREE WELL	N/A	0.00	1.75	1.75	6		NV	
0404	NC	39011		JUNIPER FLATS ROAD	FROM ROUTE 0013 (KEY'S VIEW ROAD) AT MP 1.09 (ON RIGHT)	TO END AT ABANDONED BORROW PIT	N/A	0.00	5.00	5.00	6		NV	
0405	NC	17067		KEYS RANCH ROAD	FROM ROUTE 0101 (BARKER DAM ROAD) AT MP 0.67 (ON LEFT)	TO END AT KEYS RANCH	N/A	0.00	2.03	2.03	6		NV	
0406	4	98209		COTTONWOOD RESIDENTIAL ROAD	FROM ROUTE 0204 (COTTONWOOD SPRINGS CAMPGROUND AND TRAILHEAD) AT MP 0.27 (ON LEFT)	TO END AT UNPAVED TURNAROUND	N/A	0.15	0.00	0.15	5		AS	2
0407	NC	105013		WHISPERING PINES ROAD	FROM ROUTE 0210 (LOWER COVINGTON ROAD)	TO NORTH PARK BOUNDARY	N/A	0.00	0.50	0.50	6		NV	
0409	NC	16906		COTTONWOOD WATER TANK ROAD	FROM ROUTE 0204 (COTTONWOOD SPRINGS CAMPGROUND AND TRAILHEAD) AT MP 0.38 (ON RIGHT)	TO WATER TANK	N/A	0.00	0.56	0.56	6		NV	
0410	NC	98113		BLACK ROCK WATER TANK ROAD	FROM ROUTE 0214 (BLACK ROCK CAMPGROUND ROAD)	TO AIR QUALITY STATION	N/A	0.00	0.64	0.64	6		NV	
0411	4	89093		BELLE MOUNTAIN ROAD	FROM ROUTE 0400 (MAINTENANCE ROAD) AT MP 0.5 (ON LEFT)	TO RADIO REPEATER	N/A	3.35	0.08	3.43	6		AS	1
0412	NC	98115		PISTOL RANGE BORROW PIT ROAD	FROM ROUTE 0011 (PINTO BASIN ROAD) AT MP 4.41 (ON LEFT)	TO MIXING PAD	N/A	0.00	0.34	0.34	6		GR	
0413	NC	226466		NOLINA PEAK	FROM ROUTE 0210 (LOWER COVINGTON ROAD)	TO DEAD END	N/A	0.00	1.80	1.80	6		GR	
0900	4	16909		VISITOR CENTER/OASIS OF MARA PARKING	FROM ROUTE 5004 (UTAH TRAIL)	TO NATIONAL PARK DRIVE	N/A	0.00	0.00	0.00		36,767	AS	1
0901	4	19469		MAINTENANCE YARD PARKING	FROM END OF ROUTE 0400 (MAINTENANCE ROAD)	TO PARKING	N/A	0.00	0.00	0.00		42,870	AS	1
0902	4	38993		TWIN TANKS BACKCOUNTRY PARKING	FROM ROUTE 0011 (PINTO BASIN ROAD) AT MP 2.21 (ON RIGHT)	TO PARKING	N/A	0.00	0.00	0.00		23,550	AS	1
0903	4	38994		STIRRUP TANK PARKING	FROM ROUTE 0011 (PINTO BASIN ROAD) AT MP 3.14 (ON RIGHT)	TO PARKING	N/A	0.00	0.00	0.00		6,264	AS	1

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JOTR

JOSHUA TREE NATIONAL PARK

Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From	Route Description To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
0904	4	38995		COTTONWOOD VISITOR CENTER	FROM ROUTE 0011 (PINTO BASIN ROAD) AT MP 29.91 (ON LEFT)	TO ROUTE 0204 (COTTONWOOD SPRINGS CAMPGROUND AND TRAILHEAD)	N/A	0.00	0.00	0.00		18,482	AS	2
0905	4	16801		COTTONWOOD MAINTENANCE YARD PARKING	FROM ROUTE 0406 (COTTONWOOD RESIDENTIAL ROAD)	TO PARKING	N/A	0.00	0.00	0.00		9,628	AS	2
0906	4	38997		COTTONWOOD DUMP STATION	FROM ROUTE 0204 (COTTONWOOD SPRINGS CAMPGROUND AND TRAILHEAD) AT MP 0.46 (ON LEFT)	TO ROUTE 0204 (COTTONWOOD SPRINGS CAMPGROUND AND TRAILHEAD) AT MP 0.50 (ON LEFT)	N/A	0.00	0.00	0.00		8,762	AS	2
0907A	4	98211		COTTONWOOD CAMPGROUND PARKING A	ADJACENT TO ROUTE 0216 (COTTONWOOD CAMPGROUND ENTRANCE ROAD) AT MP 0.06 (ON LEFT)		N/A	0.00	0.00	0.00		8,020	AS	2
0907B	4	98212		COTTONWOOD CAMPGROUND PARKING B	ADJACENT TO ROUTE 0216B (COTTONWOOD CAMPGROUND LOOP B) ON LEFT AT MP .31		N/A	0.00	0.00	0.00		883	AS	2
0907C	4	98213		COTTONWOOD CAMPGROUND PARKING C	ADJACENT TO ROUTE 0216A (COTTONWOOD CAMPGROUND LOOP A) ON LEFT		N/A	0.00	0.00	0.00		951	AS	2
0907D	**5**	**98208**		**COTTONWOOD CAMPGROUND PICNIC PARKING D**	**ADJACENT TO ROUTE 0216 (COTTONWOOD CAMPGROUND ENTRANCE ROAD) AT MP 0.09 (ON RIGHT)**		**N/A**	**0.00**	**0.00**	**0.00**		**756**	**AS**	**2**
0908	4	38998		COTTONWOOD SPRINGS OASIS PARKING	FROM END OF ROUTE 0204 (COTTONWOOD SPRINGS CAMPGROUND AND TRAILHEAD)	TO PARKING	N/A	0.00	0.00	0.00		16,567	AS	2
0909	4	38999		BAJADA ALL TRAIL PARKING	FROM ROUTE 0011 (PINTO BASIN ROAD) AT MP 35.38 ON LEFT	TO ROUTE 0011 (PINTO BASIN ROAD) AT MP 35.43 ON LEFT	N/A	0.00	0.00	0.00		11,498	AS	2
0910	NC	39000		SPLIT ROCK PICNIC AREA	FROM END OF ROUTE 0200 (SPLIT ROCK PICNIC AREA ROAD)	TO PARKING	N/A	0.00	0.00	0.00			GR	

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JOSHUA TREE NATIONAL PARK

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0911	4	39001		OYSTER BAR TRAILHEAD PARKING	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 15.96	TO ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 16.02	N/A	0.00	0.00	0.00		10,598	AS	1
0912	**5**	**19493**		**RYAN MOUNTAIN TRAILHEAD PARKING**	**FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 14.78**	**TO ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 14.91**	**N/A**	**0.00**	**0.00**	**0.00**		**33,678**	**AS**	**1**
0913	4	39002		QUAIL SPRINGS PARKING AREA	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 21.55 ON LEFT	TO ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 21.58 ON LEFT	N/A	0.00	0.00	0.00		41,645	AS	1
0914	4	39003		WEST ENTRANCE STATION	ADJACENT TO ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 27.45 ON LEFT		N/A	0.00	0.00	0.00		10,012	AS	1
0915A	4	231794		KEYS VIEW PARKING A	FROM ROUTE 0013 (KEY'S VIEW ROAD) ON RIGHT	TO PARKING	N/A	0.00	0.00	0.00		1,651	AS	1
0915B	4	55566		KEYS VIEW PARKING B	FROM END OF ROUTE 0013 (KEY'S VIEW ROAD)	TO PARKING	N/A	0.00	0.00	0.00		21,015	AS	1
0916	4	39005		INDIAN COVE CONTACT STATION	FROM ROUTE 0212A (INDIAN COVE CAMPGROUND ROAD A) ON RIGHT	TO ROUTE 0212A (INDIAN COVE CAMPGROUND ROAD A) ON RIGHT	N/A	0.00	0.00	0.00		11,610	AS	1
0917	4	19730		49 PALMS OASIS PARKING	FROM END OF ROUTE 0213 (49 PALMS OASIS ACCESS ROAD)	TO PARKING	N/A	0.00	0.00	0.00		23,473	AS	1
0918	4	39006		HIDDEN VALLEY PICNIC PARKING	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 18.64 ON LEFT	TO PARKING	N/A	0.00	0.00	0.00		101,480	AS	1
0919	4	98214		NORTH ENTRANCE CONTACT STATION PARKING	ADJACENT TO ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 1.98 ON RIGHT		N/A	0.00	0.00	0.00		3,061	AS	1
0920	4	57151		MOJAVE PLANTS PARKING	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 17.11	TO ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 17.15	N/A	0.00	0.00	0.00		13,734	AS	1
0921	4	16847		HEMMINGWAY PARKING	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 19.61 ON LEFT	TO ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 19.67 ON LEFT	N/A	0.00	0.00	0.00		18,048	AS	1
0922	4	39012		INTERSECTION ROCK PARKING	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 18.64 ON RIGHT	TO PARKING	N/A	0.00	0.00	0.00		48,929	AS	1
0923	4	19904		BARKER DAM PARKING	FROM END OF ROUTE 0101 (BARKER DAM ROAD)	TO PARKING	N/A	0.00	0.00	0.00		40,579	AS	1

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JOTR

JOSHUA TREE NATIONAL PARK

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0924A	NC	105011		INDIAN COVE PARKING AREA A	ADJACENT TO ROUTE 0212B (INDIAN COVE CAMPGROUND ROAD B)		N/A	0.00	0.00	0.00			GR	
0924B	NC	105015		INDIAN COVE PARKING AREA B	ADJACENT TO ROUTE 0212B (INDIAN COVE CAMPGROUND ROAD B)		N/A	0.00	0.00	0.00			GR	
0924C	NC	105019		INDIAN COVE PARKING AREA C	ADJACENT TO ROUTE 0212B (INDIAN COVE CAMPGROUND ROAD B)		N/A	0.00	0.00	0.00			GR	
0924D	NC	105098		INDIAN COVE PARKING AREA D	ADJACENT TO ROUTE 0212B (INDIAN COVE CAMPGROUND ROAD B)		N/A	0.00	0.00	0.00			GR	
0924E	NC	105099		INDIAN COVE PARKING AREA E	ADJACENT TO ROUTE 0212B (INDIAN COVE CAMPGROUND ROAD B)		N/A	0.00	0.00	0.00			GR	
0924F	NC	105100		INDIAN COVE PARKING AREA F	ADJACENT TO ROUTE 0212B (INDIAN COVE CAMPGROUND ROAD B)		N/A	0.00	0.00	0.00			GR	
0924G	NC	105101		INDIAN COVE PARKING AREA G	ADJACENT TO ROUTE 0212B (INDIAN COVE CAMPGROUND ROAD B)		N/A	0.00	0.00	0.00			GR	
0924H	NC	105102		INDIAN COVE PARKING AREA H	ADJACENT TO ROUTE 0212B (INDIAN COVE CAMPGROUND ROAD B)		N/A	0.00	0.00	0.00			GR	
0924I	NC	105103		INDIAN COVE PARKING AREA I	ADJACENT TO ROUTE 0212B (INDIAN COVE CAMPGROUND ROAD B)		N/A	0.00	0.00	0.00			GR	
0924J	NC	105105		INDIAN COVE PARKING AREA J	ADJACENT TO ROUTE 0212B (INDIAN COVE CAMPGROUND ROAD B)		N/A	0.00	0.00	0.00			GR	
0925	4	98215		BLACK ROCK CAMPGROUND DUMPSTATION	ADJACENT TO ROUTE 0214 (BLACK ROCK CAMPGROUND ROAD)		N/A	0.00	0.00	0.00		5,492	AS	1
0926	4	98216		BLACK ROCK NATURE CENTER PARKING	ADJACENT TO ROUTE 0214 (BLACK ROCK CAMPGROUND ROAD)		N/A	0.00	0.00	0.00		20,830	AS	1
0927	NC	19495		ECHO TEE PARKING	FROM ROUTE 0405 (KEYS RANCH ROAD)	TO PARKING	N/A	0.00	0.00	0.00			GR	
0928	NC	97439		PINE CITY BACKCOUNTRY BOARD PARKING	ADJACENT TO ROUTE 0100 (QUEENS VALLEY CONNECTOR) AT MP 2.972 ON LEFT		N/A	0.00	0.00	0.00			NV	

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JOSHUA TREE NATIONAL PARK

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0929	NC	98203		LIVE OAK PICNIC PARKING	FROM ROUTE 0201 (LIVE OAK PICNIC AREA ROAD) AT MP 0.126 ON LEFT	TO ROUTE 0201 (LIVE OAK PICNIC AREA ROAD) AT MP 0.151 ON LEFT	N/A	0.00	0.00	0.00			NV	
0930	NC	98151		QUEEN MOUNTAIN PARKING	FROM END OF ROUTE 0108 (ODELL ROAD)	TO PARKING	N/A	0.00	0.00	0.00			NV	
0931	NC	28396		WALL STREET MILL PARKING	FROM END OF ROUTE 0109 (WALL STREET MILL ROAD)	TO PARKING	N/A	0.00	0.00	0.00			NV	
0932	NC	98184		YAEGER COVE PARKING	ADJACENT TO ROUTE 0405 (KEYS RANCH ROAD) AT MP 0.325 ON RIGHT		N/A	0.00	0.00	0.00			NV	
0933A	NC	98217		KEYS RANCH GATE PARKING A	ADJACENT TO ROUTE 0405 (KEYS RANCH ROAD) AT MP 1.095 ON RIGHT		N/A	0.00	0.00	0.00			NV	
0933B	NC	98218		KEYS RANCH GATE PARKING B	ADJACENT TO ROUTE 0405 (KEYS RANCH ROAD) AT MP 1.095 ON LEFT		N/A	0.00	0.00	0.00			NV	
0934	NC	98201		KEYS RANCH TOUR PARKING	FROM ROUTE 0405 (KEYS RANCH ROAD) AT MP 1.788 ON RIGHT	TO ROUTE 0405 (KEYS RANCH ROAD) AT MP 1.886 ON RIGHT	N/A	0.00	0.00	0.00			NV	
0935	NC	98186		NORTH ENTRANCE EXHIBIT PARKING	ADJACENT TO ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 0.528 ON RIGHT		N/A	0.00	0.00	0.00			GR	
0936	NC	98188		CHOLLA CACTUS GARDEN PARKING	ADJACENT TO ROUTE 0011 (PINTO BASIN ROAD) AT MP 9.95 ON RIGHT		N/A	0.00	0.00	0.00			GR	
0937	NC	98191		OCOTILLO PATCH PARKING	ADJACENT TO ROUTE 0011 (PINTO BASIN ROAD) AT MP 11.43 ON RIGHT		N/A	0.00	0.00	0.00			GR	
0938	NC	98193		TURKEY FLATS BACKCOUNTRY BOARD PARKING	ADJACENT TO ROUTE 0011 (PINTO BASIN ROAD) AT MP 16.18 ON LEFT		N/A	0.00	0.00	0.00			NV	
0939	NC	98194		PORCUPINE WASH BACKCOUNTRY BOARD PARKING	ADJACENT TO ROUTE 0011 (PINTO BASIN ROAD) AT MP 21.39 ON RIGHT		N/A	0.00	0.00	0.00			NV	
0940	NC	97985		WHITE TANK CAMPGROUND SITES 3-5 PARKING	FROM END OF ROUTE 0206 (WHITE TANK CAMPGROUND ENTRANCE ROAD)	TO PARKING	N/A	0.00	0.00	0.00			NV	
0941	NC	89816		GEOLOGY TOUR RESTROOM PARKING	FROM ROUTE 0300 (GEOLOGY TOUR ROAD)	TO PARKING	N/A	0.00	0.00	0.00			GR	

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JOSHUA TREE NATIONAL PARK

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0942	NC	98195		GEOLOGY TOUR BACKCOUNTRY BOARD PARKING	FROM ROUTE 0300 (GEOLOGY TOUR ROAD)	TO PARKING	N/A	0.00	0.00	0.00			NV	
0943	NC	98196		SQUAW TANK PARKING	FROM ROUTE 0300 (GEOLOGY TOUR ROAD)	TO PARKING	N/A	0.00	0.00	0.00			NV	
0944	NC	98197		PLEASANT VALLEY BACKCOUNTRY BOARD PARKING	FROM ROUTE 0300 (GEOLOGY TOUR ROAD)	TO PARKING	N/A	0.00	0.00	0.00			NV	
0945	NC	98202		BLACK ROCK CAMPGROUND PICNIC PARKING	FROM ROUTE 0214 (BLACK ROCK CAMPGROUND ROAD)	TO PARKING	N/A	0.00	0.00	0.00			NV	
0946	NC	98237		LOWER COVINGTON PICNIC PARKING	FROM ROUTE 0210 (LOWER COVINGTON ROAD)	TO PARKING	N/A	0.00	0.00	0.00			NV	
0947	NC	98238		COVINGTON BACKCOUNTRY BOARD PARKING	FROM ROUTE 0218 (UPPER COVINGTON ROAD)	TO PARKING	N/A	0.00	0.00	0.00			NV	
0948	NC	98240		EUREKA PEAK PARKING	FROM ROUTE 0220 (EUREKA PEAK ROAD)	TO PARKING	N/A	0.00	0.00	0.00			NV	
0949	NC	20060		BOY SCOUT BACKCOUNTRY BOARD PARKING	FROM ROUTE 0012 (EAST-WEST HIGHWAY)	TO PARKING	N/A	0.00	0.00	0.00			GR	
0950ZZ	NC	19868		LOST HORSE RANGER STATION ROAD PARKING LOTS	ADJACENT TO ROUTE 0102 (LOST HORSE RANGER STATION ROAD) AT MP 0.022 ON LEFT		N/A	0.00	0.00	0.00			GR	
0951A	NC	98225		LOST HORSE MINDLESS MOUND PARKING	ADJACENT TO ROUTE 0102 (LOST HORSE RANGER STATION ROAD) AT MP 0.233 ON LEFT		N/A	0.00	0.00	0.00			NV	
0951B	NC	98226		LOST HORSE FREEWAY WALL PARKING	ADJACENT TO ROUTE 0102 (LOST HORSE RANGER STATION ROAD) AT MP 0.374 ON LEFT		N/A	0.00	0.00	0.00			NV	
0951C	NC	98227		LOST HORSE WALL PARKING	ADJACENT TO ROUTE 0102 (LOST HORSE RANGER STATION ROAD) AT MP 0.501 ON LEFT		N/A	0.00	0.00	0.00			NV	
0951D	NC	98219		LOST HORSE RANGER STATION ROAD GATE PARKING	ADJACENT TO ROUTE 0102 (LOST HORSE RANGER STATION ROAD) AT MP 0.617 ON RIGHT		N/A	0.00	0.00	0.00			NV	

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0952	NC	98220		LOST HORSE RANGER STATION PARKING	FROM ROUTE 0102 (LOST HORSE RANGER STATION ROAD)	TO PARKING	N/A	0.00	0.00	0.00		17,124	GR	
0953	**5**	**19898**		**CAP ROCK PARKING**	**FROM ROUTE 0013 (KEY'S VIEW ROAD)**	**TO ROUTE 0013 (KEY'S VIEW ROAD)**	**N/A**	**0.00**	**0.00**	**0.00**		**33,244**	**AS**	**1**
0954	NC	98198		JUNIPER FLATS BACKCOUNTRY BOARD PARKING	FROM ROUTE 0013 (KEY'S VIEW ROAD)	PARKING	N/A	0.00	0.00	0.00			GR	
0955	NC	19494		LOST HORSE MINE PARKING	FROM ROUTE 0106 (LOST HORSE MINE ROAD)	TO PARKING	N/A	0.00	0.00	0.00			GR	
0956	**5**	**98200**		**NORTH ENTRANCE SIGN PARKING**	**ADJACENT TO ROUTE 0012 (EAST-WEST HIGHWAY)**		**N/A**	**0.00**	**0.00**	**0.00**		**2,912**	**AS**	**1**
0957	4	232183		BARREN OR BOUNTIFUL PARKING	ADJACENT TO ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 25.05		N/A	0.00	0.00	0.00		4,150	AS	1
0958	4	231788		RYAN RANCH PARKING	ADJACENT TO ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 16.33		N/A	0.00	0.00	0.00		6,268	AS	1
0959	4	19839		HALL OF HORRORS PARKING	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 15.42	TO ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 15.48	N/A	0.00	0.00	0.00		17,284	AS	1
0960ZZ	4	98224		JUMBO ROCKS PARKING AREAS	FROM ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND)	TO PARKING	N/A	0.00	0.00	0.00		9,555	AS	1
0961	4	231792		KEYS VIEW HANDICAPPED PARKING	ADJACENT TO ROUTE 0013 (KEY'S VIEW ROAD) AT MP 5.17		N/A	0.00	0.00	0.00		1,337	AS	1
0963	NC	101684		BLACK ROCK FIRE CENTER PARKING	FROM ROUTE 0107 (SOUTH PARK ROAD)	TO PARKING	N/A	0.00	0.00	0.00			GR	
0964ZZ	**5**	**16819**		**HQ EMPLOYEE PARKING AREAS**	**FROM ROUTE 0900 (VISITOR CENTER/OASIS OF MARA PARKING)**	**TO ROUTE 0965 (HQ EMPLOYEE PARKING B)**	**N/A**	**0.00**	**0.00**	**0.00**		**15,770**	**AS**	**1**
0965	NC			HQ EMPLOYEE PARKING C	FROM ROUTE 5004 (UTAH TRAIL)	TO PARKING	N/A	0.00	0.00	0.00			GR	
5000	**5**	**101887**		**BLACK ROCK CANYON ROAD**	**FROM INTERSECTION OF ROUTE 5006 (HIGHWAY 62)/AVALON AVENUE (NON NPS)**	**TO PARK BOUNDARY/ROUTE 0214 (BLACK ROCK CAMPGROUND ROAD)**	**N/A**	**4.11**	**0.00**	**4.11**			**AS**	**1**
5001	4			PARK BLVD	FROM TWENTYNINE PALMS HIGHWAY	TO ALTA LOMA DRIVE	N/A	1.01	0.00	1.01			AS	1

Cycle 5 NPS/RIP Route ID Report

Shading Color Key:
Red text denotes approx. mileage

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

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

** DCV - Data Collection Vehicle

*** Only Functional Class 1, 2, & 7 routes, and previously uncollected routes were collected in Cycle 5

JOTR

JOSHUA TREE NATIONAL PARK

Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From	Route Description To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
5002	4			INDIAN COVE ROAD	FROM ROUTE 5006 (HIGHWAY 62)	TO PARK BOUNDARY/ROUTE 0212A (INDIAN COVE CAMPGROUND ROAD A)	N/A	1.01	0.00	1.01			AS	1
5003	4			COTTONWOOD ROAD (STATE ROUTE 195)	FROM INTERSTATE 10 NORTH SIDE AND OFF RAMPS	TO PARK BOUNDARY/END OF ROUTE 0011 (PINTO BASIN ROAD)	N/A	0.98	0.00	0.98			AS	2
5004	**5**			**UTAH TRAIL**	**FROM INTERSECTION OF TWENTYNINE PALMS HIGHWAY (NON NPS)/BEGINNING OF ROUTE 5006 (HIGHWAY 62)**	**TO PARK BOUNDARY/ ROUTE BEGINNING OF ROUTE 0012 (EAST-WEST HIGHWAY)**	**N/A**	**3.96**	**0.00**	**3.96**			**AS**	**1**
5005	4			CANYON ROAD	FROM ROUTE 5006 (HIGHWAY 62)	TO PARK BOUNDARY/BEGINNING OF ROUTE 0213 (49 PALMS OASIS ACCESS ROAD)	N/A	1.21	0.00	1.21			AS	1
5006	4			HIGHWAY 62	FROM INTERSECTION WITH UTAH TRAIL	TO INTERSECTION WITH STATE ROUTE 247	N/A	22.03	0.00	22.03			AS	1

Cycle 5 NPS/RIP Route ID Report

Shading Color Key:
Red text denotes approx. mileage

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

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

** DCV - Data Collection Vehicle

*** Only Functional Class 1, 2, & 7 routes, and previously uncollected routes were collected in Cycle 5

CYCLE 5 COLLECTED SUMMARY TOTALS FOR JOSHUA TREE NATIONAL PARK

CYCLE 5 COLLECTED ROUTE TOTALS

DCV Driven Route Miles	70.90
Manually Rated Route Miles	0.00
TOTAL PARK ROUTE MILES COLLECTED IN CYCLE 5	70.90
Manually Rated Routes (SQFT)	0

* CYCLE 5 COLLECTED PARKING AREA TOTALS

Paved Parking (SQFT)	86,360

CYCLE 5 COLLECTED CONCESSION TOTALS

Concession Paved Route Miles	0.00
Concession Paved Parking Area SQFT	0
Concession Manually Rated Rotes SQFT	0

CYCLE 5 COLLECTED WEIGHTED AVERAGE PARK VALUES

DCV Driven PCR	82
**Manually Rated Routes PCR	N/A
**Parking PCR	90
***Total Equivalent Lane Miles	150.14

TOTAL PARK SUMMARY FOR JOSHUA TREE NATIONAL PARK

ROUTE TOTALS

TOTAL PAVED PARK ROUTE MILES	78.91
TOTAL PAVED PARKING (SQFT)	681,353

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

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

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

Cycle 5 NPS/RIP Route ID Report

Shading Color Key:
Red text denotes approx. mileage

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

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

** DCV - Data Collection Vehicle

*** Only Functional Class 1, 2, & 7 routes, and previously uncollected routes were collected in Cycle 5

General Park Road Functional Classification Table

Class 1 Principal Park Road/Rural Parkway (Public Roads) Roads which constitute the main access route, circulatory tour, or thoroughfare for park visitors. Route Numbers 1 - 99. Note: Rural parkways (e.g. Natchez Trace) are numbered 1 - 9. State Routes Inventoried for Park. Route Numbers 5000-5999

Class 2 Connector Park Road (Public Roads) - Roads which provide access within a park to areas of scenic, scientific, recreational or cultural interest, such as overlooks, campgrounds, etc. Route Numbers 100-199.

Class 3 Special Purpose Park Road (Public Roads) - Roads which provide circulation within public areas, such as campgrounds, picnic areas, visitor center complexes, concessionaire facilities, etc. These roads generally serve low-speed traffic and are often designed for one-way circulation. Route Numbers 200-299.

Class 4 Primitive Park Roads (Public Roads) - Roads which provide circulation through remote areas and/or access to primitive campgrounds and undeveloped areas. These roads frequently have no minimum design standards and their use may be limited to specially equipped vehicles. Route Numbers 200-299.
Note: Functional Classes 3 and 4 have the same route numbers because, historically, they were numbered similarly.

Class 5 Administrative Access Road (Administrative Roads) - All public roads intended for access to administrative developments or structures such as park offices, employee quarters, or utility areas. Route Numbers 400-499.

Class 6 Restricted Road (Administrative Roads) - All roads normally closed to the public, including patrol roads, truck trails, and other similar roads. Route Numbers 400-499. Note: Functional Classes 5 and 6 have the same route numbers because historically they were numbered similarly and often there is little distinction between these routes. For example, because utility areas and employee housing are often closed to the public, this restriction would result in classification of FC 6 rather than FC 5.

Class 7 Urban Parkway (Urban Parkways and City Streets) - These facilities serve high volumes of park and non-park related traffic and are restricted, limited-access facilities in an urban area. This category of roads primarily encompasses the major parkways which serve as gateways to our nation's capital. Other major park roads or portions thereof, however, may be included in this category. Route Numbers 1-9.

Class 8 City Streets (Urban Parkways and City Streets) - City streets are usually extensions of the adjoining street system that are owned and maintained by the National Park Service. The construction and/or reconstruction should conform with accepted local engineering practice and local conditions. Route Numbers 600-699.

****

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

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

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

Surface Type Abbreviations:

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

NPS/RIP Subcomponent Details for JOTR

Shading Color Key:
Red text denotes approx. mileage

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

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

JOTR

JOSHUA TREE NATIONAL PARK

Rte. No.	FMSS No.	Cycle Collected	Route Name	Route Description From	Route Description To	Concess Route	Func. Class	Paved Miles	Un-Paved Miles	Total Route Length	Manual Rated SQ/FT
0203ZZ	19763	4	JUMBO ROCKS CAMPGROUND	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 8.1	THROUGH CAMPGROUND		3	1.32	0.00	1.32	
0950ZZ	19868	NC	LOST HORSE RANGER STATION ROAD PARKING LOTS	ADJACENT TO ROUTE 0102 (LOST HORSE RANGER STATION ROAD) AT MP 0.022 ON LEFT				0.00	0.00	0.00	
0960ZZ	98224	4	JUMBO ROCKS PARKING AREAS	FROM ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND)	TO PARKING			0.00	0.00	0.00	9,555
0964ZZ	**16819**	**5**	**HQ EMPLOYEE PARKING AREAS**	**FROM ROUTE 0900 (VISITOR CENTER/OASIS OF MARA PARKING)**	**TO ROUTE 0965 (HQ EMPLOYEE PARKING B)**			**0.00**	**0.00**	**0.00**	**15,770**

JOTR-0203ZZ Subcomponent Breakdown

Rte. No.	FMSS No.	Cycle Collected	Route Name	Route Description From	Route Description To	Concess Route	Func. Class	Paved Miles	Un-Paved Miles	Total Route Length	Manual Rated SQ/FT
0203AZ	19763	4	JUMBO ROCKS CAMPGROUND LOOP A	FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 10.05 (ON LEFT)	TO END OF LOOP		3	0.72	0.00	0.72	
0203BZ	19763	4	JUMBO ROCKS CAMPGROUND LOOP B	FROM ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .18 ON LEFT	TO ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .15 ON LEFT		3	0.07	0.00	0.07	
0203CZ	19763	4	JUMBO ROCKS CAMPGROUND LOOP C	FROM ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .23 ON LEFT	TO ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .20 ON LEFT		3	0.04	0.00	0.04	
0203DZ	19763	4	JUMBO ROCKS CAMPGROUND LOOP D	FROM ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .25 ON RIGHT	TO ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .28 ON RIGHT		3	0.05	0.00	0.05	
0203EZ	19763	4	JUMBO ROCKS CAMPGROUND LOOP E	FROM ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .29 ON RIGHT	TO ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .46 ON RIGHT		3	0.18	0.00	0.18	
0203FZ	19763	4	JUMBO ROCKS CAMPGROUND LOOP F	FROM ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .37 ON LEFT	TO ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .32 ON LEFT		3	0.08	0.00	0.08	
0203GZ	19763	4	JUMBO ROCKS CAMPGROUND LOOP G	FROM ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .52 ON RIGHT	TO ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .56 ON RIGHT		3	0.18	0.00	0.18	

NPS/RIP Subcomponent Details for JOTR

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

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

JOTR

JOSHUA TREE NATIONAL PARK

JOTR-0950ZZ Subcomponent Breakdown

Rte. No.	FMSS No.	Cycle Collected	Route Name	Route Description From	Route Description To	Concess Route	Func. Class	Paved Miles	Un-Paved Miles	Total Route Length	Manual Rated SQ/FT
0950AZ	19868	NC	LOST HORSE RANGER STATION ROAD PARKING A	ADJACENT TO ROUTE 0102 (LOST HORSE RANGER STATION ROAD) AT MP 0.022 ON LEFT				0.00	0.00	0.00	
0950BZ	19868	NC	LOST HORSE RANGER STATION ROAD PARKING B	ADJACENT TO ROUTE 0102 (LOST HORSE RANGER STATION ROAD) AT MP 0.066 ON LEFT				0.00	0.00	0.00	

JOTR-0960ZZ Subcomponent Breakdown

Rte. No.	FMSS No.	Cycle Collected	Route Name	Route Description From	Route Description To	Concess Route	Func. Class	Paved Miles	Un-Paved Miles	Total Route Length	Manual Rated SQ/FT
0960AZ	98224	4	JUMBO ROCKS DAY USE PKG	FROM ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .02	TO ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .05			0.00	0.00	0.00	4,340
0960BZ	98224	4	SKULL ROCK TRAIL AND AMPHITHEATER PARKING	ADJACENT TO ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .38				0.00	0.00	0.00	1,018
0960CZ	98224	4	SITES 72 THROUGH 76 PARKING	FROM ROUTE 0203ZZ (JUMBO ROCKS CAMPGROUND) AT MP .67	TO PARKING			0.00	0.00	0.00	4,197

JOTR-0964ZZ Subcomponent Breakdown

Rte. No.	FMSS No.	Cycle Collected	Route Name	Route Description From	Route Description To	Concess Route	Func. Class	Paved Miles	Un-Paved Miles	Total Route Length	Manual Rated SQ/FT
0964AZ	**16819**	**5**	**HQ EMPLOYEE PARKING A**	**FROM ROUTE 0900 (VISITOR CENTER/OASIS OF MARA PARKING)**	**TO ROUTE 0965 (HQ EMPLOYEE PARKING B)**			**0.00**	**0.00**	**0.00**	**12,187**
0964BZ	**16819**	**5**	**HQ EMPLOYEE PARKING B**	**FROM ROUTE 0965 (HQ EMPLOYEE PARKING B)**	**TO ROUTE 0965 (HQ EMPLOYEE PARKING B)**			**0.00**	**0.00**	**0.00**	**3,583**

ROUTE IDENTIFICATION CHANGES TO PAVED ROUTES FROM PREVIOUS CYCLE - JOTR

ROUTES ADDED FROM PREVIOUS INVENTORY:			
Route #	**Route Name**	**Reason for Addition**	**Comments**
0907D	COTTONWOOD CAMPGROUND PICNIC PARKING D	OTHER	PAVED ROUTE ADDED DURING ALIGNMENT IN CYCLE 5.
0964ZZ	HQ EMPLOYEE PARKING AREAS	OTHER	PAVED ROUTE ADDED SINCE CYCLE 4 DATA COLLECTION.

ROUTES MODIFIED FROM PREVIOUS INVENTORY:			
Route #	**Route Name**	**Type of Modification**	**Comments**
0012	EAST-WEST HIGHWAY	LENGTH CHANGE	ROUTE WAS DRIVEN ABOUT 1.85 MILES SHORTER IN CYCLE 5 BECAUSE IT STARTS FROM ROUTE 0956.
0900	VISITOR CENTER/OASIS OF MARA PARKING	SQ FEET CHANGE	A SECTION OF THIS ROUTE HAS BEEN CONVERTED TO SIDEWALK SINCE CYCLE 4 DATA COLLECTION. AS A RESULT, THE ROUTE AREA DECREASED IN CYCLE 5.
0912	RYAN MOUNTAIN TRAILHEAD PARKING	RECONSTRUCTED	ROUTE HAS BEEN RECONSTRUCTED SINCE CYCLE 4 DATA COLLECTION.
5004	UTAH TRAIL	LENGTH CHANGE	ROUTE WAS DRIVEN ABOUT 1.85 MILES LONGER IN CYCLE 5 BECAUSE IT ENDS AT ROUTE 0956 / START OF ROUTE 0012.

ROUTE IDENTIFICATION CHANGES TO PAVED ROUTES FROM PREVIOUS CYCLE - JOTR

OTHER CHANGES FROM PREVIOUS INVENTORY:			
Route #	**Route Name**	**Type of Change**	**Comments**
0207A	HIDDEN VALLEY CAMPGROUND LOOP ROAD A	SURFACE TYPE CHANGE	ROUTE CHANGED TO UNPAVED IN CYCLE 5 PER THE PARK'S REQUEST.
0212C	INDIAN COVE CAMPGROUND ROAD C	SURFACE TYPE CHANGE	ROUTE CHANGED TO UNPAVED IN CYCLE 5 PER THE PARK'S REQUEST. FUNCTIONAL CLASSIFICATION CHANGED FROM 2 TO 3.
0212D	INDIAN COVE CAMPGROUND ROAD D	SURFACE TYPE CHANGE	ROUTE CHANGED TO UNPAVED IN CYCLE 5 PER THE PARK'S REQUEST. FUNCTIONAL CLASSIFICATION CHANGED FROM 2 TO 3.
0212E	INDIAN COVE CAMPGROUND ROAD E	SURFACE TYPE CHANGE	ROUTE CHANGED TO UNPAVED IN CYCLE 5 PER THE PARK'S REQUEST. FUNCTIONAL CLASSIFICATION CHANGED FROM 2 TO 3.
0212F	INDIAN COVE CAMPGROUND ROAD F	SURFACE TYPE CHANGE	ROUTE CHANGED TO UNPAVED IN CYCLE 5 PER THE PARK'S REQUEST. FUNCTIONAL CLASSIFICATION CHANGED FROM 2 TO 3.
0216	COTTONWOOD CAMPGROUND ENTRANCE ROAD	ROUTE SPLIT	THIS ROUTE WAS CREATED BY SPLITTING OUT A PORTION OF ROUTE 0216A. FUNCTIONAL CLASSIFICATION CHANGED FROM 2 TO 3.
0216A	COTTONWOOD CAMPGROUND LOOP A	ROUTE SPLIT	A PORTION OF THIS ROUTE WAS SPLIT OUT IN CYCLE 5 TO FORM ROUTE 0216. ROUTE 0216A NOW STARTS FROM THE BEGINNING OF ROUTE 0216B. FUNCTIONAL CLASSIFICATION CHANGED FROM 2 TO 3.
0216B	COTTONWOOD CAMPGROUND LOOP B	FUNCTIONAL CLASS CHANGE	FUNCTIONAL CLASSIFICATION CHANGED FROM 2 TO 3.
0905	COTTONWOOD MAINTENANCE YARD PARKING	OTHER	ROUTE NAME CHANGED IN CYCLE 5; WAS “COTTONWOOD RESIDENTIAL AREA”. THE FMSS NUMBER WAS ALSO CHANGED FROM “38996” TO “16801”.
0952	LOST HORSE RANGER STATION PARKING	SURFACE TYPE CHANGE	ROUTE CHANGED TO UNPAVED IN CYCLE 5 PER THE PARK'S REQUEST.
0953	CAP ROCK PARKING	OTHER	ROUTE COLLECTED IN CYCLE 5 BECAUSE IT WAS INACCESSIBLE IN CYCLE 4 DUE TO CONSTRUCTION ON ROUTE 0013.

ROUTE IDENTIFICATION CHANGES TO PAVED ROUTES FROM PREVIOUS CYCLE - JOTR

OTHER CHANGES FROM PREVIOUS INVENTORY:			
Route #	**Route Name**	**Type of Change**	**Comments**
0956	NORTH ENTRANCE SIGN PARKING	OTHER	ROUTE COLLECTED IN CYCLE 5 PER THE PARK'S REQUEST.
5000	BLACK ROCK CANYON ROAD	LENGTH CHANGE	ROUTE WAS EXTENDED AND RECOLLECTED IN CYCLE 5, PER THE PARK'S REQUEST, BECAUSE THE PARK IS IN NEGOTIATIONS WITH THE LOCAL GOVERNMENT TO ACQUIRE THIS ROUTE.

Section 3
Park Summary Information

Joshua Tree National Park

Federal Lands Highway
Road Inventory Program

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

F.C.	Pavement Condition Rating (PCR)								TOTAL MILES
	Poor (0-60)		Fair (61-84)		Good (85-94)		Excellent (95-100)		
	MILES	%	MILES	%	MILES	%	MILES	%	
1	8.54	12.05%	19.10	26.94%	16.24	22.91%	22.90	32.30%	**66.78**
2	0.12	0.17%	1.31	1.85%	1.47	2.07%	1.22	1.72%	**4.12**
3									
4									
5									
6									
7									
8									
Totals	**8.66**	**12.21%**	**20.41**	**28.79%**	**17.71**	**24.98%**	**24.12**	**34.02%**	**70.90**

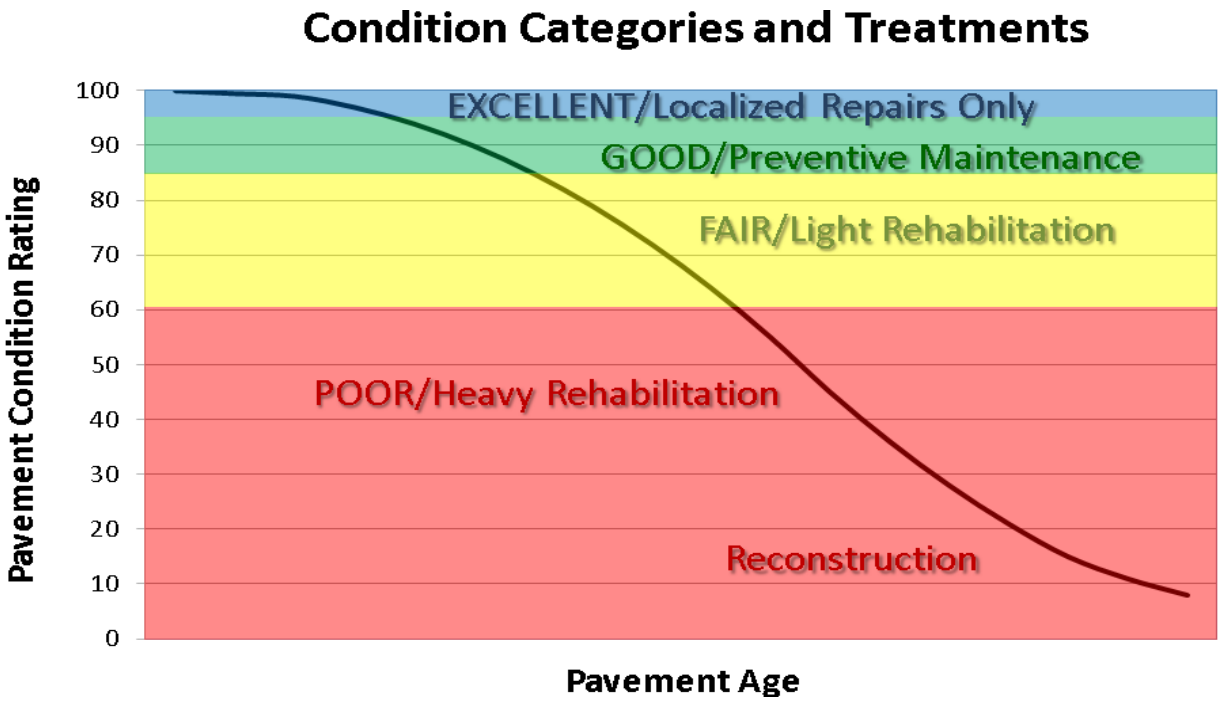
Note: **The information in this table is derived from the PMS_20 table in the Park database, which only contains processed data from routes collected with the Data Collection Vehicle (DCV). Information for Manually Rated Routes (MRR) and Parking Areas is not reported in this table. Only Functional Class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

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

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

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

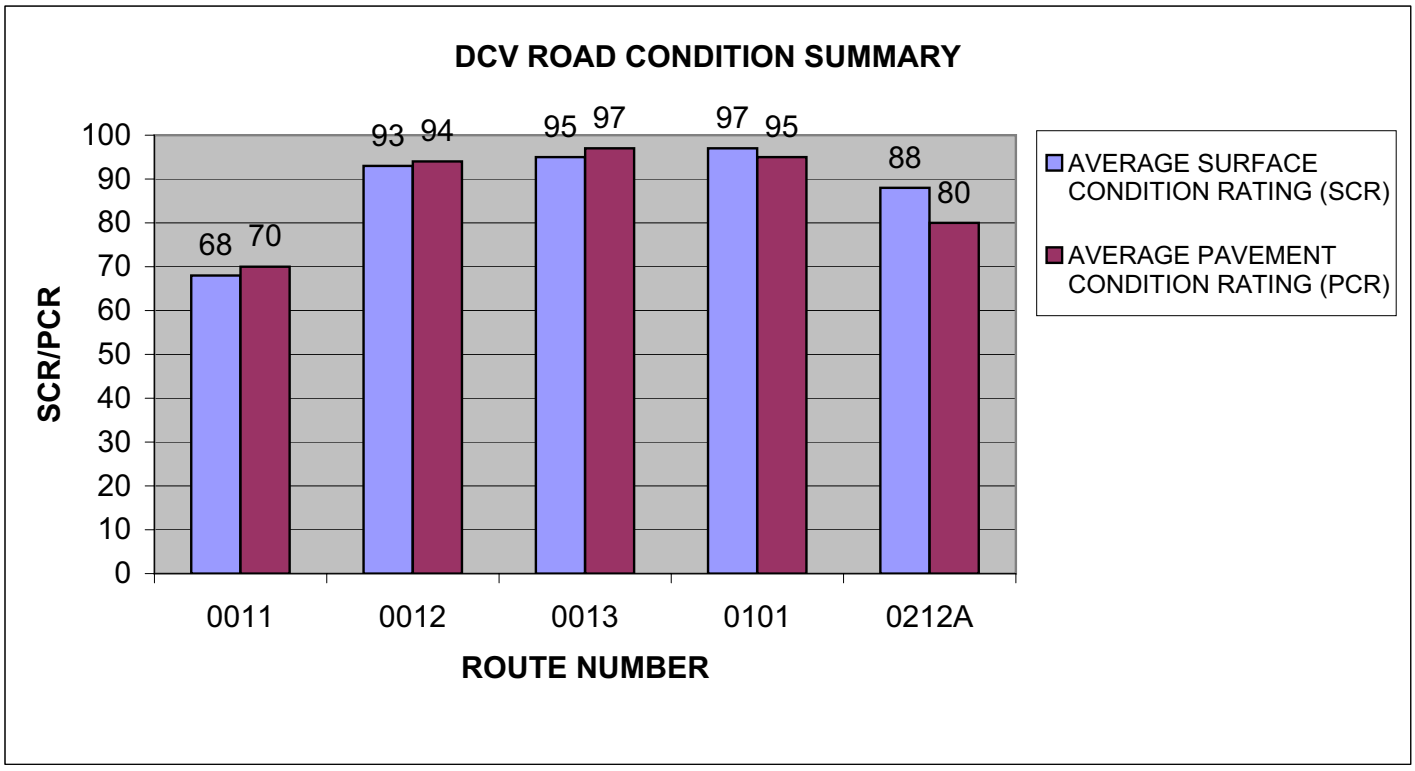
At this time, specific Maintenance and Rehabilitation activities should be evaluated and recommended at the project level. Site-specific conditions that influence treatment type should be determined based on performing a subsurface investigation and/or pavement condition survey, and not be based solely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



JOTR: DCV ROAD CONDITION SUMMARY

DCV - Data Collection Vehicle

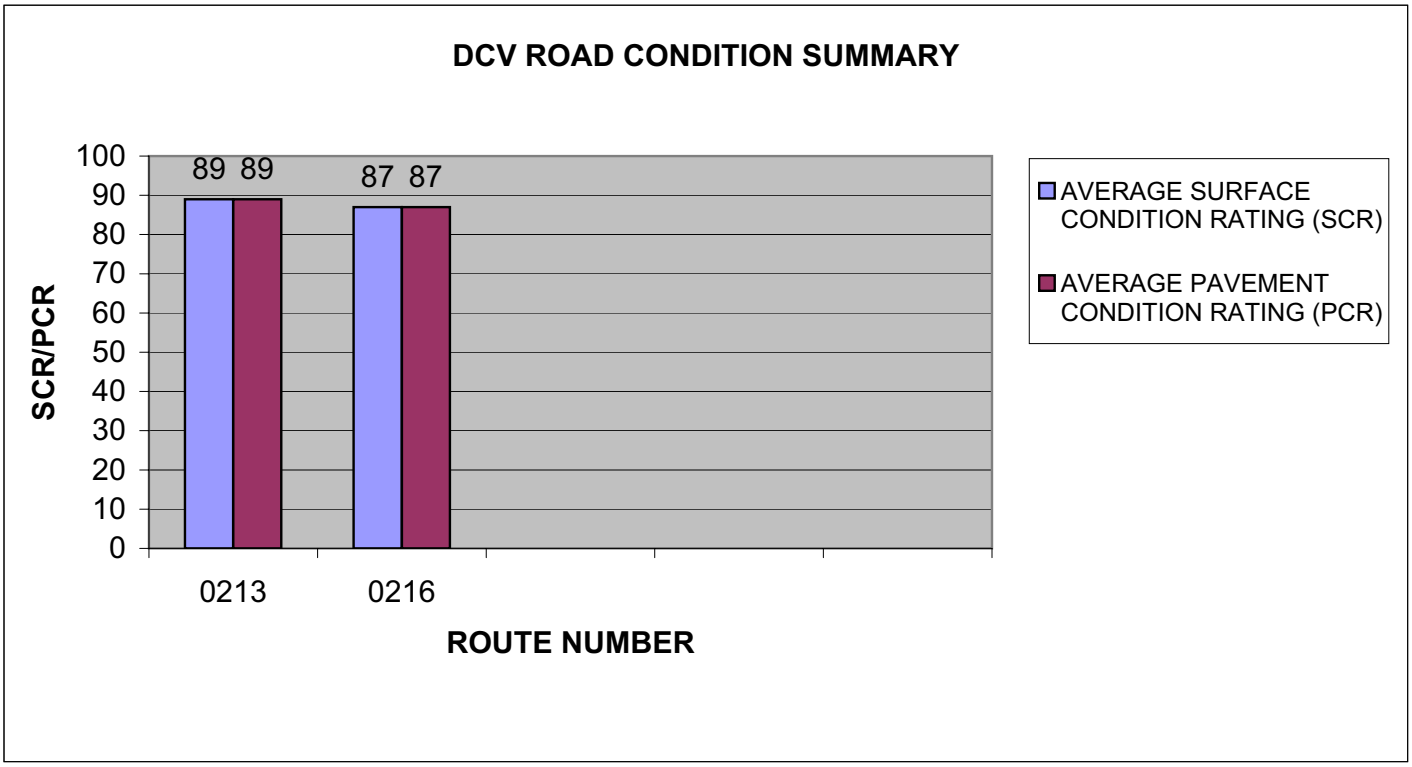
ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	PAVED LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0011	PINTO BASIN ROAD	1	35.82	ASPHALT	68	70
0012	EAST-WEST HIGHWAY	1	25.46	ASPHALT	93	94
0013	KEY'S VIEW ROAD	1	5.50	ASPHALT	95	97
0101	BARKER DAM ROAD	2	1.51	ASPHALT	97	95
0212A	INDIAN COVE CAMPGROUND ROAD A	2	1.96	ASPHALT	88	80



JOTR: DCV ROAD CONDITION SUMMARY

DCV - Data Collection Vehicle

ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	PAVED LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0213	49 PALMS OASIS ACCESS ROAD	2	0.47	ASPHALT	89	89
0216	COTTONWOOD CAMPGROUND ENTRANCE ROAD	2	0.18	ASPHALT	87	87

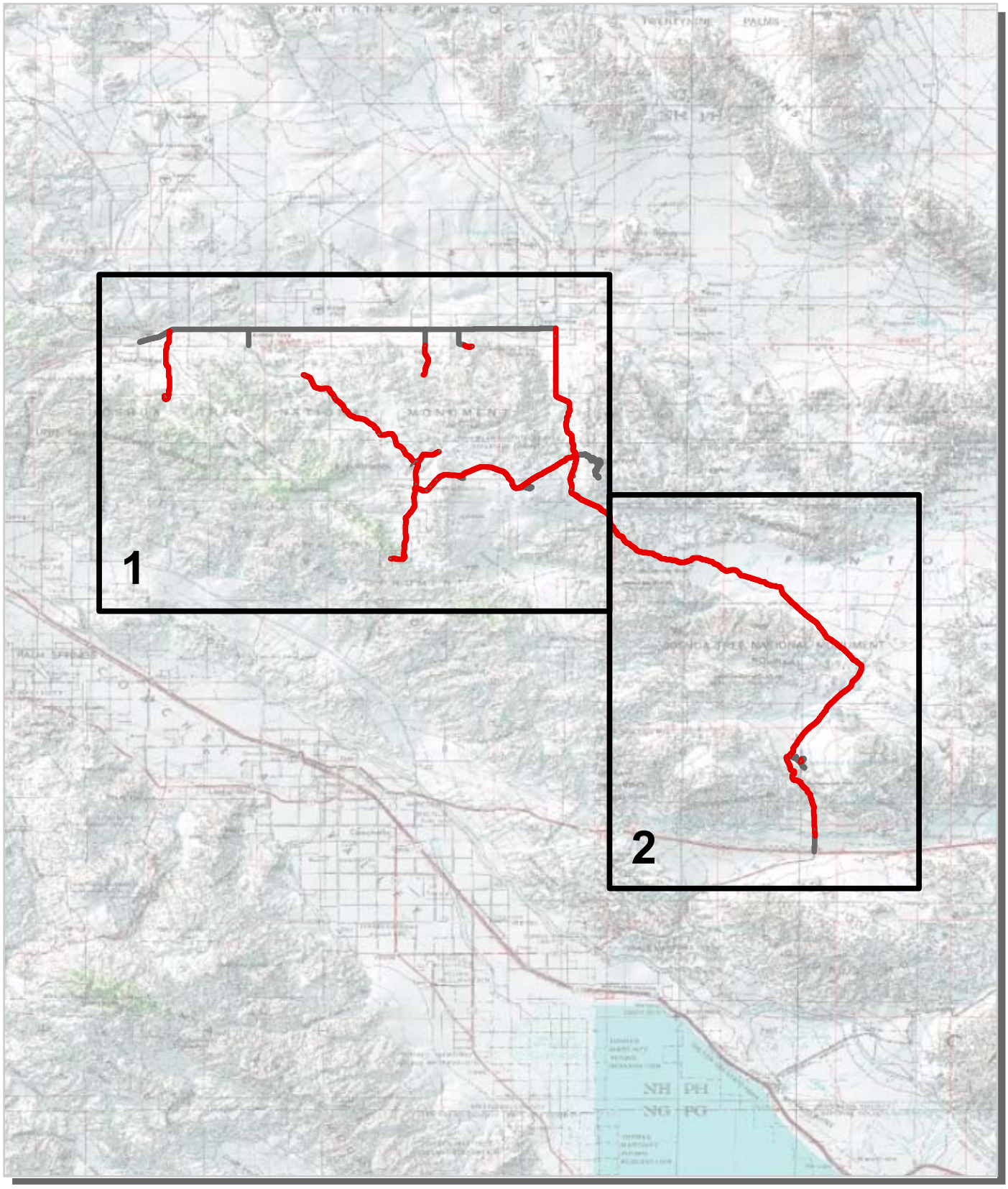


Section 4
Park Route Location Maps

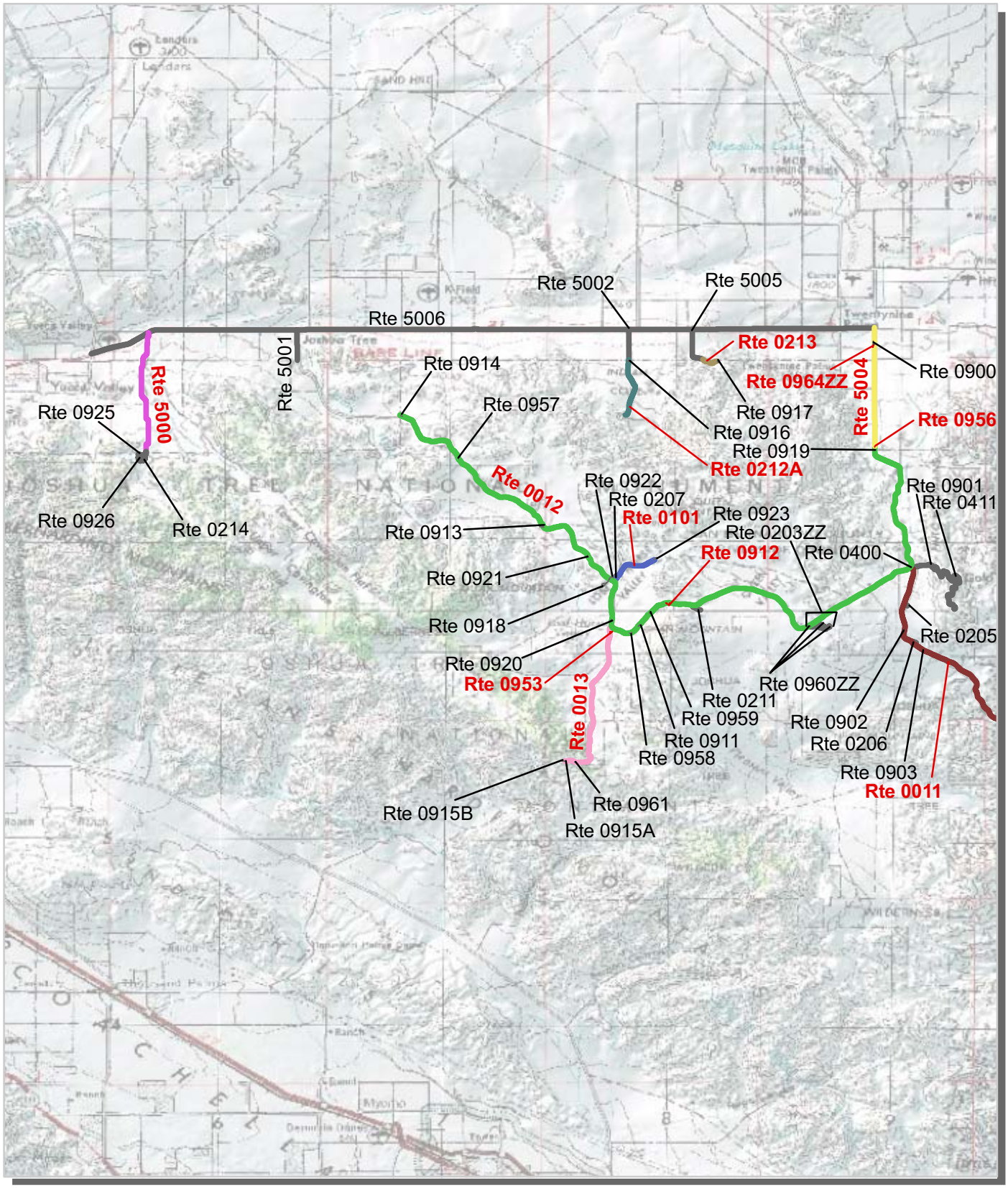
Joshua Tree National Park

Federal Lands Highway
Road Inventory Program

Joshua Tree National Park
Route Location Map
Key Map



Joshua Tree National Park
Route Location Map
Area 1



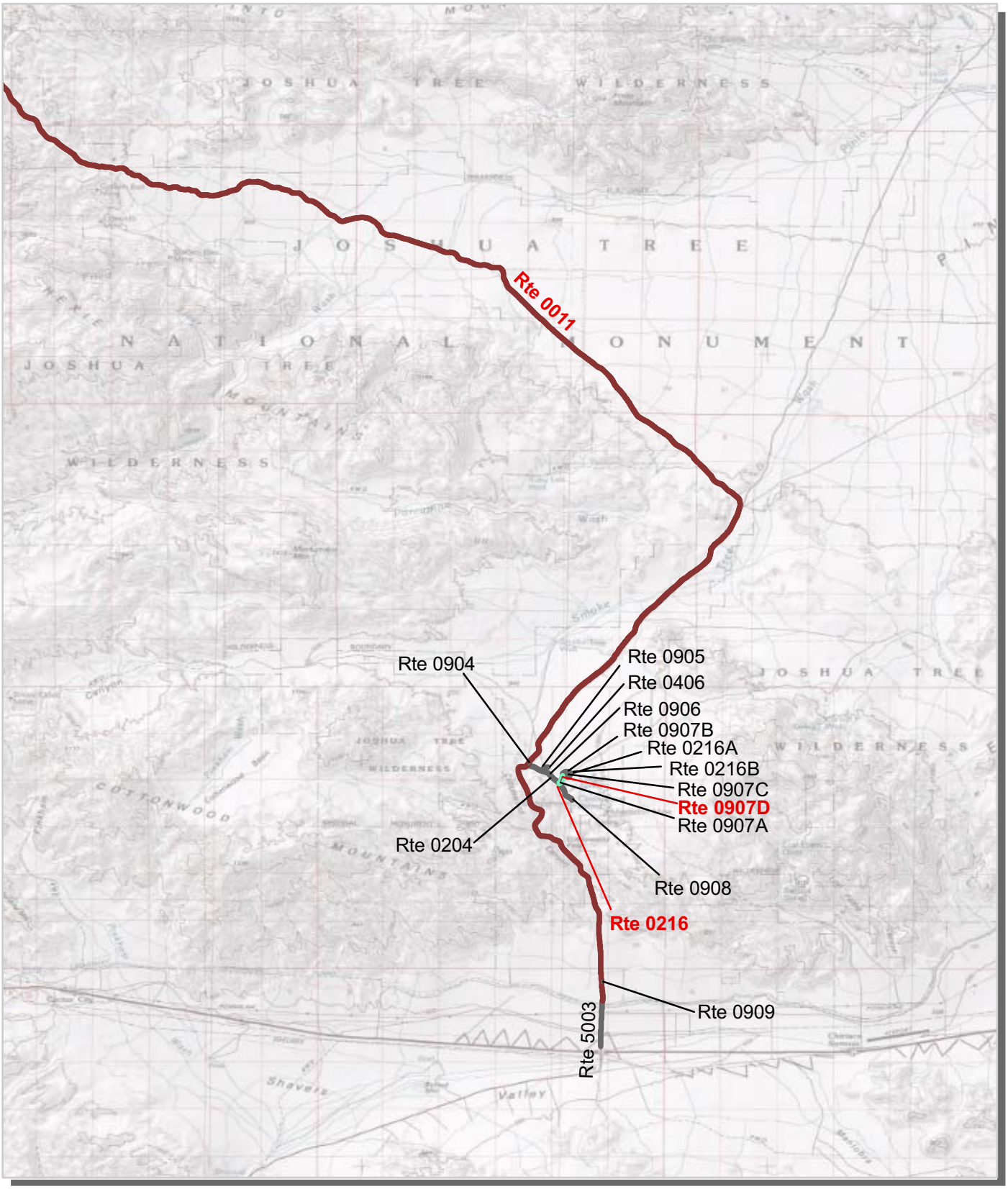
Unique colors used to differentiate routes

Routes Collected in Previous Cycle

4 2 0 4 Miles

N

Joshua Tree National Park
Route Location Map
Area 2



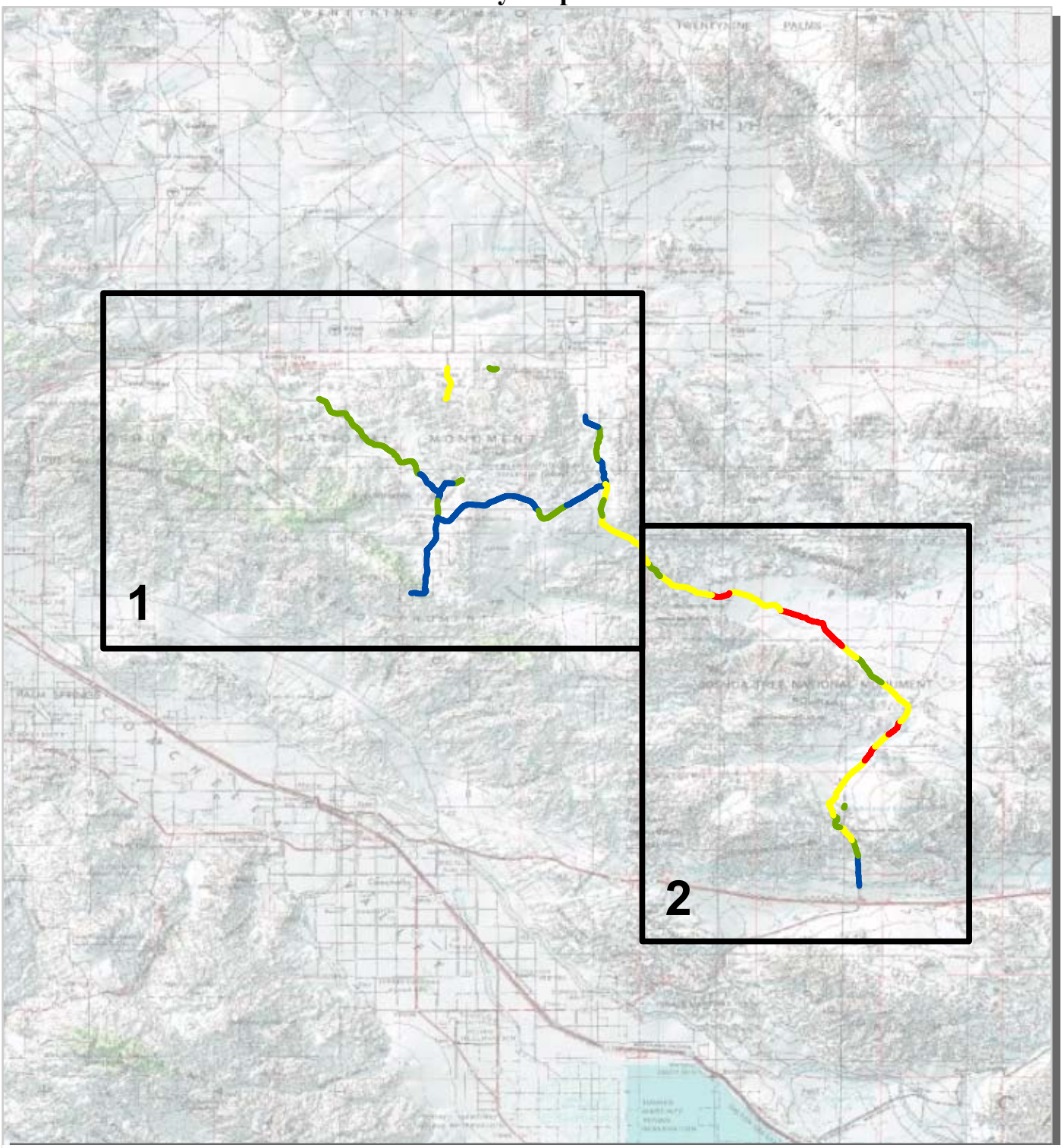
Unique colors used to differentiate routes

Routes Collected in Previous Cycle

4 2 0 4 Miles

N

Joshua Tree National Park
Route Condition Map
PCR - Mile by Key Map



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

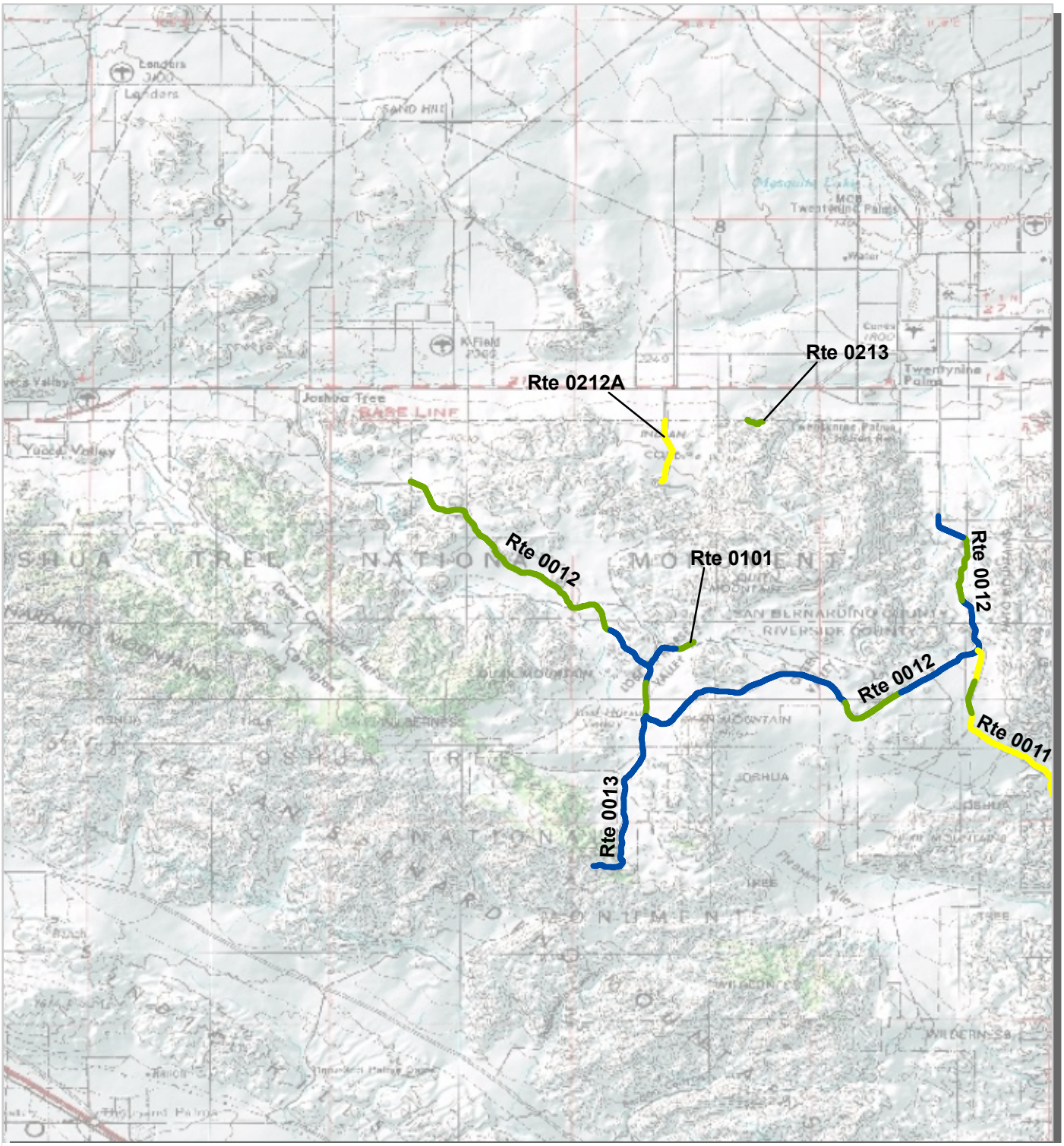
* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

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

10 5 0 10 Miles

N

Joshua Tree National Park
Route Condition Map
PCR - Mile by Mile
Area 1



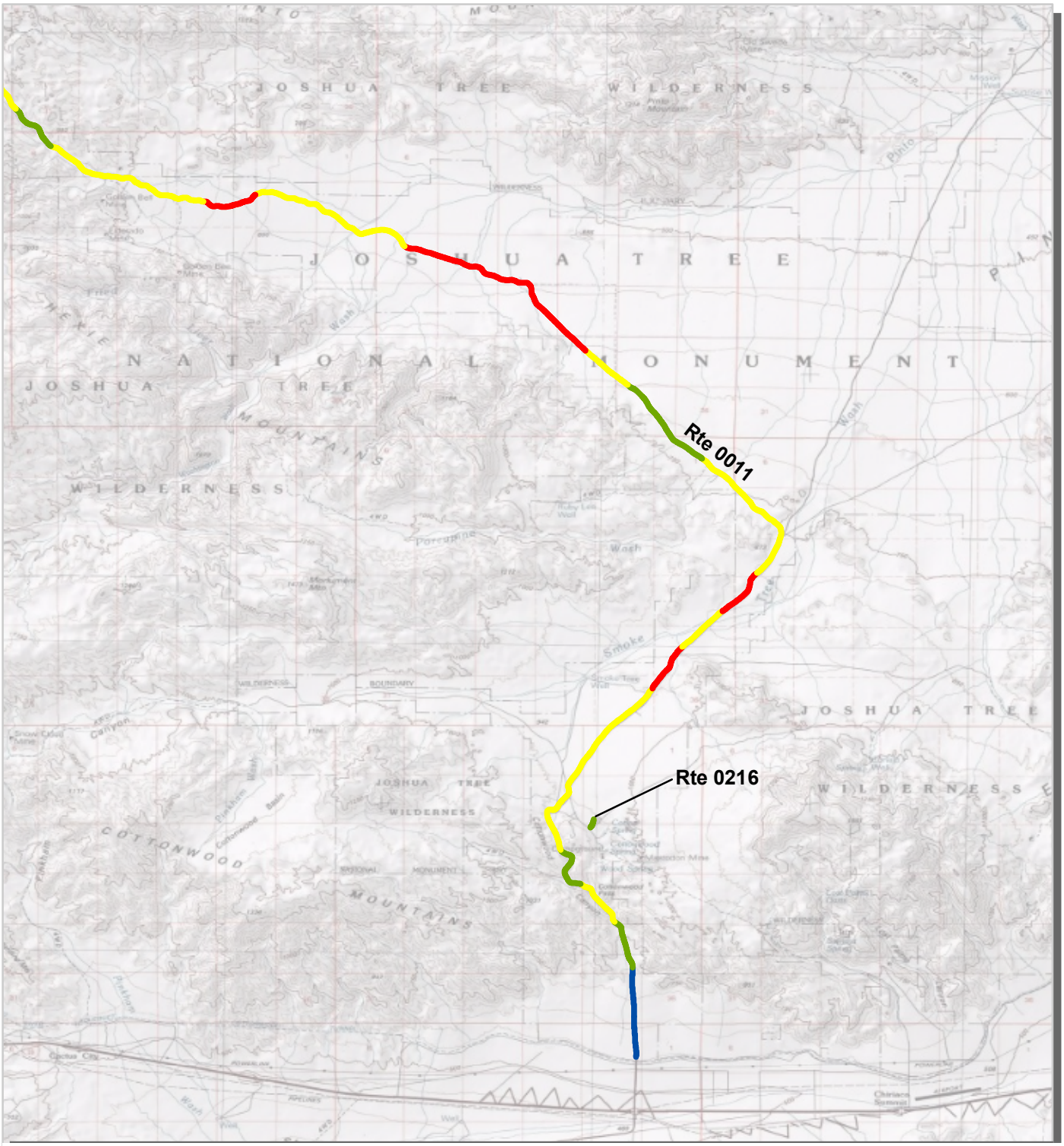
PCR	Poor	Fair	Good	Excellent	No Data
	(0 - 60)	(61 - 84)	(85 - 94)	(95 - 100)	

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

6 3 0 6 Miles

N

Joshua Tree National Park
Route Condition Map
PCR - Mile by Mile
Area 2



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

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

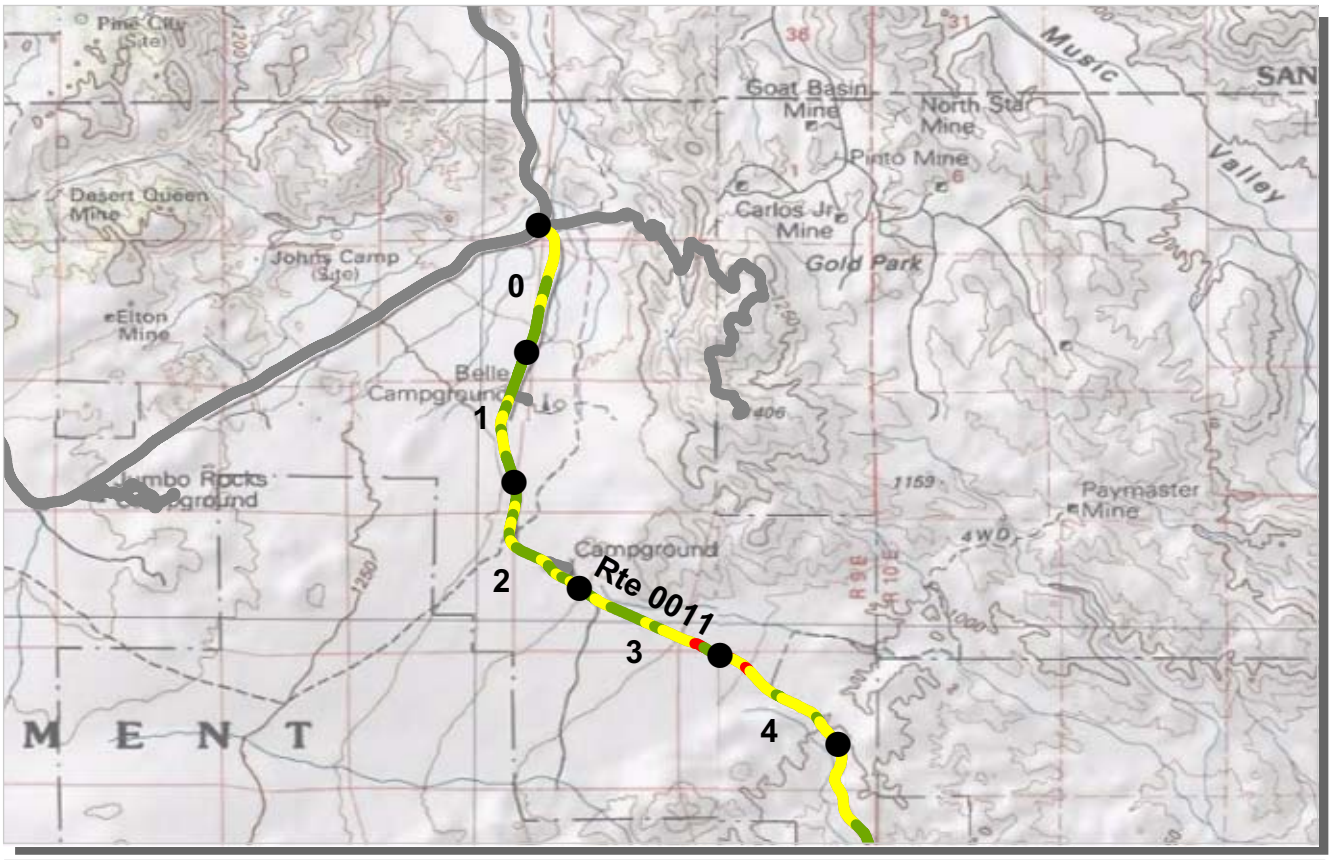
4 2 0 4 Miles

N

Section 5
Paved Route
Condition Rating Sheets

Joshua Tree National Park

Federal Lands Highway
Road Inventory Program



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

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

ROUTE: 0011 PINTO BASIN ROAD
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012
PACIFIC WEST REGION **TOTAL LENGTH: 35.82 Miles**

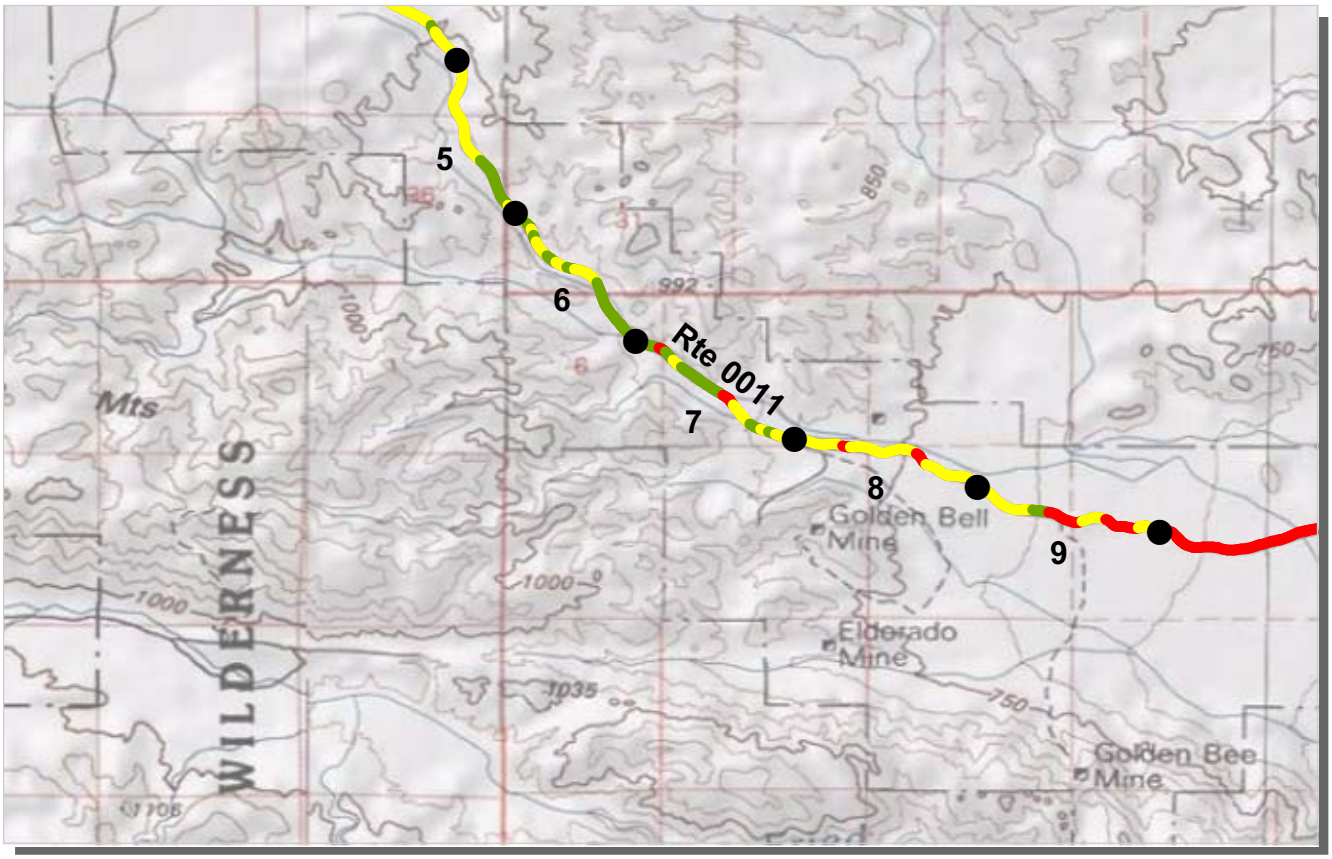
Section Number	0	1	2	3	4
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	23	24	25	24	24
Lane Width (ft)	12	11	12	12	12
Roadway Condition Information					
SCR (Surface Condition Rating)	87	87	87	88	88
PCR (Pavement Condition Rating)	83	85	84	83	82
Distress Index Values					
Structural Crack Index	95	98	98	95	88
Transverse Cracking Index	87	87	87	88	88
Patching Index	100	100	100	100	100
Rutting Index	95	95	93	92	93
Roughness Condition Index (RCI)	78	83	80	76	72

NOTES:

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

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

NC - Not Collected N/A - Not Applicable



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

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

ROUTE: 0011 PINTO BASIN ROAD
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012
PACIFIC WEST REGION **TOTAL LENGTH: 35.82 Miles**

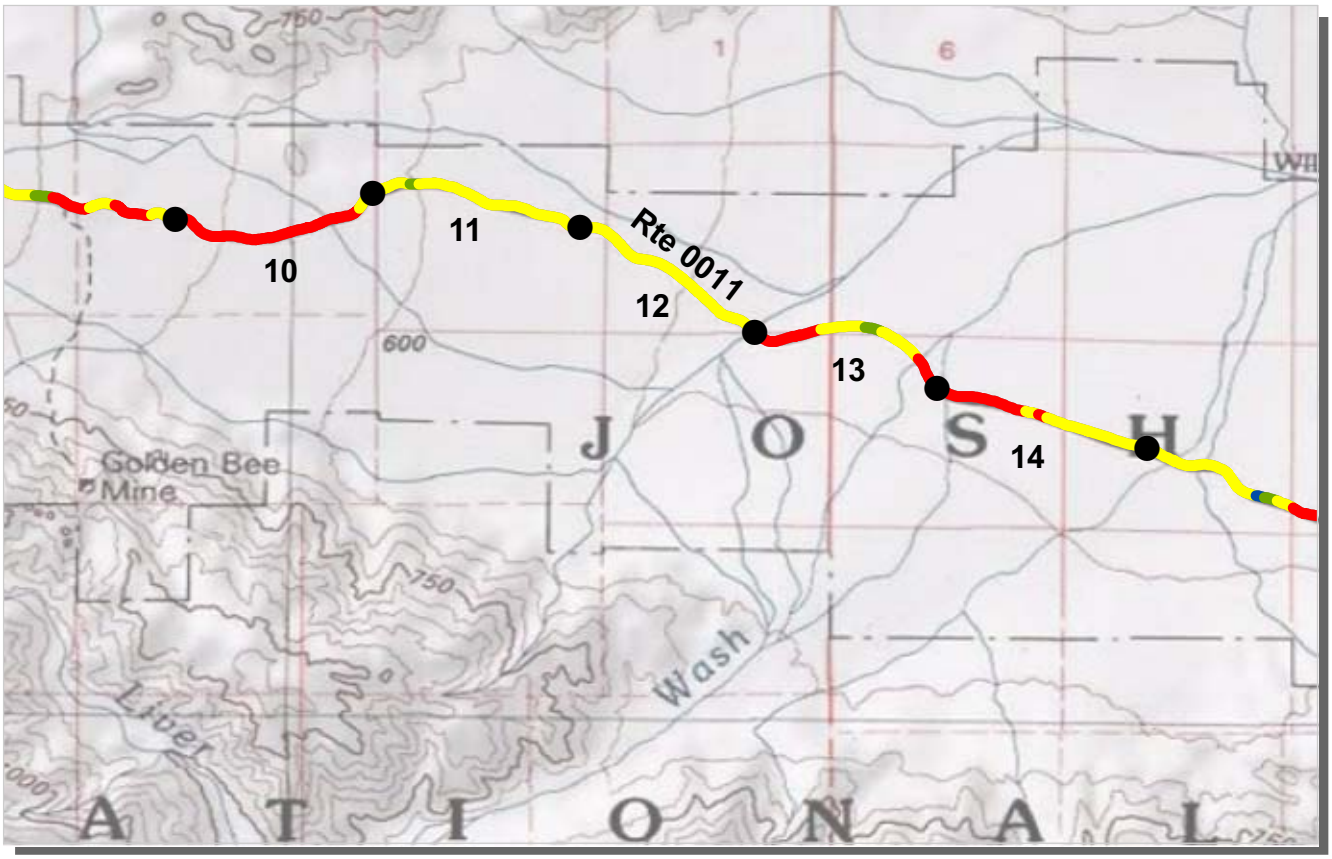
Section Number	5	6	7	8	9
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	24	25	24	21	23
Lane Width (ft)	11	12	11	9	11
Roadway Condition Information					
SCR (Surface Condition Rating)	88	91	86	77	65
PCR (Pavement Condition Rating)	82	86	78	71	66
Distress Index Values					
Structural Crack Index	94	96	86	77	65
Transverse Cracking Index	88	91	90	88	87
Patching Index	100	100	100	100	100
Rutting Index	93	93	96	89	88
Roughness Condition Index (RCI)	73	79	67	63	67

NOTES:

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

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

NC - Not Collected N/A - Not Applicable



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

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

ROUTE: 0011 PINTO BASIN ROAD
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012

PACIFIC WEST REGION **TOTAL LENGTH: 35.82 Miles**

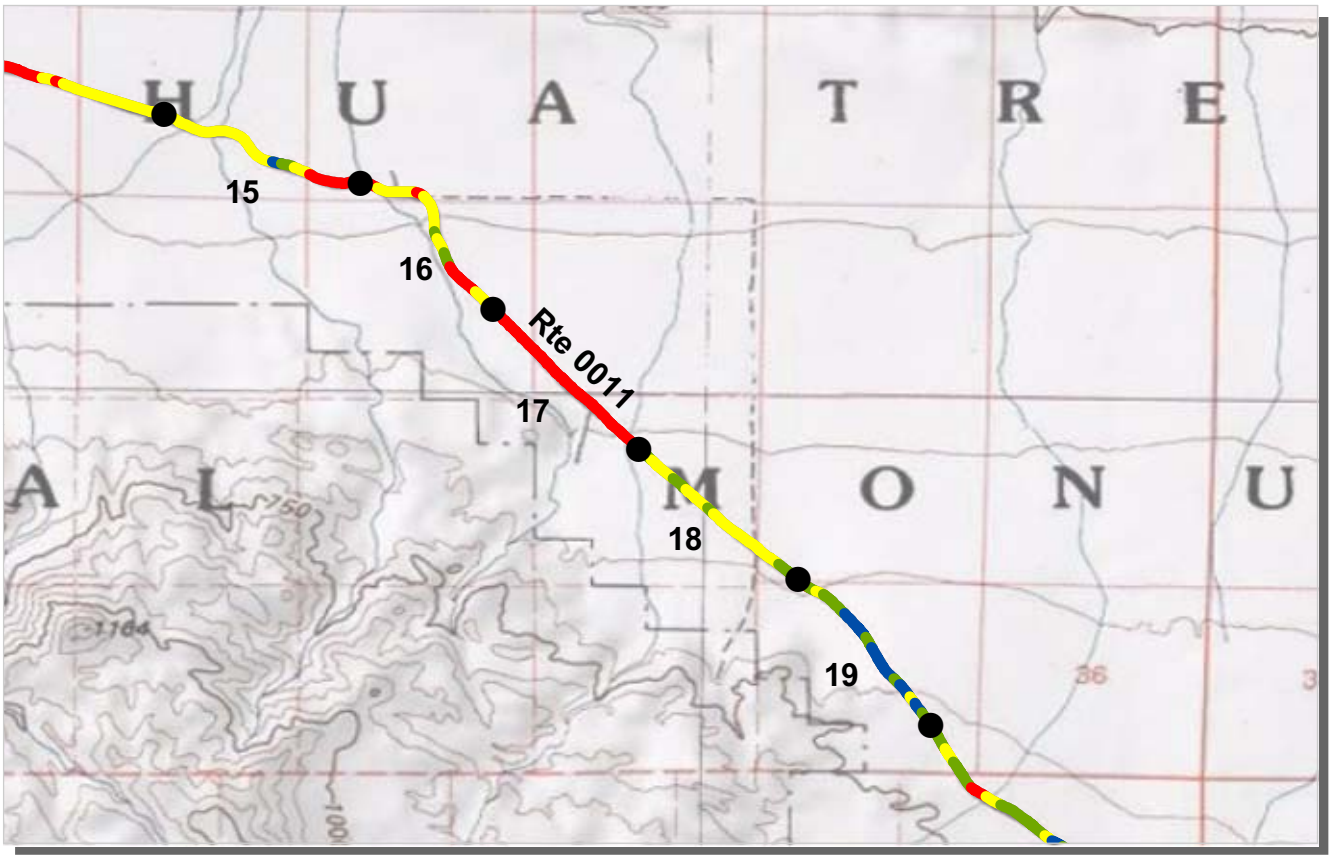
Section Number	10	11	12	13	14
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	21	21	20	19	19
Lane Width (ft)	10	10	9	9	9
Roadway Condition Information					
SCR (Surface Condition Rating)	0	80	71	61	35
PCR (Pavement Condition Rating)	18	75	72	63	46
Distress Index Values					
Structural Crack Index	0	80	71	61	35
Transverse Cracking Index	91	87	86	82	70
Patching Index	89	100	94	92	99
Rutting Index	86	93	96	94	95
Roughness Condition Index (RCI)	46	68	74	66	63

NOTES:

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

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

NC - Not Collected N/A - Not Applicable



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

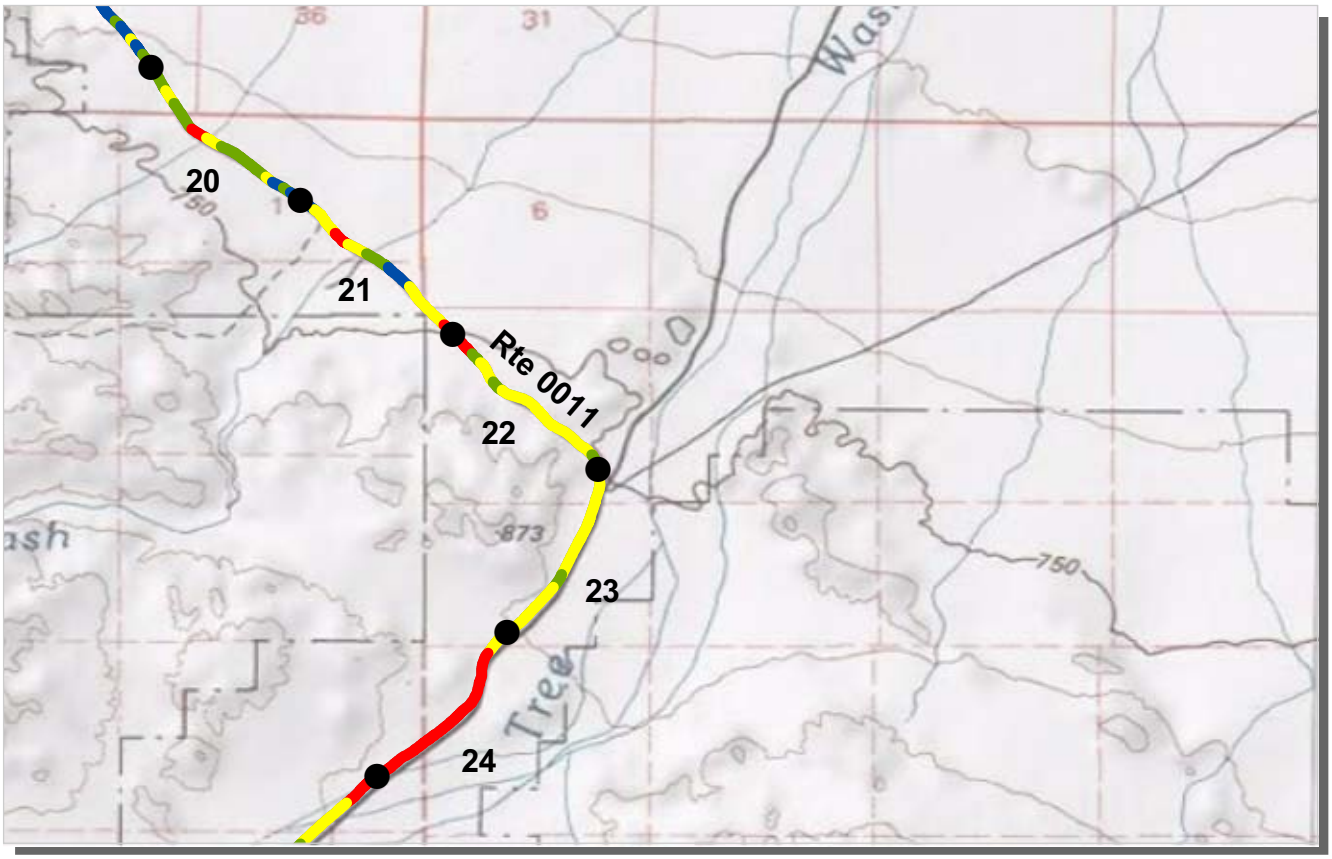
* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0011 PINTO BASIN ROAD
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012
PACIFIC WEST REGION **TOTAL LENGTH: 35.82 Miles**

Section Number	15	16	17	18	19
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	19	20	19	21	19
Lane Width (ft)	9	9	9	10	10
Roadway Condition Information					
SCR (Surface Condition Rating)	18	34	0	89	92
PCR (Pavement Condition Rating)	40	48	29	82	88
Distress Index Values					
Structural Crack Index	18	34	0	89	92
Transverse Cracking Index	86	88	80	96	97
Patching Index	100	87	96	100	100
Rutting Index	94	97	96	91	97
Roughness Condition Index (RCI)	73	69	73	71	82

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



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

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

ROUTE: 0011 PINTO BASIN ROAD
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012

PACIFIC WEST REGION **TOTAL LENGTH: 35.82 Miles**

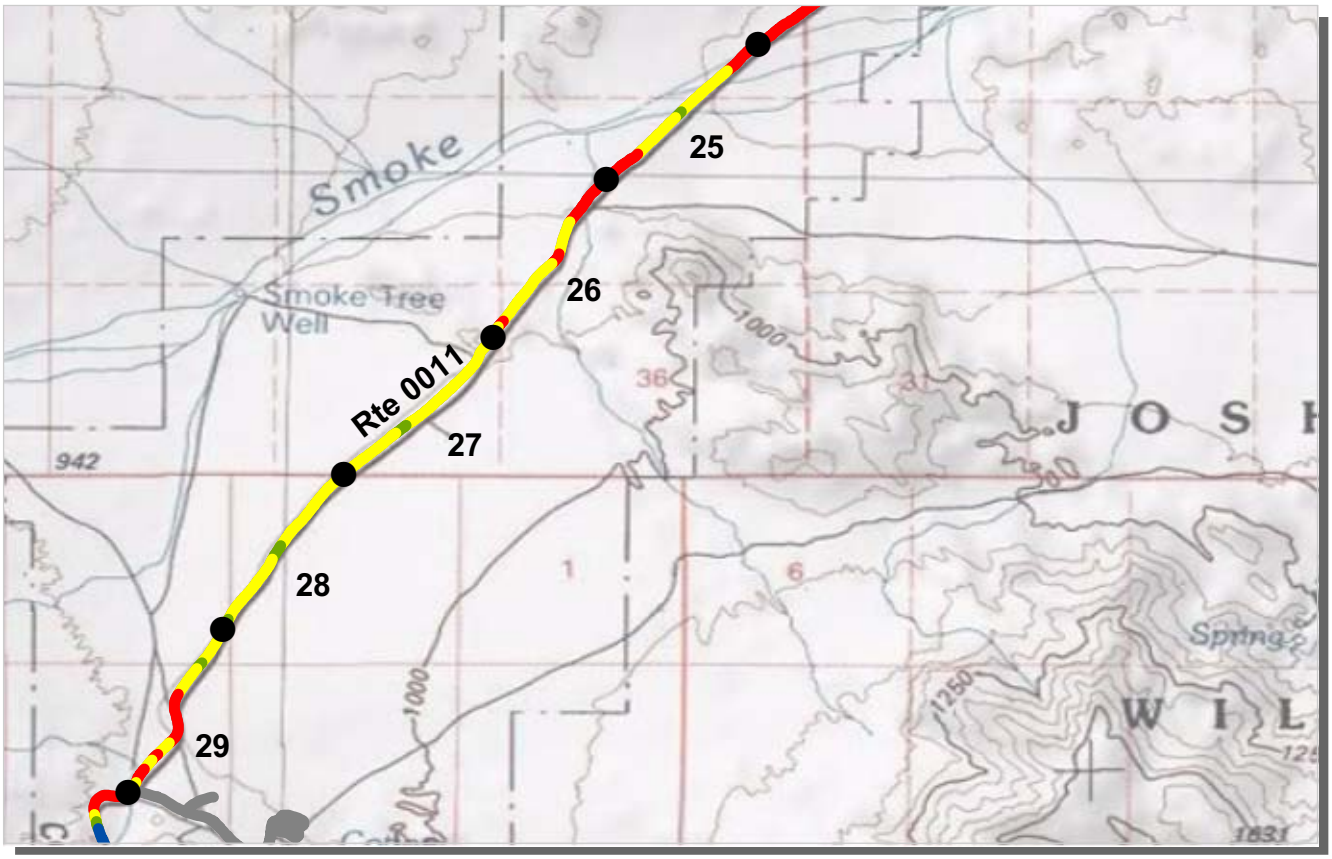
Section Number	20	21	22	23	24
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	19	20	21	20	21
Lane Width (ft)	10	10	10	10	10
Roadway Condition Information					
SCR (Surface Condition Rating)	92	65	56	82	13
PCR (Pavement Condition Rating)	85	66	66	78	33
Distress Index Values					
Structural Crack Index	92	65	56	89	13
Transverse Cracking Index	96	93	78	89	82
Patching Index	100	100	100	100	83
Rutting Index	94	94	85	82	79
Roughness Condition Index (RCI)	74	68	81	73	62

NOTES:

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

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

NC - Not Collected N/A - Not Applicable



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

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

ROUTE: 0011 PINTO BASIN ROAD
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012
PACIFIC WEST REGION **TOTAL LENGTH: 35.82 Miles**

Section Number	25	26	27	28	29
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	20	20	20	19	20
Lane Width (ft)	9	9	10	10	9
Roadway Condition Information					
SCR (Surface Condition Rating)	66	0	84	79	61
PCR (Pavement Condition Rating)	68	24	77	78	63
Distress Index Values					
Structural Crack Index	73	0	91	94	61
Transverse Cracking Index	66	88	87	96	98
Patching Index	91	92	100	100	94
Rutting Index	85	79	84	79	83
Roughness Condition Index (RCI)	70	59	66	77	66

NOTES:

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

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

NC - Not Collected N/A - Not Applicable

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

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

ROUTE: 0011 PINTO BASIN ROAD
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012
PACIFIC WEST REGION **TOTAL LENGTH: 35.82 Miles**

Section Number	30	31	32	33	34
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	25	26	27	26	25
Lane Width (ft)	10	11	11	11	11
Roadway Condition Information					
SCR (Surface Condition Rating)	81	94	92	92	93
PCR (Pavement Condition Rating)	77	90	82	89	96
Distress Index Values					
Structural Crack Index	81	94	92	92	98
Transverse Cracking Index	96	96	97	97	94
Patching Index	98	100	100	100	100
Rutting Index	95	98	97	97	93
Roughness Condition Index (RCI)	72	84	68	85	100

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

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

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

ROUTE: 0011 PINTO BASIN ROAD
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012
PACIFIC WEST REGION **TOTAL LENGTH: 35.82 Miles**

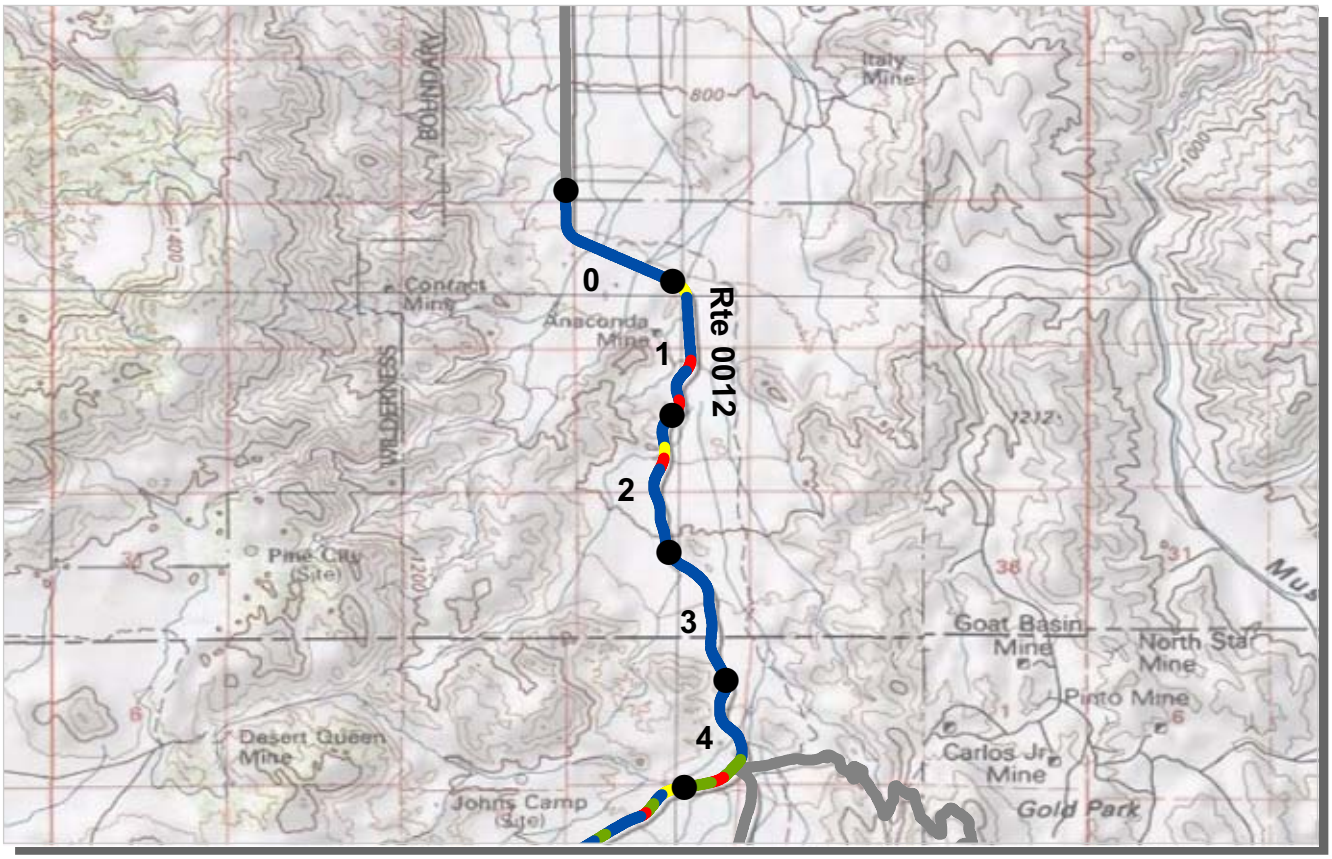
Section Number	35				
Section Length (mi)	0.82				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	25				
Lane Width (ft)	11				
Roadway Condition Information					
SCR (Surface Condition Rating)	94				
PCR (Pavement Condition Rating)	96				
Distress Index Values					
Structural Crack Index	99				
Transverse Cracking Index	95				
Patching Index	100				
Rutting Index	94				
Roughness Condition Index (RCI)	99				

NOTES:

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

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

NC - Not Collected N/A - Not Applicable



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

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

ROUTE: 0012 EAST-WEST HIGHWAY
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012

PACIFIC WEST REGION **TOTAL LENGTH: 25.46 Miles**

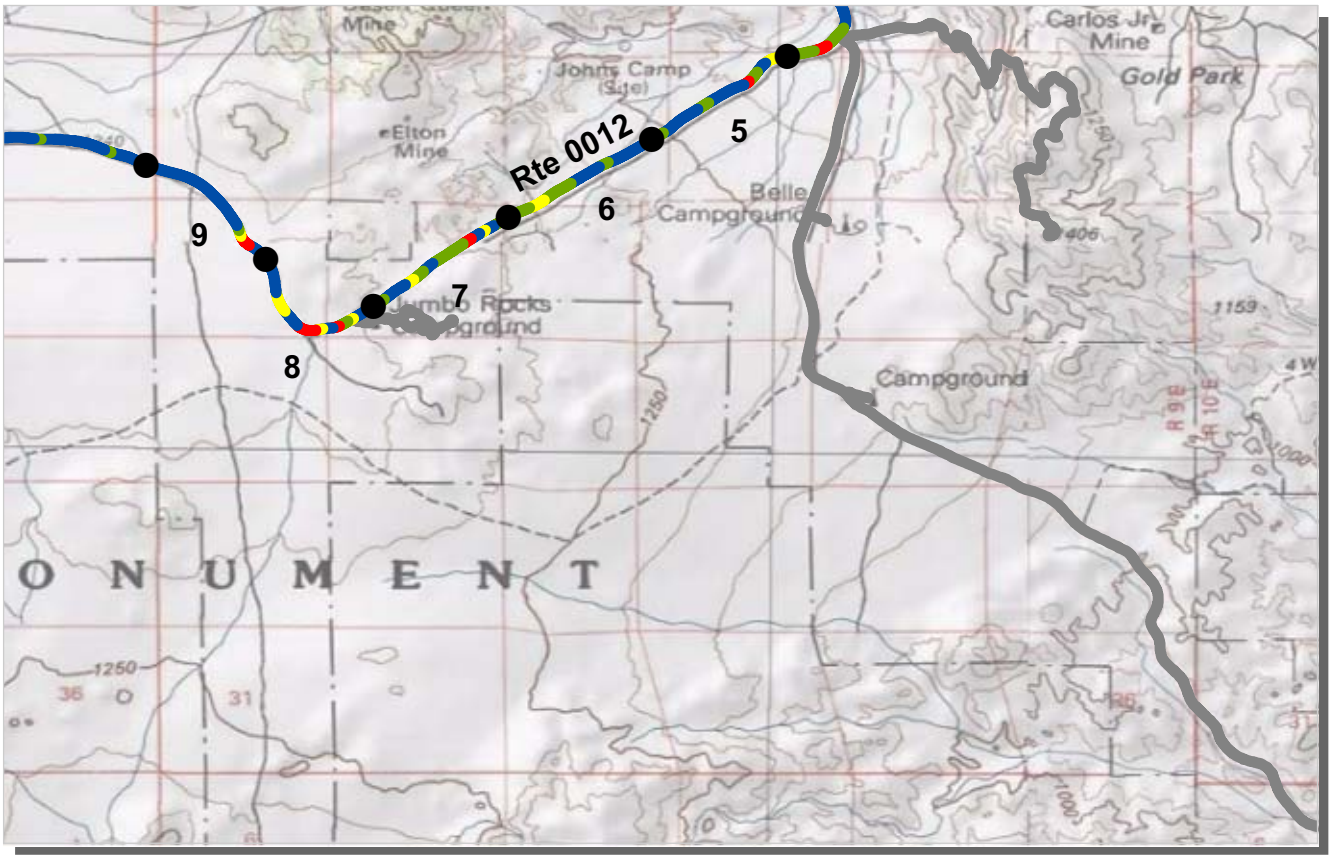
Section Number	0	1	2	3	4
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	27	27	26	26	28
Lane Width (ft)	11	11	11	11	12
Roadway Condition Information					
SCR (Surface Condition Rating)	98	75	88	98	96
PCR (Pavement Condition Rating)	99	85	93	99	95
Distress Index Values					
Structural Crack Index	100	75	88	100	96
Transverse Cracking Index	99	100	100	100	99
Patching Index	100	100	100	100	100
Rutting Index	98	99	98	98	99
Roughness Condition Index (RCI)	100	100	100	100	94

NOTES:

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

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

NC - Not Collected N/A - Not Applicable



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

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

ROUTE: 0012 EAST-WEST HIGHWAY
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012
PACIFIC WEST REGION **TOTAL LENGTH: 25.46 Miles**

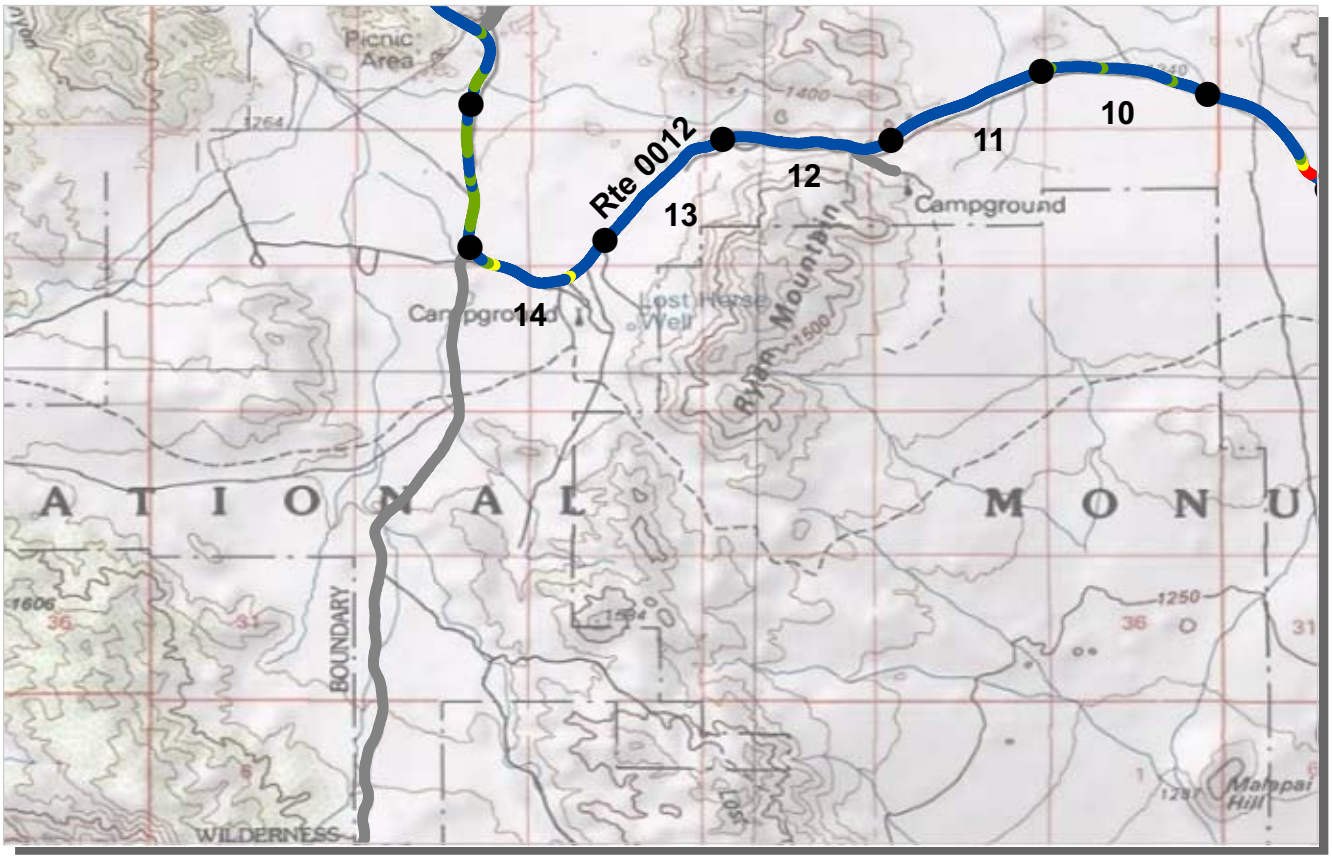
Section Number	5	6	7	8	9
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	26	26	29	28	26
Lane Width (ft)	11	11	11	11	11
Roadway Condition Information					
SCR (Surface Condition Rating)	95	93	95	77	92
PCR (Pavement Condition Rating)	95	95	91	86	95
Distress Index Values					
Structural Crack Index	95	93	95	77	92
Transverse Cracking Index	97	94	96	96	98
Patching Index	100	100	100	100	100
Rutting Index	98	98	97	97	98
Roughness Condition Index (RCI)	95	99	86	100	100

NOTES:

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

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

NC - Not Collected N/A - Not Applicable



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

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

ROUTE: 0012 EAST-WEST HIGHWAY
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012
PACIFIC WEST REGION **TOTAL LENGTH: 25.46 Miles**

Section Number	10	11	12	13	14
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	24	24	24	24	24
Lane Width (ft)	11	11	11	11	11
Roadway Condition Information					
SCR (Surface Condition Rating)	98	99	98	98	95
PCR (Pavement Condition Rating)	99	99	99	99	97
Distress Index Values					
Structural Crack Index	100	100	99	100	95
Transverse Cracking Index	100	100	100	100	100
Patching Index	100	100	100	100	100
Rutting Index	98	99	98	98	97
Roughness Condition Index (RCI)	100	100	100	100	100

NOTES:

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

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

NC - Not Collected N/A - Not Applicable

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

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

ROUTE: 0012 EAST-WEST HIGHWAY
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012
PACIFIC WEST REGION **TOTAL LENGTH: 25.46 Miles**

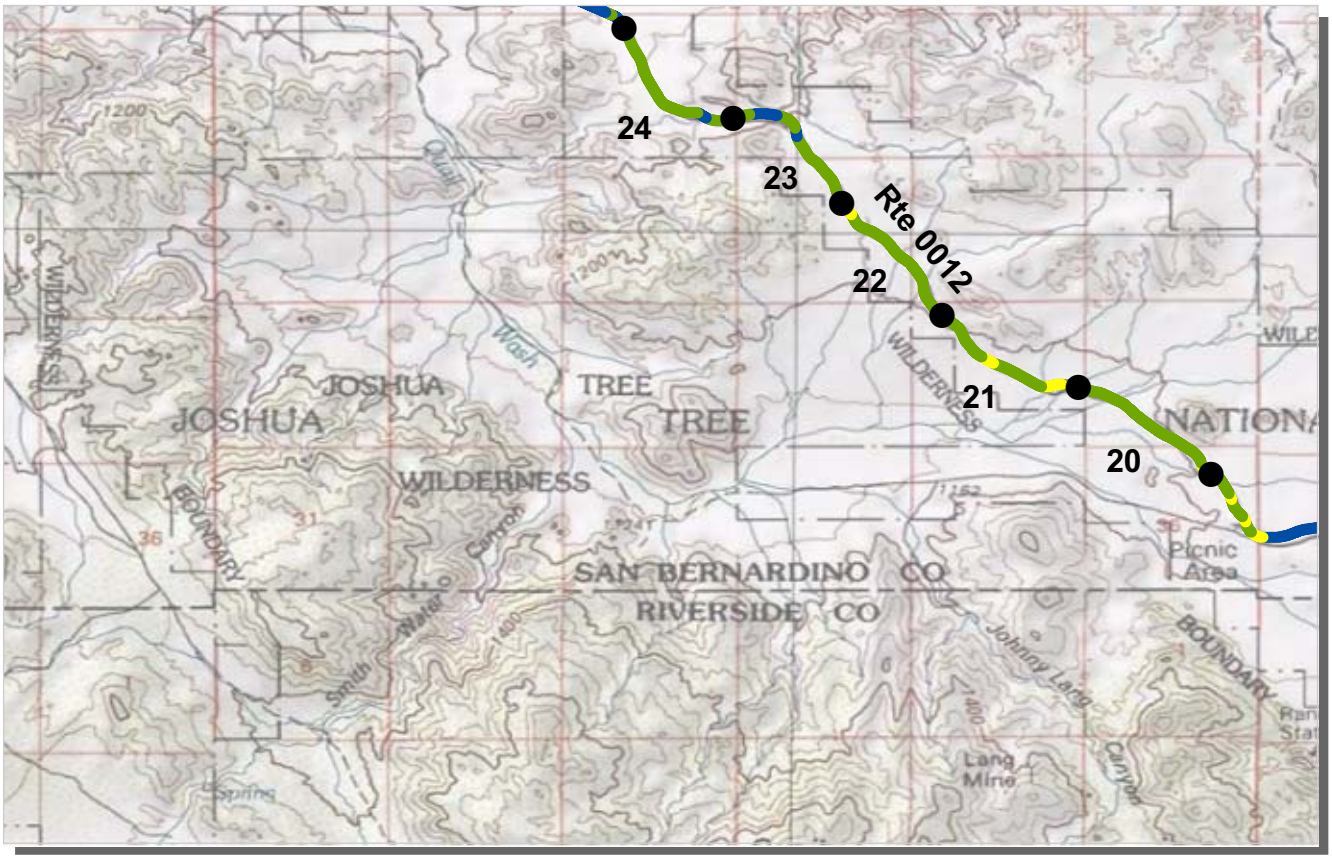
Section Number	15	16	17	18	19
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	25	26	24	26	25
Lane Width (ft)	11	11	11	11	11
Roadway Condition Information					
SCR (Surface Condition Rating)	97	97	95	96	92
PCR (Pavement Condition Rating)	93	97	97	94	92
Distress Index Values					
Structural Crack Index	100	100	100	100	96
Transverse Cracking Index	100	100	100	100	92
Patching Index	100	100	100	100	100
Rutting Index	97	97	95	96	98
Roughness Condition Index (RCI)	88	97	100	92	92

NOTES:

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

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

NC - Not Collected N/A - Not Applicable



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

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

ROUTE: 0012 EAST-WEST HIGHWAY
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012
PACIFIC WEST REGION **TOTAL LENGTH: 25.46 Miles**

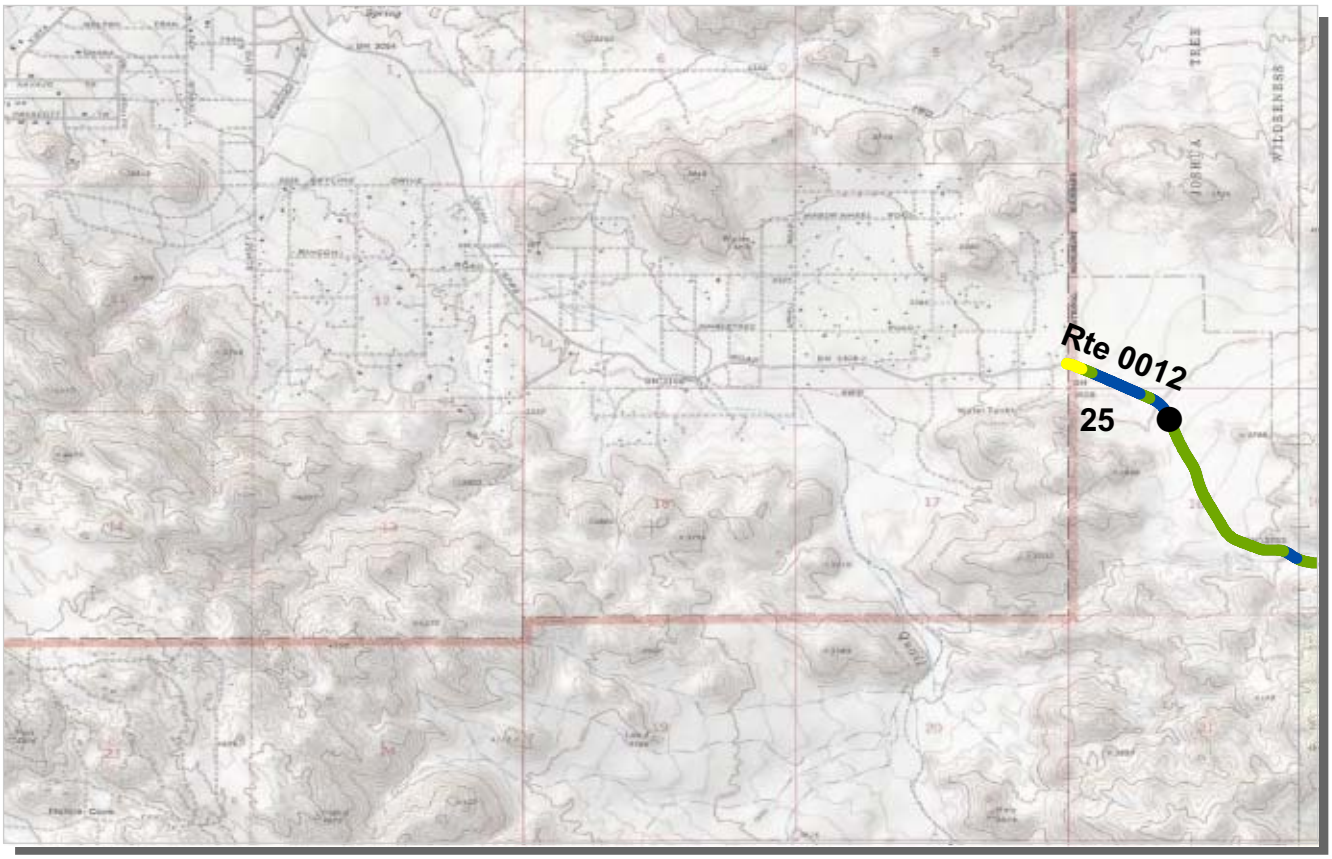
Section Number	20	21	22	23	24
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	25	26	26	25	26
Lane Width (ft)	11	11	11	11	11
Roadway Condition Information					
SCR (Surface Condition Rating)	85	87	89	92	93
PCR (Pavement Condition Rating)	88	88	89	92	91
Distress Index Values					
Structural Crack Index	89	96	97	99	96
Transverse Cracking Index	85	87	89	92	93
Patching Index	100	100	100	100	100
Rutting Index	97	97	97	96	95
Roughness Condition Index (RCI)	92	89	90	93	87

NOTES:

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

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

NC - Not Collected N/A - Not Applicable



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

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

ROUTE: 0012 EAST-WEST HIGHWAY
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012
PACIFIC WEST REGION **TOTAL LENGTH: 25.46 Miles**

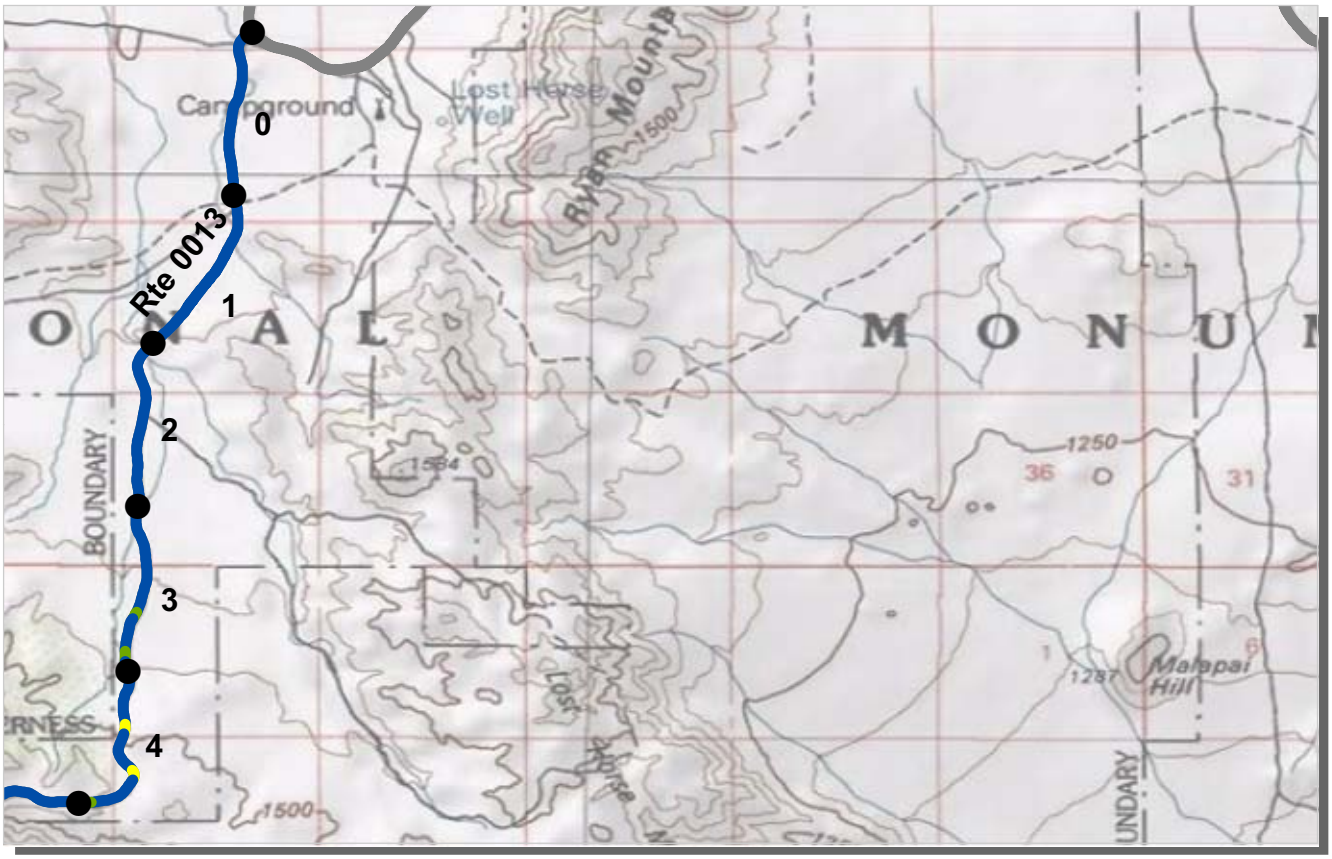
Section Number	25				
Section Length (mi)	0.46				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	25				
Lane Width (ft)	11				
Roadway Condition Information					
SCR (Surface Condition Rating)	95				
PCR (Pavement Condition Rating)	94				
Distress Index Values					
Structural Crack Index	97				
Transverse Cracking Index	96				
Patching Index	100				
Rutting Index	95				
Roughness Condition Index (RCI)	92				

NOTES:

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

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

NC - Not Collected N/A - Not Applicable



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

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

ROUTE: 0013 KEY'S VIEW ROAD
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/27/2012
PACIFIC WEST REGION **TOTAL LENGTH: 5.50 Miles**

Section Number	0	1	2	3	4
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	22	21	22	22	22
Lane Width (ft)	10	9	9	10	10
Roadway Condition Information					
SCR (Surface Condition Rating)	96	95	96	94	95
PCR (Pavement Condition Rating)	98	97	98	96	97
Distress Index Values					
Structural Crack Index	100	100	100	100	95
Transverse Cracking Index	100	100	100	100	100
Patching Index	100	100	100	100	100
Rutting Index	96	95	96	94	96
Roughness Condition Index (RCI)	100	100	100	100	100

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

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

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

ROUTE: 0013 KEY'S VIEW ROAD
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/27/2012
PACIFIC WEST REGION **TOTAL LENGTH: 5.50 Miles**

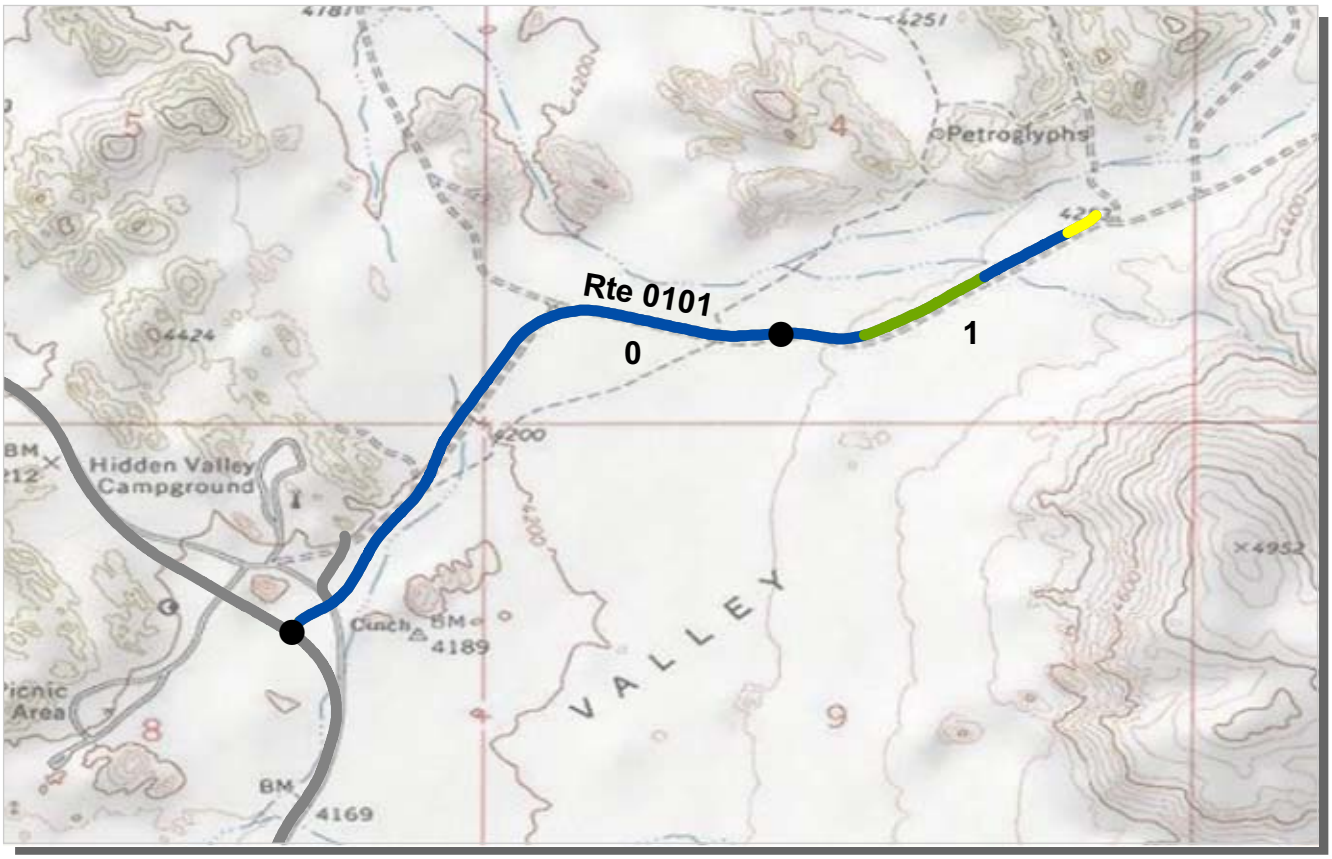
Section Number	5				
Section Length (mi)	0.50				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	23				
Lane Width (ft)	9				
Roadway Condition Information					
SCR (Surface Condition Rating)	92				
PCR (Pavement Condition Rating)	95				
Distress Index Values					
Structural Crack Index	99				
Transverse Cracking Index	99				
Patching Index	100				
Rutting Index	92				
Roughness Condition Index (RCI)	100				

NOTES:

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

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

NC - Not Collected N/A - Not Applicable



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

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

ROUTE: 0101 BARKER DAM ROAD
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/27/2012
PACIFIC WEST REGION **TOTAL LENGTH: 1.51 Miles**

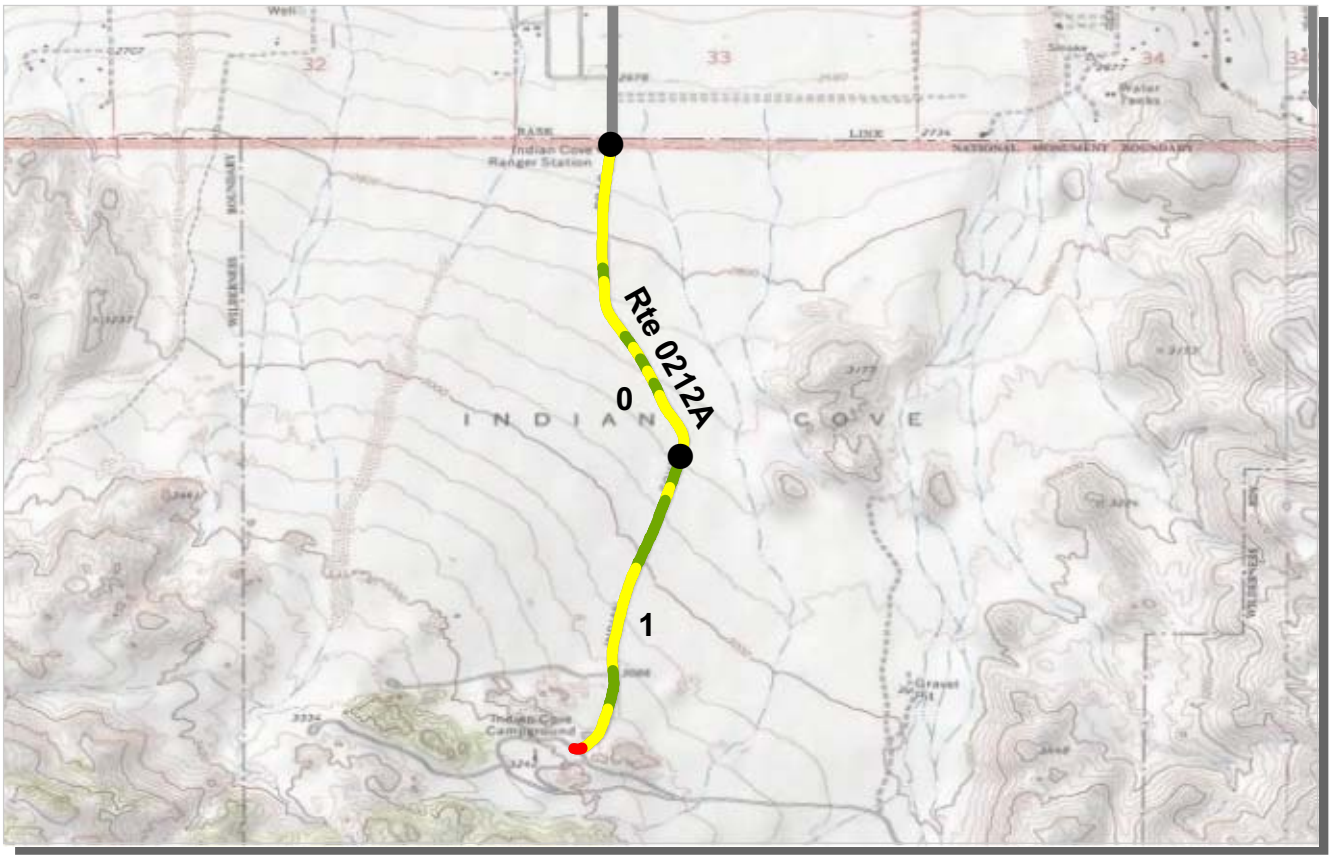
Section Number	0	1			
Section Length (mi)	1.00	0.51			
Cross Section Information					
Number of Lanes	2	2			
Paved Width (ft)	22	23			
Lane Width (ft)	10	9			
Roadway Condition Information					
SCR (Surface Condition Rating)	97	96			
PCR (Pavement Condition Rating)	96	92			
Distress Index Values					
Structural Crack Index	100	100			
Transverse Cracking Index	100	100			
Patching Index	100	100			
Rutting Index	97	96			
Roughness Condition Index (RCI)	95	87			

NOTES:

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

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

NC - Not Collected N/A - Not Applicable



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

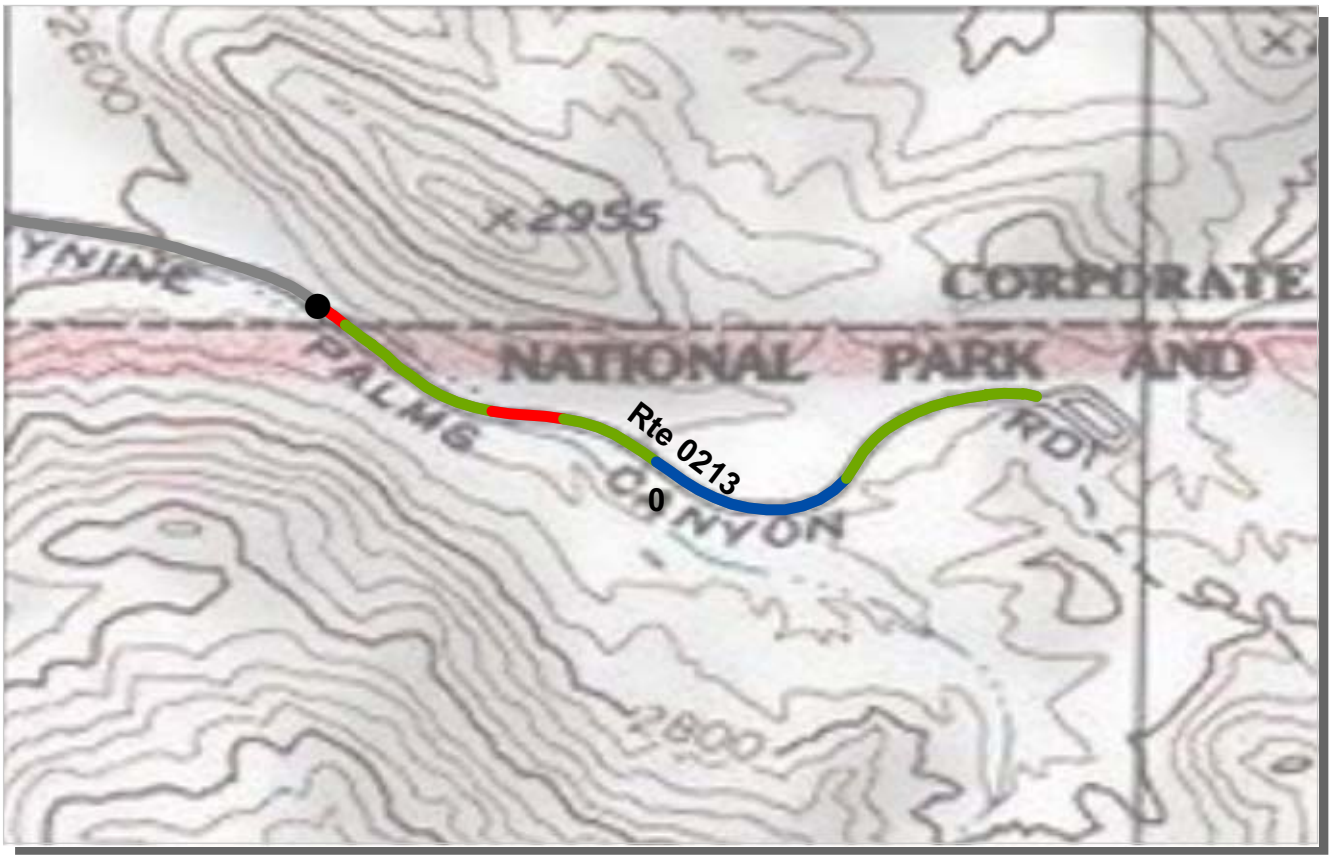
* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.

ROUTE: 0212A INDIAN COVE CAMPGROUND ROAD A
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012
PACIFIC WEST REGION **TOTAL LENGTH: 1.96 Miles**

Section Number	0	1			
Section Length (mi)	1.00	0.96			
Cross Section Information					
Number of Lanes	2	2			
Paved Width (ft)	22	22			
Lane Width (ft)	10	10			
Roadway Condition Information					
SCR (Surface Condition Rating)	88	88			
PCR (Pavement Condition Rating)	80	80			
Distress Index Values					
Structural Crack Index	96	96			
Transverse Cracking Index	100	99			
Patching Index	100	100			
Rutting Index	88	88			
Roughness Condition Index (RCI)	69	69			

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



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

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

ROUTE: 0213 49 PALMS OASIS ACCESS ROAD
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/24/2012

PACIFIC WEST REGION **TOTAL LENGTH: 0.47 Miles**

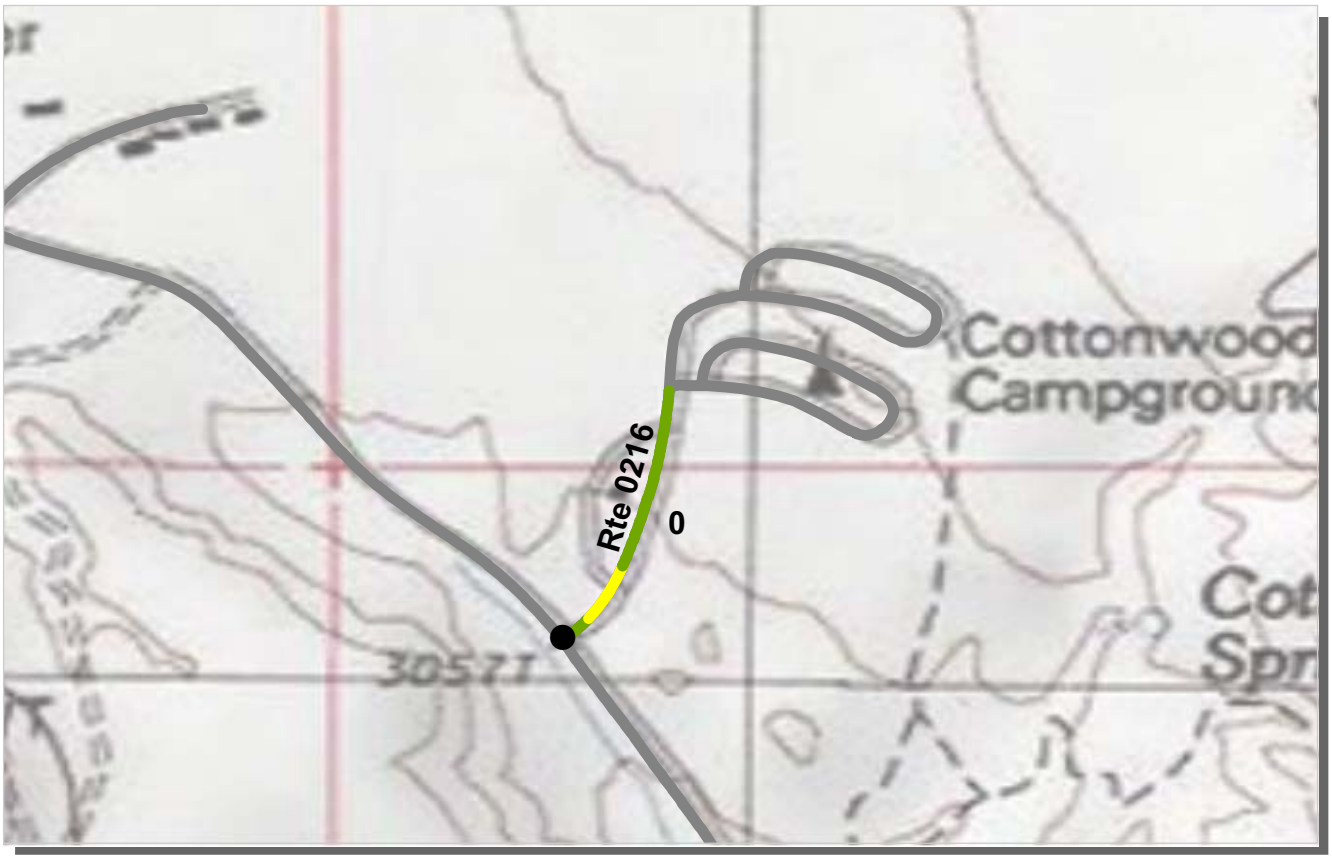
Section Number	0				
Section Length (mi)	0.47				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	20				
Lane Width (ft)	10				
Roadway Condition Information					
SCR (Surface Condition Rating)	89				
PCR (Pavement Condition Rating)	89				
Distress Index Values					
Structural Crack Index	89				
Transverse Cracking Index	95				
Patching Index	100				
Rutting Index	96				
Roughness Condition Index (RCI)	NC				

NOTES:

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

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

NC - Not Collected N/A - Not Applicable



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

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

ROUTE: 0216 COTTONWOOD CAMPGROUND ENTRANCE ROAD
JOTR : JOSHUA TREE NATIONAL PARK

COLLECTED: 4/25/2012
PACIFIC WEST REGION **TOTAL LENGTH: 0.18 Miles**

Section Number	0				
Section Length (mi)	0.18				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	20				
Lane Width (ft)	10				
Roadway Condition Information					
SCR (Surface Condition Rating)	87				
PCR (Pavement Condition Rating)	87				
Distress Index Values					
Structural Crack Index	91				
Transverse Cracking Index	87				
Patching Index	100				
Rutting Index	98				
Roughness Condition Index (RCI)	NC				

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

Section 6
Manually Rated Paved Route Condition Rating Sheets

Joshua Tree National Park

Federal Lands Highway
Road Inventory Program

MANUALLY RATED ROUTE CONDITION RATING SHEETS

This park is classified as a Large Park. Therefore, in Cycle 5, no manually rated routes were collected unless the route was modified or previously uncollected by RIP.

Section 7
Parking Area
Condition Rating Sheets

Joshua Tree National Park

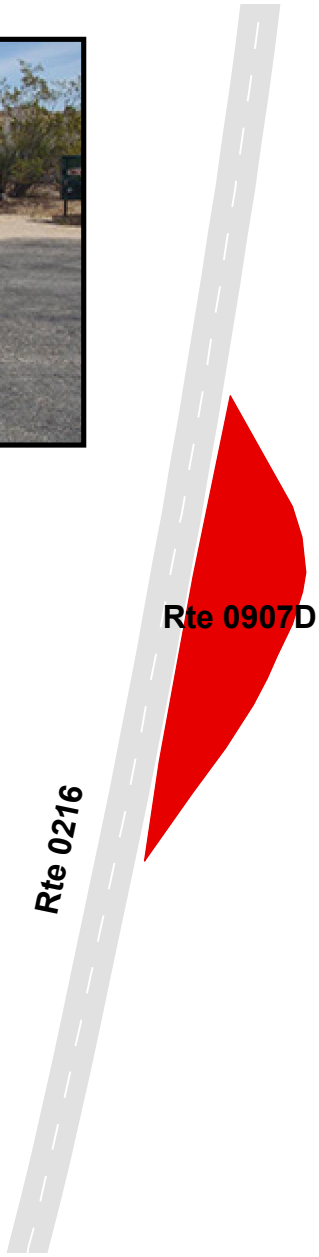
Federal Lands Highway
Road Inventory Program

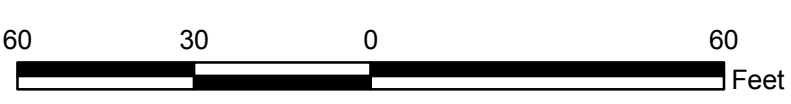
JOSHUA TREE NATIONAL PARK
Route 0907D
COTTONWOOD CAMPGROUND PICNIC PARKING D

ADJACENT TO ROUTE 0216 (COTTONWOOD CAMPGROUND ENTRANCE ROAD) AT MP 0.09 (ON RIGHT)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0907D	PUBLIC	4/29/2012	756	0.01	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	FAIR/73

* Lane miles are based on 11' lane widths

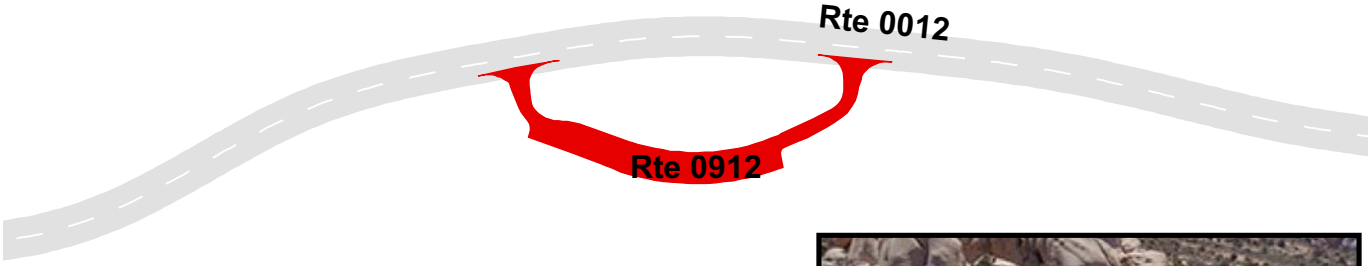




JOSHUA TREE NATIONAL PARK
Route 0912
RYAN MOUNTAIN TRAILHEAD PARKING
FROM ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 14.78
TO ROUTE 0012 (EAST-WEST HIGHWAY) AT MP 14.91

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0912	PUBLIC	4/29/2012	33,678	0.58	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	CONCRETE CURB	GOOD/90

* Lane miles are based on 11' lane widths



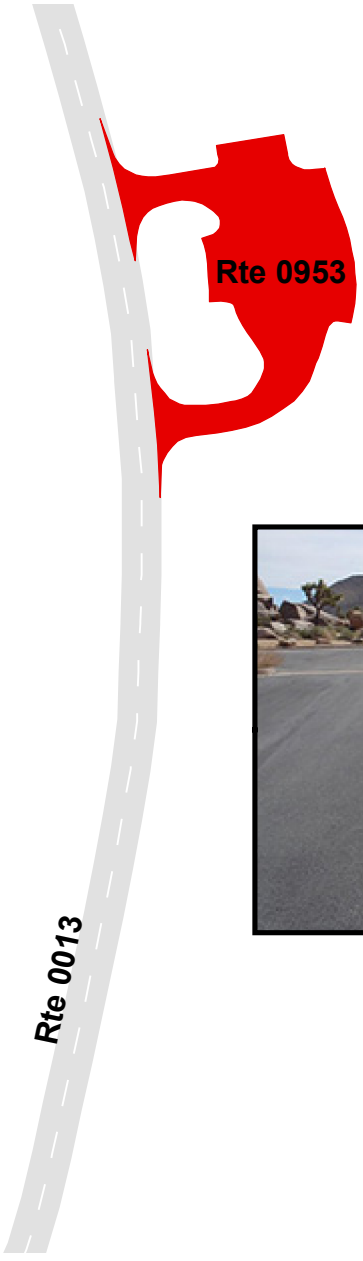
800 400 0 800
Feet

N

JOSHUA TREE NATIONAL PARK
Route 0953
CAP ROCK PARKING
FROM ROUTE 0013 (KEY'S VIEW ROAD)
TO ROUTE 0013 (KEY'S VIEW ROAD)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0953	PUBLIC	4/29/2012	33,244	0.57	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	1	NO CURB AND GUTTER	CONCRETE CURB	GOOD/90

* Lane miles are based on 11' lane widths



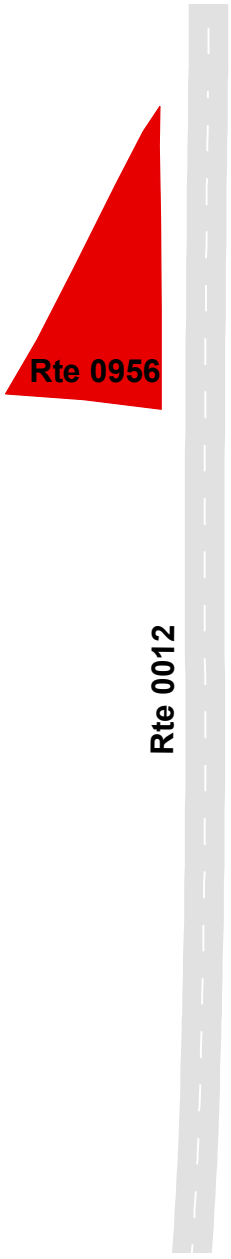
400 200 0 400 Feet

N

JOSHUA TREE NATIONAL PARK
Route 0956
NORTH ENTRANCE SIGN PARKING
ADJACENT TO ROUTE 0012 (EAST-WEST HIGHWAY)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0956	PUBLIC	4/29/2012	2,912	0.05	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	FAIR/73

* Lane miles are based on 11' lane widths



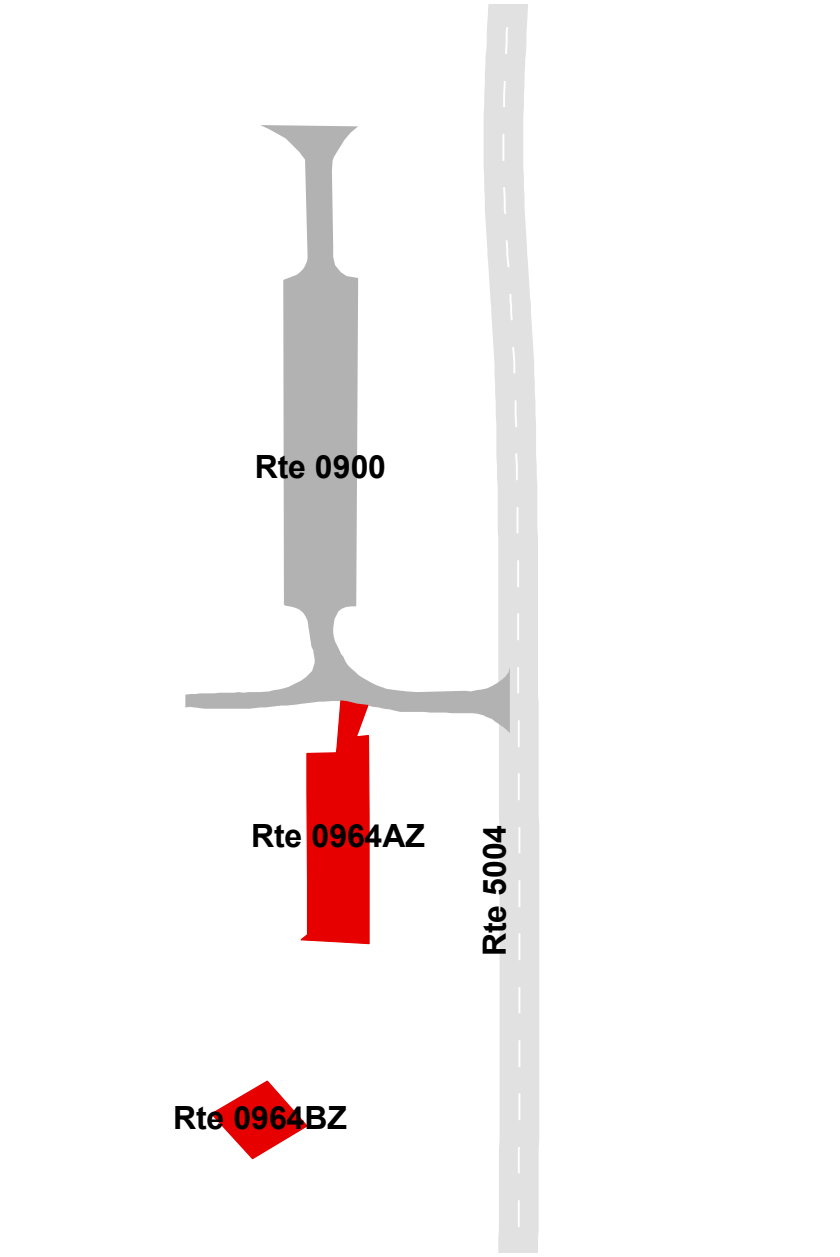
150 75 0 150 Feet

N

JOSHUA TREE NATIONAL PARK
Route 0964ZZ
HQ EMPLOYEE PARKING AREAS
FROM ROUTE 0900 (VISITOR CENTER/OASIS OF MARA PARKING)
TO ROUTE 0965 (HQ EMPLOYEE PARKING B)
Summary Record

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0964ZZ	NONPUBLIC	4/29/2012	15,770	0.27	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	CONCRETE CURB	SUMMARY/92

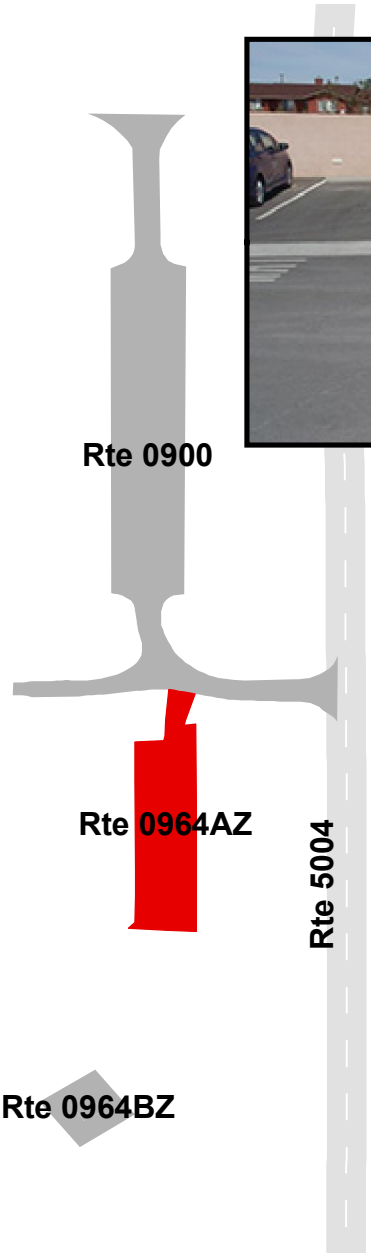
* Lane miles are based on 11' lane widths



JOSHUA TREE NATIONAL PARK
Route 0964AZ
HQ EMPLOYEE PARKING A
FROM ROUTE 0900 (VISITOR CENTER/OASIS OF MARA PARKING)
TO ROUTE 0965 (HQ EMPLOYEE PARKING B)
Subcomponent Record

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0964AZ	NONPUBLIC	4/29/2012	12,187	0.21	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	CONCRETE CURB	EXCELLENT/97

* Lane miles are based on 11' lane widths



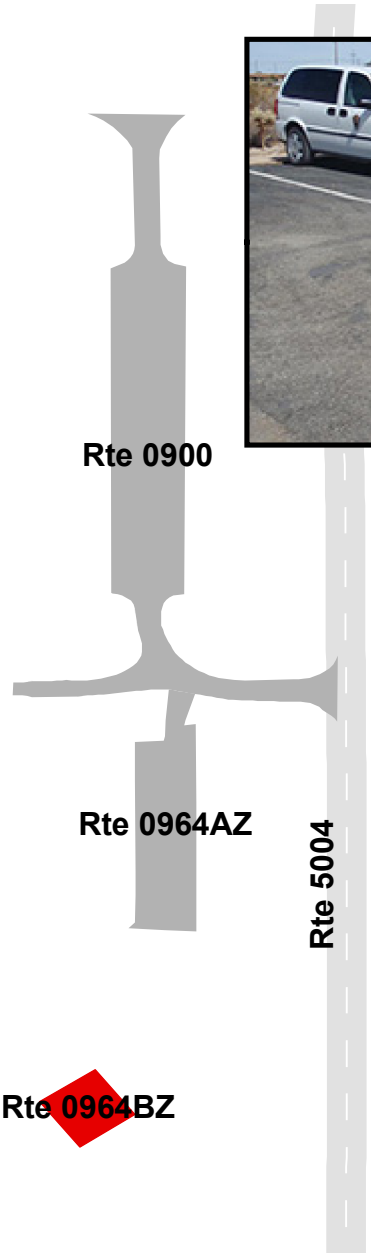
400 200 0 400 Feet

N

JOSHUA TREE NATIONAL PARK
Route 0964BZ
HQ EMPLOYEE PARKING B
FROM ROUTE 0965 (HQ EMPLOYEE PARKING B)
TO ROUTE 0965 (HQ EMPLOYEE PARKING B)
Subcomponent Record

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0964BZ	NONPUBLIC	4/24/2012	3,583	0.06	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	FAIR/73

* Lane miles are based on 11' lane widths



410 205 0 410 Feet

Section 8
Route Maintenance Features Summaries

Joshua Tree National Park

Federal Lands Highway
Road Inventory Program

DCV ROUTE MAINTENANCE FEATURES SUMMARY

This park is classified as a Large Park. Therefore, in Cycle 5, no features asset inventory was conducted unless the route was modified or previously uncollected by RIP.

STRUCTURE LIST

This park is classified as a large park. Therefore, in Cycle 5, BIP-Structures were inventoried only if they were located along routes that were modified or previously uncollected by RIP, so this report does not provide an all-inclusive listing of all BIP-Structures in the park.

Section 9
Route Maintenance Features
Road Logs

Joshua Tree National Park

Federal Lands Highway
Road Inventory Program

ROUTE MAINTENANCE FEATURES ROAD LOGS

This park is classified as a Large Park. Therefore, in Cycle 5, no features asset inventory was conducted unless the route was modified or previously uncollected by RIP.

Section 10
Appendix

Joshua Tree National Park

Federal Lands Highway
Road Inventory Program

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

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

In an effort to improve the accuracy of treatment recommendations and pavement condition descriptions vis a vis 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 Road Inventory Program condition reporting method and specifically, the calculation of PCR. It was determined that a better representation of PCR could be achieved by modifying the relative impact certain distresses would have on the overall rating.

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

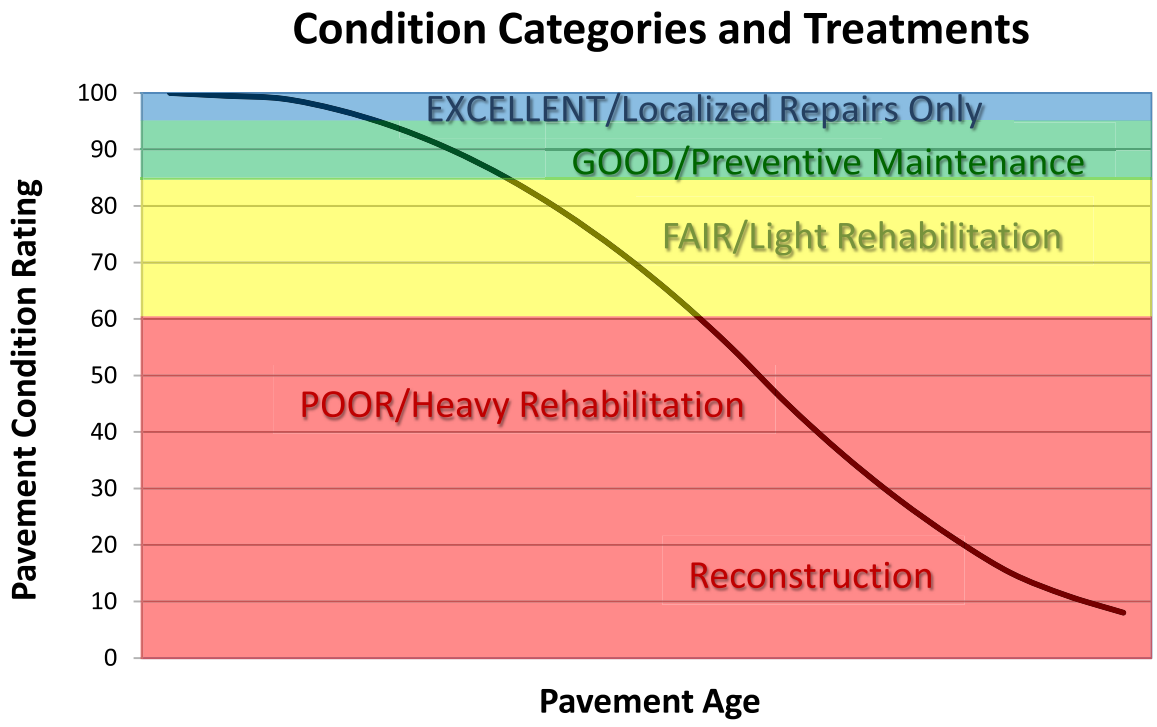
The changes that were implemented were endorsed by management at both the FHWA and NPS. In order to show the effectiveness of these changes, several sites were ground truth tested to ensure that an improvement was achieved between the relationship of PCR and the actual Maintenance and Rehabilitation needs that were represented. 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.

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

In addition to the RIP Index changes that will be 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 Pavement Management System's data from our Highway Pavement Management Application (HPMA) please contact the Eastern Federal Lands pavement team.



DESCRIPTION OF RATING SYSTEM

The Federal Highway Administration (FHWA), Road Inventory Program (RIP) for the National Park Service (NPS), 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). 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 about 5000 miles of National Park Service roads and parkways. Foremost in setting up the basis of pavement distress identification is employing the distress identification protocols used by FHWA. There is no single distress identification system that is universal among entities conducting a program of distress identification. For the purpose of the NPS RIP, FHWA employs distress identification protocols that are specific to this program.

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

In 2010, FHWA RIP began the fifth cycle of data collection in national parks. For Cycle 5, data will be collected in approximately 81 large parks (10 or more paved route miles) on Functional Class 1, 2, and 7 routes plus any new routes or parking areas previously not collected, totaling an estimated 4,459 paved route miles. Additionally, 168 small parks will be collected comprising approximately 529 paved route miles and associated paved parking areas. The data is used to support the National Park Service road maintenance program and Pavement Management System (PMS) developed and maintained by FHWA.

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

SURFACE DISTRESSES

Surface Condition Rating - SCR

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

Surface distresses determined from digital images

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

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

- Rutting

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

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

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

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

Roughness Condition Index - RCI

Additional condition data measured by DCV (lasers and accelerometers)

- Roughness (IRI)

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

Pavement Condition Rating - PCR

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

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

A detailed description of each distress index formula, roughness index formula, SCR and PCR is provided in this document beginning on page 23.

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

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

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

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

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

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

TABLE 1: Distress Summary

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

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

ALLIGATOR CRACKING

Description

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

Severity Levels

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

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

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

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

TABLE 2: Alligator Crack Severity Levels

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

LONGITUDINAL CRACKING

Description

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

Severity Levels

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

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

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

TRANSVERSE CRACKING

Description

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

Severity Levels

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

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

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

PATCHING AND POTHOLES

Description

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

Severity Levels

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

RUTTING

Description

Rutting is a longitudinal surface depression in the wheelpath.

Severity Levels

LOW
Ruts with a measured depth ≥ 0.20" and ≤ 0.49"

MED
Ruts with a measured depth ≥ 0.50" and ≤ 0.99"

HIGH
Ruts with a measured depth ≥ 1.00"

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

ROUGHNESS

Description

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

Severity Levels

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

TABLE 3: IRI

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

INDEX FORMULAS

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

Alligator Crack Index

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

Where:

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

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

Percent of total area is computed as:

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

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

Longitudinal Crack Index

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

Where:

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

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

Percent of interval length is computed as:

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

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

Structural Crack Index

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

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

Transverse Crack Index

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

Where:

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

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

Number of cracks is computed as:

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

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

Patching Index

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

Where:

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

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

Percent of total area is computed as:

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

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

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

Rutting Index

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

Where:

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

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

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

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

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

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

Roughness Condition Index (Asphalt)

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

Where:

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

Average IRI is computed as:

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

There is no applicable threshold for failure for this index.

Roughness Condition Index (Concrete)

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

For concrete, PCR = RCI

Surface Condition Rating Index

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

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

Where:

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

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

Data Collection Vehicle Subsystems

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

CAMERAS

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

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

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

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

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

DMI (Distance Measuring Instrument)

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

ROUGHNESS (IRI)

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

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

RUTTING

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

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

GPS & INERTIAL SYSTEMS

GPS is collected by an onboard system employing Omnistar real time correction and a gyroscope Inertial Measuring Unit (IMU) to provide accurate positioning data in instances of satellite obstruction. All GPS coordinates are tied to image and linear distance measurements.

GPS SPECIFICATIONS	
Static accuracy	Sub-meter
Dynamic accuracy	2-3 meters
Receiver	12 satellite tracking
Coordinate system	Lat Lon WGS 84
Environment	Day or night
Cross-slope	+- 0.1 degrees
Grade	+- 0.1 degrees

GPS on Manually Rated Roads (MRR)

Parking areas, some roads, and other paved areas that are not fully drivable with the DCV are collected manually by field technicians. GPS is collected for these routes using portable Trimble GPS backpack units.

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 will allow RIP to facilitate easier updates and enhancements in the future.

A geodatabase can be thought of as simply a database containing spatial data. Many different tables are contained with the park's geodatabase. A complete and thorough description of the tables and fields contained within this geodatabase can be found in the ***metadata***. The metadata is attached directly within the geodatabase and can be accessed via ESRI's ArcCatalog.

GLOSSARY OF TERMS AND ABBREVIATIONS

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