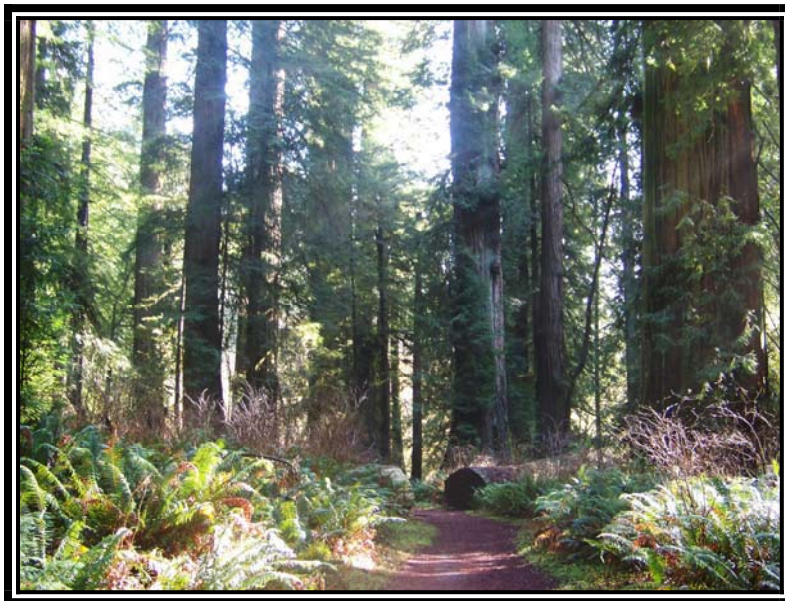




Federal Lands Highway Road Inventory Program

Road Inventory and Condition Assessment



Redwood National Park
REDW – 8480

Cycle 5 Report

**Prepared By: Federal Highway Administration
Road Inventory Program (RIP)**

Data Collection Date: 07/2010

Report Date: 07/2011

Redwood National Park in California





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Section 1 Introduction



Redwood National Park



Federal Lands Highway
Road Inventory Program

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. Cycle 4, at the time of this writing in April 2011, has completed data collection and is nearing completion with the delivery of all data 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

FHWA/Eastern Federal Lands
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Sterling, VA 20166
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Section 2

Park Route Inventory



Redwood National Park



Federal Lands Highway
Road Inventory Program

Cycle 5 NPS/RIP Route ID Report

Road Inventory Program 07/26/2011

(Numerical By Route #)

Page 1 of 10

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).

** DCV - Data Collection Vehicle NC - Not Collected

REDW

REDWOOD NATIONAL PARK

Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
0100	5	3456		ENDERTS BEACH ROAD	FROM PARK BOUNDARY ON ENDERT BEACH ROAD / NON NPS TO ROUTE 0919 (NICKEL CREEK CAMPGROUND ACCESS PARKING)	N/A	1.74	0.00	1.74	2	0	AS	1
0102	5	3443		ALDER CAMP ROAD	FROM KLAMATH BEACH ROAD TO ROUTE 0202 (COASTAL DRIVE) AND STATE NON NPS MAINTAINED ROAD	N/A	2.09	0.00	2.09	2	0	AS	1
0110	5	3447		RED ALDER ROAD	FROM ROUTE 5110 (RED ALDER ROAD (NON NPS SECTION)) TO ROUTE 0202 (COASTAL DRIVE) AND ALDER CAMP ON RIGHT	N/A	0.18	0.00	0.18	2	0	AS	2
0115	5	3454		DAVISON ROAD	FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY) TO ROUTE 0913 (ELK MEADOW DAY USE AREA PARKING) ON LEFT AND BEGINNING OF ROUTE 0207 (DAVISON ROAD)	N/A	0.36	0.00	0.36	2	0	AS	2
0116	NC	11034		HIGH BLUFF ROAD	FROM ROUTE 0202 (COASTAL DRIVE) TO ROUTE 0936 (HIGH BLUFF PARKING)	N/A	0.00	0.30	0.30	2	0	GR	
0117	NC	20927		HOSTEL ACCESS ROAD	FROM WILSON CREEK ROAD TO ROUTE 0931 (DEMARTIN HOSTEL PARKING)	N/A	0.00	0.20	0.20	2	0	GR	
0118	NC	3452		TALL TREES ACCESS ROAD	FROM ROUTE 5000 (BALD HILLS ROAD) TO ROUTE 0930 (TALL TREES ACCESS PARKING)	N/A	0.00	6.15	6.15	2	0	GR	
0119	NC	3458		FRESHWATER LAGOON ACCESS ROAD	FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY) TO ROUTE 0933 (FRESHWATER LAGOON BOAT LAUNCH PARKING)	N/A	0.00	0.30	0.30	2	0	GR	
0120	NC	3472		SKUNK CABBAGE ROAD - SOUTH	FROM PRIVATE ROAD TO ROUTE 0929 (SKUNK CABBAGE TRAILHEAD PARKING)	N/A	0.00	0.50	0.50	2	0	GR	
0121	NC	3474		WOLF CREEK ROAD	FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY) TO ROUTE 0935 (WOLF CREEK OUTDOOR SCHOOL PARKING)	N/A	0.00	0.55	0.55	2	0	GR	
0202	NC	3450		COASTAL DRIVE	FROM ROUTE 0110 (RED ALDER ROAD) TO ROUTE 0102 (ALDER CAMP ROAD)	N/A	0.00	0.81	0.81	3	0	GR	
0205	5	15653		LOST MAN CREEK ROAD	FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY) TO ROUTE 0932A (LOST MAN CREEK PARKING)	N/A	0.89	0.00	0.89	3	97,601	AS	2
0207	NC	13451		DAVISON ROAD	FROM ROUTE 0913 (ELK MEADOW DAY USE AREA PARKING) TO PARK BOUNDARY	N/A	0.00	3.00	3.00	3	0	GR	
0210	5	11047		REDWOOD CREEK TRAILHEAD ROAD	FROM ROUTE 5000 (BALD HILLS ROAD) TO ROUTE 0915 (REDWOOD CREEK TRAILHEAD PARKING)	N/A	0.43	0.00	0.43	3	0	AS	2

Cycle 5 NPS/RIP Route ID Report

Road Inventory Program 07/26/2011

(Numerical By Route #)

Page 2 of 10

Shading Color Key:

White = Paved Routes, DCV Driven

Yellow = Unpaved Routes, DCV not Driven

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Green = All Unpaved Parking Areas

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REDW

REDWOOD NATIONAL PARK

Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
0215	5	11049		THOMAS KUCHEL VISITOR CENTER ACCESS ROAD	FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY) TO ROUTE 0900 (THOMAS KUCHEL VISITOR CENTER PARKING)	N/A	0.26	0.00	0.26	3	0	AS	2
0406	NC	11024		SCHACH HOUSE/JED SMITH SERVICE ROAD	FROM U.S. HIGHWAY 199 (REDWOOD HIGHWAY) TO MAINTENANCE YARD	N/A	0.00	0.17	0.17	5	0	GR	
0407	5	15618		REQUA HOUSING/CCC COMPLEX ROAD	FROM PJ MURPHY DRIVE TO ROUTE 0917 (REQUA HOUSING PARKING)	N/A	0.41	0.00	0.41	5	46,418	AS	1
0415	5	15655		THOMAS KUCHEL VISITOR CENTER SERVICE ROAD	FROM ROUTE 0215 (THOMAS KUCHEL VISITOR CENTER ACCESS ROAD) AT MP 0.26 AND ROUTE 0900 (THOMAS KUCHEL VISITOR CENTER PARKING) TO END	N/A	0.07	0.00	0.07	5	0	AS	2
0416	5	3445		OFF HIGHWAY ROAD	FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY) TO ROUTE 0205 (LOST MAN CREEK ROAD)	N/A	1.03	0.00	1.03	6	0	AS	2
0417	NC	11033		FIRING RANGE ROAD	FROM ROUTE 0102 (ALDER CAMP ROAD) TO END	N/A	0.00	0.50	0.50	6	0	GR	
0418	NC	11038		LANE RANCH ROAD	FROM ROUTE 5000 (BALD HILLS ROAD) TO END	N/A	0.00	0.13	0.13	6	0	GR	
0419	NC	11048		ROBBERS GULCH ROAD	FROM ROUTE 5000 (BALD HILLS ROAD) TO END	N/A	0.00	1.00	1.00	6	0	GR	
0420	NC	11050		SOUTH OPERATIONS CENTER ACCESS ROAD	FROM ROUTE 0460 (HILTON ROAD) TO END	N/A	0.00	0.50	0.50	6	0	GR	
0421	NC	11051		TRUCK SHOP ROAD	FROM ROUTE 0115 (DAVISON ROAD) TO END	N/A	0.00	0.50	0.50	6	0	GR	
0422	NC	13169		BRUSH DANCE ROAD	FROM KLAMATH BEACH ROAD TO END	N/A	0.00	0.15	0.15	6	0	GR	
0423	NC	13468		ROGERS PEAK ROAD	FROM ROUTE 0466 (WEST SIDE ACCESS ROAD) TO END	N/A	0.00	1.40	1.40	5	0	GR	
0424	NC	13490		Y - LINE ROAD	FROM B-LINE ROAD TO END	N/A	0.00	2.80	2.80	6	0	GR	
0425	NC	13493		C-12 ROAD	FROM ROUTE 0454 (A-9-9 ROAD) TO END	N/A	0.00	1.10	1.10	6	0	GR	
0426	NC	13494		M-11 ROAD	FROM ROUTE 0453 (A-9 ROAD) TO END	N/A	0.00	1.90	1.90	6	0	NV	

Cycle 5 NPS/RIP Route ID Report

Road Inventory Program 07/26/2011

(Numerical By Route #)

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Shading Color Key:
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Grey = Paved Routes, DCV not Driven

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= Concession Route Flag ON

Green = All Unpaved Parking Areas

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REDW

REDWOOD NATIONAL PARK

Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
0904	5	15616		CRESCENT CITY VISTA PARKING	ADJACENT TO U.S. HIGHWAY 101 (REDWOOD HIGHWAY)	N/A	0.00	0.00	0.00		19,141	AS	1
0905	5	13408		CRESCENT BEACH PICNIC AREA PARKING	FROM ROUTE 0100 (ENDERTS BEACH ROAD) AT MP 0.17 TO PARKING	N/A	0.00	0.00	0.00		41,071	AS	1
0906	5	15614		CRESCENT BEACH OVERLOOK PARKING	ADJACENT TO ROUTE 0100 (ENDERTS BEACH ROAD) AT MP 1.74	N/A	0.00	0.00	0.00		2,796	AS	1
0907	5	11037		LAGOON CREEK DAY USE/ PICNIC PARKING	FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY) TO PARKING	N/A	0.00	0.00	0.00		36,884	AS	1
0908	5	15656		REQUA MAINTENANCE FACILITY AREA PARKING	FROM PJ MURPHY DRIVE TO PARKING	N/A	0.00	0.00	0.00		138,563	AS	1
0909	5	15657		CCC COMPLEX PARKING	FROM ROUTE 0407 (REQUA HOUSING/CCC COMPLEX ROAD) AT MP 0.22 TO PARKING	N/A	0.00	0.00	0.00		27,972	AS	1
0910	5	11018		KLAMATH OVERLOOK PARKING	FROM PJ MURPHY DRIVE TO PARKING	N/A	0.00	0.00	0.00		11,091	AS	1
0911	5	15613		CRESCENT BEACH ENVIRONMENTAL EDUCATION CENTER PARKING	FROM ROUTE 0100 (ENDERTS BEACH ROAD) AT MP 0.04 TO PARKING	N/A	0.00	0.00	0.00		32,378	AS	1
0912	5	15617		DOUGLAS BRIDGE PARKING	ADJACENT TO ROUTE 0102 (ALDER CAMP ROAD) AT MP 0.01 ON LEFT	N/A	0.00	0.00	0.00		5,993	AS	1
0913	5	15658		ELK MEADOW DAY USE AREA PARKING	FROM ROUTE 0115 (DAVISON ROAD) AT MP 0.36 TO PARKING	N/A	0.00	0.00	0.00		45,328	AS	2
0914	5	11036		LADY BIRD JOHNSON GROVE PARKING	FROM ROUTE 5000 (BALD HILLS ROAD) TO PARKING	N/A	0.00	0.00	0.00		14,205	AS	2
0915	5	13407		REDWOOD CREEK TRAILHEAD PARKING	FROM END OF ROUTE 0210 (REDWOOD CREEK TRAILHEAD ROAD) AT MP 0.43 TO PARKING	N/A	0.00	0.00	0.00		24,367	AS	2

Cycle 5 NPS/RIP Route ID Report

Road Inventory Program 07/26/2011

(Numerical By Route #)

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REDW

REDWOOD NATIONAL PARK

Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
0916	5	11045		REDWOOD CREEK OVERLOOK PARKING	ADJACENT TO ROUTE 5000 (BALD HILLS ROAD)	N/A	0.00	0.00	0.00		4,067	AS	2
0917	5	11031		REQUA HOUSING PARKING	FROM END OF ROUTE 0407 (REQUA HOUSING/CCC COMPLEX ROAD) AT MP 0.40 TO PARKING	N/A	0.00	0.00	0.00		3,348	AS	1
0918	5	11023		HIOUCHI TRAILER PARKING	FROM U.S. HIGHWAY 199 (REDWOOD HIGHWAY) TO PARKING	N/A	0.00	0.00	0.00		9,627	AS	1
0919	5	15615		NICKEL CREEK CAMPGROUND ACCESS PARKING	FROM END OF ROUTE 0100 (ENDERTS BEACH ROAD) AT MP 1.77 TO PARKING	N/A	0.00	0.00	0.00		8,643	AS	1
0920	5	3457		FALSE KLAMATH COVE PARKING	FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY) TO U.S. HIGHWAY 101 (REDWOOD HIGHWAY)	N/A	0.00	0.00	0.00		9,608	AS	1
0921ZZ	5	15659		DAVISON ROAD ELK VIEWING PARKING AREAS	ADJACENT TO ROUTE 0115 (DAVISON ROAD) AT MP 0.11 ON LEFT AND RIGHT	N/A	0.00	0.00	0.00		6,943	AS	2
0922	5	15645		HIOUCHI DORM PARKING	FROM U.S. HIGHWAY 199 (REDWOOD HIGHWAY) TO PARKING	N/A	0.00	0.00	0.00		12,439	AS	1
0923	NC	11032		DOLASON TRAILHEAD PARKING	ADJACENT TO BALD HILLS ROAD	N/A	0.00	0.00	0.00		8,487	GR	
0924	NC	11039		MOUTH OF REDWOOD CREEK ROAD PARKING	ADJACENT TO HUFFORD ROAD	N/A	0.00	0.00	0.00		3,769	GR	
0925	NC	11040		ORICK HORSE TRAIL PARKING	ADJACENT TO DRYDEN ROAD	N/A	0.00	0.00	0.00		2,498	GR	
0926	NC	11269		LYONS RANCH TRAILHEAD PARKING	ADJACENT TO BALD HILLS ROAD	N/A	0.00	0.00	0.00		2,799	GR	
0927	NC	13404		FLINT RIDGE PARKING	ADJACENT TO ROUTE 0202 (COASTAL DRIVE)	N/A	0.00	0.00	0.00		2,500	GR	
0928	NC	13405		HOWLAND HILL OUTDOOR SCHOOL PARKING	ADJACENT TO ROUTE 0459 (HOWLAND HILL OUTDOOR SCHOOL ROAD)	N/A	0.00	0.00	0.00		9,873	GR	
0929	NC	13406		SKUNK CABBAGE TRAILHEAD PARKING	FROM END OF ROUTE 0120 (SKUNK CABBAGE ROAD - SOUTH) TO PARKING	N/A	0.00	0.00	0.00		5,300	GR	

Cycle 5 NPS/RIP Route ID Report

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■ = Concession Route Flag ON

Green = All Unpaved Parking Areas

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CYCLE 5 SUMMARY TOTALS FOR REDWOOD NATIONAL PARK

<u>CYCLE 5 ROUTE TOTALS</u>	
DCV Driven Route Miles	6.54
Manually Rated Route Miles	1.30
TOTAL PARK ROUTE MILES COLLECTED IN CYCLE 5	7.84
Manually Rated Routes (SQFT)	144,019
TOTAL UNPAVED PARK ROUTE MILES	120.67

<u>CYCLE 5 CONCESSION TOTALS</u>	
Concession Paved Route Miles	0.00
Concession Unpaved Route Miles	0.00
TOTAL CONCESSION ROUTE MILES	0.00
Concession Paved Parking Area SQFT	0
Concession Unpaved Parking Area SQFT	0
TOTAL CONCESSION PARKING AREA SQFT	0
Concession Manually Rated Routes SQFT	0

<u>* CYCLE 5 PARKING AREA TOTALS</u>	
Paved Parking (SQFT)	691,373
Unpaved Parking (SQFT)	154,189
TOTAL PARKING (SQFT)	845,562

<u>CYCLE 5 WEIGHTED AVERAGE PARK VALUES</u>	
DCV Driven PCR	96
**Manually Rated Routes PCR	75
**Parking PCR	78
***Total Equivalent Lane Miles	26.56

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

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

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

Cycle 5 NPS/RIP Route ID Report

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 Red text denotes
 approx. mileage

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

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General Park Road Functional Classification Table

- Class 1** Principal Park Road/Rural Parkway (Public Roads) Roads which constitute the main access route, circulatory tour, or thoroughfare for park visitors. Route Numbers 1 - 99. Note: Rural parkways (e.g. Natchez Trace) are numbered 1 - 9. State Routes Inventoried for Park. Route Numbers 5000-5999
- Class 2** Connector Park Road (Public Roads) - Roads which provide access within a park to areas of scenic, scientific, recreational or cultural interest, such as overlooks, campgrounds, etc. Route Numbers 100-199.
- Class 3** Special Purpose Park Road (Public Roads) - Roads which provide circulation within public areas, such as campgrounds, picnic areas, visitor center complexes, concessionaire facilities, etc. These roads generally serve low-speed traffic and are often designed for one-way circulation. Route Numbers 200-299.
- Class 4** Primitive Park Roads (Public Roads) - Roads which provide circulation through remote areas and/or access to primitive campgrounds and undeveloped areas. These roads frequently have no minimum design standards and their use may be limited to specially equipped vehicles. Route Numbers 200-299. Note: Functional Classes 3 and 4 have the same route numbers because, historically, they were numbered similarly.
- Class 5** Administrative Access Road (Administrative Roads) - All public roads intended for access to administrative developments or structures such as park offices, employee quarters, or utility areas. Route Numbers 400-499.
- Class 6** Restricted Road (Administrative Roads) - All roads normally closed to the public, including patrol roads, truck trails, and other similar roads. Route Numbers 400-499. Note: Functional Classes 5 and 6 have the same route numbers because historically they were numbered similarly and often there is little distinction between these routes. For example, because utility areas and employee housing are often closed to the public, this restriction would result in classification of FC 6 rather than FC 5.
- Class 7** Urban Parkway (Urban Parkways and City Streets) - These facilities serve high volumes of park and non-park related traffic and are restricted, limited-access facilities in an urban area. This category of roads primarily encompasses the major parkways which serve as gateways to our nation's capital. Other major park roads or portions thereof, however, may be included in this category. Route Numbers 1-9.
- Class 8** City Streets (Urban Parkways and City Streets) - City streets are usually extensions of the adjoining street system that are owned and maintained by the National Park Service. The construction and/or reconstruction should conform with accepted local engineering practice and local conditions. Route Numbers 600-699.

 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 Assets. 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 REDW

Road Inventory Program 07/01/2011

(Numerical By Subcomponent #)

Page 1 of 1

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).

REDW

REDWOOD NATIONAL PARK

Asset Entered in FMSS System

Rte. No.	FMSS No.	Cycle Collected	Route Name	From	To	Concess Route	Func. Class	Paved Miles	Un-Paved Miles	Total Route Length	Manual Rated SQ/FT
0921ZZ	15659	5	DAVISON ROAD ELK VIEWING PARKING AREAS	ADJACENT TO ROUTE 0115 (DAVISON ROAD) AT MP 0.11 ON LEFT AND RIGHT				0.000	0.000	0.000	6,943

Asset REDW-0921ZZ Subcomponent Breakdown

Rte. No.	FMSS No.	Cycle Collected	Route Name	From	To	Concess Route	Func. Class	Paved Miles	Un-Paved Miles	Total Route Length	Manual Rated SQ/FT
0921AZ	15659	5	DAVISON ROAD ELK VIEWING PARKING A	ADJACENT TO ROUTE 0115 (DAVISON ROAD) AT MP 0.11 ON RIGHT				0.000	0.000	0.000	3,075
0921BZ	15659	5	DAVISON ROAD ELK VIEWING PARKING B	ADJACENT TO ROUTE 0115 (DAVISON ROAD) AT MP 0.11 ON LEFT				0.000	0.000	0.000	3,868

ROUTE IDENTIFICATION CHANGES TO PAVED ASSESTS FROM PREVIOUS CYCLE - REDW

ROUTES ADDED FROM PREVIOUS INVENTORY:			
Route #	Route Name	Reason for Addition	Comments
0470	Aubell Lane/ Noc Maintenance Road		ADDED TO THE INVENTORY IN CYCLE 5
0932B	Lost Man Creek Handicapped Parking		ADDED TO THE INVENTORY IN CYCLE 5
0938	Noc Parking		ADDED TO THE INVENTORY IN CYCLE 5
0939	Wolf Creek Housing Complex		ADDED TO THE INVENTORY IN CYCLE 5
5110	Red Alder Road (Non Nps Section)	ROUTE SPLIT	WAS DRIVEN AS PART OF ROUTE 0110 IN CYCLE 4, SEPARATED OUT IN CYCLE 5

ROUTE IDENTIFICATION CHANGES TO PAVED ASSESTS FROM PREVIOUS CYCLE - REDW

ROUTES MODIFIED FROM PREVIOUS INVENTORY:			
Route #	Route Name	Type of Modification	Comments
0102	Alder Camp Road	OTHER	C5 ROUTE RE-CONSTRUCTED, NEW ALIGNMENT AT BEGIN ROUTE NEAR ROUTE 0912
0110	Red Alder Road	ROUTE SPLIT	CY4 WAS SPLIT INTO TWO ROUTES IN CY5 - 0110 & 5110
0205	Lost Man Creek Road	COLLECTION METHOD CHANGE	COLLECTED AS MRL BECAUSE OF POOR CONDITION
0407	Requa Housing/Ccc Complex Road	COLLECTION METHOD CHANGE	COLLECTED AS MRL BECAUSE OF POOR CONDITION
0900	Thomas Kuchel Visitor Center Parking	SQ FEET CHANGE	
0912	Douglas Bridge Parking	OTHER	C5 PARKING AREA RE-CONSTRUCTED, NEW GPS COLLECTED IN CYCLE 5

Section 3

Park Summary Information



Redwood National Park



Federal Lands Highway
Road Inventory Program

REDW: 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									
2	0.14	2.14%	0.48	7.34%	0.65	9.94%	3.10	47.40%	4.37
3					0.04	0.61%	0.65	9.94%	0.69
4									
5	0.01	0.15%	0.02	0.31%			0.42	6.42%	0.45
6	1.03	15.75%							1.03
7									
8									
Totals	1.18	18.04%	0.50	7.64%	0.69	10.55%	4.17	63.76%	6.54

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.

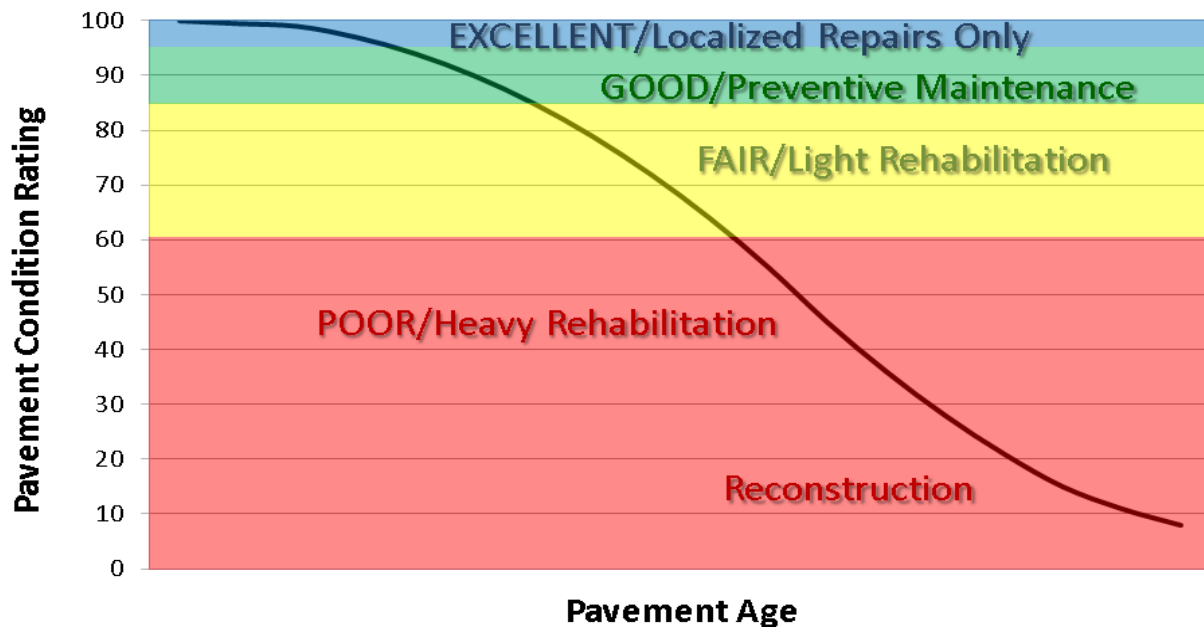
Explanation of the Excellent, Good, Fair and Poor Condition Descriptions

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.

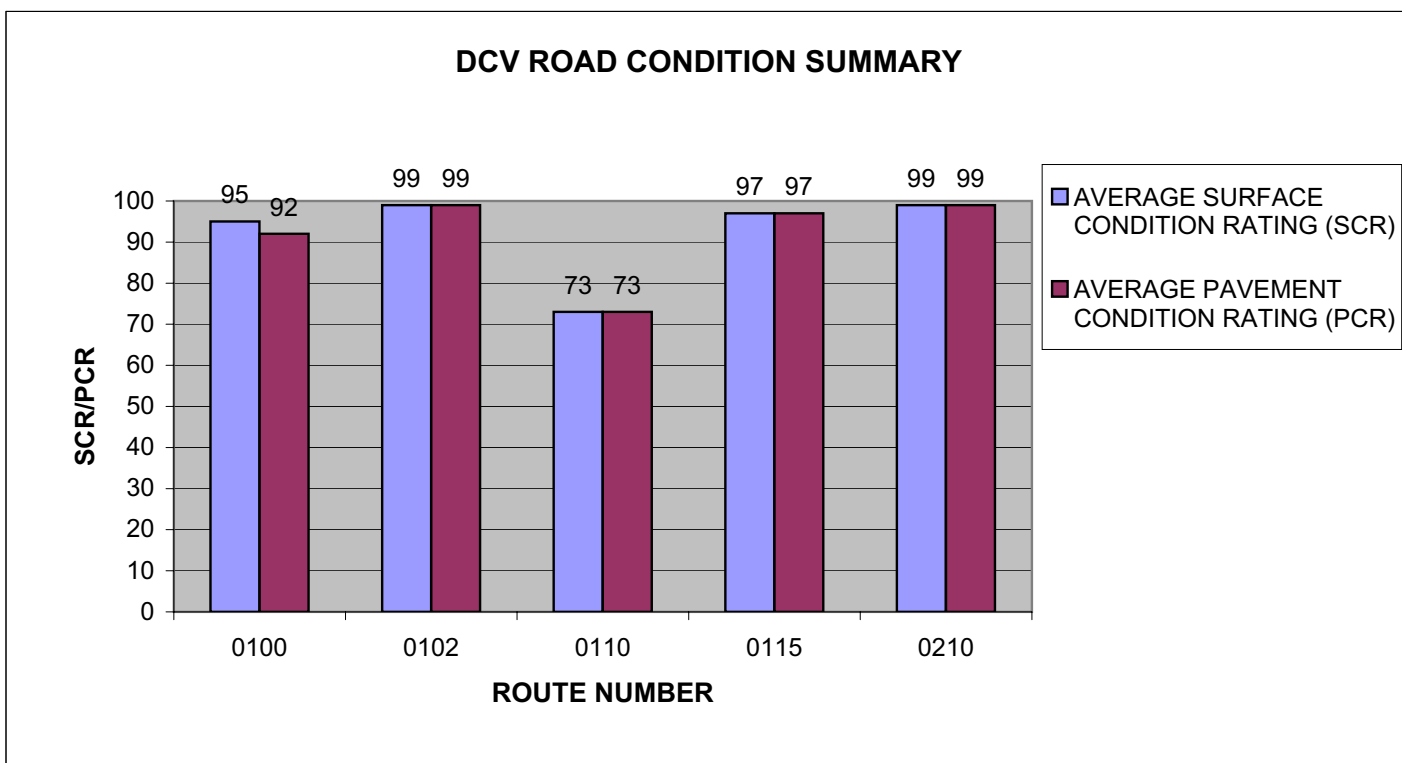
Condition Categories and Treatments



REDW: DCV ROAD CONDITION SUMMARY

DCV - Data Collection Vehicle

ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	ROUTE LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0100	ENDERTS BEACH ROAD	2	1.74	ASPHALT	95	92
0102	ALDER CAMP ROAD	2	2.09	ASPHALT	99	99
0110	RED ALDER ROAD	2	0.18	ASPHALT	73	73
0115	DAVISON ROAD	2	0.36	ASPHALT	97	97
0210	REDWOOD CREEK TRAILHEAD ROAD	3	0.43	ASPHALT	99	99

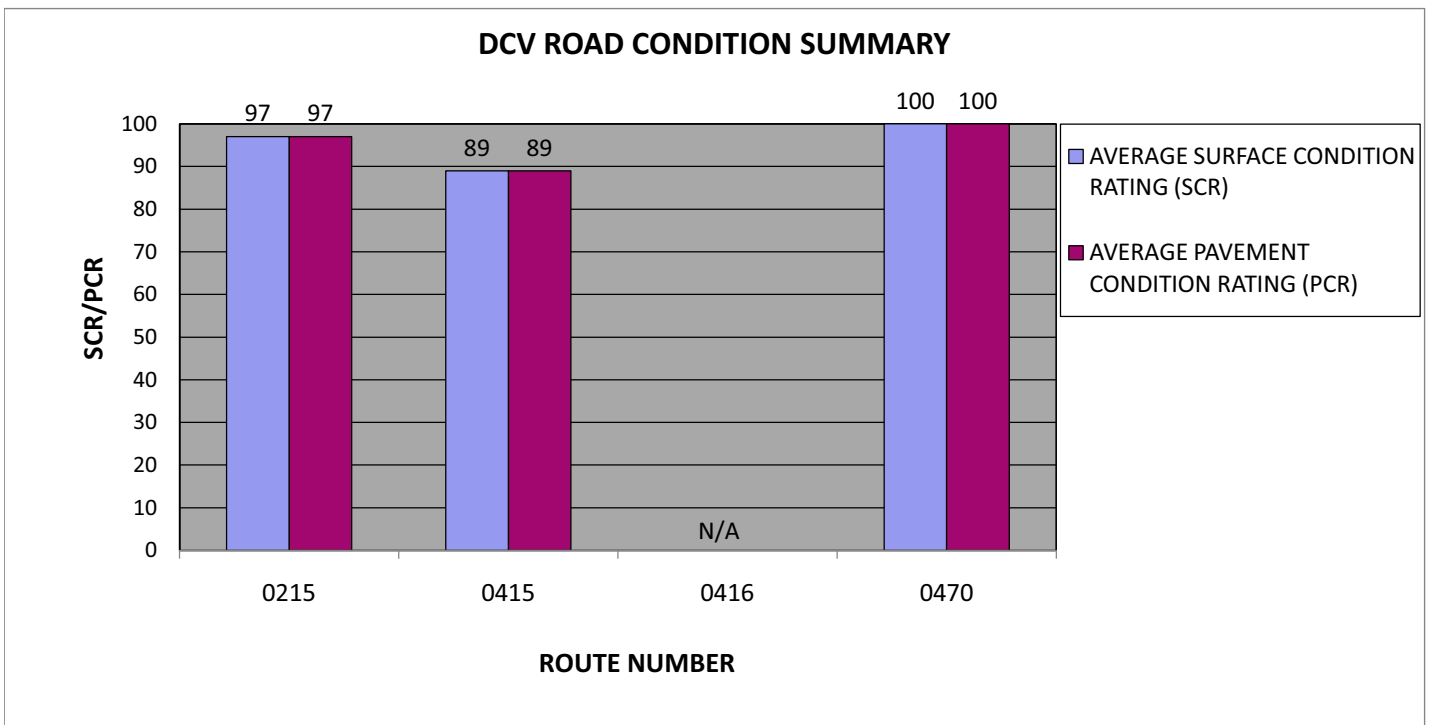


REDW: DCV ROAD CONDITION SUMMARY

DCV - Data Collection Vehicle

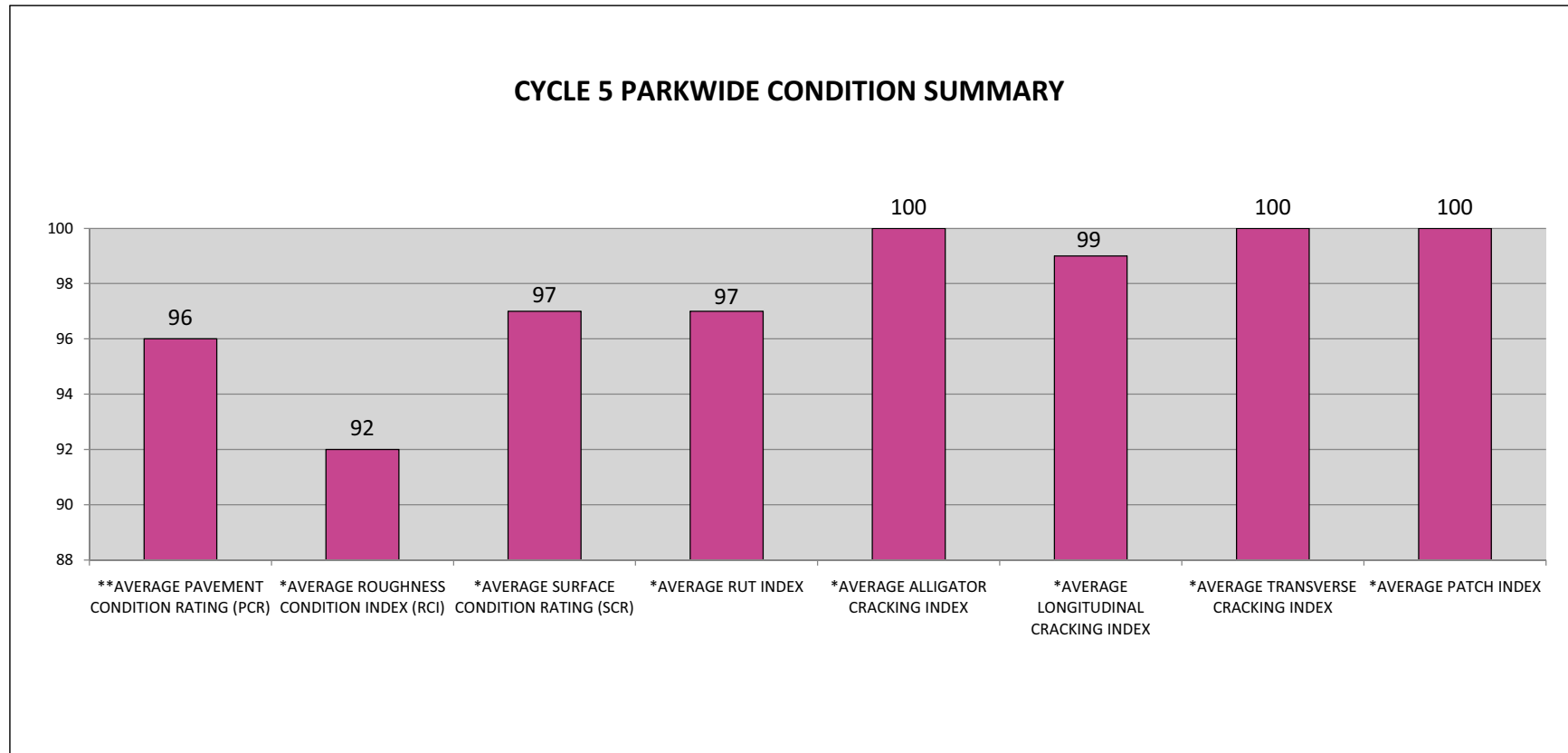
N/A - Not applicable

ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	ROUTE LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0215	THOMAS KUCHEL VISITOR CENTER ACCESS ROAD	3	0.26	ASPHALT	97	97
0415	THOMAS KUCHEL VISITOR CENTER SERVICE ROAD	5	0.07	ASPHALT	89	89
0416	OFF HIGHWAY ROAD	6	1.03	ASPHALT	N/A	N/A
0470	AUBELL LANE/ NOC MAINTENANCE ROAD	5	0.38	ASPHALT	100	100



REDW: PARKWIDE CONDITION SUMMARY

**AVERAGE PAVEMENT CONDITION RATING (PCR)	*AVERAGE ROUGHNESS CONDITION INDEX (RCI)	*AVERAGE SURFACE CONDITION RATING (SCR)	*AVERAGE RUT INDEX	*AVERAGE ALLIGATOR CRACKING INDEX	*AVERAGE LONGITUDINAL CRACKING INDEX	*AVERAGE TRANSVERSE CRACKING INDEX	*AVERAGE PATCH INDEX
96	92	97	97	100	99	100	100



Section 4

Park Route Location Maps

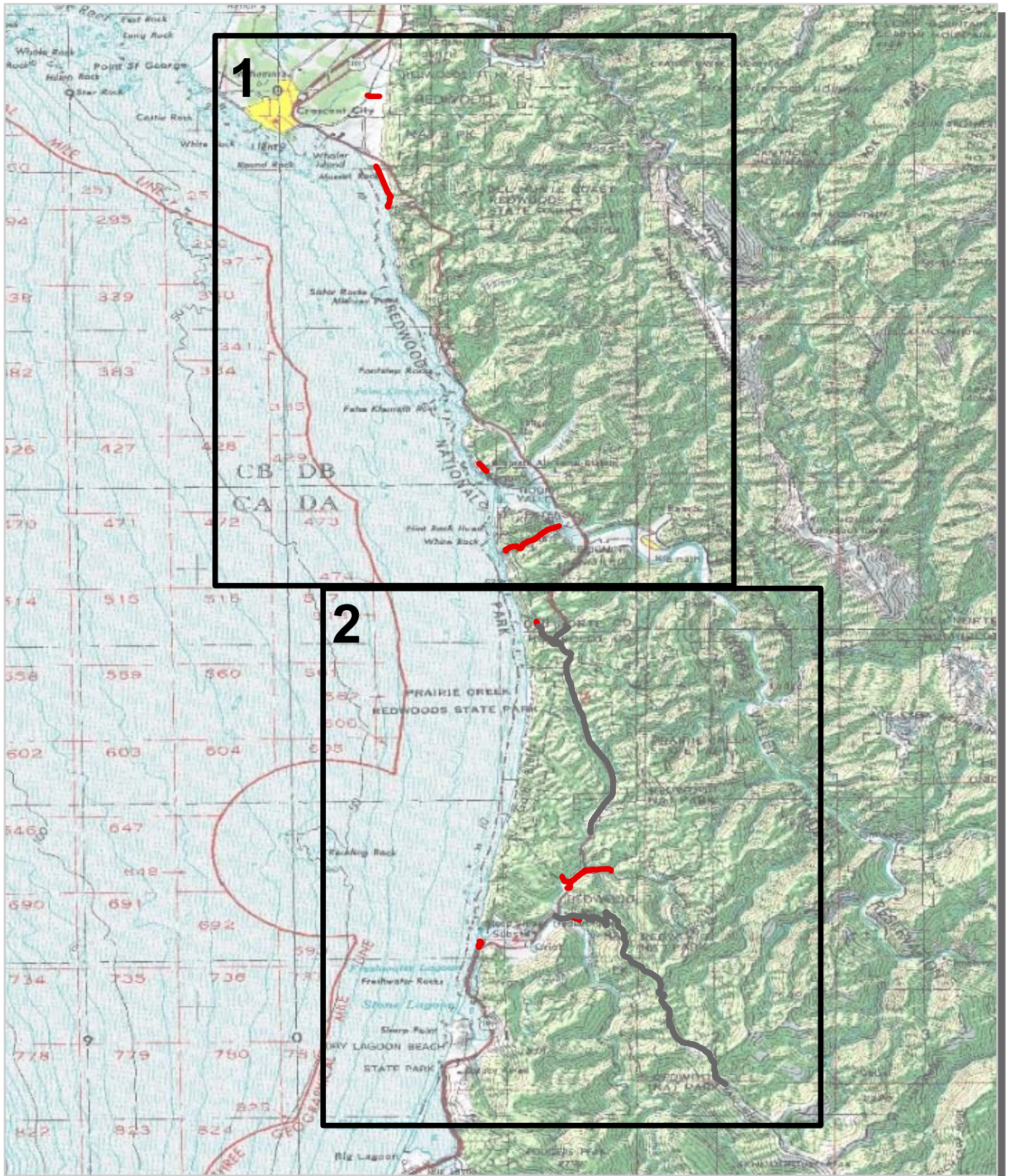


Redwood National Park

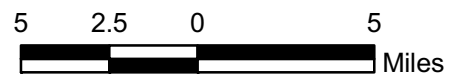


Federal Lands Highway
Road Inventory Program

Redwood National Park Route Location Map Key Map



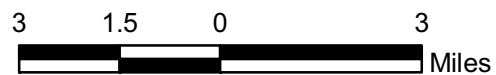
— Cycle 5 Collected Routes



Redwood National Park Route Location Map Area 1



Unique colors used to differentiate routes



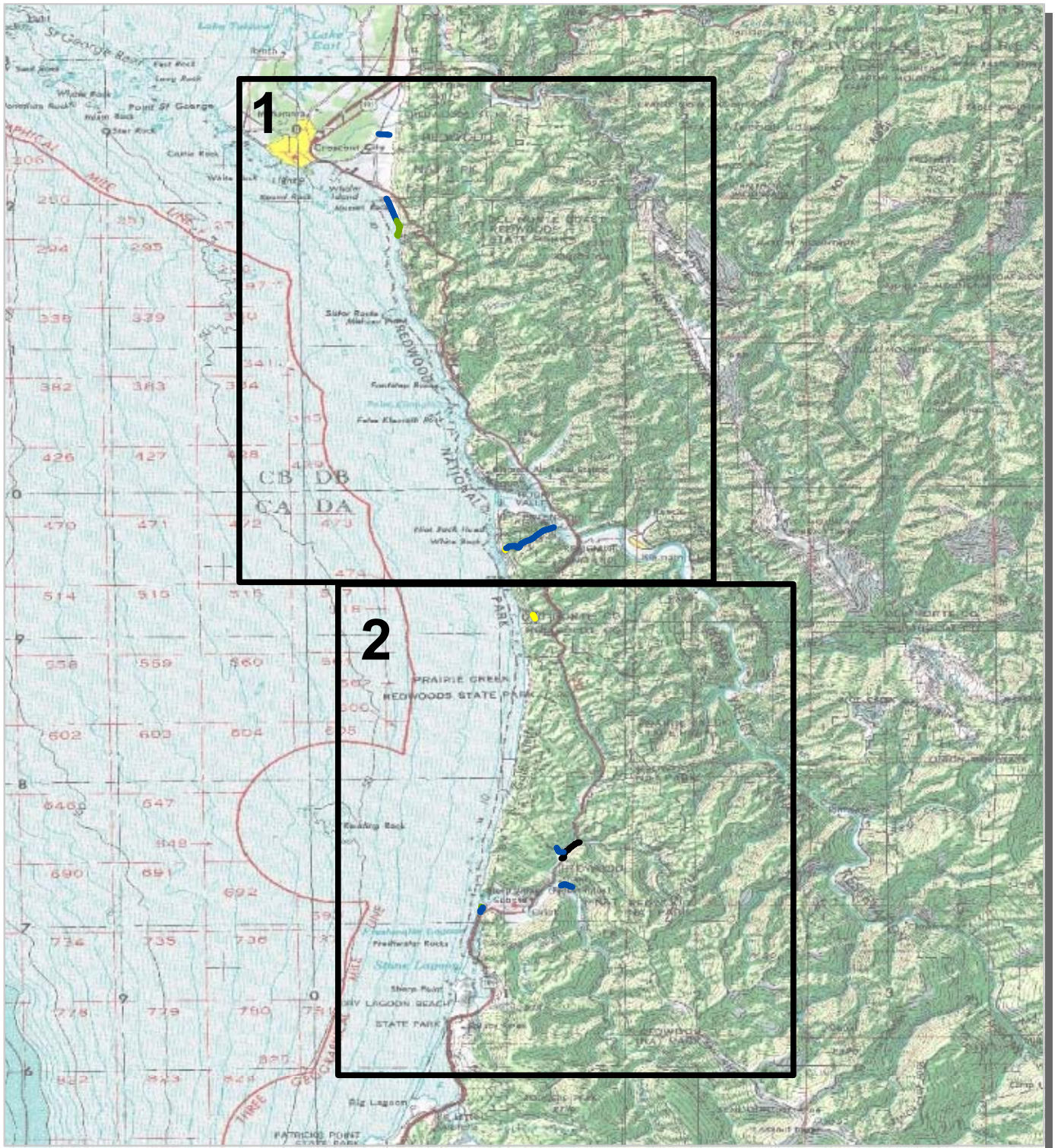
Redwood National Park Route Location Map Area 2



Unique colors used to differentiate routes



Redwood National Park Route Condition Map PCR - Mile by Mile Key Map



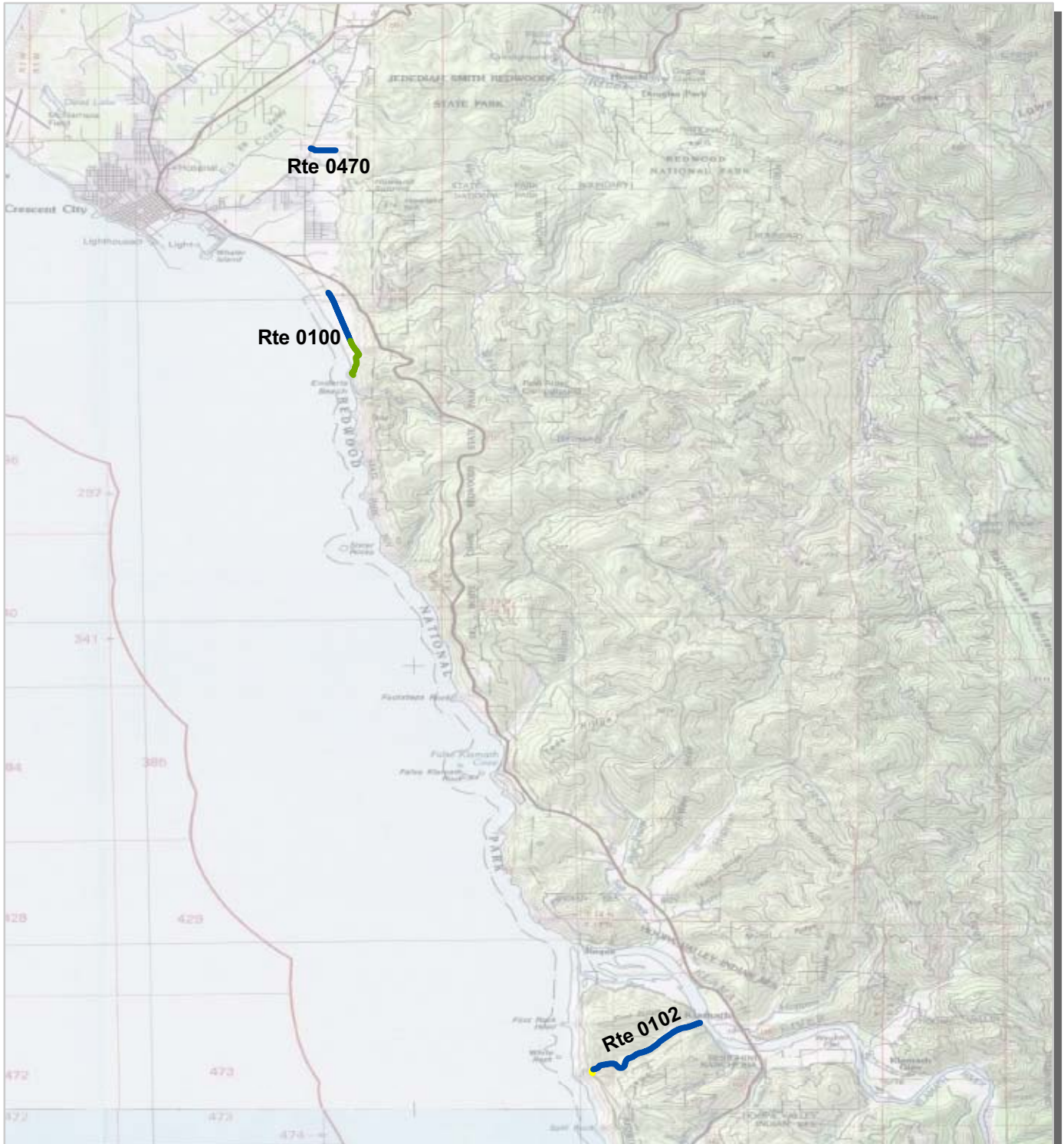
PCR	Poor		Fair		Good		Excellent		No Data	
	(0 - 60)		(61 - 84)	(85 - 94)		(95 - 100)				

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

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



Redwood National Park Route Condition Map PCR - Mile by Mile Area 1

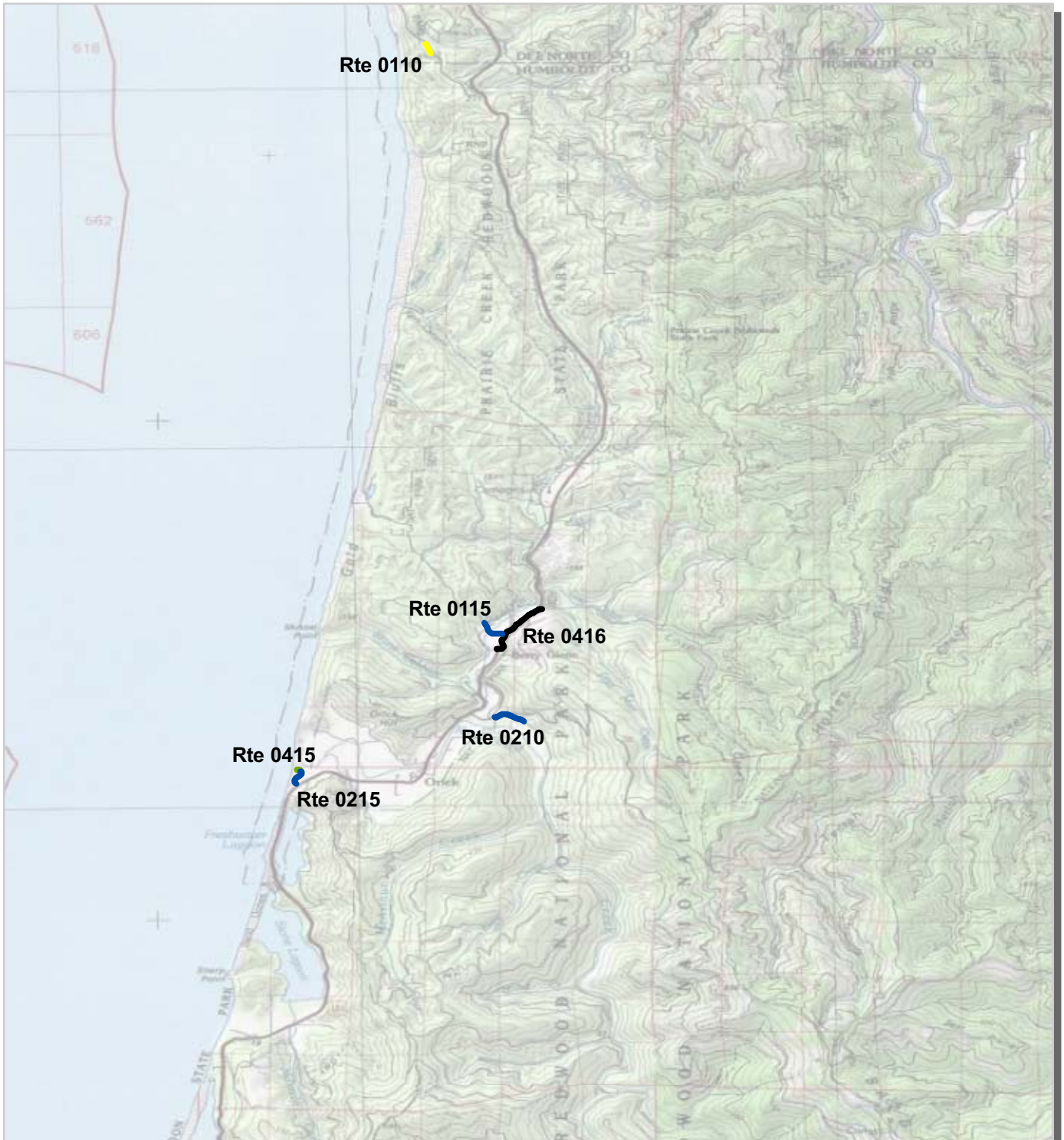


PCR	Poor		Fair		Good		Excellent		No Data	
	(0 - 60)		(61 - 84)	(85 - 94)		(95 - 100)				

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



Redwood National Park Route Condition Map PCR - Mile by Mile Area 2



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.



Section 5
Paved Route
Condition Rating Sheets



Redwood National
Park



Federal Lands Highway
Road Inventory Program



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.

ROUTE: 0100 ENDERTS BEACH ROAD
REDW : REDWOOD NATIONAL PARK

COLLECTED: 7/16/2010
TOTAL LENGTH: 1.74 Miles

PACIFIC WEST REGION

<i>Section Number</i>	0	1			
<i>Section Length (mi)</i>	1.00	0.74			
<i>Cross Section Information</i>					
Number of Lanes	2	2			
Paved Width (ft)	22	21			
Lane Width (ft)	11	10			
<i>Roadway Condition Information</i>					
SCR (Surface Condition Rating)	95	94			
PCR (Pavement Condition Rating)	95	88			
<i>Distress Index Values</i>					
Structural Crack Index	100	100			
Transverse Cracking Index	100	100			
Patching Index	100	100			
Rutting Index	95	94			
Roughness Condition Index (RCI)	96	80			

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



ROUTE: 0100 ENDERTS BEACH ROAD



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.

ROUTE: 0102 ALDER CAMP ROAD
REDW : REDWOOD NATIONAL PARK

COLLECTED: 7/16/2010
TOTAL LENGTH: 2.09 Miles

PACIFIC WEST REGION

<i>Section Number</i>	0	1	2		
<i>Section Length (mi)</i>	1.00	1.00	0.09		
<i>Cross Section Information</i>					
Number of Lanes	2	2	2		
Paved Width (ft)	24	24	24		
Lane Width (ft)	12	12	12		
<i>Roadway Condition Information</i>					
SCR (Surface Condition Rating)	100	99	99		
PCR (Pavement Condition Rating)	100	99	83		
<i>Distress Index Values</i>					
Structural Crack Index	100	100	100		
Transverse Cracking Index	100	100	100		
Patching Index	100	100	100		
Rutting Index	100	99	99		
Roughness Condition Index (RCI)	100	NC	59		

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 - Non Applicable



ROUTE: 0102 ALDER CAMP ROAD



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.

ROUTE: 0110 RED ALDER ROAD
REDW : REDWOOD NATIONAL PARK

COLLECTED: 7/16/2010
TOTAL LENGTH: 0.18 Miles

PACIFIC WEST REGION

Section Number	1.12				
Section Length (mi)	0.18				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	22				
Lane Width (ft)	12				
Roadway Condition Information					
SCR (Surface Condition Rating)	73				
PCR (Pavement Condition Rating)	73				
Distress Index Values					
Structural Crack Index	73				
Transverse Cracking Index	96				
Patching Index	100				
Rutting Index	91				
Roughness Condition Index (RCI)	NC				

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



ROUTE: 0110 RED ALDER ROAD



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.

ROUTE: 0115 DAVISON ROAD
REDW : REDWOOD NATIONAL PARK

COLLECTED: 7/16/2010
TOTAL LENGTH: 0.36 Miles

PACIFIC WEST REGION

Section Number	0				
Section Length (mi)	0.36				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	25				
Lane Width (ft)	12				
Roadway Condition Information					
SCR (Surface Condition Rating)	97				
PCR (Pavement Condition Rating)	97				
Distress Index Values					
Structural Crack Index	100				
Transverse Cracking Index	100				
Patching Index	100				
Rutting Index	97				
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 - Non Applicable



ROUTE: 0115 DAVISON ROAD



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.

ROUTE: 0210 REDWOOD CREEK TRAILHEAD ROAD
REDW : REDWOOD NATIONAL PARK

COLLECTED: 7/16/2010
TOTAL LENGTH: 0.43 Miles

PACIFIC WEST REGION

Section Number	0				
Section Length (mi)	0.43				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	21				
Lane Width (ft)	10				
Roadway Condition Information					
SCR (Surface Condition Rating)	99				
PCR (Pavement Condition Rating)	99				
Distress Index Values					
Structural Crack Index	99				
Transverse Cracking Index	100				
Patching Index	100				
Rutting Index	99				
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 - Non Applicable



ROUTE: 0210 REDWOOD CREEK TRAILHEAD ROAD



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.

ROUTE: 0215 THOMAS KUCHEL VISITOR CENTER ACCESS ROAD
REDW : REDWOOD NATIONAL PARK

COLLECTED: 7/16/2010
TOTAL LENGTH: 0.26 Miles

PACIFIC WEST REGION

Section Number	0				
Section Length (mi)	0.26				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	22				
Lane Width (ft)	10				
Roadway Condition Information					
SCR (Surface Condition Rating)	97				
PCR (Pavement Condition Rating)	97				
Distress Index Values					
Structural Crack Index	100				
Transverse Cracking Index	100				
Patching Index	100				
Rutting Index	97				
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 - Non Applicable

ROUTE: 0215 THOMAS KUCHEL VISITOR CENTER ACCESS ROAD



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.

ROUTE: 0415 THOMAS KUCHEL VISITOR CENTER SERVICE ROAD
REDW : REDWOOD NATIONAL PARK

COLLECTED: 7/16/2010
TOTAL LENGTH: 0.07 Miles

PACIFIC WEST REGION

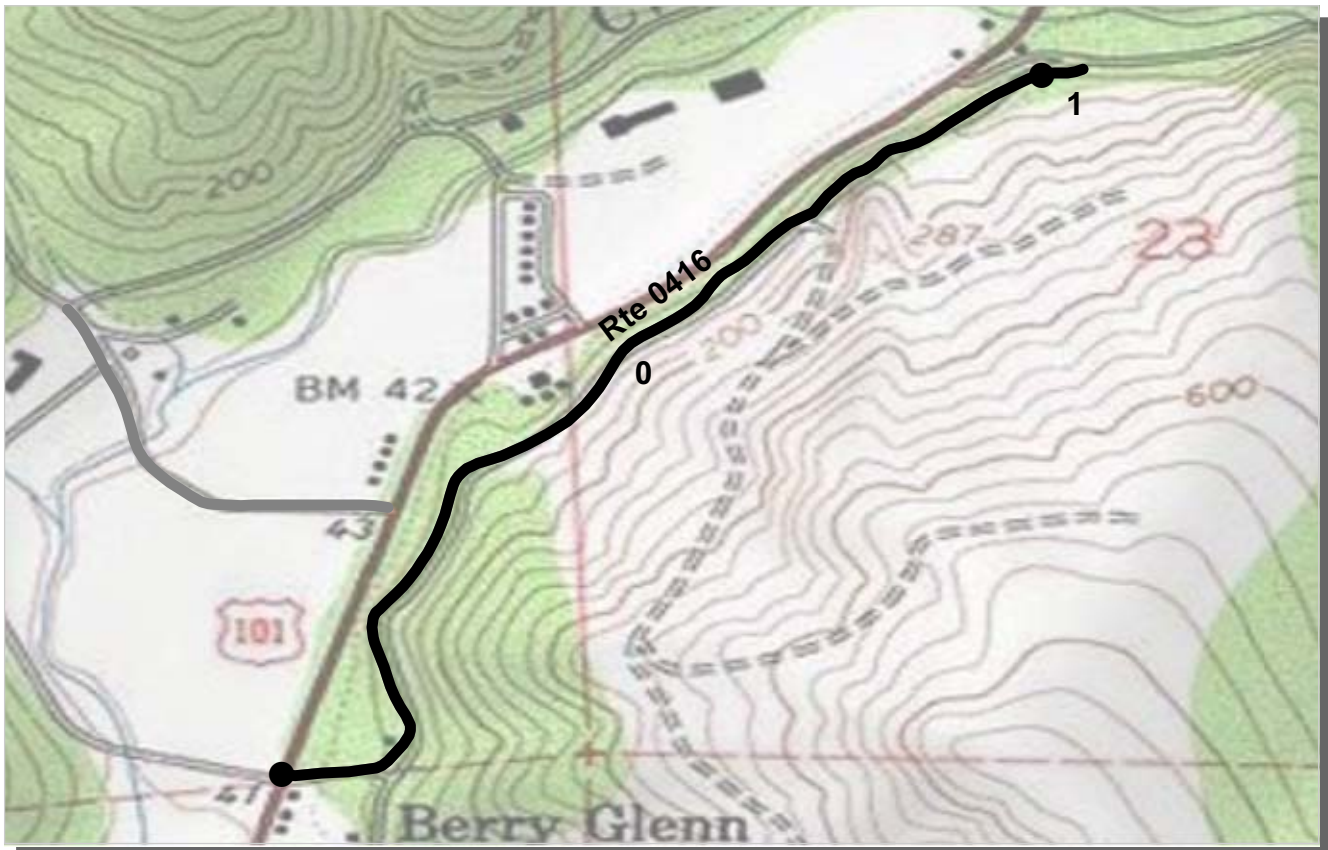
Section Number	0				
Section Length (mi)	0.07				
Cross Section Information					
Number of Lanes	1				
Paved Width (ft)	12				
Lane Width (ft)	12				
Roadway Condition Information					
SCR (Surface Condition Rating)	89				
PCR (Pavement Condition Rating)	89				
Distress Index Values					
Structural Crack Index	100				
Transverse Cracking Index	100				
Patching Index	100				
Rutting Index	89				
Roughness Condition Index (RCI)	NC				

NOTES:

Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.
 See Section 10 for explanation of SCR, PCR, & all Distress Index Values.

NC - Not Collected N/A - Non Applicable

ROUTE: 0415 THOMAS KUCHEL VISITOR CENTER SERVICE ROAD



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.

ROUTE: 0416 OFF HIGHWAY ROAD
REDW : REDWOOD NATIONAL PARK

COLLECTED: 7/16/2010
TOTAL LENGTH: 1.03 Miles

PACIFIC WEST REGION

<i>Section Number</i>	0	1			
<i>Section Length (mi)</i>	1.00	0.03			
<i>Cross Section Information</i>					
Number of Lanes	1	1			
Paved Width (ft)	7	5			
Lane Width (ft)	7	5			
<i>Roadway Condition Information</i>					
SCR (Surface Condition Rating)	NC	NC			
PCR (Pavement Condition Rating)	NC	NC			
<i>Distress Index Values</i>					
Structural Crack Index	NC	NC			
Transverse Cracking Index	NC	NC			
Patching Index	NC	NC			
Rutting Index	NC	NC			
Roughness Condition Index (RCI)	NC	NC			

NOTES:

Route 0416 was collected by the DCV, but we are unable to report surface condition data due to the presence of debris (moss and leaf coverage) that obscures the surface.

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 - Non Applicable



ROUTE: 0416 OFF HIGHWAY ROAD



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.

ROUTE: 0470 AUBELL LANE/ NOC MAINTENANCE ROAD
REDW : REDWOOD NATIONAL PARK

COLLECTED: 7/16/2010
TOTAL LENGTH: 0.38 Miles

PACIFIC WEST REGION

Section Number	0				
Section Length (mi)	0.38				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	25				
Lane Width (ft)	13				
Roadway Condition Information					
SCR (Surface Condition Rating)	100				
PCR (Pavement Condition Rating)	100				
Distress Index Values					
Structural Crack Index	100				
Transverse Cracking Index	100				
Patching Index	100				
Rutting Index	100				
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 - Non Applicable



ROUTE: 0470 AUBELL LANE/ NOC MAINTENANCE ROAD

Section 6
**Manually Rated Route
Condition Rating Sheets**



Redwood National
Park



Federal Lands Highway
Road Inventory Program

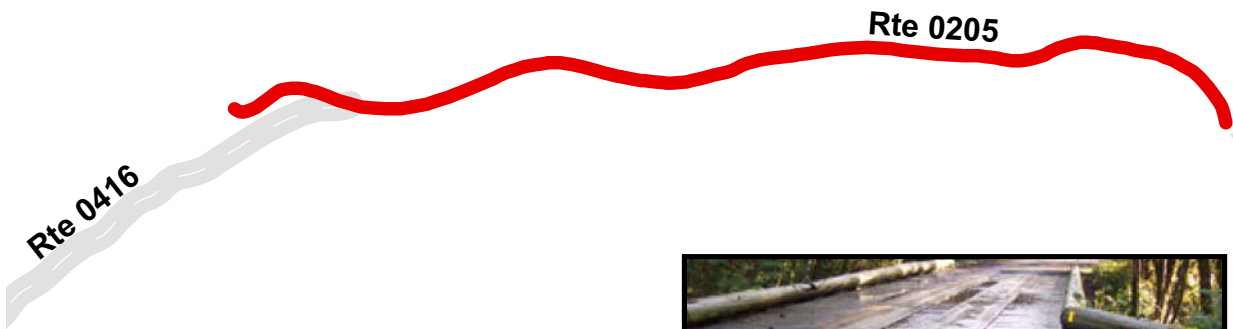
REDWOOD NATIONAL PARK

Route 0205

LOST MAN CREEK ROAD
 FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY)
 TO ROUTE 0932A (LOST MAN CREEK PARKING)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles **	MRL	
					Length (mi)	Width (ft)
0205	PUBLIC	2/4/2010	97,601	1.68	0.89	20.7
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR	Surface Type
0	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90	AS

* Lane miles are based on 11' lane widths



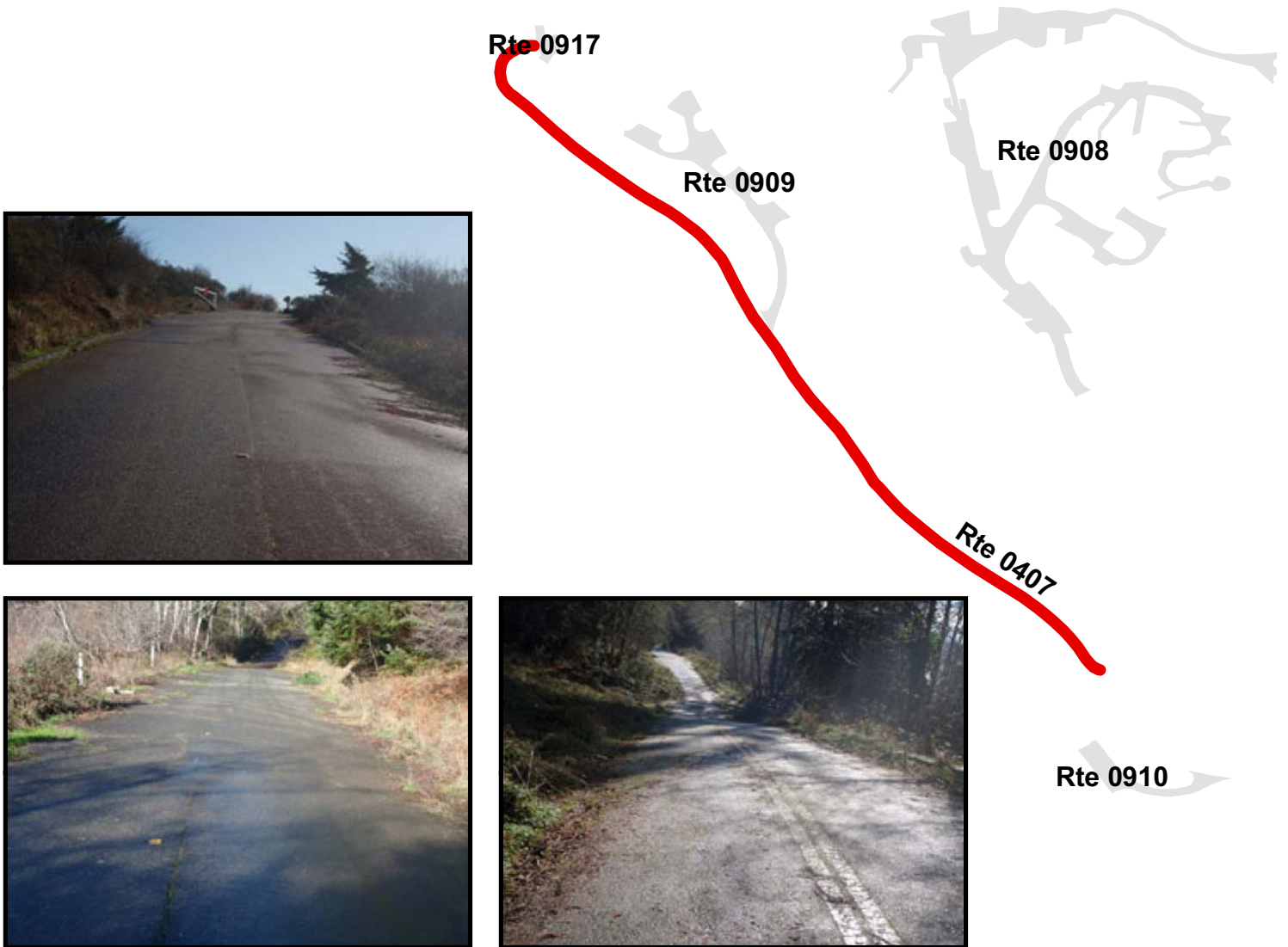
REDWOOD NATIONAL PARK

Route 0407

REQUA HOUSING/CCC COMPLEX ROAD
FROM PJ MURPHY DRIVE
TO ROUTE 0917 (REQUA HOUSING PARKING)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles **	MRL	
					Length (mi)	Width (ft)
0407	PUBLIC	1/26/2010	46,418	0.80	0.41	21.6
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR	Surface Type
0	0	1	CONCRETE CURB AND GUTTER	ASPHALT CURB	POOR/45	AS

* Lane miles are based on 11' lane widths



Section 7
Parking Area
Condition Rating Sheets



Redwood National
Park



Federal Lands Highway
Road Inventory Program

REDWOOD NATIONAL PARK

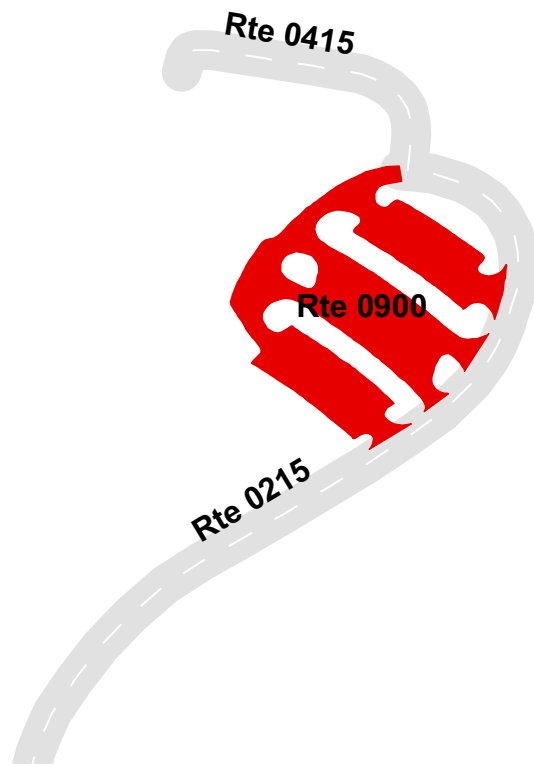
Route 0900

THOMAS KUCHEL VISITOR CENTER PARKING

FROM ROUTE 0215 (THOMAS KUCHEL VISITOR CENTER ACCESS ROAD)
TO END OF ROUTE 0215 (THOMAS KUCHEL VISITOR CENTER ACCESS ROAD)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0900	PUBLIC	1/25/2010	47,198	0.81	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	3	0	CONCRETE CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



REDWOOD NATIONAL PARK

Route 0901

REDWOOD CREEK PICNIC AREA PARKING

FROM ROUTE 0215 (THOMAS KUCHEL VISITOR CENTER ACCESS ROAD) AT MP 0.02
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0901	PUBLIC	1/25/2010	25,647	0.44	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



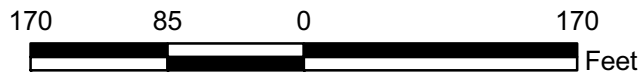
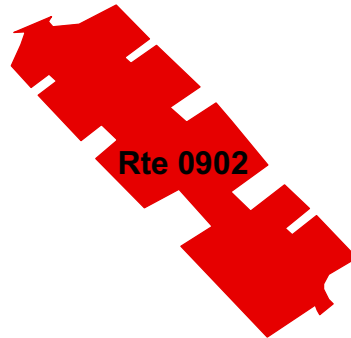
REDWOOD NATIONAL PARK

Route 0902

PARK HEADQUARTERS PARKING
FROM 3RD STREET IN CRESCENT CITY
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0902	PUBLIC	1/26/2010	11,512	0.20	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	3	0	CONCRETE CURB AND GUTTER	CONCRETE CURB	GOOD/90

* Lane miles are based on 11' lane widths



REDWOOD NATIONAL PARK

Route 0903

HIOUCHI INFORMATION CENTER PARKING
 FROM U.S. HIGHWAY 199 (REDWOOD HIGHWAY)
 TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0903	PUBLIC	1/26/2010	29,772	0.51	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	STONE CURB	GOOD/90

* Lane miles are based on 11' lane widths



REDWOOD NATIONAL PARK

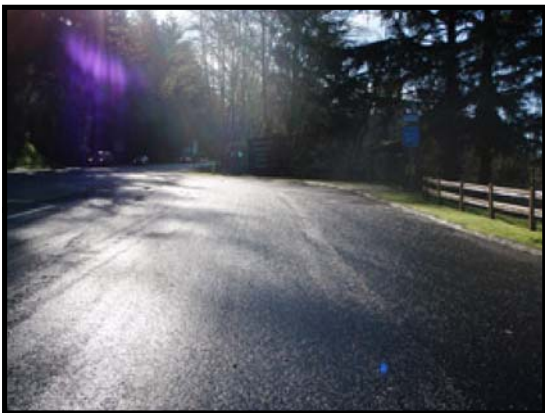
Route 0904

CRESCENT CITY VISTA PARKING

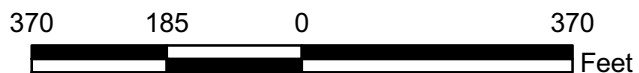
ADJACENT TO U.S. HIGHWAY 101 (REDWOOD HIGHWAY)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0904	PUBLIC	1/26/2010	19,141	0.33	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	ASPHALT CURB	GOOD/90

* Lane miles are based on 11' lane widths



Rte 0904



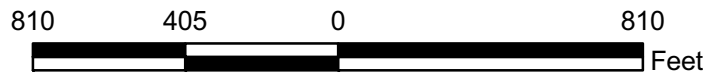
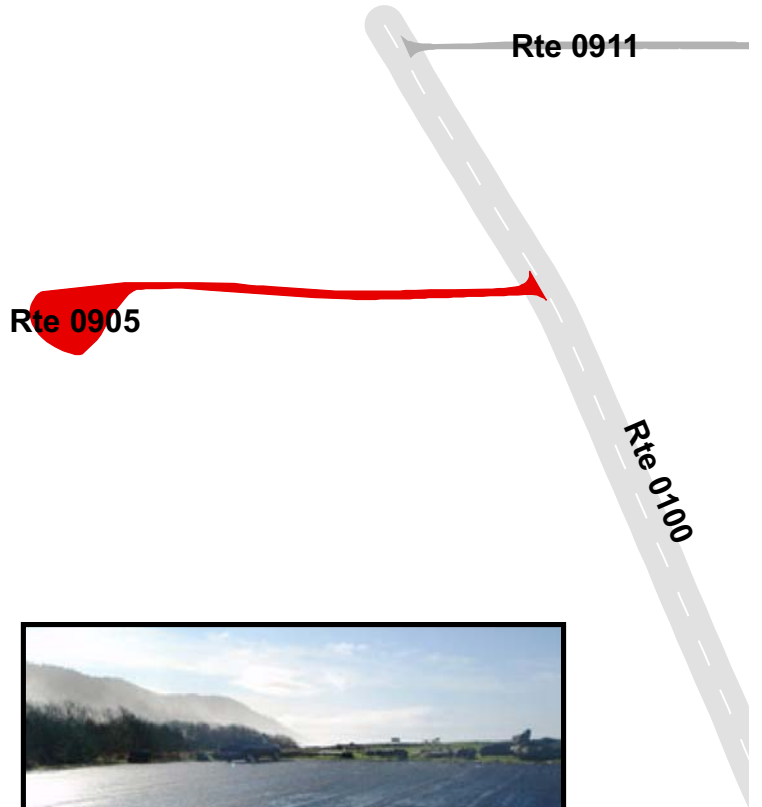
REDWOOD NATIONAL PARK

Route 0905

CRESCENT BEACH PICNIC AREA PARKING
 FROM ROUTE 0100 (ENDERTS BEACH ROAD) AT MP 0.17
 TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0905	PUBLIC	1/26/2010	41,071	0.71	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
2	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



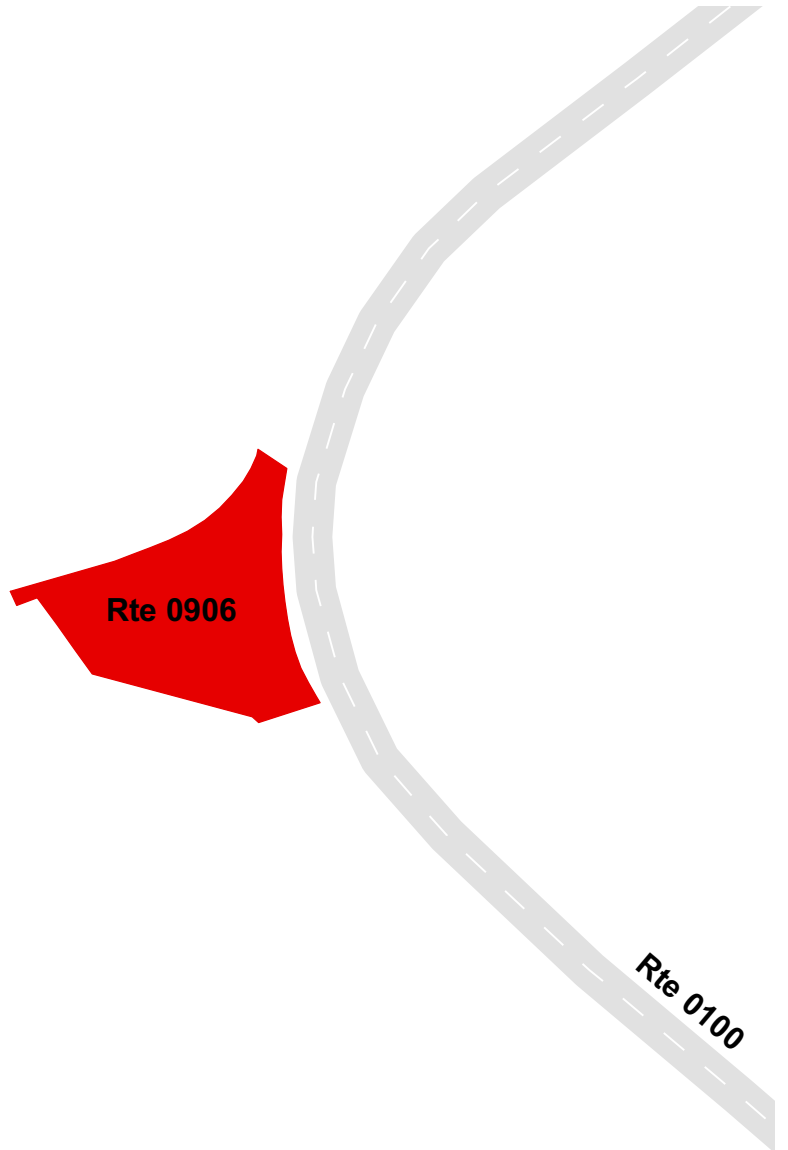
REDWOOD NATIONAL PARK

Route 0906

CRESCENT BEACH OVERLOOK PARKING
 ADJACENT TO ROUTE 0100 (ENDERTS BEACH ROAD) AT MP 1.74

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0906	PUBLIC	1/26/2010	2,796	0.05	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



REDWOOD NATIONAL PARK

Route 0907

LAGOON CREEK DAY USE/ PICNIC PARKING
FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY)
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0907	PUBLIC	1/26/2010	36,884	0.64	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	5	0	NO CURB AND GUTTER	ASPHALT CURB	GOOD/90

* Lane miles are based on 11' lane widths



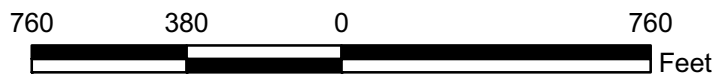
REDWOOD NATIONAL PARK

Route 0908

REQUA MAINTENANCE FACILITY AREA PARKING
FROM PJ MURPHY DRIVE
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0908	NONPUBLIC	1/26/2010	138,563	2.39	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
4	0	2	NO CURB AND GUTTER	ASPHALT CURB	POOR/45

* Lane miles are based on 11' lane widths



REDWOOD NATIONAL PARK

Route 0909

CCC COMPLEX PARKING

FROM ROUTE 0407 (REQUA HOUSING/CCC COMPLEX ROAD) AT MP 0.22
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0909	NONPUBLIC	1/26/2010	27,972	0.48	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	3	0	CONCRETE CURB AND GUTTER	CONCRETE CURB	POOR/45

* Lane miles are based on 11' lane widths

Rte 0917



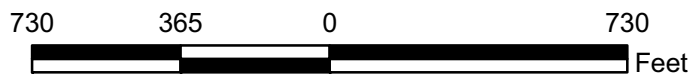
Rte 0909



Rte 0908



Rte 0910



REDWOOD NATIONAL PARK

Route 0910

KLAMATH OVERLOOK PARKING

FROM PJ MURPHY DRIVE

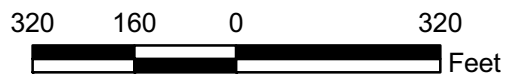
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0910	PUBLIC	1/26/2010	11,091	0.19	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	1	0	CONCRETE CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



Rte 0910



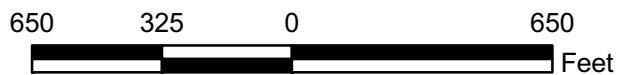
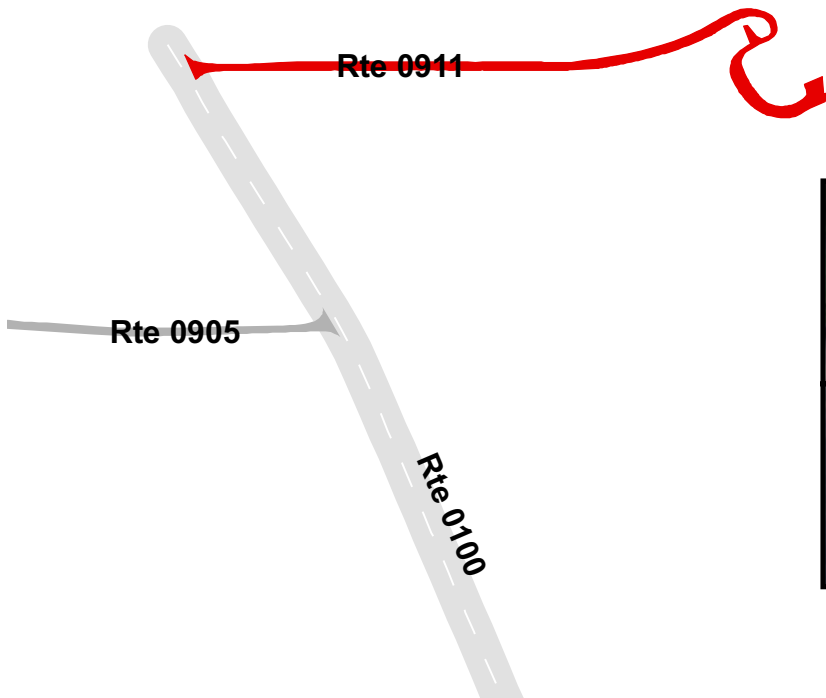
REDWOOD NATIONAL PARK

Route 0911

CRESCENT BEACH ENVIRONMENTAL EDUCATION CENTER PARKING
 FROM ROUTE 0100 (ENDERTS BEACH ROAD) AT MP 0.04
 TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0911	PUBLIC	1/26/2010	32,378	0.56	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	1	NO CURB AND GUTTER	CONCRETE CURB	FAIR/73

* Lane miles are based on 11' lane widths



REDWOOD NATIONAL PARK

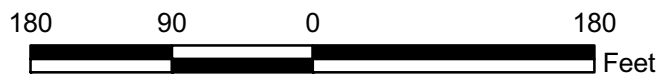
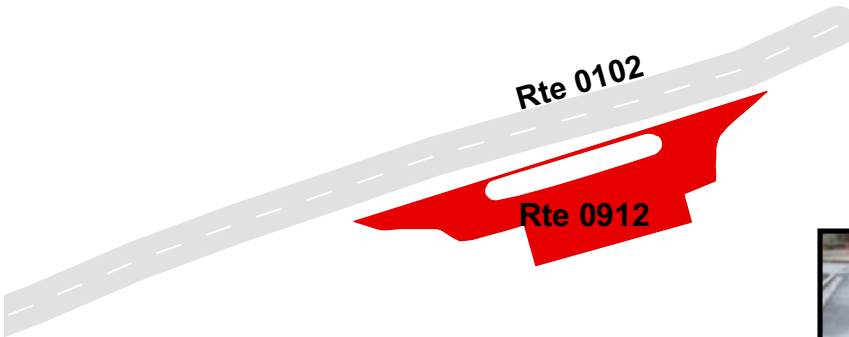
Route 0912

DOUGLAS BRIDGE PARKING

ADJACENT TO ROUTE 0102 (ALDER CAMP ROAD) AT MP 0.01 ON LEFT

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0912	PUBLIC	1/26/2010	5,993	0.10	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	CONCRETE CURB AND GUTTER	ASPHALT CURB	GOOD/90

* Lane miles are based on 11' lane widths



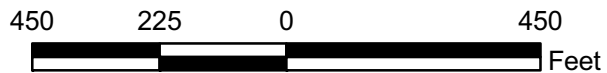
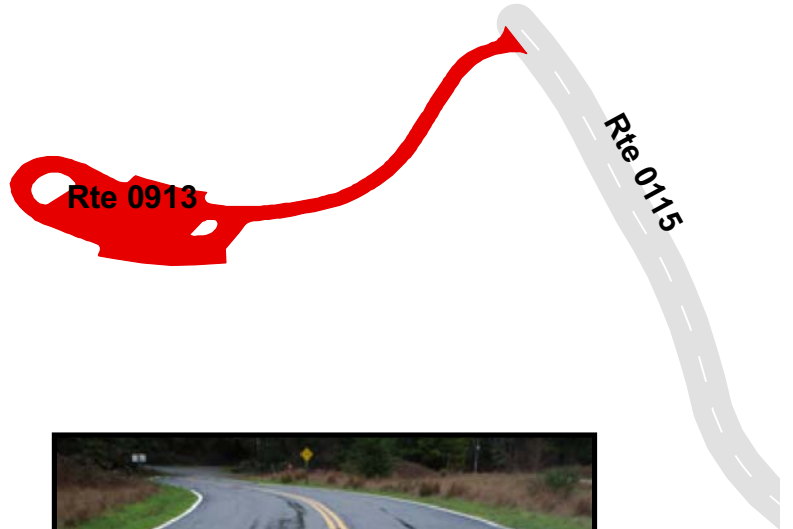
REDWOOD NATIONAL PARK

Route 0913

ELK MEADOW DAY USE AREA PARKING
FROM ROUTE 0115 (DAVISON ROAD) AT MP 0.36
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0913	PUBLIC	1/26/2010	45,328	0.78	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	1	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



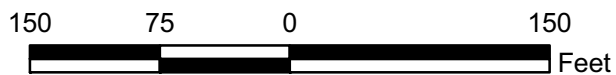
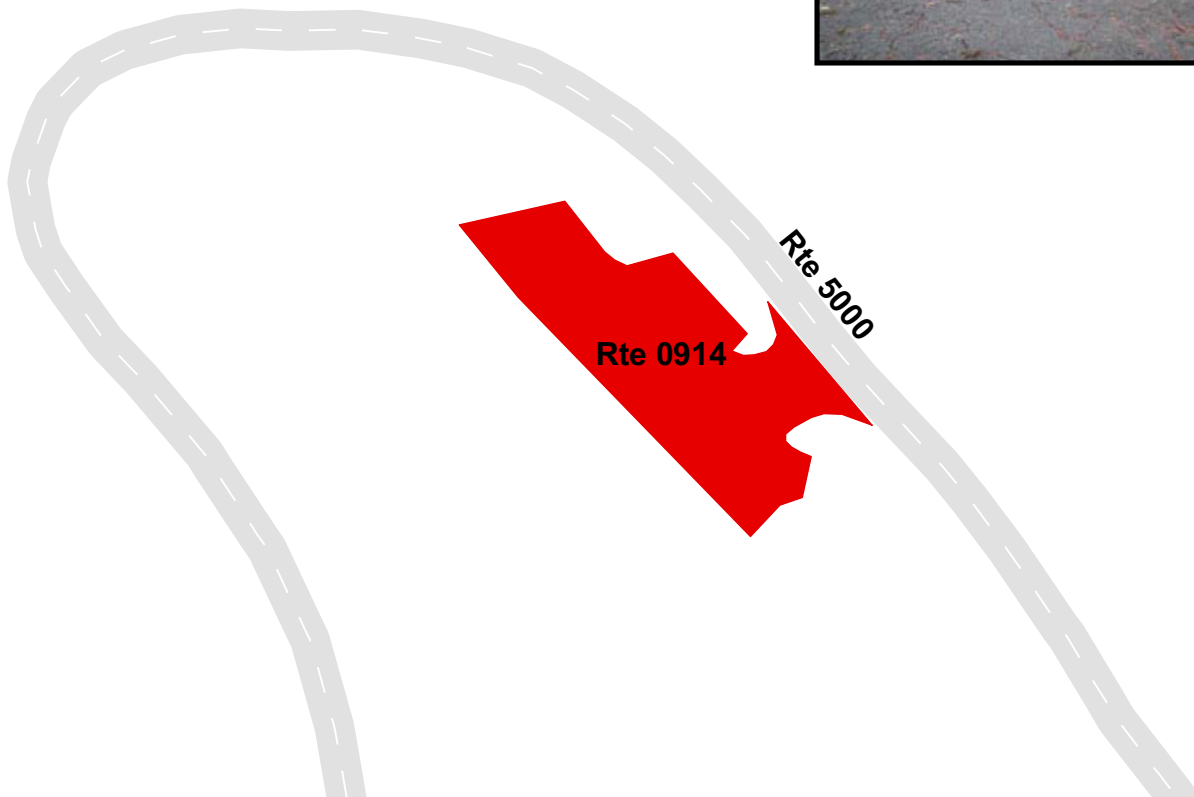
REDWOOD NATIONAL PARK

Route 0914

LADY BIRD JOHNSON GROVE PARKING
 FROM ROUTE 5000 (BALD HILLS ROAD)
 TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0914	PUBLIC	1/26/2010	14,205	0.25	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	ASPHALT CURB	GOOD/90

* Lane miles are based on 11' lane widths



REDWOOD NATIONAL PARK

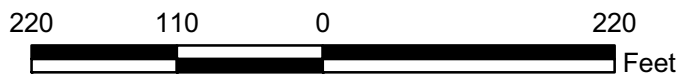
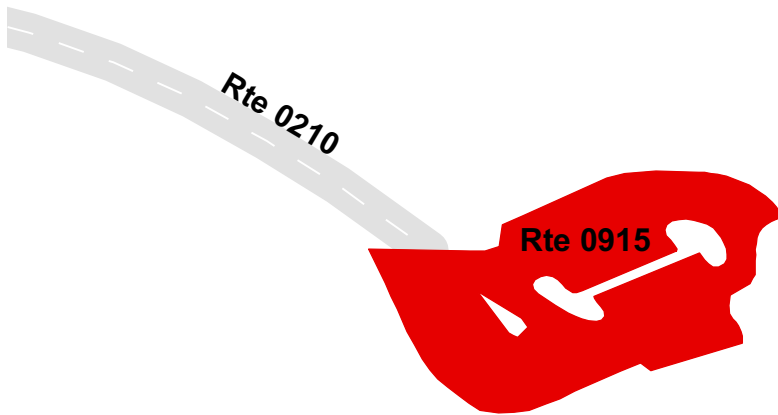
Route 0915

REDWOOD CREEK TRAILHEAD PARKING

FROM END OF ROUTE 0210 (REDWOOD CREEK TRAILHEAD ROAD) AT MP 0.43
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0915	PUBLIC	1/26/2010	24,367	0.42	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
1	2	0	CONCRETE CURB AND GUTTER	ASPHALT CURB	GOOD/90

* Lane miles are based on 11' lane widths



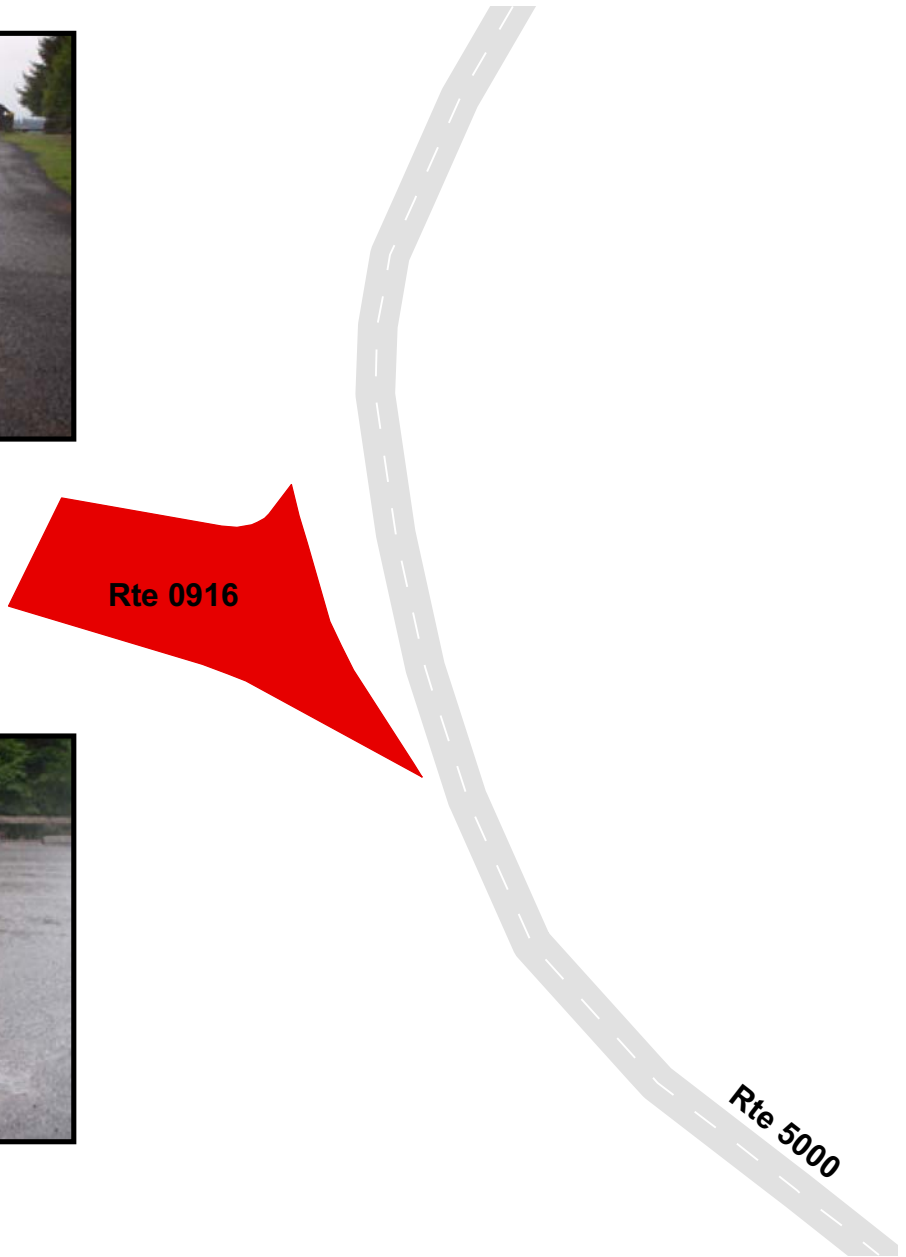
REDWOOD NATIONAL PARK

Route 0916

REDWOOD CREEK OVERLOOK PARKING
ADJACENT TO ROUTE 5000 (BALD HILLS ROAD)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0916	PUBLIC	1/26/2010	4,067	0.07	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



REDWOOD NATIONAL PARK

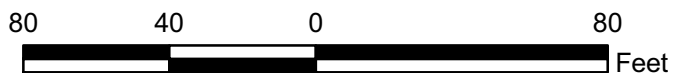
Route 0917

REQUA HOUSING PARKING

FROM END OF ROUTE 0407 (REQUA HOUSING/CCC COMPLEX ROAD) AT MP 0.40
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0917	NONPUBLIC	1/26/2010	3,348	0.06	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	CONCRETE CURB AND GUTTER	NO CURB	FAIR/73

* Lane miles are based on 11' lane widths



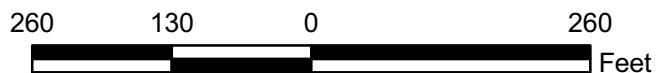
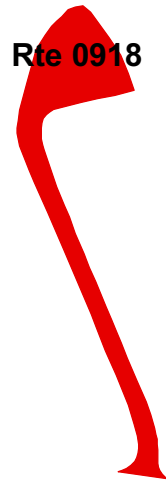
REDWOOD NATIONAL PARK

Route 0918

HIOUCHI TRAILER PARKING
 FROM U.S. HIGHWAY 199 (REDWOOD HIGHWAY)
 TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0918	NONPUBLIC	1/26/2010	9,627	0.17	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
1	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



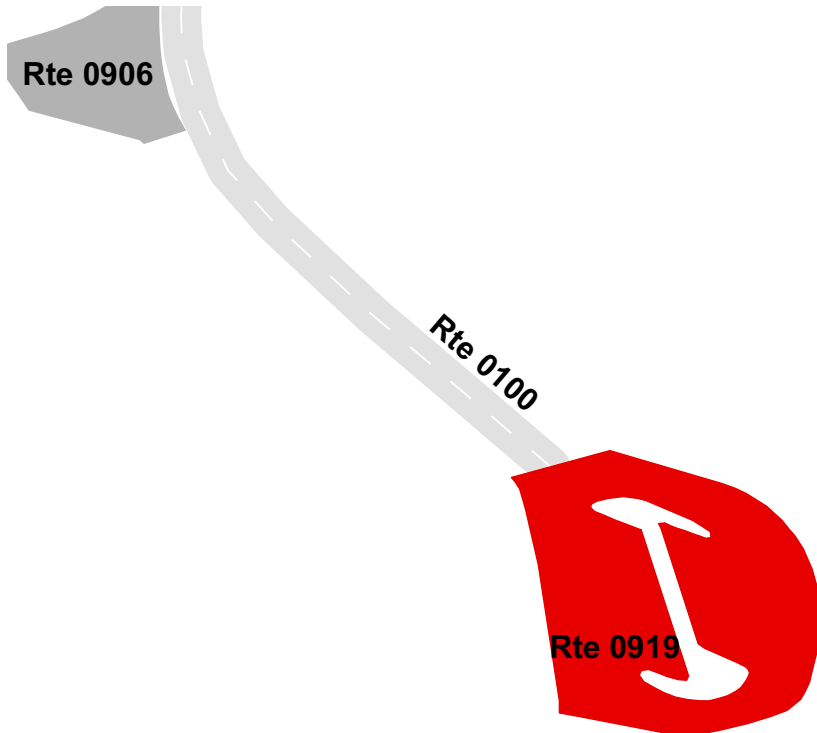
REDWOOD NATIONAL PARK

Route 0919

NICKEL CREEK CAMPGROUND ACCESS PARKING
 FROM END OF ROUTE 0100 (ENDERTS BEACH ROAD) AT MP 1.77
 TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0919	PUBLIC	1/26/2010	8,643	0.15	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	1	NO CURB AND GUTTER	STONE CURB	GOOD/90

* Lane miles are based on 11' lane widths



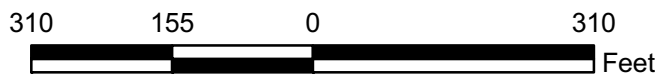
REDWOOD NATIONAL PARK

Route 0920

FALSE KLAMATH COVE PARKING
 FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY)
 TO U.S. HIGHWAY 101 (REDWOOD HIGHWAY)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0920	PUBLIC	1/26/2010	9,608	0.17	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	ASPHALT CURB	GOOD/90

* Lane miles are based on 11' lane widths



REDWOOD NATIONAL PARK

Route 0921ZZ

DAVISON ROAD ELK VIEWING PARKING AREAS

ADJACENT TO ROUTE 0115 (DAVISON ROAD) AT MP 0.11 ON LEFT AND RIGHT

Summary Record

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0921ZZ	PUBLIC	1/25/2010	6,943	0.12	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	NO CURB	SUMMARY/90

* Lane miles are based on 11' lane widths



REDWOOD NATIONAL PARK

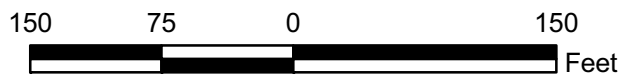
Route 0921AZ

DAVISON ROAD ELK VIEWING PARKING A
 ADJACENT TO ROUTE 0115 (DAVISON ROAD) AT MP 0.11 ON RIGHT

Subcomponent Record

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0921AZ	PUBLIC	1/25/2010	3,075	0.05	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



REDWOOD NATIONAL PARK

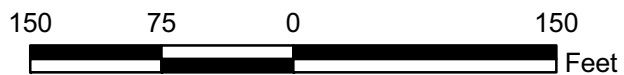
Route 0921BZ

DAVISON ROAD ELK VIEWING PARKING B
 ADJACENT TO ROUTE 0115 (DAVISON ROAD) AT MP 0.11 ON LEFT

Subcomponent Record

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0921BZ	PUBLIC	1/25/2010	3,868	0.07	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



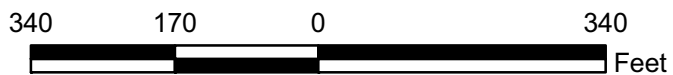
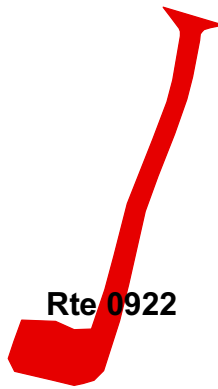
REDWOOD NATIONAL PARK

Route 0922

HIOUCHI DORM PARKING
 FROM U.S. HIGHWAY 199 (REDWOOD HIGHWAY)
 TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0922	NONPUBLIC	1/26/2010	12,439	0.21	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



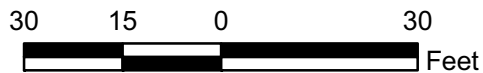
REDWOOD NATIONAL PARK

Route 0932B

LOST MAN CREEK HANDICAPPED PARKING
FROM ROUTE 0205 (LOST MAN CREEK ROAD)
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0932B	PUBLIC	1/25/2010	982	0.02	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



REDWOOD NATIONAL PARK

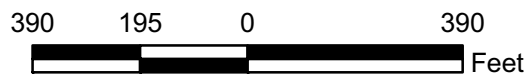
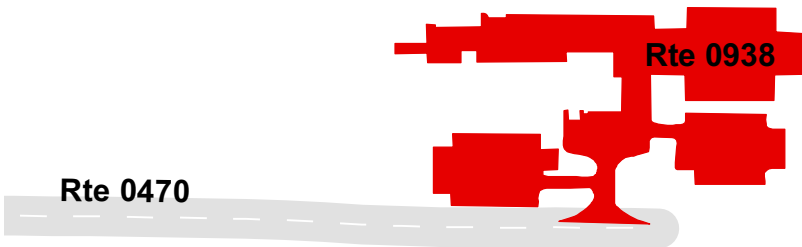
Route 0938

NOC PARKING

FROM ROUTE 0470 (AUBELL LANE/ NOC MAINTENANCE ROAD) ON LEFT
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0938	PUBLIC	1/26/2010	105,888	1.82	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
1	5	1	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



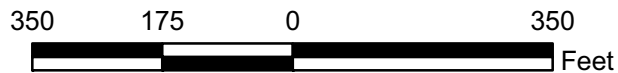
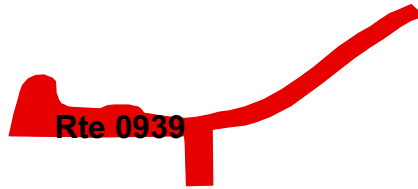
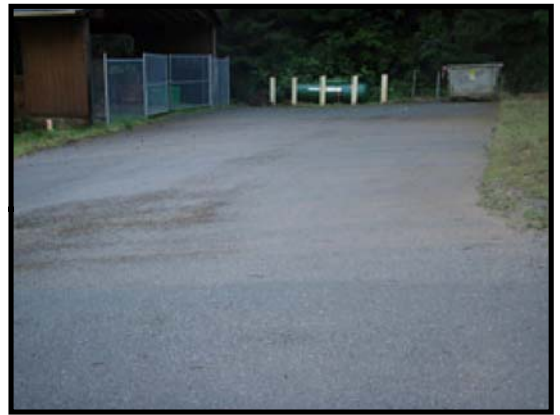
REDWOOD NATIONAL PARK

Route 0939

WOLF CREEK HOUSING COMPLEX
FROM ROUTE 0121 (WOLF CREEK ROAD)
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0939	NONPUBLIC	1/26/2010	15,910	0.27	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
1	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



Section 8
Parkwide/Route
Maintenance Features Summaries



Redwood National
Park



Federal Lands Highway
Road Inventory Program

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

FEATURE	LINEAR FEET	COUNT
BARRIER	1,226	--
BOLLARD	0	--
BRIDGE	--	3
CABLE	0	--
CATTLE GUARD	--	0
CULVERT	--	62
CURB	8,288	--
DROP INLET	--	26
GATE	--	9
GUARD/GUIDE RAIL	1,226	--
GUARD/GUIDE WALL	0	--
INTERSECTION	--	57
LOW WATER CROSSING	106	1
MILE MARKER	--	0
OVERPASS	--	0
OVERHEAD SIGN	--	0
PARK BOUNDARY	--	1
PAVED DITCH	365	--
PULLOUT	137	2
RAILROAD CROSSING	--	0
RETAINING WALL	132	1
SIGN	--	73
STATE BOUNDARY	--	0
TEMPORARY BARRIER	0	--
TRAFFIC LIGHT	--	0
TUNNEL	0	0

REDW: DCV ROUTE MAINTENANCE FEATURES SUMMARY

FEATURE	ROUTE 0100 ENDERTS BEACH ROAD	ROUTE 0102 ALDER CAMP ROAD	ROUTE 0110 RED ALDER ROAD	ROUTE 0115 DAVISON ROAD	ROUTE 0210 REDWOOD CREEK TRAILHEAD ROAD	ROUTE 0215 THOMAS KUCHEL VISITOR CENTER ACCESS ROAD	UNIT
BARRIER	174	32	0	645	0	0	LINEAR FEET
BOLLARD	0	0	0	0	0	0	LINEAR FEET
BRIDGE	0	0	0	1	0	0	EACH
CABLE	0	0	0	0	0	0	LINEAR FEET
CATTLE GUARD	0	0	0	0	0	0	EACH
CULVERT	11	20	0	0	6	0	EACH
CURB	0	4,608	0	0	971	0	LINEAR FEET
DROP INLET	0	3	0	0	0	0	EACH
GATE	0	0	0	0	0	1	EACH
GUARD/GUIDE RAIL	174	32	0	645	0	0	LINEAR FEET
GUARD/GUIDE WALL	0	0	0	0	0	0	LINEAR FEET
INTERSECTION	6	8	2	8	3	9	EACH
LOW WATER CROSSING	0	0	0	1	0	0	EACH
LOW WATER CROSSING	0	0	0	106	0	0	LINEAR FEET
MILE MARKER	0	0	0	0	0	0	EACH
OVERHEAD SIGN	0	0	0	0	0	0	EACH
OVERPASS	0	0	0	0	0	0	EACH
PARK BOUNDARY	1	0	0	0	0	0	EACH
PAVED DITCH	0	53	0	0	0	0	LINEAR FEET
PULLOUT	1	0	0	1	0	0	EACH
PULLOUT	84	0	0	53	0	0	LINEAR FEET
RAILROAD CROSSING	0	0	0	0	0	0	EACH
RETAINING WALL	1	0	0	0	0	0	EACH
RETAINING WALL	132	0	0	0	0	0	LINEAR FEET
SIGN	20	16	3	9	2	3	EACH
STATE BOUNDARY	0	0	0	0	0	0	EACH
TEMPORARY BARRIER	0	0	0	0	0	0	LINEAR FEET
TRAFFIC LIGHT	0	0	0	0	0	0	EACH
TUNNEL	0	0	0	0	0	0	EACH
TUNNEL	0	0	0	0	0	0	LINEAR FEET

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

REDW: DCV ROUTE MAINTENANCE FEATURES SUMMARY

FEATURE	ROUTE 0415 THOMAS KUCHEL VISITOR CENTER SERVICE ROAD	ROUTE 0416 OFF HIGHWAY ROAD	ROUTE 0470 AUBELL LANE/ NOC MAINTENANCE ROAD	UNIT
BARRIER	0	0	0	LINEAR FEET
BOLLARD	0	0	0	LINEAR FEET
BRIDGE	0	0	0	EACH
CABLE	0	0	0	LINEAR FEET
CATTLE GUARD	0	0	0	EACH
CULVERT	0	13	2	EACH
CURB	0	0	0	LINEAR FEET
DROP INLET	0	0	0	EACH
GATE	0	2	0	EACH
GUARD/GUIDE RAIL	0	0	0	LINEAR FEET
GUARD/GUIDE WALL	0	0	0	LINEAR FEET
INTERSECTION	4	4	4	EACH
LOW WATER CROSSING	0	0	0	EACH
LOW WATER CROSSING	0	0	0	LINEAR FEET
MILE MARKER	0	0	0	EACH
OVERHEAD SIGN	0	0	0	EACH
OVERPASS	0	0	0	EACH
PARK BOUNDARY	0	0	0	EACH
PAVED DITCH	0	0	312	LINEAR FEET
PULLOUT	0	0	0	EACH
PULLOUT	0	0	0	LINEAR FEET
RAILROAD CROSSING	0	0	0	EACH
RETAINING WALL	0	0	0	EACH
RETAINING WALL	0	0	0	LINEAR FEET
SIGN	1	2	5	EACH
STATE BOUNDARY	0	0	0	EACH
TEMPORARY BARRIER	0	0	0	LINEAR FEET
TRAFFIC LIGHT	0	0	0	EACH
TUNNEL	0	0	0	EACH
TUNNEL	0	0	0	LINEAR FEET

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

REDW: STRUCTURE LIST

ROUTE NUMBER	FUNCTIONAL CLASS	MILEPOST START	MILEPOST END	FEATURE	STRUCTURE NUMBER
0115	2	0.204	0.224	BRIDGE	8480-017

Section 9
Route Maintenance Features
Road Logs



Redwood National
Park



Federal Lands Highway
Road Inventory Program

REDW: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0100: ENDERTS BEACH ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes; those totals are reflected below.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM PARK BOUNDARY ON ENDERT BEACH ROAD / NON NPS
0.000	0.000	INTERSECTION	N/A	PAVED ROUTE (ENDERT BEACH ROAD / NON NPS)
0.000	0.000	PARK BOUNDARY	N/A	N/A
0.000	0.000	INTERSECTION	LEFT	ROUTE 0911 (CRESCENT BEACH ENVIRONMENTAL EDUCATION CENTER PARKING)
0.018	0.018	CULVERT	N/A	N/A
0.046	0.046	SIGN	RIGHT	WARNING, SOFT SHOULDER
0.068	0.068	SIGN	RIGHT	REGULATORY, ENFORCED BY RADAR
0.068	0.068	SIGN	RIGHT	REGULATORY, SPEED LIMIT 45
0.101	0.101	SIGN	RIGHT	GUIDE, CRESCENT OVERLOOK ENDERTS BEACH CRESCENT BEACH PICNIC AREA
0.143	0.143	INTERSECTION	RIGHT	ROUTE 0905 (CRESCENT BEACH PICNIC AREA PARKING)
0.146	0.146	CULVERT	N/A	N/A
0.174	0.174	SIGN	RIGHT	WARNING, ELK CROSSING NEXT 2 MILES
0.238	0.238	CULVERT	N/A	N/A
0.333	0.333	CULVERT	N/A	N/A
0.462	0.462	CULVERT	N/A	N/A
0.548	0.548	CULVERT	N/A	N/A
0.617	0.617	CULVERT	N/A	N/A
0.721	0.721	CULVERT	N/A	N/A
0.780	0.780	INTERSECTION	RIGHT	UNPAVED ROUTE (GATED)
0.844	0.844	CULVERT	N/A	N/A
0.875	0.891	PULLOUT	RIGHT	N/A
1.036	1.036	CULVERT	N/A	N/A
1.198	1.198	SIGN	LEFT	REGULATORY, SPEED LIMIT 45
1.210	1.210	SIGN	LEFT	WARNING, ELK CROSSING NEXT 2 MILES
1.239	1.239	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
1.239	1.239	SIGN	RIGHT	WARNING, 10 MPH
1.289	1.289	CULVERT	N/A	N/A
1.290	1.290	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
1.294	1.294	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT

REDW: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0100: ENDERTS BEACH ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes; those totals are reflected below.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
1.298	1.298	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
1.301	1.301	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
1.304	1.304	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
1.308	1.308	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
1.369	1.369	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
1.374	1.374	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
1.395	1.395	SIGN	RIGHT	REGULATORY, SPEED LIMIT 20
1.675	1.700	RETAINING WALL	RIGHT	N/A
1.677	1.677	SIGN	RIGHT	GUIDE, CRESCENT BEACH OVERLOOK NO OVERNIGHT CAMPING
1.691	1.691	SIGN	RIGHT	GUIDE, CAUTION LOCK YOUR CAR KEEP VALUABLES WITH YOU
1.702	1.702	INTERSECTION	RIGHT	ROUTE 0906 (CRESCENT BEACH OVERLOOK PARKING)
1.709	1.742	GUARD/GUIDE RAIL	RIGHT	N/A
1.742	1.742	INTERSECTION	N/A	ROUTE 0919 (NICKEL CREEK CAMPGROUND ACCESS PARKING)
1.742	1.742	ROUTE END	N/A	TO ROUTE 0919 (NICKEL CREEK CAMPGROUND ACCESS PARKING)

REDW: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0102: ALDER CAMP ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes; those totals are reflected below.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM KLAMATH BEACH ROAD
0.000	0.000	INTERSECTION	LEFT	PAVED ROUTE (KLAMATH BEACH ROAD / NON NPS)
0.000	0.000	INTERSECTION	RIGHT	PAVED ROUTE (KLAMATH BEACH ROAD / NON NPS)
0.000	0.000	SIGN	LEFT	REGULATORY, STOP
0.000	0.000	SIGN	N/A	GUIDE, HWY 101
0.006	0.006	INTERSECTION	LEFT	ROUTE 0912 (DOUGLAS BRIDGE PARKING)
0.011	0.017	GUARD/GUIDE RAIL	RIGHT	N/A
0.012	0.034	CURB-AND-GUTTER	LEFT	N/A
0.012	0.054	CURB	RIGHT	N/A
0.029	0.029	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
0.030	0.030	CULVERT	N/A	N/A
0.036	0.036	INTERSECTION	LEFT	ROUTE 0912 (DOUGLAS BRIDGE PARKING)
0.052	0.052	SIGN	RIGHT	GUIDE, RVS AND TRAILERS PROHIBITED
0.057	0.057	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
0.095	0.095	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
0.097	0.097	SIGN	RIGHT	REGULATORY, SPEED LIMIT 30
0.163	0.163	CULVERT	N/A	N/A
0.200	0.200	CULVERT	N/A	N/A
0.252	0.312	CURB	LEFT	N/A
0.279	0.308	CURB	RIGHT	N/A
0.320	0.320	CULVERT	N/A	N/A
0.358	0.358	CULVERT	N/A	N/A
0.373	0.471	CURB	LEFT	N/A
0.395	0.395	CULVERT	N/A	N/A
0.466	0.466	CULVERT	N/A	N/A
0.498	0.566	CURB	LEFT	N/A
0.527	0.568	CURB	RIGHT	N/A
0.570	0.570	CULVERT	N/A	N/A
0.589	0.589	CULVERT	N/A	N/A
0.658	0.658	CULVERT	N/A	N/A

REDW: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0102: ALDER CAMP ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes; those totals are reflected below.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.704	0.708	CURB	RIGHT	N/A
0.723	0.723	CULVERT	N/A	N/A
0.758	0.758	CULVERT	N/A	N/A
0.760	0.760	SIGN	LEFT	REGULATORY, SPEED LIMIT 30
0.764	0.764	SIGN	RIGHT	REGULATORY, SPEED LIMIT 30
0.852	0.852	CULVERT	N/A	N/A
0.997	0.997	CULVERT	N/A	N/A
1.076	1.076	CULVERT	N/A	N/A
1.093	1.141	CURB	LEFT	N/A
1.101	1.146	CURB	RIGHT	N/A
1.161	1.161	CULVERT	N/A	N/A
1.176	1.201	CURB	RIGHT	N/A
1.177	1.206	CURB	LEFT	N/A
1.206	1.206	CULVERT	N/A	N/A
1.226	1.354	CURB	LEFT	N/A
1.251	1.348	CURB	RIGHT	N/A
1.422	1.422	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
1.422	1.422	SIGN	RIGHT	WARNING, 25 MPH
1.435	1.435	DROP INLET	RIGHT	N/A
1.435	1.435	SIGN	LEFT	REGULATORY, SPEED LIMIT 30
1.435	1.572	CURB	RIGHT	N/A
1.623	1.623	DROP INLET	LEFT	N/A
1.712	1.712	DROP INLET	LEFT	N/A
1.753	1.753	CULVERT	N/A	N/A
1.778	1.778	CULVERT	N/A	N/A
1.893	1.893	CULVERT	N/A	N/A
1.904	1.914	PAVED DITCH	RIGHT	N/A
1.966	1.996	LANE DEVIATION	N/A	N/A
2.003	2.003	INTERSECTION	RIGHT	UNPAVED ROUTE (GATED)
2.041	2.041	SIGN	RIGHT	GUIDE, UNABLE TO READ FROM VIDEO

REDW: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0102: ALDER CAMP ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes; those totals are reflected below.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
2.044	2.044	INTERSECTION	RIGHT	ROUTE 0202 (COASTAL DRIVE)
2.061	2.061	SIGN	RIGHT	GUIDE, ALDER CAMP 1400 ALDER CAMP RD.
2.077	2.077	SIGN	RIGHT	WARNING, ROUGH ROAD
2.077	2.077	SIGN	RIGHT	WARNING, NEXT 3 MILES
2.088	2.088	INTERSECTION	LEFT	PAVED ROUTE (ALDER CAMP ROAD / NON NPS)
2.090	2.090	INTERSECTION	N/A	PAVED ROUTE (ALDER CAMP ROAD / NON NPS)
2.090	2.090	ROUTE END	N/A	TO ROUTE 0202 (COASTAL DRIVE) AND STATE NON NPS MAINTAINED ROAD

REDW: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0110: RED ALDER ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes; those totals are reflected below.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
1.120	1.120	ROUTE BEGIN	N/A	FROM ROUTE 5110 (RED ALDER ROAD (NON NPS SECTION))
1.120	1.120	INTERSECTION	N/A	ROUTE 5110 (RED ALDER ROAD (NON NPS SECTION))
1.192	1.192	SIGN	RIGHT	GUIDE, COASTAL DRIVE
1.231	1.231	SIGN	RIGHT	WARNING, ROUGH ROAD NEXT 3 MILES
1.231	1.231	SIGN	RIGHT	WARNING, 20 MPH
1.296	1.296	INTERSECTION	N/A	ROUTE 0202 (COASTAL DRIVE)
1.296	1.296	ROUTE END	N/A	TO ROUTE 0202 (COASTAL DRIVE) AND ALDER CAMP ON RIGHT

REDW: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0115: DAVISON ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes; those totals are reflected below.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY)
0.000	0.000	INTERSECTION	LEFT	PAVED ROUTE (U.S. HIGHWAY 101 (REDWOOD HIGHWAY) / NON NPS)
0.000	0.000	INTERSECTION	RIGHT	PAVED ROUTE (U.S. HIGHWAY 101 (REDWOOD HIGHWAY) / NON NPS)
0.002	0.012	PULLOUT	RIGHT	N/A
0.025	0.025	SIGN	RIGHT	WARNING, NOT A THROUGH ROAD
0.034	0.034	SIGN	RIGHT	WARNING, UNABLE TO READ FROM VIDEO
0.056	0.056	SIGN	RIGHT	GUIDE, DO NOT PARK OFF PAVEMENT
0.067	0.067	SIGN	RIGHT	GUIDE, ELK MEADOW DAY USE AREA 1/4 MI (RV & TRAILER TURNAROUND)
0.067	0.098	GUARD/GUIDE RAIL	RIGHT	N/A
0.077	0.097	LOW WATER CROSSING	N/A	N/A
0.117	0.117	INTERSECTION	LEFT	ROUTE 0921BZ (DAVISON ROAD ELK VIEWING PARKING B)
0.117	0.117	INTERSECTION	RIGHT	ROUTE 0921AZ (DAVISON ROAD ELK VIEWING PARKING A)
0.117	0.117	SIGN	RIGHT	GUIDE, DANGER WILD ELK DO NOT APPROACH ON FOOT
0.125	0.125	SIGN	LEFT	GUIDE, UNABLE TO READ FROM VIDEO
0.149	0.149	SIGN	LEFT	GUIDE, DO NOT PARK OFF PAVEMENT
0.191	0.204	GUARD/GUIDE RAIL	RIGHT	N/A
0.191	0.205	GUARD/GUIDE RAIL	LEFT	N/A
0.204	0.224	BRIDGE	N/A	8480-017 (DAVISON ROAD BRIDGE)
0.204	0.226	GUARD/GUIDE RAIL	RIGHT	N/A
0.205	0.222	GUARD/GUIDE RAIL	LEFT	N/A
0.222	0.233	GUARD/GUIDE RAIL	LEFT	N/A
0.226	0.240	GUARD/GUIDE RAIL	RIGHT	N/A
0.244	0.244	INTERSECTION	RIGHT	UNPAVED ROAD (GATED)
0.330	0.330	INTERSECTION	RIGHT	UNPAVED ROAD (GATED)
0.353	0.353	SIGN	RIGHT	GUIDE, ELK MEADOW DAY USE AREA
0.353	0.353	SIGN	RIGHT	GUIDE, TURNAROUND
0.354	0.354	INTERSECTION	LEFT	ROUTE 0913 (ELK MEADOW DAY USE AREA PARKING)
0.360	0.360	INTERSECTION	N/A	ROUTE 0207 (DAVISON ROAD)

REDW: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0115: DAVISON ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes; those totals are reflected below.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.360	0.360	ROUTE END	N/A	TO ROUTE 0913 (ELK MEADOW DAY USE AREA PARKING) ON LEFT AND BEGINNING OF ROUTE 0207 (DAVISON ROAD)

REDW: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0210: REDWOOD CREEK TRAILHEAD ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes; those totals are reflected below.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 5000 (BALD HILLS ROAD)
0.000	0.000	INTERSECTION	LEFT	ROUTE 5000 (BALD HILLS ROAD)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 5000 (BALD HILLS ROAD)
0.026	0.026	SIGN	RIGHT	GUIDE, TURNAROUND 0.5 MILES
0.055	0.055	SIGN	RIGHT	REGULATORY, SPEED LIMIT 25
0.079	0.079	CULVERT	N/A	N/A
0.144	0.144	CULVERT	N/A	N/A
0.173	0.173	CULVERT	N/A	N/A
0.258	0.258	CULVERT	N/A	N/A
0.319	0.430	CURB	LEFT	N/A
0.354	0.420	CURB	RIGHT	N/A
0.392	0.392	CULVERT	N/A	N/A
0.423	0.430	CURB	RIGHT	N/A
0.430	0.430	CULVERT	N/A	N/A
0.430	0.430	INTERSECTION	N/A	ROUTE 0915 (REDWOOD CREEK TRAILHEAD PARKING)
0.430	0.430	ROUTE END	N/A	TO ROUTE 0915 (REDWOOD CREEK TRAILHEAD PARKING)

REDW: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0215: THOMAS KUCHEL VISITOR CENTER ACCESS ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes; those totals are reflected below.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY)
0.000	0.000	SIGN	N/A	GUIDE, NORTH 101 SOUTH
0.000	0.000	INTERSECTION	LEFT	PAVED ROUTE (U.S. HIGHWAY 101 (REDWOOD HIGHWAY) / NON NPS)
0.000	0.000	INTERSECTION	RIGHT	PAVED ROUTE (U.S. HIGHWAY 101 (REDWOOD HIGHWAY) / NON NPS)
0.022	0.022	INTERSECTION	LEFT	ROUTE 0901 (REDWOOD CREEK PICNIC AREA PARKING)
0.025	0.025	SIGN	RIGHT	GUIDE, PICNIC AREA INFORMATION
0.033	0.033	GATE	N/A	N/A
0.033	0.033	SIGN	RIGHT	GUIDE, INFORMATION CENTER HOURS 9:00 A.M. - 6:00 P.M. GATE LOCKED AFTER HOURS
0.174	0.174	INTERSECTION	LEFT	ROUTE 0900 (THOMAS KUCHEL VISITOR CENTER PARKING)
0.188	0.188	INTERSECTION	LEFT	ROUTE 0900 (THOMAS KUCHEL VISITOR CENTER PARKING)
0.203	0.203	INTERSECTION	LEFT	ROUTE 0900 (THOMAS KUCHEL VISITOR CENTER PARKING)
0.221	0.221	INTERSECTION	LEFT	ROUTE 0900 (THOMAS KUCHEL VISITOR CENTER PARKING)
0.260	0.260	INTERSECTION	N/A	ROUTE 0900 (THOMAS KUCHEL VISITOR CENTER PARKING)
0.260	0.260	INTERSECTION	RIGHT	ROUTE 0415 (THOMAS KUCHEL VISITOR CENTER SERVICE ROAD)
0.260	0.260	ROUTE END	N/A	TO ROUTE 0900 (THOMAS KUCHEL VISITOR CENTER PARKING)

REDW: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0415: THOMAS KUCHEL VISITOR CENTER SERVICE ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes; those totals are reflected below.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0215 (THOMAS KUCHEL VISITOR CENTER ACCESS ROAD) AT MP 0.26 AND ROUTE 0900 (THOMAS KUCHEL VISITOR CENTER PARKING)
0.000	0.000	INTERSECTION	LEFT	ROUTE 0900 (THOMAS KUCHEL VISITOR CENTER PARKING)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0215 (THOMAS KUCHEL VISITOR CENTER ACCESS ROAD)
0.003	0.003	SIGN	RIGHT	GUIDE, AUTHORIZED VEHICLES ONLY
0.042	0.042	INTERSECTION	RIGHT	UNPAVED PARKING
0.070	0.070	INTERSECTION	N/A	DEAD END (TRASH DUMPSTER AREA)
0.070	0.070	ROUTE END	N/A	TO END

REDW: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0416: OFF HIGHWAY ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes; those totals are reflected below.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM U.S. HIGHWAY 101 (REDWOOD HIGHWAY)
0.000	0.000	INTERSECTION	LEFT	PAVED ROUTE (U.S. HIGHWAY 101 (REDWOOD HIGHWAY) / NON NPS)
0.000	0.000	INTERSECTION	RIGHT	PAVED ROUTE (U.S. HIGHWAY 101 (REDWOOD HIGHWAY) / NON NPS)
0.018	0.018	SIGN	RIGHT	GUIDE, GRAPHIC SIGN NO TEXT
0.021	0.021	SIGN	LEFT	WARNING, CAUTION HIGHWAY CROSSING
0.091	0.091	GATE	N/A	N/A
0.091	1.011	DEBRIS ON ROAD	N/A	N/A
0.110	0.110	CULVERT	N/A	N/A
0.170	0.170	CULVERT	N/A	N/A
0.285	0.285	CULVERT	N/A	N/A
0.357	0.357	CULVERT	N/A	N/A
0.420	0.420	CULVERT	N/A	N/A
0.464	0.464	CULVERT	N/A	N/A
0.489	0.489	CULVERT	N/A	N/A
0.609	0.609	CULVERT	N/A	N/A
0.657	0.657	CULVERT	N/A	N/A
0.703	0.703	CULVERT	N/A	N/A
0.872	0.872	CULVERT	N/A	N/A
0.932	0.932	CULVERT	N/A	N/A
1.009	1.009	CULVERT	N/A	N/A
1.011	1.011	GATE	N/A	N/A
1.030	1.030	INTERSECTION	LEFT	ROUTE 0205 (LOST MAN CREEK ROAD)
1.030	1.030	INTERSECTION	N/A	ROUTE 0205 (LOST MAN CREEK ROAD)
1.030	1.030	ROUTE END	N/A	TO ROUTE 0205 (LOST MAN CREEK ROAD)

REDW: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0470: AUBELL LANE/NOC MAINTENANCE ROAD

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes; those totals are reflected below.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ELK VALLEY ROAD
0.000	0.000	INTERSECTION	LEFT	PAVED ROUTE (ELK VALLEY ROAD / NON NPS)
0.000	0.000	INTERSECTION	RIGHT	PAVED ROUTE (ELK VALLEY ROAD / NON NPS)
0.003	0.003	CULVERT	N/A	N/A
0.003	0.003	SIGN	LEFT	REGULATORY, STOP
0.025	0.025	SIGN	RIGHT	GUIDE, NO VISITOR SERVICES
0.040	0.040	SIGN	RIGHT	REGULATORY, SPEED LIMIT 25
0.257	0.257	CULVERT	N/A	N/A
0.308	0.367	PAVED DITCH	RIGHT	N/A
0.338	0.338	SIGN	LEFT	REGULATORY, SPEED LIMIT 25
0.354	0.354	INTERSECTION	LEFT	ROUTE 0938 (NOC PARKING)
0.371	0.371	SIGN	RIGHT	GUIDE, GRAPHIC SIGN NO TEXT
0.377	0.377	INTERSECTION	N/A	PAVED ROUTE (AUBELL LANE / NON NPS)
0.377	0.377	ROUTE END	N/A	TO PAVEMENT CHANGE

Section 10 Appendix



Redwood 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.

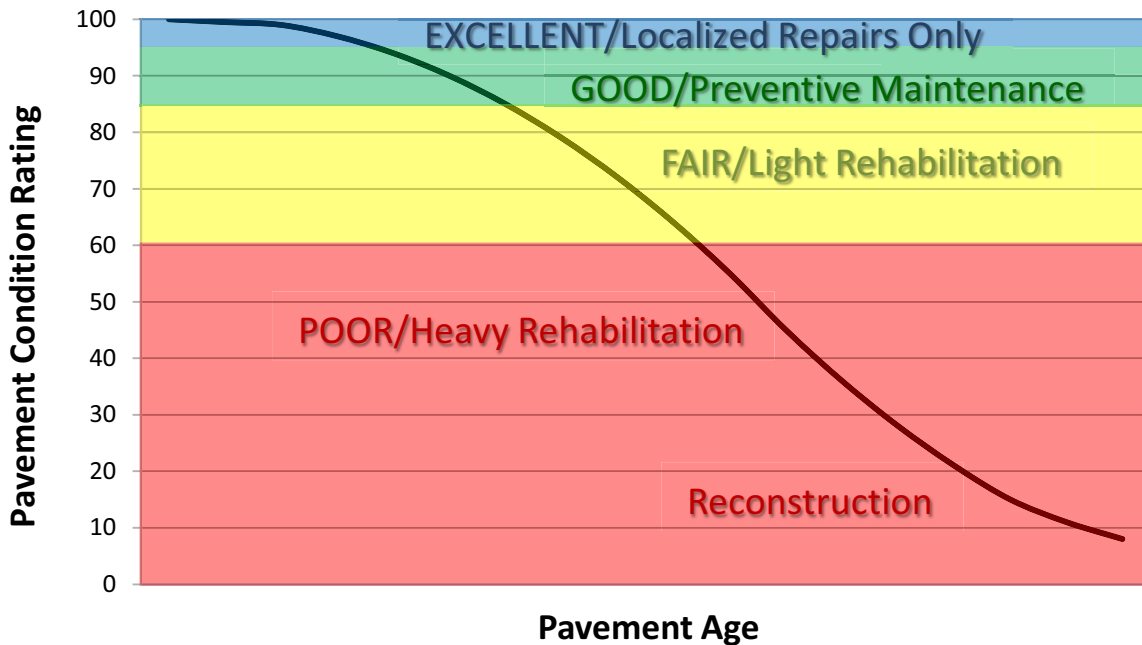
Explanation of the Excellent, Good, Fair and Poor Condition Descriptions

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.

Condition Categories and Treatments



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:

$$\text{Asphalt PCR} = (0.60 * \text{SCR}) + (0.40 * \text{RCI})$$

$$\text{Concrete PCR} = \text{RCI}$$

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 *severity*...LOW, MEDIUM, or HIGH based on criteria listed. For each severity, an *extent* is established based on the measured quantity of the distress within that severity. Within each *severity* individual distresses are assigned a *Maximum Allowable Extent* (MAE). For example, LOW severity transverse cracking may be allowed up to 21.1 cracks within a 0.02 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 $\geq 0.20''$ and $\leq 0.49''$

MED

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

HIGH

Ruts with a measured depth $\geq 1.00''$

Ruts $< 0.20''$ are not included in the distress calculations.

ROUGHNESS

Description

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

Severity Levels

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

TABLE 3: IRI

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

INDEX FORMULAS

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

Alligator Crack Index

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

Where:

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

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

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

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

Percent of total area is computed as:

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

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

Longitudinal Crack Index

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

Where:

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

These values are ≥ 0 and can exceed 100.

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

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

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

Percent of interval length is computed as:

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

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

$$\text{PATCH_INDEX} = 100 - 40 * (\% \text{PATCHING} / 80)$$

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:

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

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

$$\text{RUT_INDEX} = 100 - 40 * [(\% \text{LOW} / 535) + (\% \text{MED} / 205) + (\% \text{HI} / 40)]$$

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:

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

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

<u>TERM OR ABBREVIATION</u>	<u>DESCRIPTION OR DEFINITION</u>
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