



The Road Inventory of Haleakala National Park HALE - 8290



national park service



Road Inventory Program

Prepared By:
Federal Highway Administration
Eastern Federal Lands Highway Division
Cycle 3



Haleakala National Park in Hawaii





TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1. INTRODUCTION	1 - 1
2. PARK SUMMARY INFORMATION	
National Park Summaries	2 - 1
Cost to Improve Based on Historical and Estimated Data	2 - 2
Paved Route Miles and Percentages by Functional Class and PCR	2 - 3
3. PARK SUMMARY MAPS	
Route Location Key Map	3 - 1
Route Condition Key Map – PCR Mile by Mile	3 - 4
4. PARK ROUTE INVENTORY	
Route Identification Lists (Numeric and Alphabetic)	4 - 1
5. PAVED ROUTE CONDITION RATING SHEETS	5 - 1
6. MANUALLY RATED PAVED ROUTE CONDITION RATING SHEETS	6 - 1
7. PARKING LOT CONDITION RATING SHEETS	7 - 1
Paved parking Areas	
8. PARKWIDE / ROUTE MAINTENANCE FEATURES SUMMARY	8 - 1
9. PARK ROUTE MAINTENANCE FEATURES ROAD LOG	9 - 1
10. APPENDIX	
A. Glossary of Terms and Abbreviations	10 - 1
B. Description of Rating System	10 - 3
C. Digital Image Information	10 - 7
D. Metadata	10 - 8

INTRODUCTION

Background: In July 1976, the National Park Service (NPS) and the Federal Highway Administration (FHWA) entered into a Memorandum of Agreement (MOA), establishing the Road Inventory Program (RIP). In 1980, the NPS and the FHWA terminated the 1976 MOA and entered into a new MOA that provided for the completion of the initial phase of the RIP. The purpose of the RIP, per the 1980 MOA, was to maintain and update RIP data in order to develop long-range and short-range costs and programs to bring National Park Service (NPS) roads up to, or to maintain, designated standards, and to establish a maintenance management program.

The FHWA's Federal Lands Highway (FLH) was assigned the task of identifying condition deficiencies and corrective priorities along with associated corrective costs, inventorying maintenance features (e.g., culverts, signs, guardrail, etc.), summarizing the data and findings in a report, and providing a photographic record of the road system.

The FLH completed the initial phase of the RIP in the early 1980's. As a result of this effort, each park received a RIP book, also known as the "Brown Book," that included the information collected during this initial RIP phase.

In an effort to maintain and update the RIP data, a cyclical data collection and reporting process was re-established in the 1990's. The FLH completed two cycles of RIP data collection between 1994 and 2001. Cycle 1 data was collected in 44 large parks from 1994 to 1995. This data was found to be unusable for comparison to future cycles. Cycle 2 data was collected from March 1997 to January 2001 in 79 large parks and 5 small parks containing 4,874 route miles. Each park received a copy of a Cycle 2 RIP Report, also known as the "Blue Book."

Since 1984, the RIP Program has been funded through the Federal Lands Highway Program's Park Roads and Parkways (PRP) Program. Currently, the NPS Washington Headquarters' Park Facility Management Division is responsible for coordinating the RIP program with the FLH. 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) which requires the Federal Highway Administration and the National Park Service, to develop, by rule, a Pavement Management System (PMS) for the park roads and parkways serving the National Park System. As a result of the requirements in TEA-21, the NPS and the FHWA are in the process of developing a PMS. The PMS will assist the decision-makers in effectively spending limited PRP Program funds. The PMS will provide information for planning and programming road maintenance, rehabilitation, and reconstruction activities. RIP data will provide the basic information for this system.

Key information included in the RIP is the mileage inventory and condition assessments accomplished by the RIP Program. The mileage and condition data are used in the current allocation formula of PRP Program funds.

RIP Cycle 3: A third RIP cycle was initiated in 2001. Data was collected from March 2001 to July 2004, and is included in the Cycle 3 Reports. Cycle 3 includes 254 large and small parks with a combined total of 5,455 route miles.

In the Cycle 3 Reports, a general condition rating of excellent, good, fair and poor is ascribed to each one-mile section of paved roadway, and to each paved parking area. This condition rating system provides a realistic means of assessing the general funding needs for road improvements. Along with these descriptive condition ratings, a numerical rating between 0 and 100 is ascribed to each mile of road and to each parking area.. This numerical rating is called a Pavement Condition Rating (PCR). The PCR rating system is described in Section 10 of this report.

All of the fieldwork required for obtaining inventory, condition, and maintenance feature information is coordinated with each park and the regional offices to ensure that the information in the RIP reports is accurate.

The FLH is responsible for all of the data presented in this report. Anyone having questions or comments regarding the contents of this report is encouraged to contact the FHWA RIP Coordinator. It is our aim to provide exceptional customer satisfaction in our delivery of the RIP program.

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Haleakala National Park Summaries

Overall Park Mileage Summary

PARK TOTAL SUMMARY ITEMS	TOTAL	DATE
Paved ARAN Driven Route Miles	12.01	5/19/2001
Unpaved Estimated Route Miles	1.00	5/19/2001
Paved ARAN and Unpaved Route Miles	13.01	
Paved ARAN Driven Lane Miles	23.87	5/19/2001
Paved MRR Lane Miles	0.00	
Parking Lot Lane Miles	1.96	5/19/2001
Total Paved Lane Miles	25.83	

Notes: Total Paved Lane Miles includes the sum of Paved ARAN Driven Lane Miles, Paved MRR Lane Miles, and Parking Lot Lane Miles

Unpaved Route Miles are estimates, they have not been inventoried by the Roadway Inventory Program (RIP)

Haleakala National Park Summaries

Cost to Improve to "Excellent" Condition

SOURCE	WORK PERFORMED	COST PER MILE	INITIAL CONDITION
FHWA Awarded Projects	Surface Maintenance	\$30,000	Excellent
FHWA Awarded Projects	3-R (Resurfacing)	\$110,000	Good
FHWA Awarded Projects	3-R (Resurfacing, Restoration, and Rehabilitation) Projects	\$560,000	Fair
FHWA Awarded Projects	4-R (Resurfacing, Restoration, Rehabilitation, and Reconstruction) Projects	\$1,540,000	Poor

Based on the above table, the cost to improve ARAN driven paved road condition miles to "Excellent" PCR are:

Existing Condition	Existing Miles	Estimated Cost to Improve
Excellent	0.24	\$7,200
Good	0.58	\$63,800
Fair	3.59	\$2,010,400
Poor	7.60	\$11,704,000
Totals	12.01	\$13,785,400

The above numbers include the 35% PE, CE and contingency costs and are national averages. The cost estimates were used in the calculations for the 2004 Reauthorization Bill to determine the level of funding required to bring all the NPS roads into a Pavement Condition Rating (PCR) of Good (85).

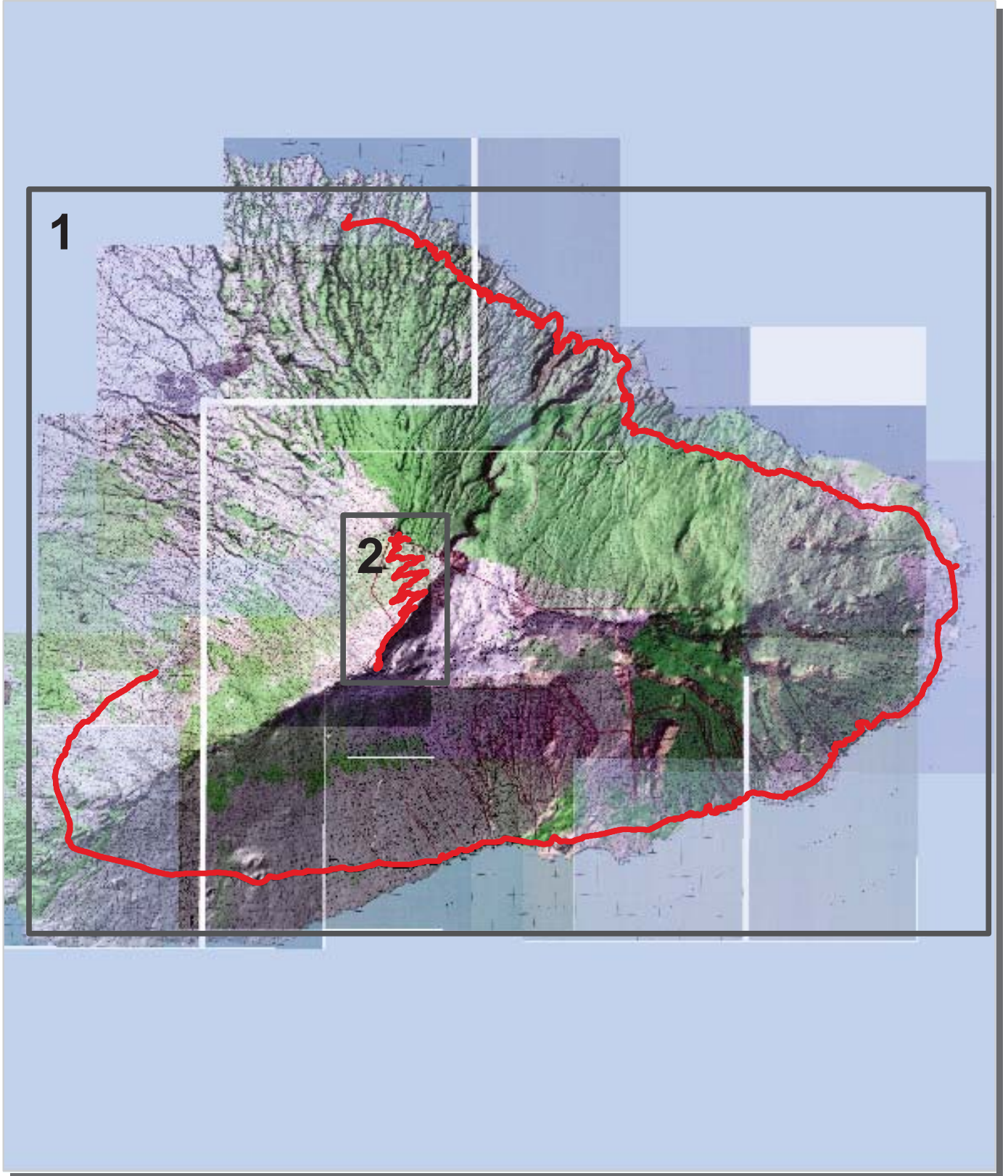
These numbers are for preliminary planning purposes only and should not be used for project level proposals. For park planning level analysis, apply your park multiplier for more accurate regional costs.

Haleakala National Park Summaries

Paved Route Miles and Percentages by Functional Class and PCR for ARAN Driven Paved Roads

F.C.	Pavement Condition Rating								TOTAL MILES
	Poor (<=60)		Fair (61-84)		Good (85-94)		Excellent (95-100)		
	MILES	%	MILES	%	MILES	%	MILES	%	
1	6.74	56.12%	3.51	29.23%	0.58	4.83%	0.24	2.00%	11.07
2	0.24	2.00%	0.08	0.67%					0.32
3	0.47	3.91%							0.47
4	0.15	1.25%							0.15
5									
6									
7									
8									
Totals	7.60	63.28%	3.59	29.89%	0.58	4.83%	0.24	2.00%	12.01

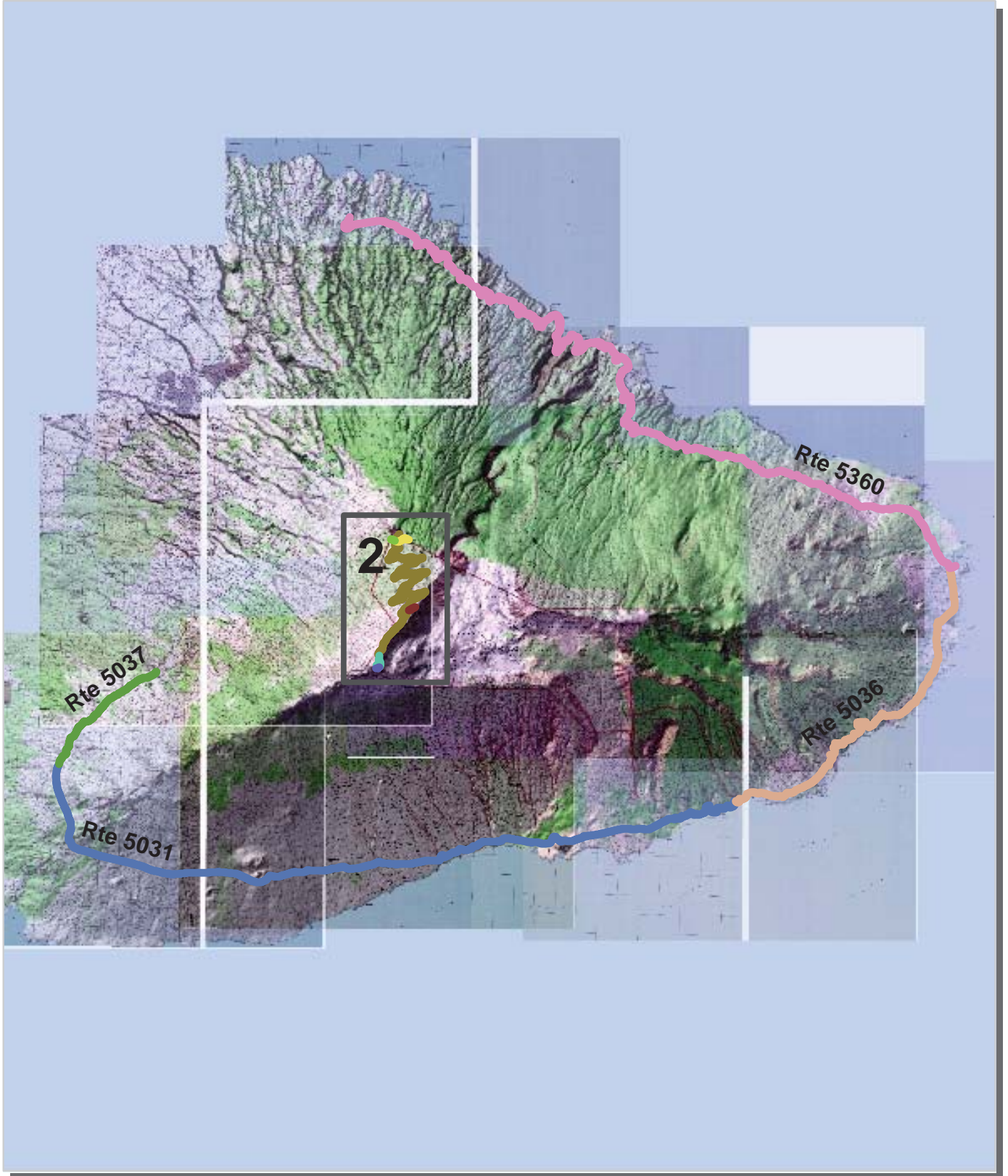
Haleakala National Park Route Location Key Map



— Park Owned Routes



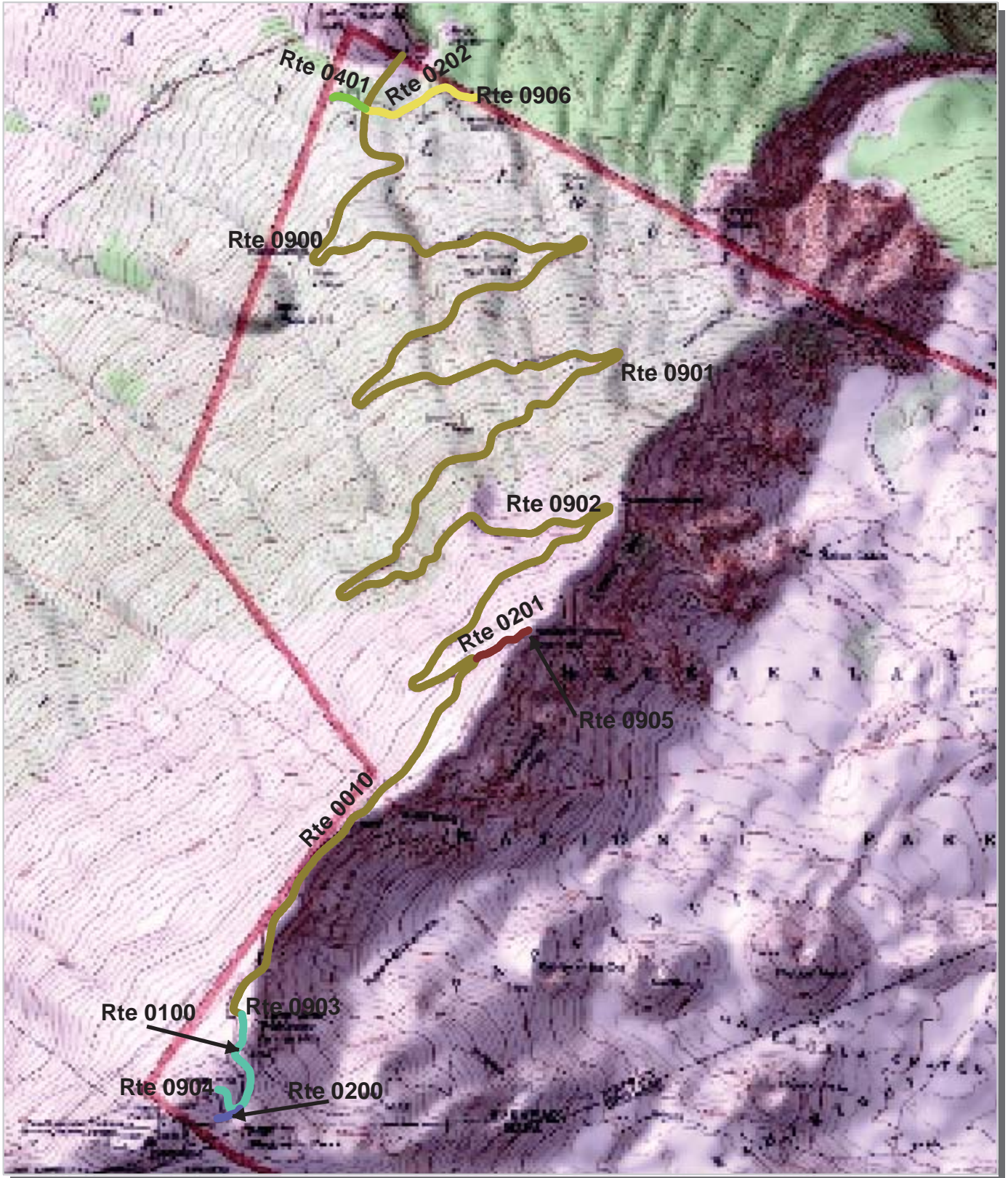
Haleakala National Park Route Location Area Map 1



Unique colors used to differentiate routes



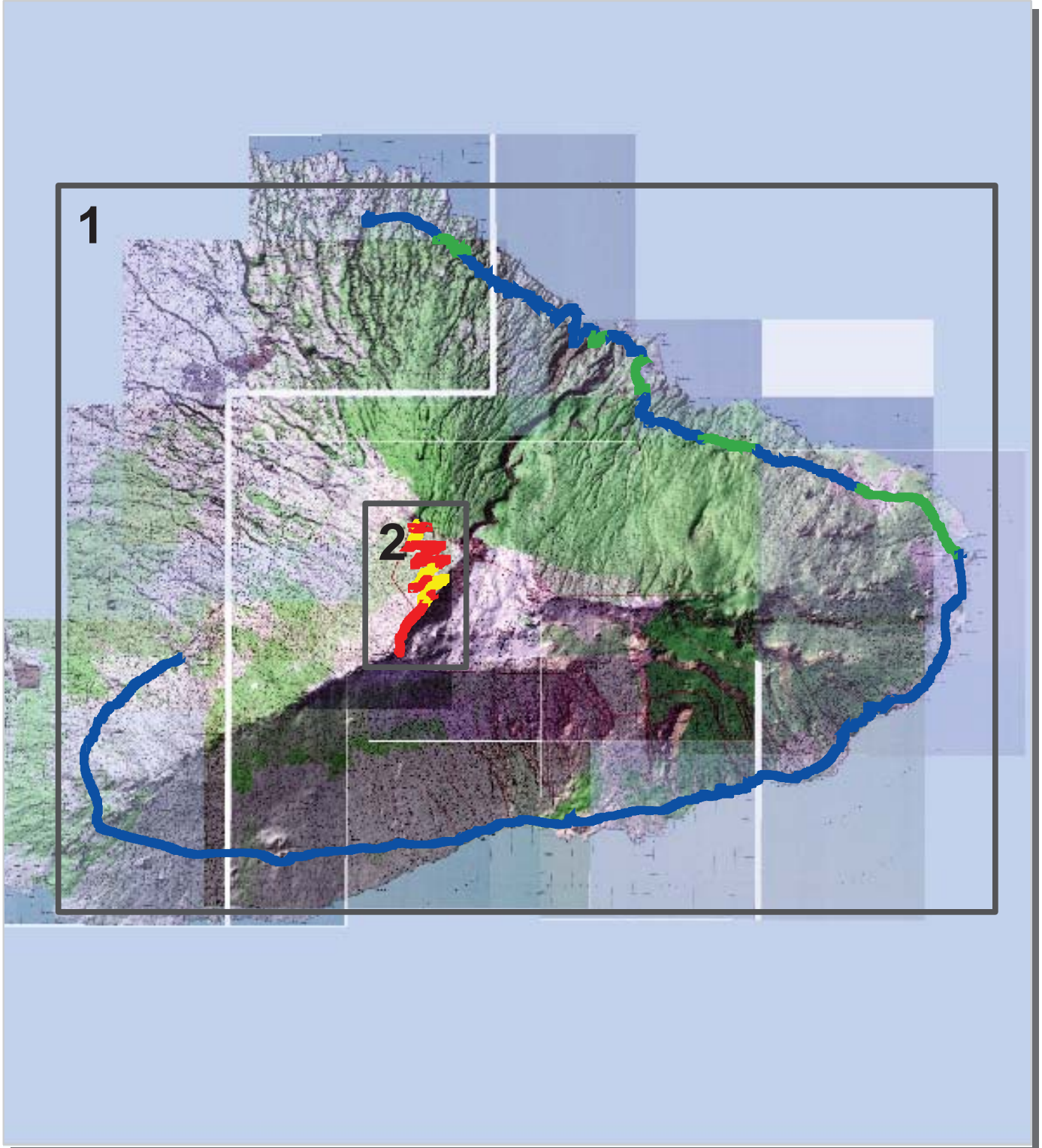
Haleakala National Park Route Location Area Map 2







Unique colors used to differentiate routes



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

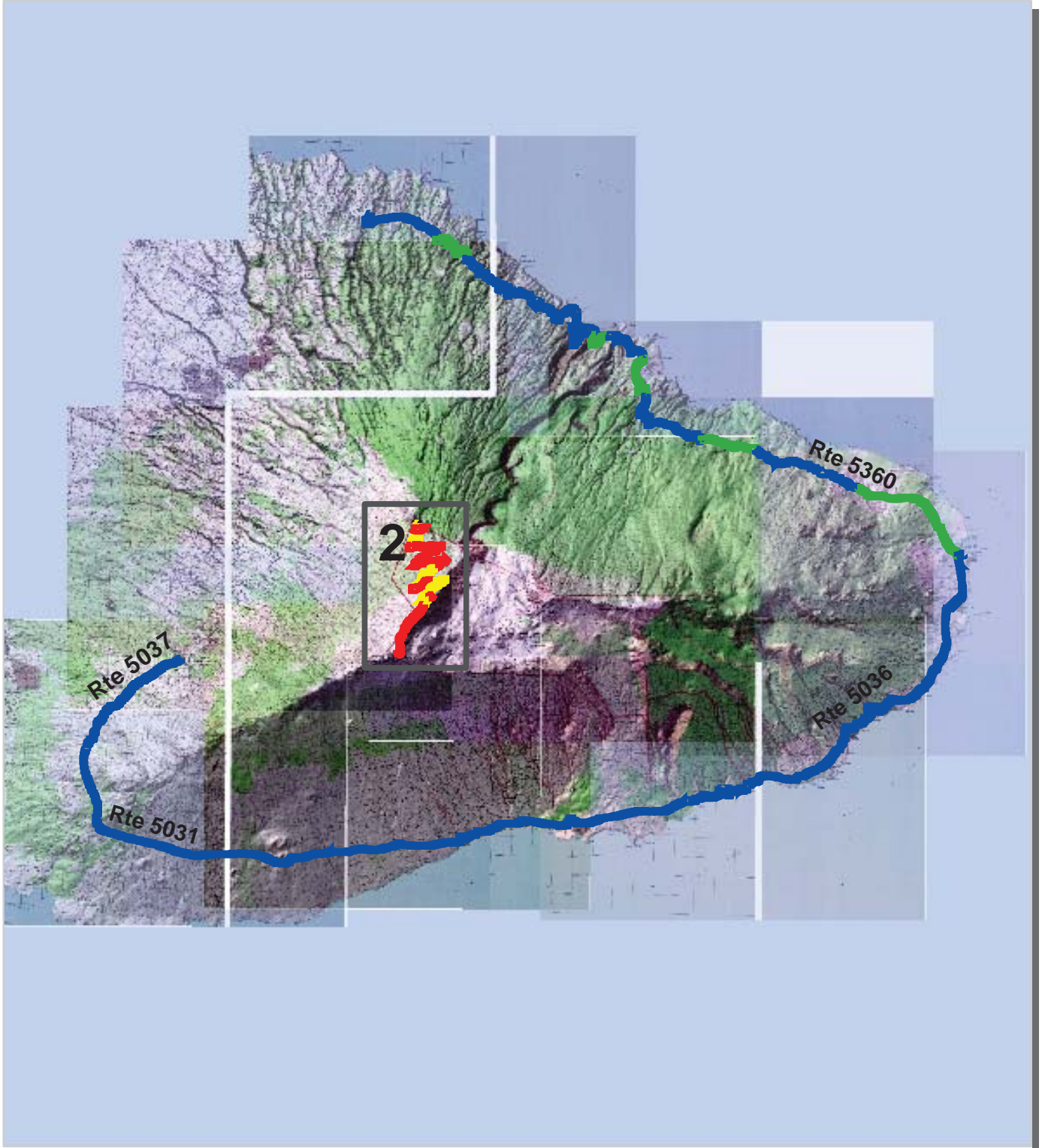






PCR	Poor		Fair		Good		Excellent	
		(<=60)		(61 - 84)		(85 - 94)		(95 - 100)

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



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

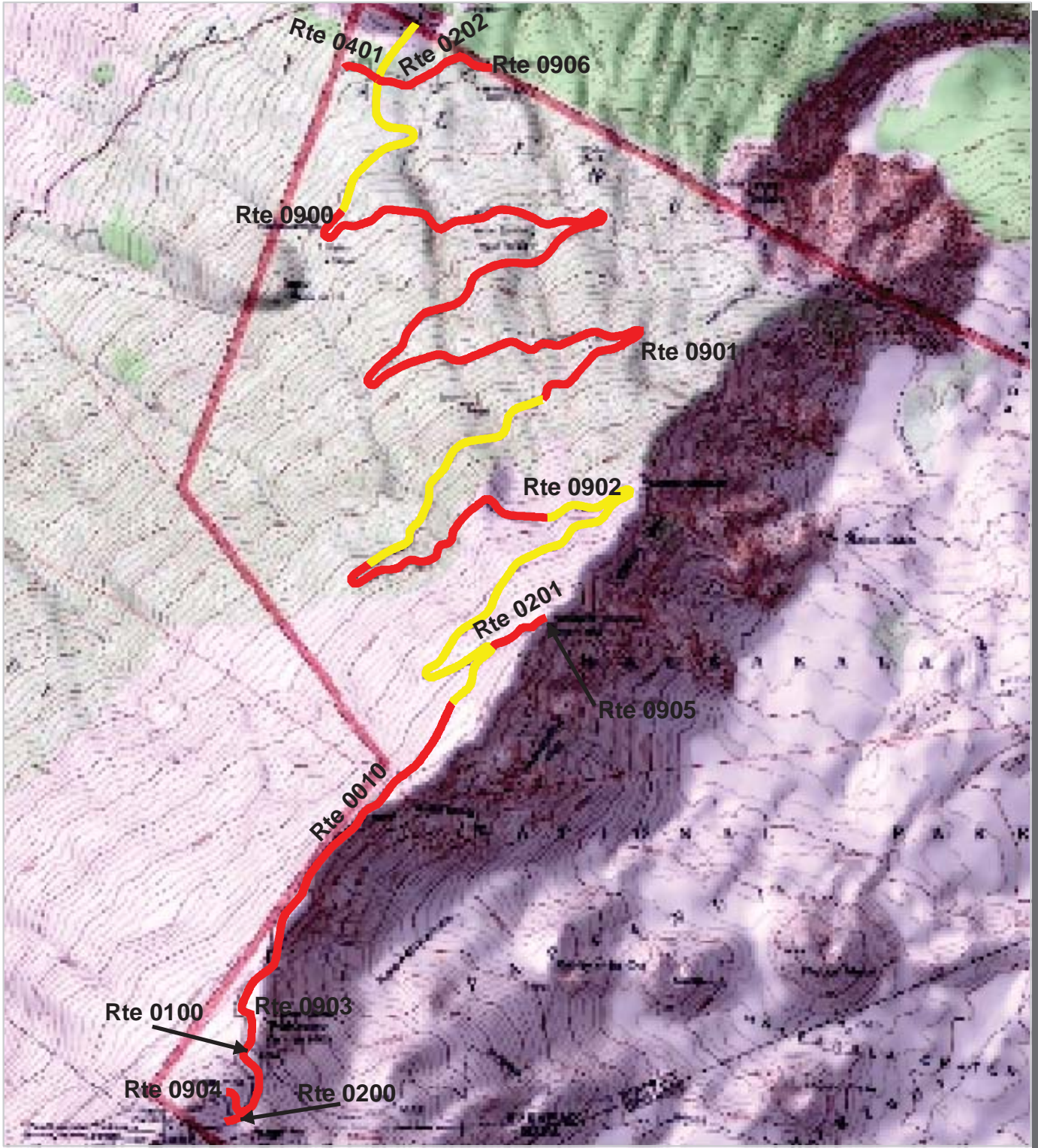






PCR	Poor		Fair		Good		Excellent	
		(<=60)		(61 - 84)		(85 - 94)		(95 - 100)

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

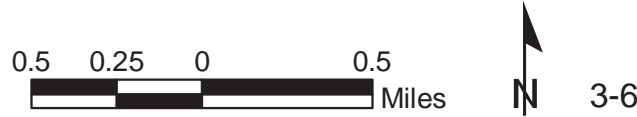


Haleakala National Park Route Condition Area Map 2 PCR - Mile by Mile



PCR	Poor	Fair	Good	Excellent
				
	(<=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.



NPS/RIP Route ID Report

(Numerical By Route #)

Shading Color Key:
Red text denotes approx. mileage

White = Paved Routes, ARAN Driven	Yellow = Unpaved Routes, ARAN not Driven	Blue = All Paved Parking Areas
Grey = Paved Routes, ARAN not Driven	Red =	Green = All Unpaved Parking Areas
Black = Paved State, Local or Private non-NPS Routes, ARAN Driven	Purple =	

HALE

Haleakala National Park

Rte. #	FMSS Asset #	Route Name	Route Description		Paved Miles	Un-Paved Miles	Rte. Lgth	Func. Class	Rte. Lanes	Manual Rated SQ/FT	Surf. Type
			From	To							
0010	00002652	Haleakala Park Road	From North Park Boundary	To Route 0903 (Crater Rim Parking Lot)	10.50	0.00	10.50	1	2	0	AS
0100	39530	Red Hill Road	From End of Route 0010	To Route 0904	0.57	0.00	0.57	1	2	0	AS
0200	39531	Magnetic Peak Spur Road	From Route 0100 at MP 0.44 on Left	To South Park Boundary (white transverse line across pavement)	0.12	0.00	0.12	2	2	0	AS
0201	39532	Kalahaku Overlook Road	From Route 0010 at MP 8.70 on Left	To Route 0905 (Kalahaku Overlook)	0.20	0.00	0.20	2	2	0	AS
0202	31839	Hosmer Grove Road	From Route 0010 at MP 0.26 on Left	To Route 0906	0.47	0.00	0.47	3	2	0	AS
0203	00002653	Kilahulu Campground and Picnic Access Road	From State Route 36 (Piilani Highway)	Through Overflow Parking and Campground	0.00	0.00	0.00	3	2	110,249	GR
0400	31842	Headquarters Residence Road	From Route 0900	Through Maintenance area ending at Residences	0.00	0.00	0.00	4	2	16,986	AS
0401	31841	Pu'u Nianiau Road	From Route 0010 at MP 0.26 on Right	To Route 0907, Maintenance Parking (last gate)	0.15	0.00	0.15	4	2	0	AS
0402	31840	Pu'u Nianiau Residence Road	From Route 0401 at MP 0.05 on Right	To End of Loop	0.00	0.00	0.00	4	2	9,846	AS
0403	31838	Water Catchment Road	From Route 0010 at MP 2.26 on Left	To Water Tanks	0.00	0.00	0.00	5	2	7,173	AS
0404	39533	Kipahulu Service Road	From Route 0203	To End	0.00	1.00	1.00	5	2	27,597	OT
0900	31833	Park Headquarters Parking	Adjacent to Route 0010 at MP 1 on Left and Right		0.00	0.00	0.00	9		14,140	AS
0901	31835	Halemau'u Trailhead Parking	Adjacent to Route 0010 at MP 4.54 on Left		0.00	0.00	0.00	9		12,019	AS
0902	31836	Lelewi Overlook Parking	Adjacent to Route 0010 at MP 7.3 on Right		0.00	0.00	0.00	9		8,338	AS
0903	31830	Haleakala Visitor Center Parking (Crater Rim)	At End of Route 0010		0.00	0.00	0.00	9		44,504	AS
0904	31831	Pu'u'ula'ula Summit Parking	At End of Route 0100		0.00	0.00	0.00	9		22,629	AS
0905		Kalahaku Overlook Parking	Adjacent to Route 0201 near end on Right		0.00	0.00	0.00	9		5,369	AS
0906	31832	Hosmer Grove Parking	At End of Route 0202		0.00	0.00	0.00	9		6,663	AS
0907	39534	Pu'u Nianiau Maintenance Yard	At End of Route 0401		0.00	0.00	0.00	9		0	GR
0908		Pu'u Nianiau Residence Parking	At End of Route 0402		0.00	0.00	0.00	9		1,013	GR
0909		Water Catchment Tank Parking	At End of Route 0403		0.00	0.00	0.00	9		0	GR
0910	39535	Kipahulu Visitor Center	Adjacent to State Route 36 (Piilani Highway) at Southeast Park Boundary		0.00	0.00	0.00	9		28,695	GR
0911		Kipahulu Visitor Center Overflow Parking	Adjacent to Route 0203 on Left		0.00	0.00	0.00	9		22,926	OT
0912		Kipahulu Maintenance Area and Landing Zone	Adjacent to State Route 36 (Piilani Highway) at Southeast Park Boundary near Route 0910		0.00	0.00	0.00	9		25,585	OT

NPS/RIP Route ID Report

(Numerical By Route #)

Shading Color Key:
Red text denotes approx. mileage

White = Paved Routes, ARAN Driven	Yellow = Unpaved Routes, ARAN not Driven	Blue = All Paved Parking Areas
Grey = Paved Routes, ARAN not Driven	Red =	Green = All Unpaved Parking Areas
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HALE

Haleakala National Park

Rte. #	FMSS Asset #	Route Name	Route Description		Paved Miles	Un-Paved Miles	Rte. Lgth	Func. Class	Rte. Lanes	Manual Rated SQ/FT	Surf. Type
			From	To							
5031		Road to Hana (MP 13.32 to Piilani Highway)	From End of Route 5036 at MP 13.32	To Beginning of Route 5037 at Intersection with Piilani Highway	25.24	0.00	25.24	1	2	0	AS
5036		Road to Hana (Hana Bay to MP 13.32)	From Route 5360 at MP 34.374	To End at Route 5031	13.32	0.00	13.32	1	2	0	AS
5037		Road to Hana (Piilani Highway to KeoKea)	From Intersection with Piilani Highway at End of Route 5031	To End at KeoKea	4.56	0.00	4.56	1	2	0	AS
5360		Road to Hana (State Route 365/400 to Hana Bay)	From Intersection with State Route 365/400	To Hana Bay	34.59	0.00	34.59	1	2	0	AS
Totals					89.72	1.00	90.72			363,732	

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.
- Class 9 Boat Ramp - (Public and Administrative) Route Numbers 800-899.
Parking Area - (Public and Administrative) Route Numbers 900-1999.

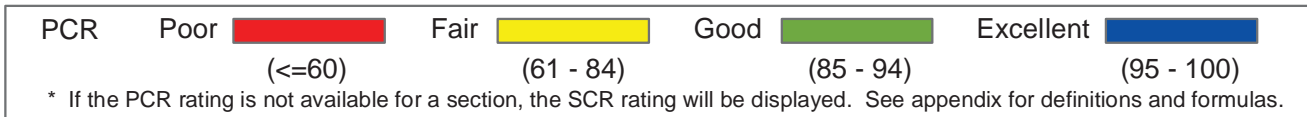
Surface Type Abbreviations:

- AS - Asphaltic Concrete Pavement
- CO - Portland Cement Concrete Pavement
- NC - New Chip Seal Pavement (Under 5 Years)
- OC - Old Chip Seal Pavement (5 Years and Greater)
- SS - Slurry Seal Pavement
- GR - Gravel Road Bed
- BR - Brick or Pavers Road Bed
- CB - Cobble Stone Road Bed
- SA - Sand Road Bed
- DT - Dirt or Native Material Road Bed
- OT - Other Materials Road Bed

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

The historic route numbering system also included a 300 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.

ZZ Functional Class Routes were added from FMSS Database. Final Route Number and Functional Class will be established during Park visit for Cycle 4 data collection.



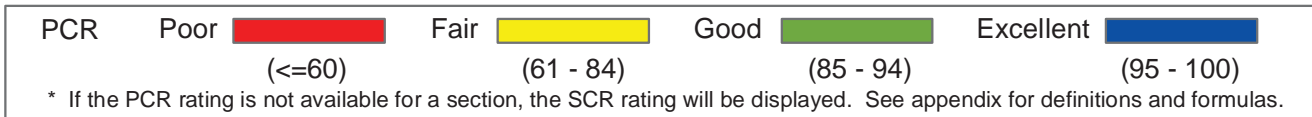
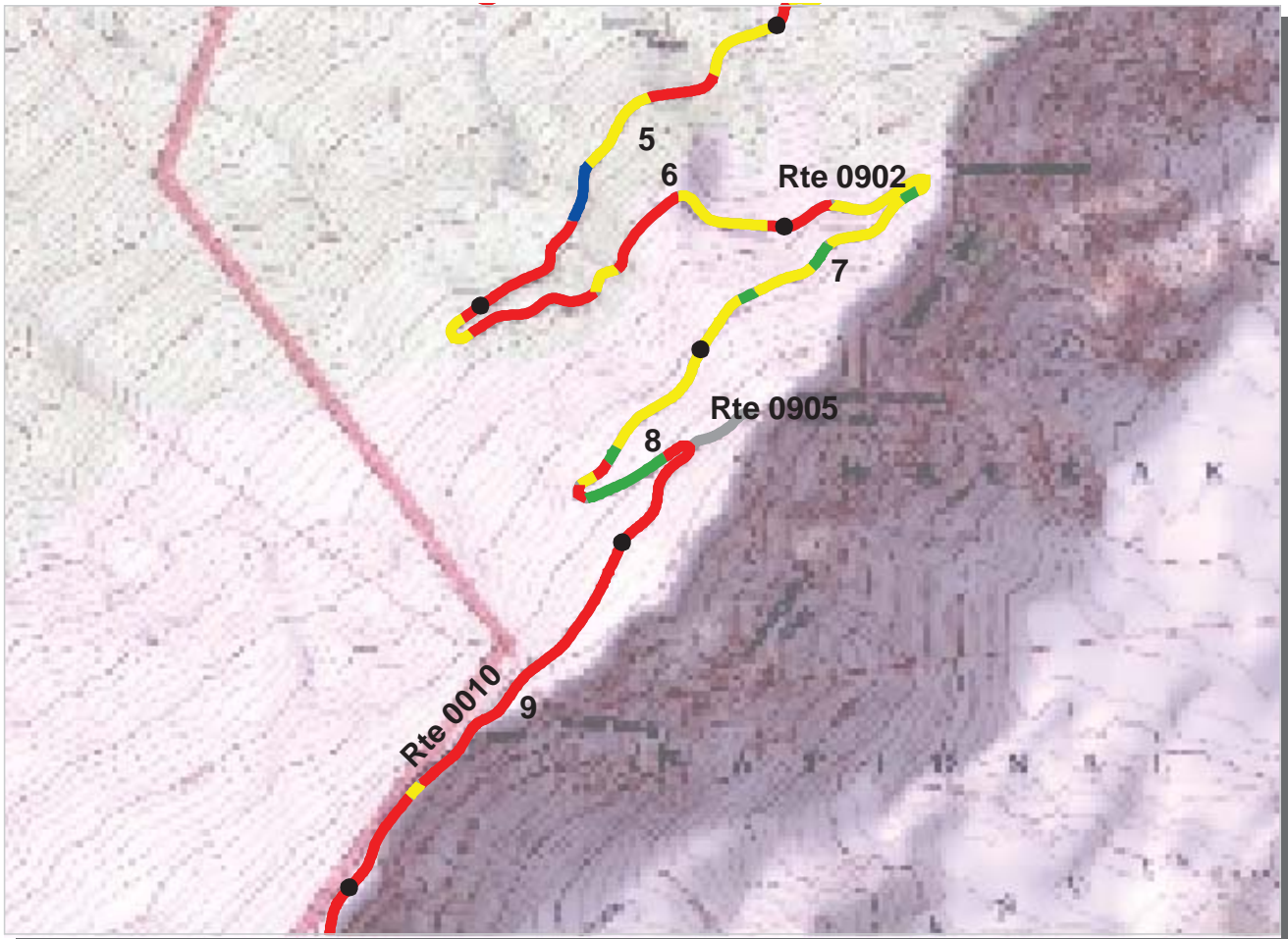
Pacific West Region
HALE : Haleakala National Park

ROUTE: 0010 Haleakala Park Road **TOTAL LENGTH: 10.50 Miles**

Section Number	0	1	2	3	4
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
AADT	**				
SADT	**				
ADT Date	**				
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	23	23	21	21	22
Lane Width (ft)	12	11	11	10	11
Shoulder Width (ft)	3	0	0	0	0
Roadway Condition Information					
PCR (Pavement Condition Rating)	69	53	48	49	50
RCI (Roughness Condition Index)	91	81	82	84	83
SCR (Surface Condition Rating)	58	34	25	26	28
Alligator Cracking Index	98	99	99	100	100
Rutting Index	60	35	26	26	31
Patching Index	100	100	100	100	100
Transverse Cracking Index	100	99	99	99	99
Longitudinal Cracking Index	99	99	99	99	97
Shoulder Condition Rating	GOOD	N/A	N/A	N/A	N/A
Drainage Condition Rating	GOOD	GOOD	GOOD	GOOD	GOOD

ROUTE: 0010 Haleakala Park Road

* NC designates data not collected N/A designates not applicable
 ** See website for traffic data: <http://www.efl.fhwa.dot.gov/nps/index.htm>



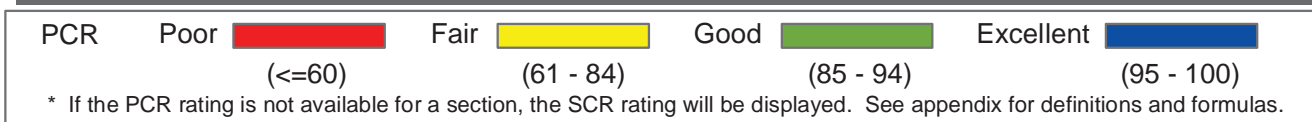
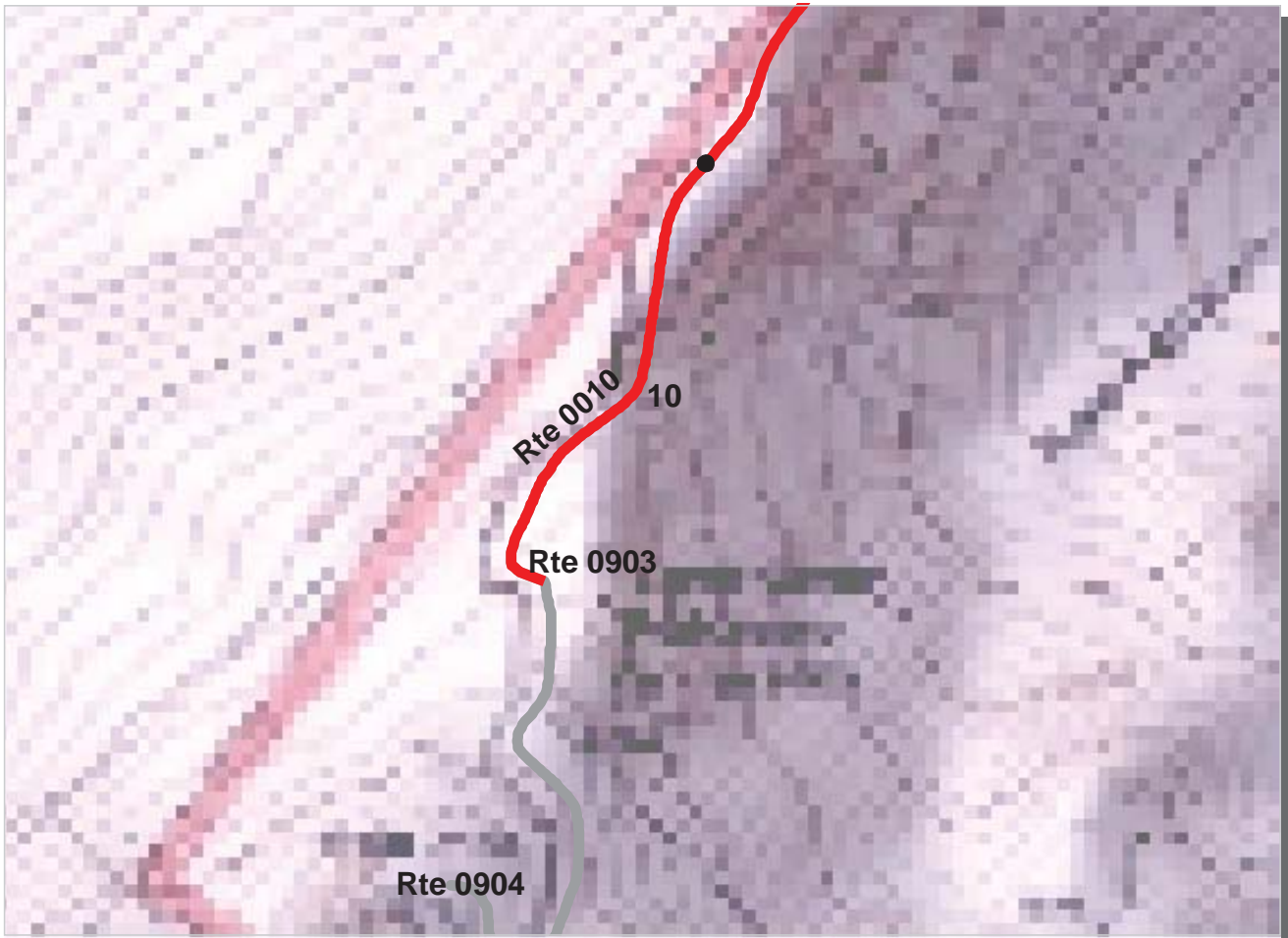
Pacific West Region
HALE : Haleakala National Park

ROUTE: 0010 Haleakala Park Road **TOTAL LENGTH: 10.50 Miles**

Section Number	5	6	7	8	9
Section Length (mi)	1.00	1.00	1.00	1.00	1.00
AADT	**				
SADT	**				
ADT Date	**				
Cross Section Information					
Number of Lanes	2	2	2	2	2
Paved Width (ft)	21	23	23	21	22
Lane Width (ft)	10	11	11	10	11
Shoulder Width (ft)	0	0	0	0	0
Roadway Condition Information					
PCR (Pavement Condition Rating)	64	58	72	65	43
RCI (Roughness Condition Index)	92	90	92	82	71
SCR (Surface Condition Rating)	45	36	58	53	24
Alligator Cracking Index	100	100	100	96	82
Rutting Index	45	36	58	57	52
Patching Index	100	100	100	100	100
Transverse Cracking Index	100	99	100	98	88
Longitudinal Cracking Index	100	99	99	99	94
Shoulder Condition Rating	N/A	N/A	N/A	N/A	N/A
Drainage Condition Rating	GOOD	GOOD	GOOD	GOOD	GOOD

ROUTE: 0010 Haleakala Park Road

* NC designates data not collected N/A designates not applicable
 ** See website for traffic data: <http://www.efl.fhwa.dot.gov/nps/index.htm>



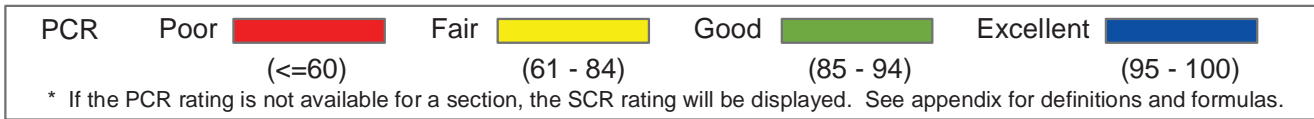
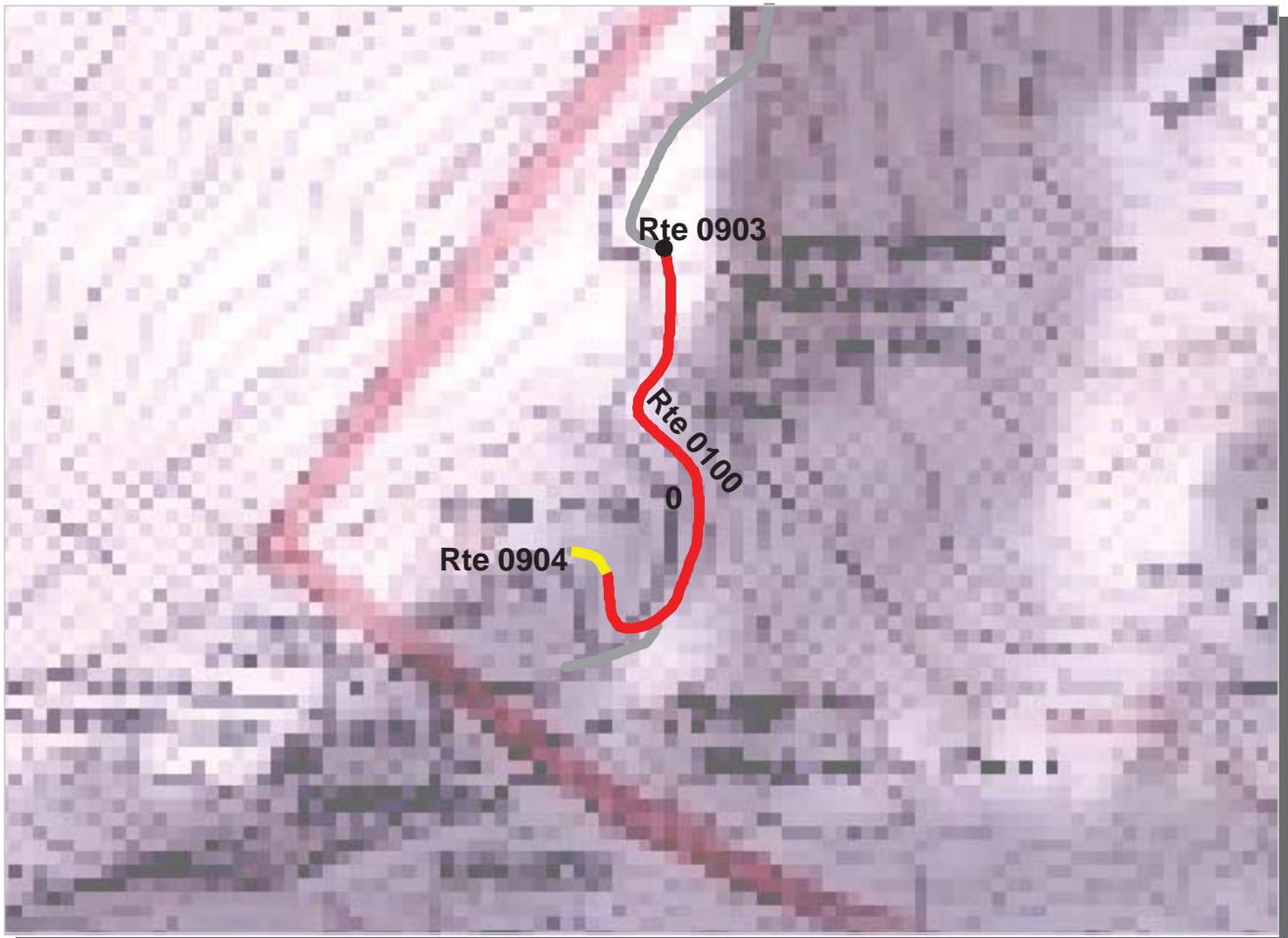
Pacific West Region
HALE : Haleakala National Park

ROUTE: 0010 Haleakala Park Road **TOTAL LENGTH: 10.50 Miles**

Section Number	10				
Section Length (mi)	0.50				
AADT	**				
SADT	**				
ADT Date	**				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	22				
Lane Width (ft)	11				
Shoulder Width (ft)	0				
Roadway Condition Information					
PCR (Pavement Condition Rating)	35				
RCI (Roughness Condition Index)	56				
SCR (Surface Condition Rating)	21				
Alligator Cracking Index	90				
Rutting Index	51				
Patching Index	100				
Transverse Cracking Index	85				
Longitudinal Cracking Index	91				
Shoulder Condition Rating	N/A				
Drainage Condition Rating	GOOD				

ROUTE: 0010 Haleakala Park Road

* NC designates data not collected N/A designates not applicable
 ** See website for traffic data: <http://www.efl.fhwa.dot.gov/nps/index.htm>



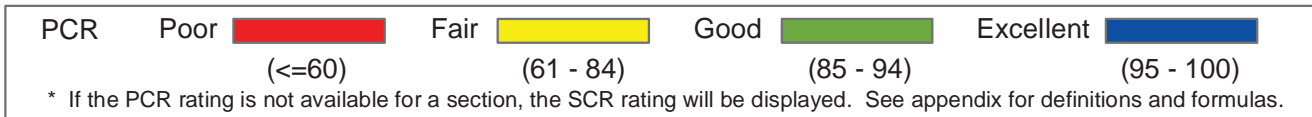
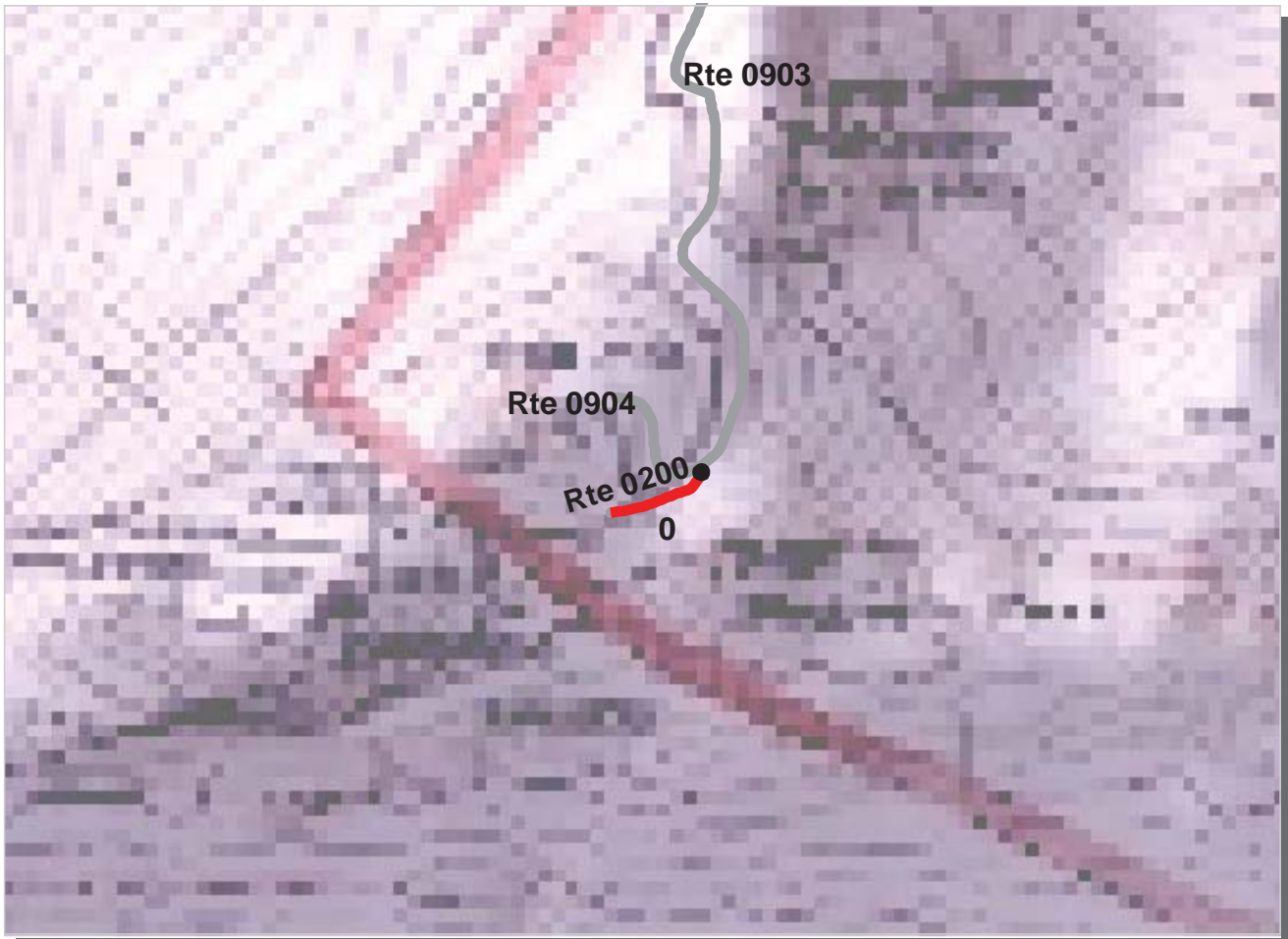
Pacific West Region
HALE : Haleakala National Park

ROUTE: 0100 Red Hill Road **TOTAL LENGTH: 0.57 Miles**

Section Number	0				
Section Length (mi)	0.57				
AADT	**				
SADT	**				
ADT Date	**				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	20				
Lane Width (ft)	10				
Shoulder Width (ft)	0				
Roadway Condition Information					
PCR (Pavement Condition Rating)	35				
RCI (Roughness Condition Index)	50				
SCR (Surface Condition Rating)	32				
Alligator Cracking Index	100				
Rutting Index	32				
Patching Index	100				
Transverse Cracking Index	100				
Longitudinal Cracking Index	100				
Shoulder Condition Rating	N/A				
Drainage Condition Rating	POOR				

ROUTE: 0100 Red Hill Road

* NC designates data not collected N/A designates not applicable
 ** See website for traffic data: <http://www.efl.fhwa.dot.gov/nps/index.htm>



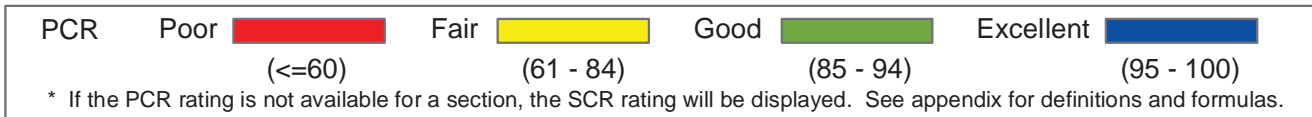
Pacific West Region
HALE : Haleakala National Park

ROUTE: 0200 Magnetic Peak Spur Road **TOTAL LENGTH: 0.12 Miles**

Section Number	0				
Section Length (mi)	0.12				
AADT	**				
SADT	**				
ADT Date	**				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	18				
Lane Width (ft)	9				
Shoulder Width (ft)	0				
Roadway Condition Information					
PCR (Pavement Condition Rating)	29				
RCI (Roughness Condition Index)	61				
SCR (Surface Condition Rating)	25				
Alligator Cracking Index	100				
Rutting Index	39				
Patching Index	100				
Transverse Cracking Index	82				
Longitudinal Cracking Index	99				
Shoulder Condition Rating	N/A				
Drainage Condition Rating	GOOD				

ROUTE: 0200 Magnetic Peak Spur Road

* NC designates data not collected N/A designates not applicable
 ** See website for traffic data: <http://www.efl.fhwa.dot.gov/nps/index.htm>



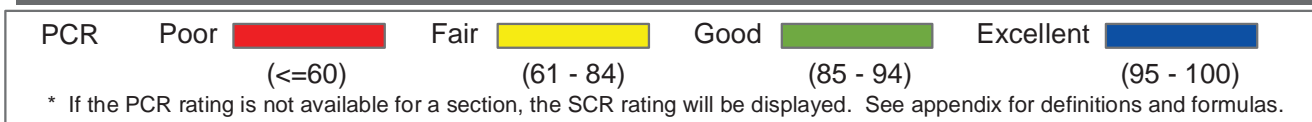
Pacific West Region
HALE : Haleakala National Park

ROUTE: 0201 Kalahaku Overlook Road **TOTAL LENGTH: 0.20 Miles**

Section Number	0				
Section Length (mi)	0.20				
AADT	**				
SADT	**				
ADT Date	**				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	21				
Lane Width (ft)	11				
Shoulder Width (ft)	0				
Roadway Condition Information					
PCR (Pavement Condition Rating)	43				
RCI (Roughness Condition Index)	89				
SCR (Surface Condition Rating)	32				
Alligator Cracking Index	100				
Rutting Index	36				
Patching Index	100				
Transverse Cracking Index	96				
Longitudinal Cracking Index	100				
Shoulder Condition Rating	N/A				
Drainage Condition Rating	GOOD				

ROUTE: 0201 Kalahaku Overlook Road

* NC designates data not collected N/A designates not applicable
 ** See website for traffic data: <http://www.efl.fhwa.dot.gov/nps/index.htm>



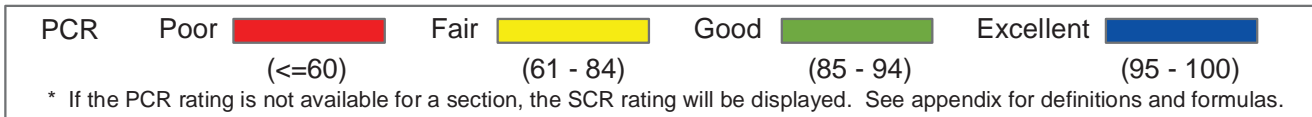
Pacific West Region
HALE : Haleakala National Park

ROUTE: 0202 Hosmer Grove Road **TOTAL LENGTH: 0.47 Miles**

Section Number	0				
Section Length (mi)	0.47				
AADT	**				
SADT	**				
ADT Date	**				
Cross Section Information					
Number of Lanes	2				
Paved Width (ft)	16				
Lane Width (ft)	8				
Shoulder Width (ft)	0				
Roadway Condition Information					
PCR (Pavement Condition Rating)	18				
RCI (Roughness Condition Index)	44				
SCR (Surface Condition Rating)	8				
Alligator Cracking Index	44				
Rutting Index	42				
Patching Index	100				
Transverse Cracking Index	93				
Longitudinal Cracking Index	94				
Shoulder Condition Rating	N/A				
Drainage Condition Rating	GOOD				

ROUTE: 0202 Hosmer Grove Road

* NC designates data not collected N/A designates not applicable
 ** See website for traffic data: <http://www.efl.fhwa.dot.gov/nps/index.htm>



Pacific West Region
HALE : Haleakala National Park

ROUTE: 0401 Pu'u Niania Road **TOTAL LENGTH: 0.15 Miles**

Section Number	0				
Section Length (mi)	0.15				
AADT	**				
SADT	**				
ADT Date	**				
Cross Section Information					
Number of Lanes	1				
Paved Width (ft)	12				
Lane Width (ft)	12				
Shoulder Width (ft)	0				
Roadway Condition Information					
PCR (Pavement Condition Rating)	13				
RCI (Roughness Condition Index)	56				
SCR (Surface Condition Rating)	11				
Alligator Cracking Index	25				
Rutting Index	33				
Patching Index	99				
Transverse Cracking Index	94				
Longitudinal Cracking Index	97				
Shoulder Condition Rating	N/A				
Drainage Condition Rating	GOOD				

ROUTE: 0401 Pu'u Niania Road

* NC designates data not collected N/A designates not applicable
 ** See website for traffic data: <http://www.efl.fhwa.dot.gov/nps/index.htm>

Haleakala National Park

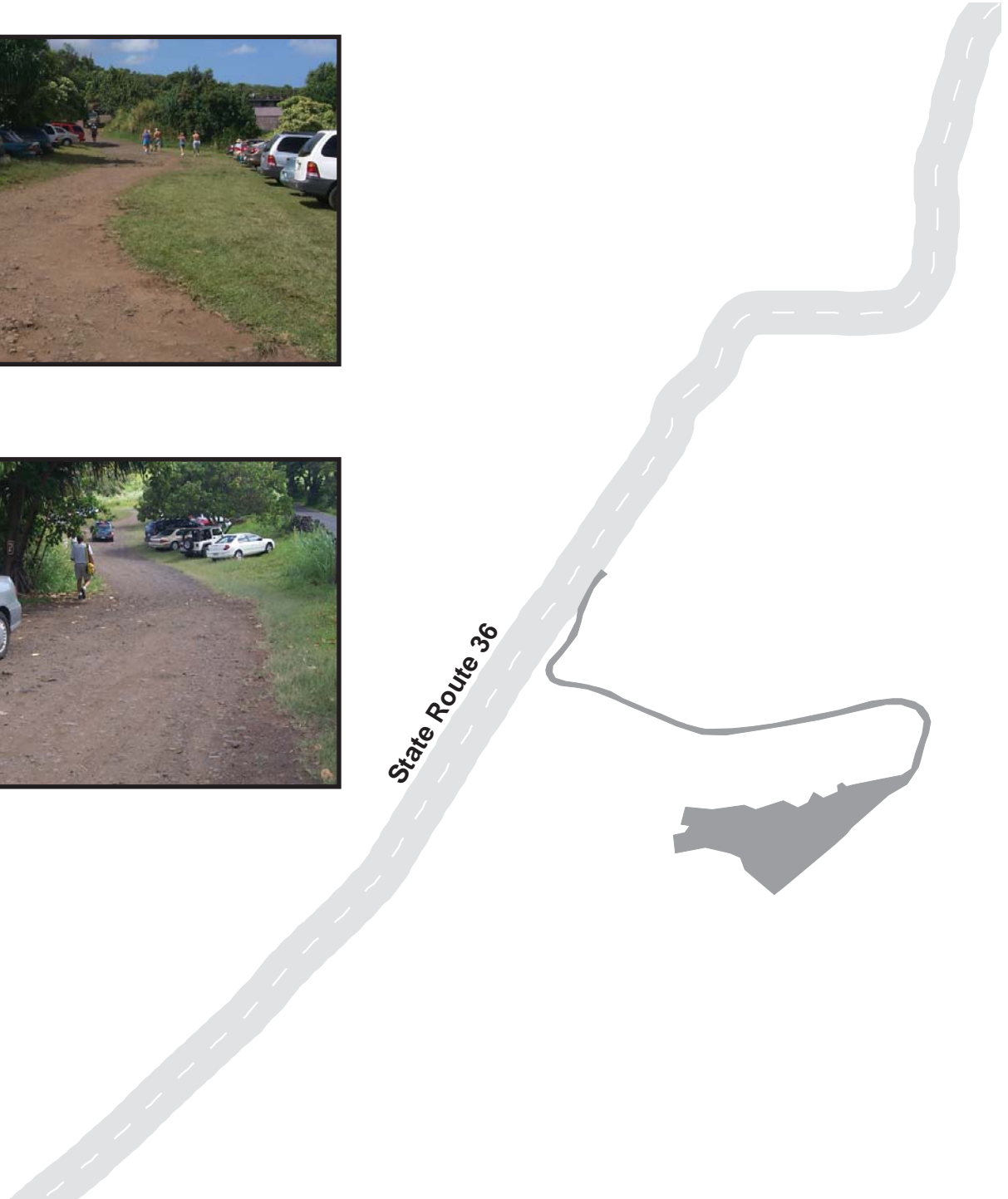
Route 0203

Kilahulu Campground And Picnic Access Road

From State Route 36 (Piilani Highway)

Route	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles *	Condition / PCR	Surface Type
0203	0.00	0.00	110249	1.90	POOR / 45	GR

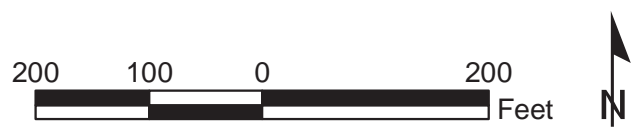
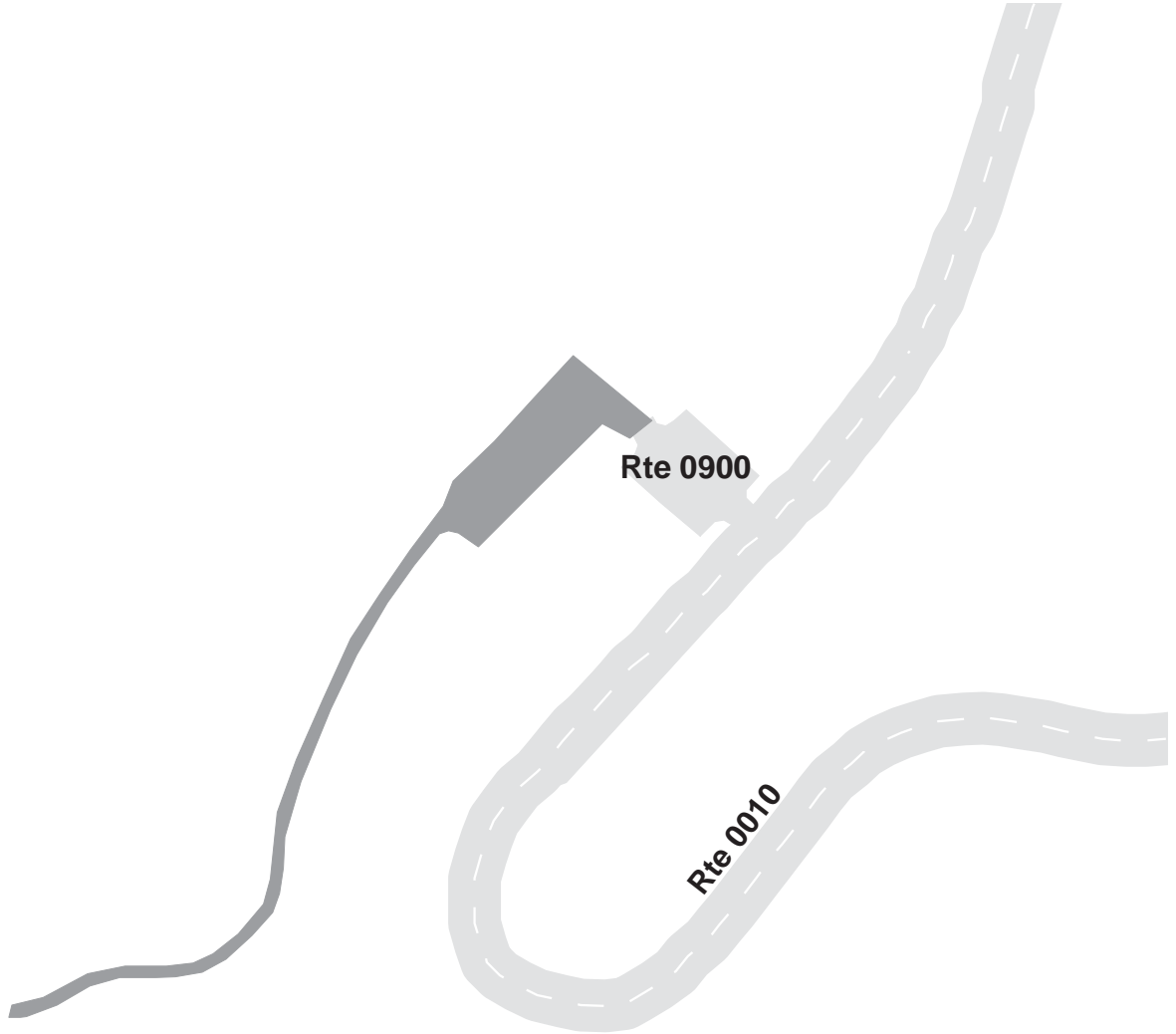
* Lane miles are based on 11' lane widths



Haleakala National Park
Route 0400
 Headquarters Residence Road
 From Route 0900

Route	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles *	Condition / PCR	Surface Type
0400	0.00	0.00	16986	0.29	POOR / 45	AS

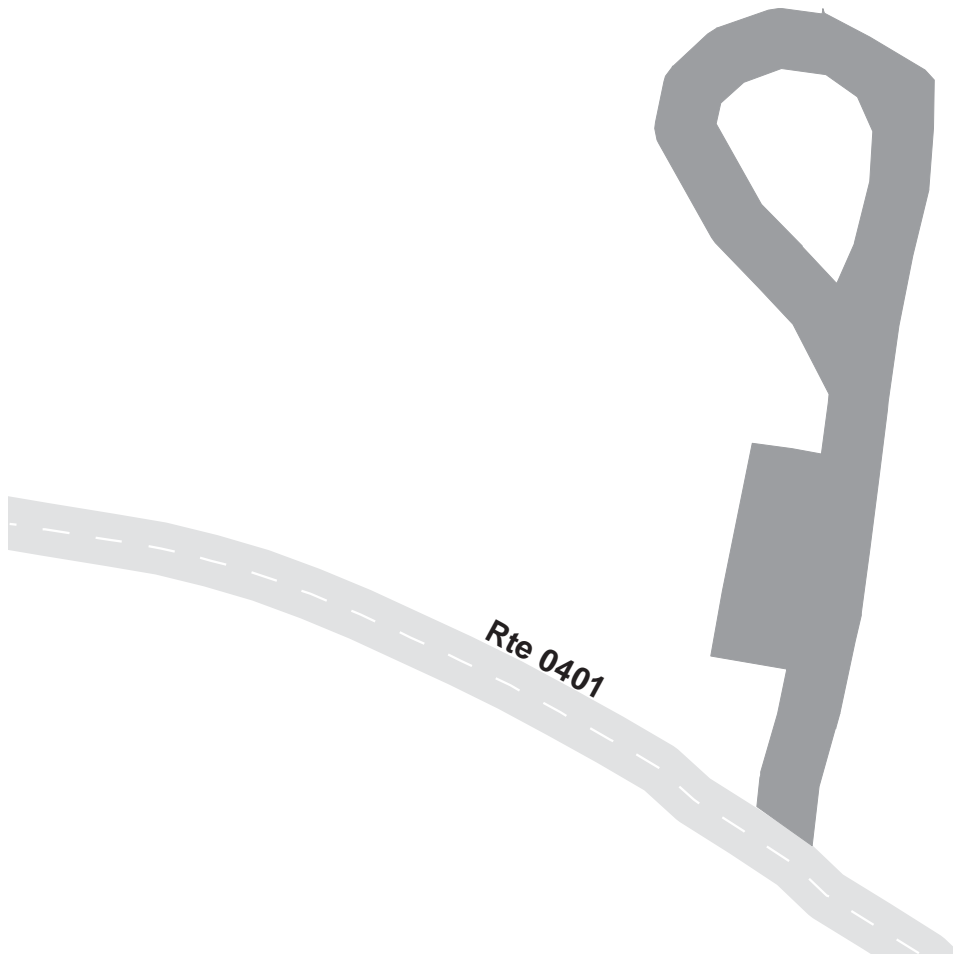
* Lane miles are based on 11' lane widths



Haleakala National Park
Route 0402
 Pu'u Nianiau Residence Road
 From Route 0401 at MP 0.05 on Right

Route	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles *	Condition / PCR	Surface Type
0402	0.00	0.00	9846	0.17	GOOD / 90	AS

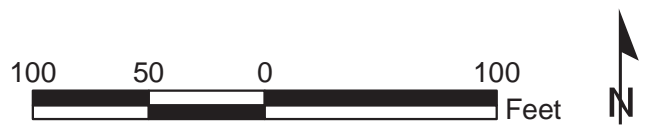
* Lane miles are based on 11' lane widths



Haleakala National Park
Route 0403
 Water Catchment Road
 From Route 0010 at MP 2.26 on Left

Route	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles *	Condition / PCR	Surface Type
0403	0.00	0.00	7173	0.12	GOOD / 90	AS

* Lane miles are based on 11' lane widths



Haleakala National Park

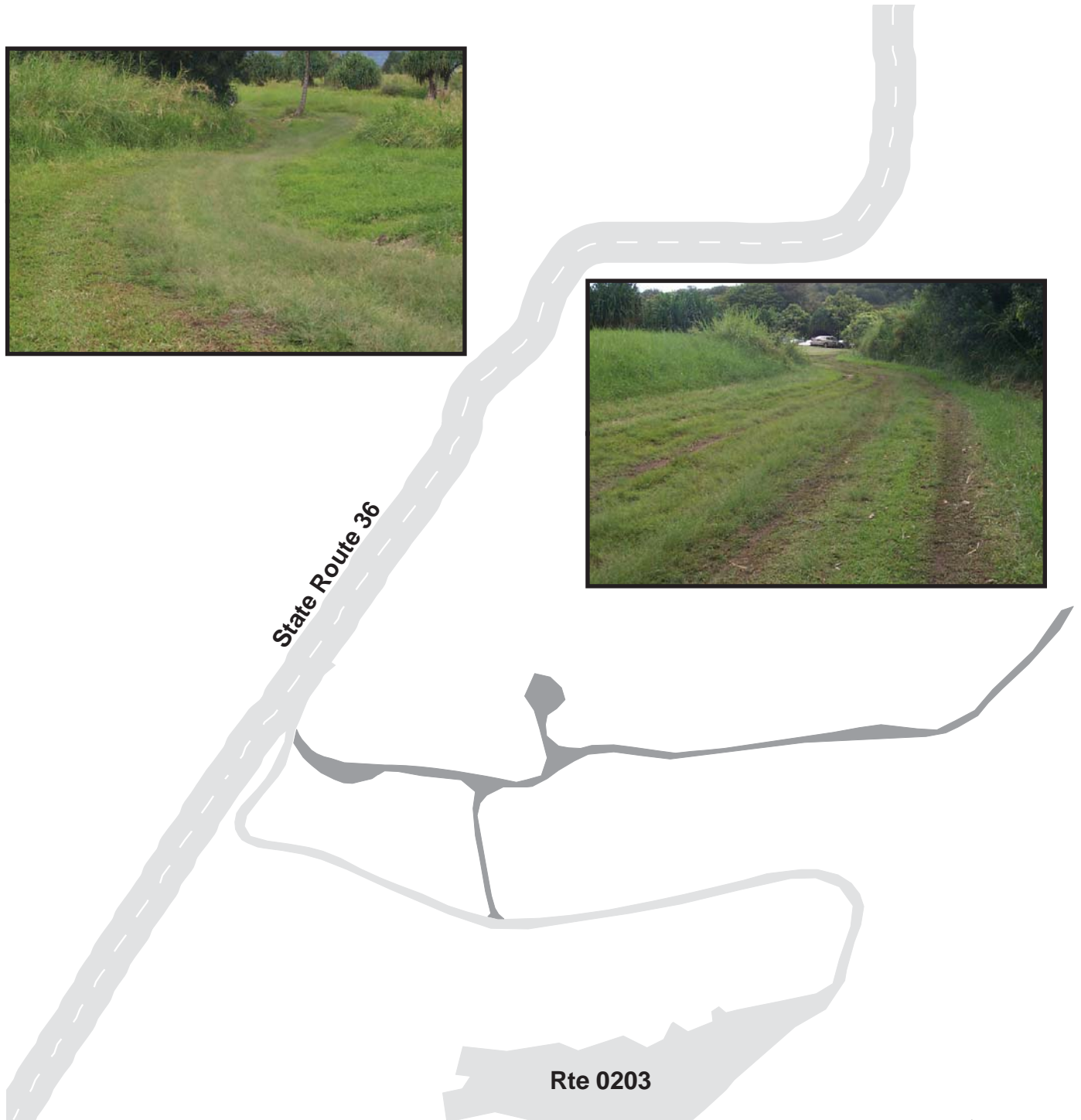
Route 0404

Kipahulu Service Road

From Route 0203

Route	Length (mi)	Width (ft)	Area (sq ft)	Lane Miles *	Condition / PCR	Surface Type
0404	0.00	0.00	27597	0.48	POOR / 45	OT

* Lane miles are based on 11' lane widths



Haleakala National Park

Route 0900

Park Headquarters Parking
Adjacent to Route 0010 at MP 1 on Left and Right

Route	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type	Condition / PCR
0900	Public	5/14/2001	14140	0.24	AS	GOOD / 90

* Lane miles are based on 11' lane widths



150 75 0 150 Feet



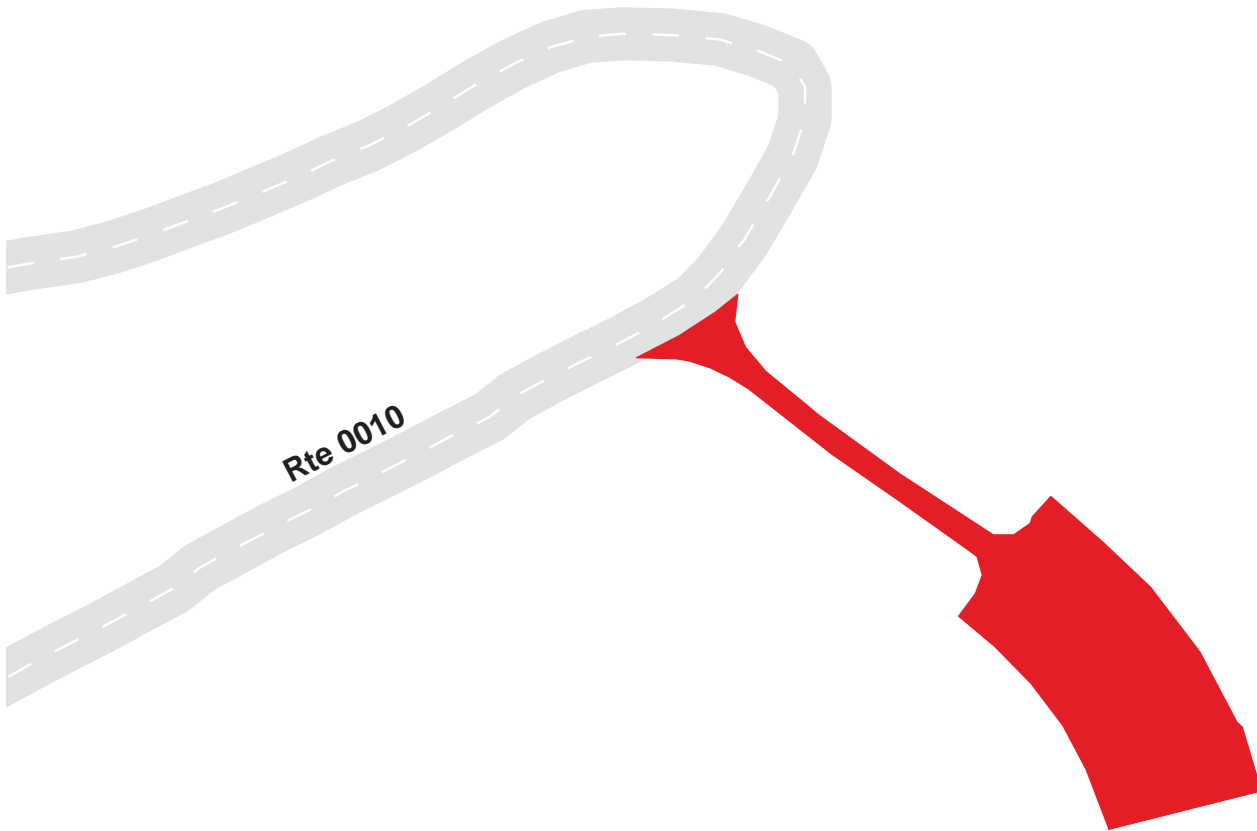
Haleakala National Park

Route 0901

Halemau'u Trailhead Parking
Adjacent to Route 0010 at MP 4.54 on Left

Route	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type	Condition / PCR
0901	Public	5/14/2001	12019	0.21	AS	GOOD / 90

* Lane miles are based on 11' lane widths



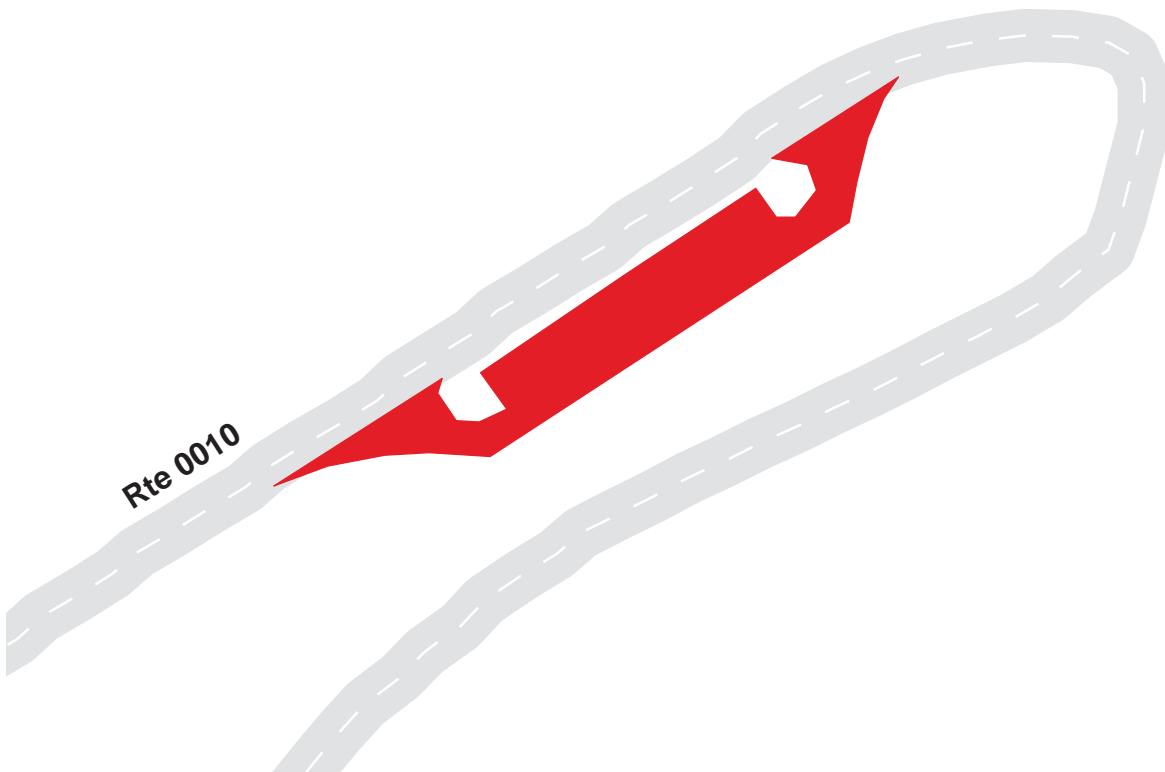
Haleakala National Park

Route 0902

Leleiwi Overlook Parking
Adjacent to Route 0010 at MP 7.3 on Right

Route	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type	Condition / PCR
0902	Public	5/14/2001	8338	0.14	AS	GOOD / 90

* Lane miles are based on 11' lane widths



Haleakala National Park

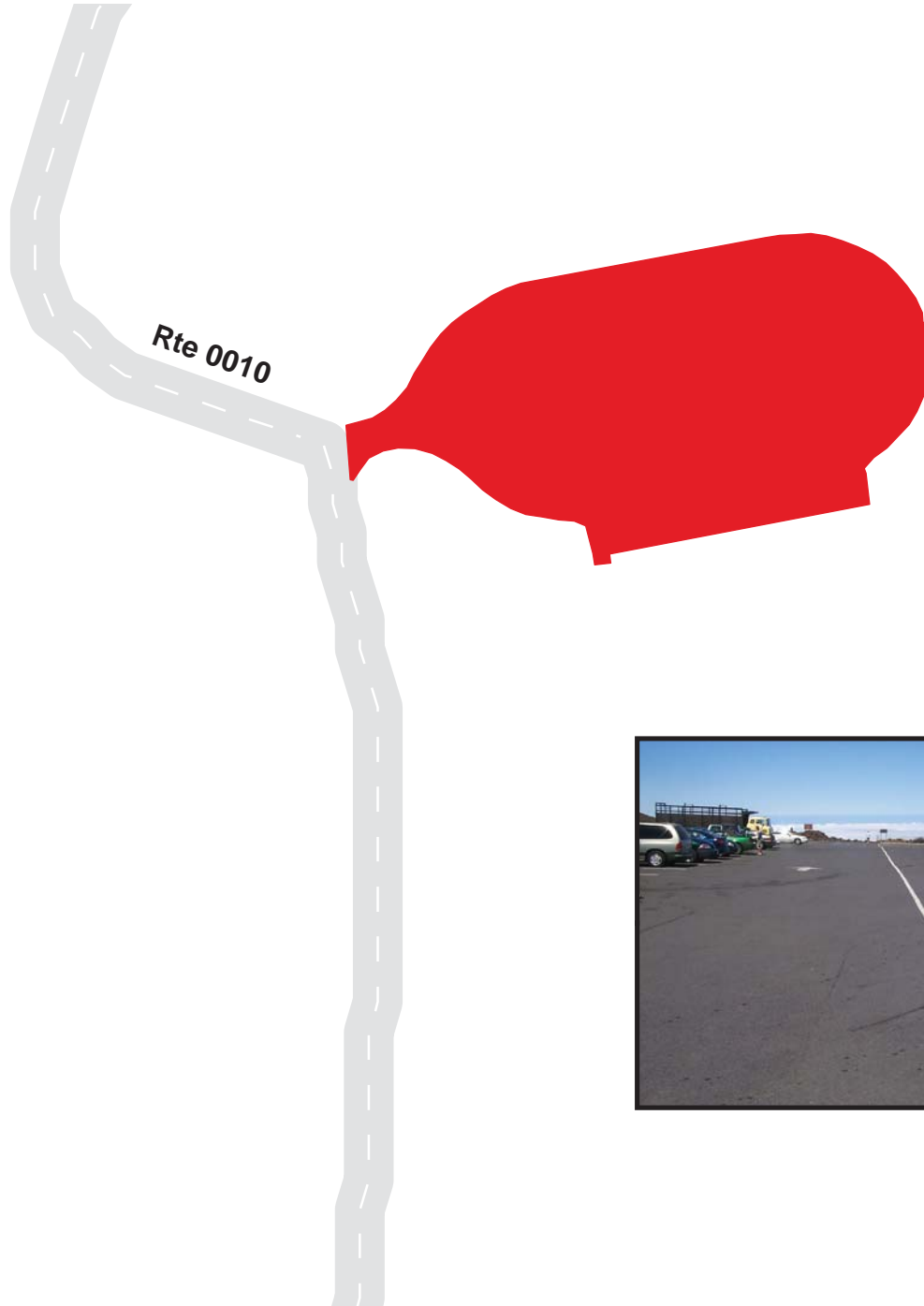
Route 0903

Haleakala Visitor Center Parking (Crater Rim)

At End of Route 0010

Route	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type	Condition / PCR
0903	Public	5/14/2001	44504	0.77	AS	GOOD / 90

* Lane miles are based on 11' lane widths



Haleakala National Park

Route 0904

Pu'u'ula'ula Summit Parking

At End of Route 0100

Route	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type	Condition / PCR
0904	NonPublic	5/14/2001	22629	0.39	AS	EXCELLENT / 97

* Lane miles are based on 11' lane widths



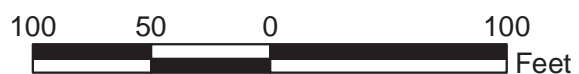
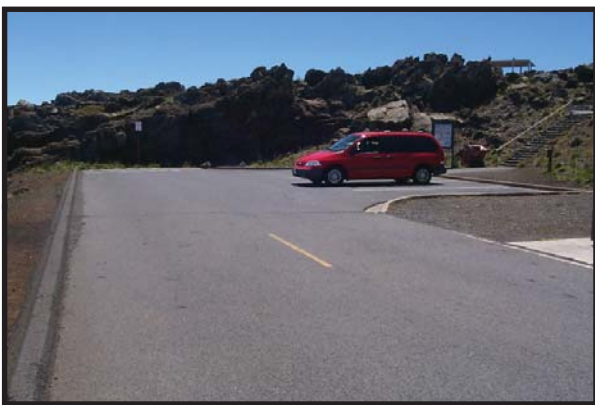
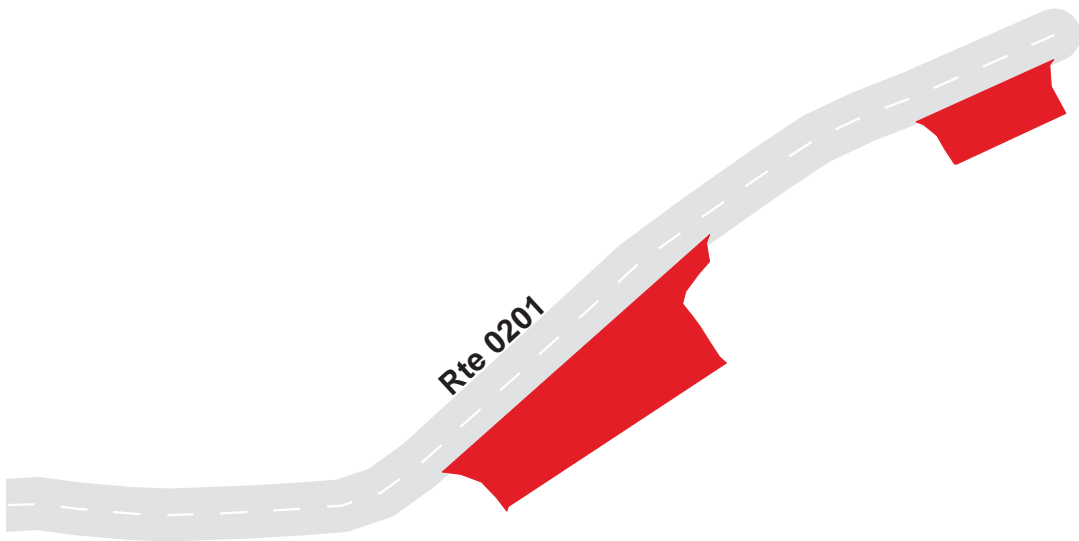
Haleakala National Park

Route 0905

Kalahaku Overlook Parking
Adjacent to Route 0201 near end on Right

Route	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type	Condition / PCR
0905	Public	5/14/2001	5369	0.09	AS	GOOD / 90

* Lane miles are based on 11' lane widths



Haleakala National Park

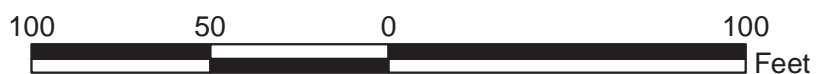
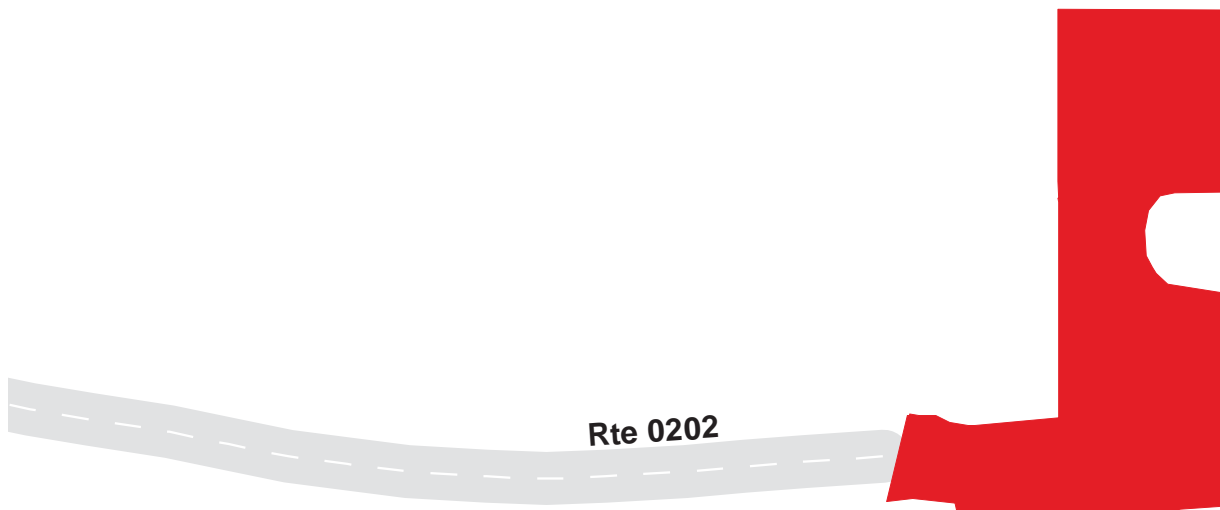
Route 0906

Hosmer Grove Parking

At End of Route 0202

Route	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type	Condition / PCR
0906	Public	5/14/2001	6663	0.11	AS	POOR / 45

* Lane miles are based on 11' lane widths



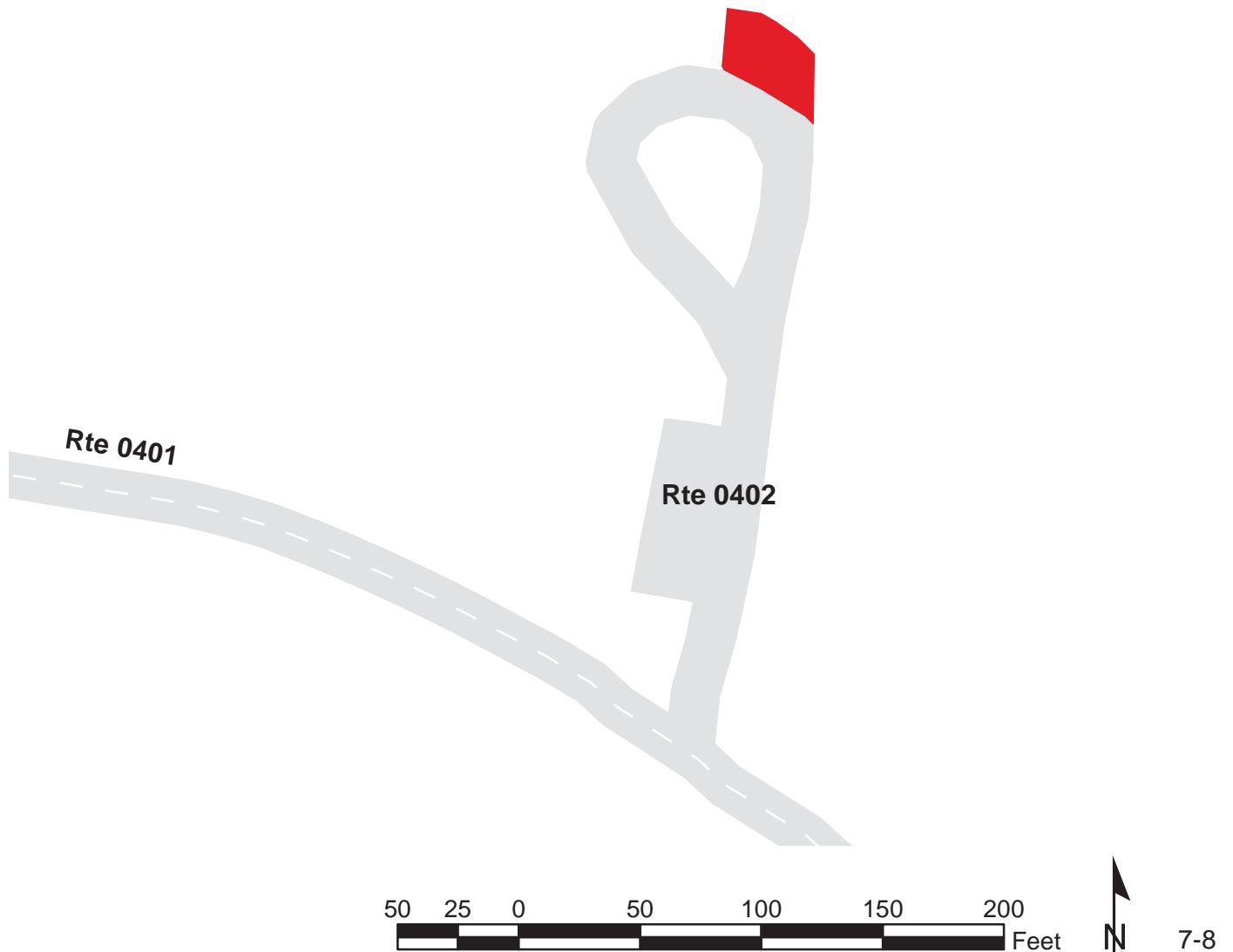
Haleakala National Park

Route 0908

Pu'u Nianiau Residence Parking
At End of Route 0402

Route	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type	Condition / PCR
0908	NonPublic	5/14/2001	1013	0.02	GR	POOR / 45

* Lane miles are based on 11' lane widths



Haleakala National Park

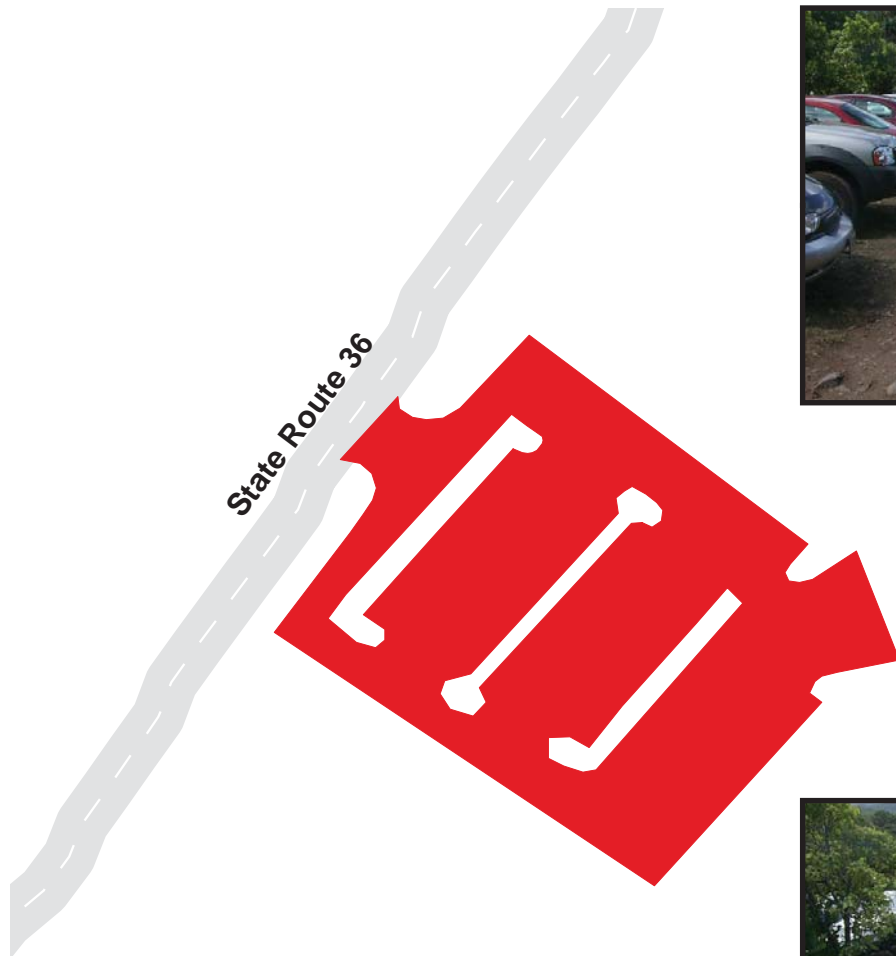
Route 0910

Kipahulu Visitor Center

Adjacent to State Route 36 (Piilani Highway) at Southeast Park Boundary

Route	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type	Condition / PCR
0910	Public	5/13/2001	28695	0.49	GR	POOR / 45

* Lane miles are based on 11' lane widths



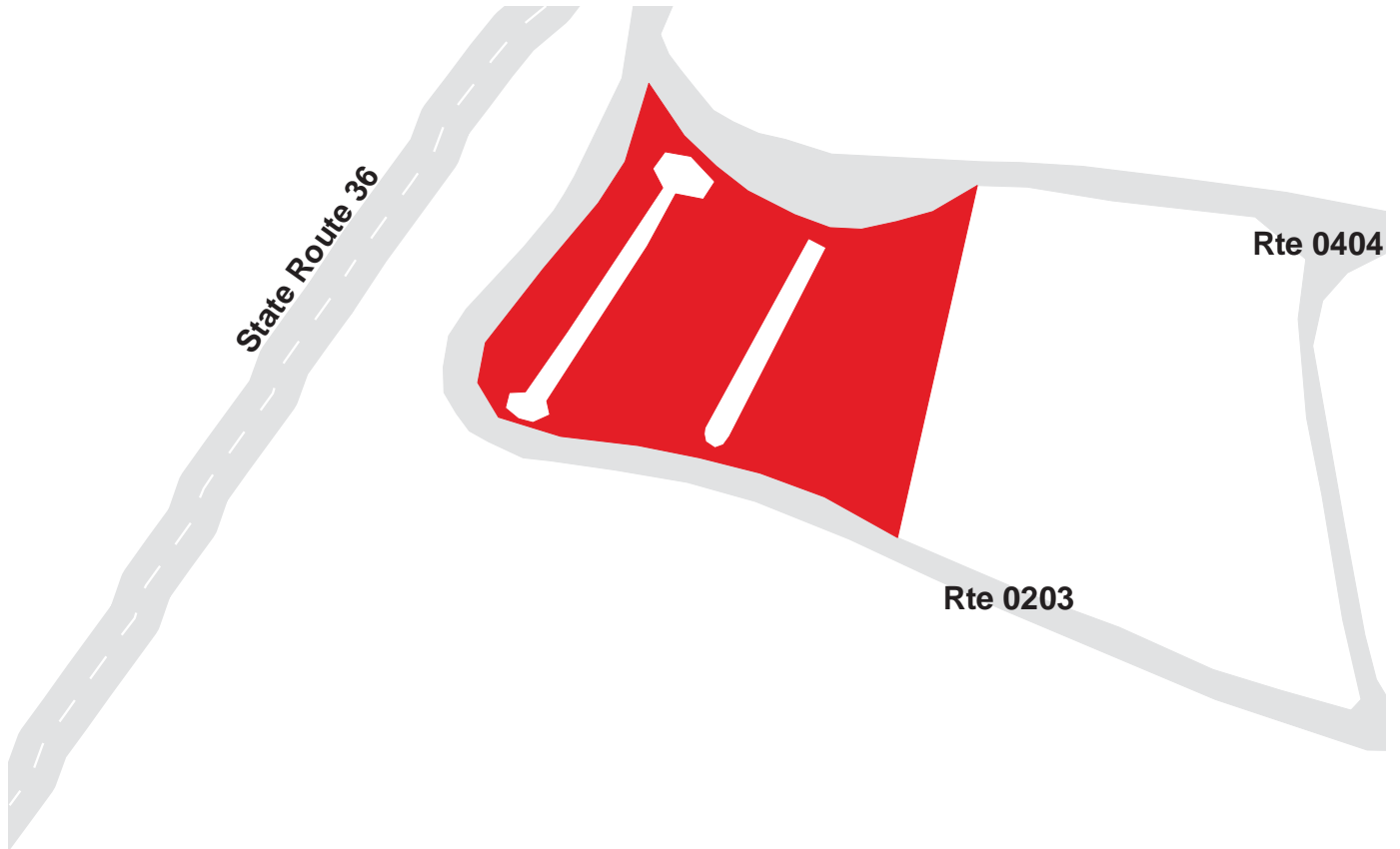
Haleakala National Park

Route 0911

Kipahulu Visitor Center Overflow Parking
Adjacent to Route 0203 on Left

Route	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type	Condition / PCR
0911	Public	5/13/2001	22926	0.39	OT	POOR / 45

* Lane miles are based on 11' lane widths



Haleakala National Park

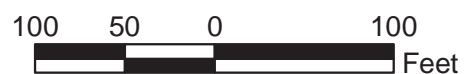
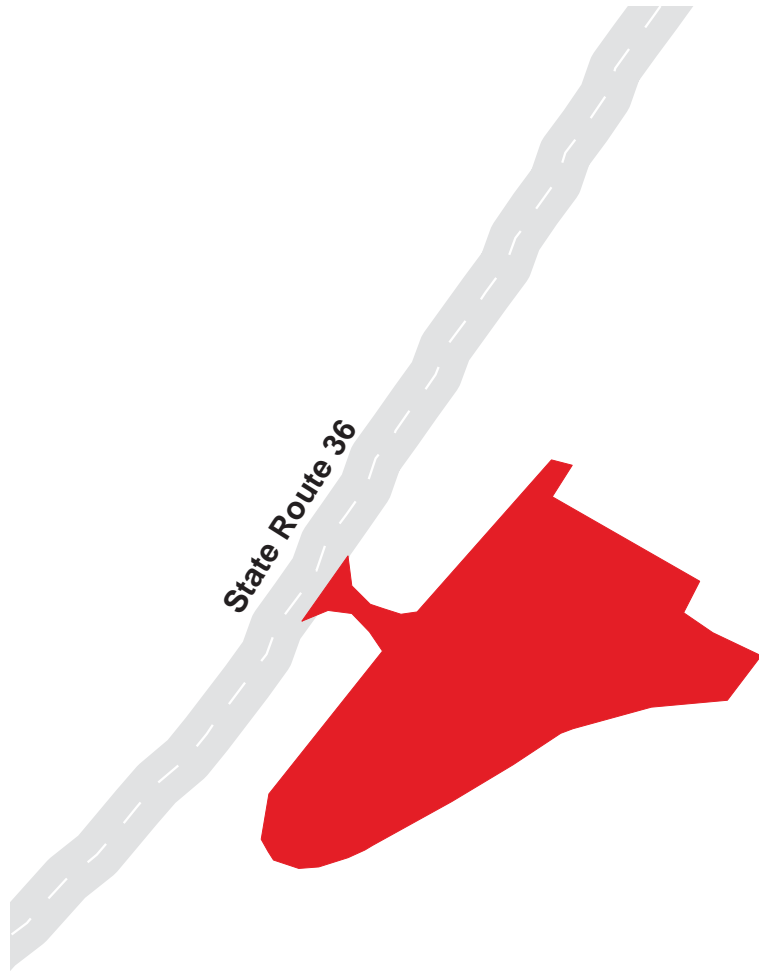
Route 0912

Kipahulu Maintenance Area and Landing Zone

Adjacent to State Route 36 (Piilani Highway) at Southeast Park Boundary near Route 0910

Route	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type	Condition / PCR
0912	NonPublic	5/13/2001	25585	0.44	OT	POOR / 45

* Lane miles are based on 11' lane widths



HALE: PARKWIDE MAINTENANCE FEATURES SUMMARY

<i>FEATURE</i>	<i>PARK TOTAL</i>	<i>UNIT</i>
BRIDGE	94	EACH
CATTLE GUARD	18	EACH
CULVERT	231	EACH
CURB	47,240	LINEAR FEET
DROP INLET	0	EACH
GUARD WALL	0	LINEAR FEET
GUARDRAIL	0	LINEAR FEET
INTERSECTION	35	EACH
LOW WATER CROSSING	0	EACH
OVERHEAD SIGN	0	EACH
PARK BOUNDARY	3	EACH
PAVED DITCH	597	LINEAR FEET
PULLOUT	7	EACH
RAILROAD CROSSING	0	EACH
RETAINING WALL	4	EACH
STATE BOUNDARY	0	EACH
TRAFFIC LIGHT	0	EACH
TUNNEL	0	EACH
TURNOUT	0	LINEAR FEET

HALE: ROUTE MAINTENANCE FEATURES SUMMARY

FEATURE	ROUTE 0010 HALEAKALA PARK ROAD	ROUTE 0100 RED HILL ROAD	ROUTE 0200 MAGNETIC PEAK SPUR ROAD	ROUTE 0201 KALAHAKU OVERLOOK ROAD	ROUTE 0202 HOSMER GROVE ROAD	ROUTE 0401 PU'U NIANIAU ROAD	UNIT
BRIDGE	1	0	0	0	0	0	EACH
CATTLE GUARD	0	0	0	0	0	0	EACH
CULVERT	62	0	0	2	0	0	EACH
CURB	46,797	444	0	0	0	0	LINEAR FEET
DROP INLET	0	0	0	0	0	0	EACH
GUARD WALL	0	0	0	0	0	0	LINEAR FEET
GUARDRAIL	0	0	0	0	0	0	LINEAR FEET
INTERSECTION	14	5	2	3	7	4	EACH
LOW WATER CROSSING	0	0	0	0	0	0	EACH
OVERHEAD SIGN	0	0	0	0	0	0	EACH
PARK BOUNDARY	1	0	0	0	0	0	EACH
PAVED DITCH	597	0	0	0	0	0	LINEAR FEET
PULLOUT	7	0	0	0	0	0	EACH
RAILROAD CROSSING	0	0	0	0	0	0	EACH
RETAINING WALL	4	0	0	0	0	0	EACH
STATE BOUNDARY	0	0	0	0	0	0	EACH
TRAFFIC LIGHT	0	0	0	0	0	0	EACH
TUNNEL	0	0	0	0	0	0	EACH
TURNOUT	0	0	0	0	0	0	LINEAR FEET

HALE: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0010 : HALEAKALA PARK ROAD

<i>FROM MILEPOST</i>	<i>TO MILEPOST</i>	<i>FEATURE</i>	<i>SIDE</i>	<i>COMMENT</i>
0.000	0.000			ROUTE BEGINS AT NORTH PARK BOUNDARY
0.001	0.001	PARK BOUNDARY	N/A	
0.008	0.081	CURB	RIGHT	
0.034	0.071	PULLOUT	RIGHT	
0.126	0.151	CURB	LEFT	
0.178	0.178	INTERSECTION	RIGHT	
0.253	0.253	INTERSECTION	LEFT	LT RTE 202
0.258	0.258	INTERSECTION	RIGHT	INT RT RTE 401
0.492	0.524	CURB	RIGHT	
0.627	0.627	CULVERT	N/A	
0.804	0.804	CULVERT	N/A	
0.883	0.883	CULVERT	N/A	
1.025	1.182	CURB	LEFT	
1.026	1.026	INTERSECTION	RIGHT	INT RT RTE 900
1.030	1.068	CURB	RIGHT	
1.158	1.158	CULVERT	N/A	
1.171	1.232	CURB	RIGHT	
1.219	1.341	CURB	LEFT	
1.296	1.296	CULVERT	N/A	
1.339	1.417	CURB	RIGHT	
1.361	1.361	CULVERT	N/A	
1.411	1.411	CULVERT	N/A	
1.419	1.498	PAVED DITCH	RIGHT	
1.432	1.448	PULLOUT	LEFT	
1.498	1.560	CURB	RIGHT	
1.547	1.650	CURB	LEFT	
1.612	1.625	BRIDGE	N/A	

HALE: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0010 : HALEAKALA PARK ROAD

<i>FROM MILEPOST</i>	<i>TO MILEPOST</i>	<i>FEATURE</i>	<i>SIDE</i>	<i>COMMENT</i>
1.646	1.708	CURB	RIGHT	
1.651	1.651	CULVERT	N/A	
1.705	1.705	CULVERT	N/A	
1.708	1.742	PAVED DITCH	RIGHT	
1.748	1.811	CURB	LEFT	
1.777	1.777	CULVERT	N/A	
1.793	2.000	CURB	RIGHT	
1.847	1.847	CULVERT	N/A	
1.977	2.015	CURB	LEFT	
1.993	1.993	CULVERT	N/A	
2.060	2.141	CURB	RIGHT	
2.113	2.113	CULVERT	N/A	
2.117	2.208	CURB	LEFT	
2.195	2.195	CULVERT	N/A	
2.197	2.346	CURB	RIGHT	
2.263	2.263	INTERSECTION	LEFT	INT LT RTE 403
2.313	2.493	CURB	LEFT	
2.428	2.428	CULVERT	N/A	
2.484	2.646	CURB	RIGHT	
2.497	2.497	CULVERT	N/A	
2.574	2.574	CULVERT	N/A	
2.593	2.861	CURB	LEFT	
2.621	2.621	CULVERT	N/A	
2.787	2.787	CULVERT	N/A	
2.827	2.827	INTERSECTION	RIGHT	
2.853	3.024	CURB	RIGHT	
2.863	2.863	CULVERT	N/A	

HALE: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0010 : HALEAKALA PARK ROAD

<i>FROM MILEPOST</i>	<i>TO MILEPOST</i>	<i>FEATURE</i>	<i>SIDE</i>	<i>COMMENT</i>
2.937	2.937	CULVERT	N/A	
2.947	2.987	PULLOUT	RIGHT	
2.955	2.987	PULLOUT	LEFT	
2.993	3.171	CURB	LEFT	
2.995	2.995	CULVERT	N/A	
3.194	3.294	CURB	RIGHT	
3.250	3.482	CURB	LEFT	
3.345	3.345	CULVERT	N/A	
3.353	3.358	CURB	RIGHT	
3.476	3.766	CURB	RIGHT	
3.513	3.513	CULVERT	N/A	
3.583	3.583	CULVERT	N/A	
3.698	3.698	CULVERT	N/A	
3.741	3.841	CURB	LEFT	
3.789	3.789	CULVERT	N/A	
3.802	4.036	CURB	RIGHT	
3.863	3.863	CULVERT	N/A	
3.966	3.966	CULVERT	N/A	
4.023	4.074	CURB	LEFT	
4.097	4.097	CULVERT	N/A	
4.112	4.177	CURB	RIGHT	
4.159	4.228	CURB	LEFT	
4.209	4.209	CULVERT	N/A	
4.220	4.382	CURB	RIGHT	
4.300	4.300	CULVERT	N/A	
4.359	4.476	CURB	LEFT	
4.421	4.421	CULVERT	N/A	

HALE: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0010 : HALEAKALA PARK ROAD

<i>FROM MILEPOST</i>	<i>TO MILEPOST</i>	<i>FEATURE</i>	<i>SIDE</i>	<i>COMMENT</i>
4.454	4.488	PULLOUT	RIGHT	
4.456	4.675	CURB	RIGHT	
4.536	4.536	INTERSECTION	LEFT	
4.671	4.839	CURB	LEFT	
4.768	4.768	CULVERT	N/A	
4.849	4.906	CURB	RIGHT	
4.873	4.873	CULVERT	N/A	
4.900	4.923	RETAINING WALL	LEFT	
4.985	4.985	CULVERT	N/A	
4.986	5.031	CURB	RIGHT	
5.060	5.109	CURB	LEFT	
5.183	5.202	RETAINING WALL	LEFT	
5.198	5.318	CURB	RIGHT	
5.212	5.212	CULVERT	N/A	
5.304	5.457	CURB	LEFT	
5.489	5.519	CURB	RIGHT	
5.547	5.622	CURB	LEFT	
5.570	5.570	CULVERT	N/A	
5.720	5.720	CULVERT	N/A	
5.720	5.739	CURB	RIGHT	
5.734	5.767	CURB	LEFT	
5.819	5.819	CULVERT	N/A	
5.840	5.863	CURB	RIGHT	
5.875	5.888	RETAINING WALL	LEFT	
5.875	6.163	CURB	LEFT	
5.910	5.910	CULVERT	N/A	
5.990	5.990	CULVERT	N/A	

HALE: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0010 : HALEAKALA PARK ROAD

<i>FROM MILEPOST</i>	<i>TO MILEPOST</i>	<i>FEATURE</i>	<i>SIDE</i>	<i>COMMENT</i>
6.019	6.019	INTERSECTION	RIGHT	
6.109	6.125	RETAINING WALL	LEFT	
6.190	6.261	CURB	RIGHT	
6.239	6.307	CURB	LEFT	
6.269	6.269	CULVERT	N/A	
6.407	6.430	CURB	LEFT	
6.449	6.502	CURB	RIGHT	
6.539	6.797	CURB	RIGHT	
6.599	6.599	CULVERT	N/A	
6.663	6.663	CULVERT	N/A	
6.790	6.813	PULLOUT	LEFT	
6.904	6.904	CULVERT	N/A	
6.951	6.951	CULVERT	N/A	
6.998	7.038	CURB	LEFT	
7.007	7.007	CULVERT	N/A	
7.042	7.142	CURB	RIGHT	
7.148	7.243	CURB	LEFT	
7.175	7.175	CULVERT	N/A	
7.219	7.258	CURB	RIGHT	
7.261	7.261	INTERSECTION	RIGHT	INT RT RTE 902
7.274	7.307	CURB	RIGHT	
7.310	7.310	INTERSECTION	RIGHT	INT RT RTE 902
7.319	7.410	CURB	RIGHT	
7.394	7.412	CURB	LEFT	
7.413	7.463	CURB	LEFT	
7.499	7.499	CULVERT	N/A	
7.506	7.542	CURB	RIGHT	

HALE: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0010 : HALEAKALA PARK ROAD

<i>FROM MILEPOST</i>	<i>TO MILEPOST</i>	<i>FEATURE</i>	<i>SIDE</i>	<i>COMMENT</i>
7.527	7.646	CURB	LEFT	
7.670	7.724	CURB	RIGHT	
7.673	7.673	CULVERT	N/A	
7.805	7.904	CURB	LEFT	
7.806	7.806	CULVERT	N/A	
7.917	7.917	CULVERT	N/A	
8.067	8.067	CULVERT	N/A	
8.086	8.155	CURB	RIGHT	
8.151	8.293	CURB	LEFT	
8.152	8.152	CULVERT	N/A	
8.272	8.296	PULLOUT	RIGHT	
8.311	8.311	CULVERT	N/A	
8.348	8.395	CURB	RIGHT	
8.383	8.508	CURB	LEFT	
8.492	8.528	CURB	RIGHT	
8.547	8.547	CULVERT	N/A	
8.549	8.762	CURB	RIGHT	
8.717	8.717	INTERSECTION	LEFT	INT LT RTE 201
8.752	8.879	CURB	LEFT	
8.854	8.956	CURB	RIGHT	
8.924	9.094	CURB	LEFT	
9.106	9.319	CURB	RIGHT	
9.239	9.239	CULVERT	N/A	
9.293	9.306	CURB	LEFT	
9.307	9.422	CURB	LEFT	
9.308	9.308	CULVERT	N/A	
9.397	9.512	CURB	RIGHT	

HALE: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0010 : HALEAKALA PARK ROAD

<i>FROM MILEPOST</i>	<i>TO MILEPOST</i>	<i>FEATURE</i>	<i>SIDE</i>	<i>COMMENT</i>
9.498	9.574	CURB	LEFT	
9.555	9.651	CURB	RIGHT	
9.633	9.649	CURB	LEFT	
9.653	9.912	CURB	LEFT	
9.912	9.994	CURB	RIGHT	
9.974	10.119	CURB	LEFT	
10.016	10.016	CULVERT	N/A	
10.108	10.272	CURB	RIGHT	
10.271	10.271	CULVERT	N/A	
10.271	10.386	CURB	LEFT	
10.274	10.294	CURB	RIGHT	
10.386	10.386	CULVERT	N/A	
10.391	10.442	CURB	LEFT	
10.491	10.491	INTERSECTION	RIGHT	INT RT RTE 100 END RTE AT RTE 903
10.500	10.500			ROUTE ENDS AT ROUTE 0903 (CRATER RIM PARKING LOT)
10.507	10.507	INTERSECTION	RIGHT	ROUTE 0903 (CRATER RIM PARKING LOT)
10.508	10.508	INTERSECTION	LEFT	ROUTE 0903 (CRATER RIM PARKING LOT)

HALE: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0100 : RED HILL ROAD

<i>FROM MILEPOST</i>	<i>TO MILEPOST</i>	<i>FEATURE</i>	<i>SIDE</i>	<i>COMMENT</i>
0.000	0.000			ROUTE BEGINS AT END OF ROUTE 0010
0.004	0.004	INTERSECTION	LEFT	ROUTE 0010
0.004	0.004	INTERSECTION	RIGHT	ROUTE 0010
0.140	0.217	CURB	LEFT	
0.423	0.423	INTERSECTION	LEFT	INT LT RTE 200
0.567	0.574	CURB	RIGHT	
0.570	0.570			ROUTE ENDS AT ROUTE 0904
0.572	0.572	INTERSECTION	LEFT	ROUTE 0904
0.573	0.573	INTERSECTION	RIGHT	ROUTE 0904

HALE: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0200 : MAGNETIC PEAK SPUR ROAD

<i>FROM MILEPOST</i>	<i>TO MILEPOST</i>	<i>FEATURE</i>	<i>SIDE</i>	<i>COMMENT</i>
0.000	0.000			ROUTE BEGINS AT ROUTE 0100 AT MP 044 ON LEFT
0.001	0.001	INTERSECTION	LEFT	ROUTE 0100
0.004	0.004	INTERSECTION	RIGHT	ROUTE 0100
0.120	0.120			ROUTE ENDS AT SOUTH PARK BOUNDARY (WHITE TRANSVERSE LINE ACROSS

HALE: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0201 : KALAHAKU OVERLOOK ROAD

<i>FROM MILEPOST</i>	<i>TO MILEPOST</i>	<i>FEATURE</i>	<i>SIDE</i>	<i>COMMENT</i>
0.000	0.000			ROUTE BEGINS AT ROUTE 0010 AT MP 870 ON LEFT
0.005	0.005	INTERSECTION	LEFT	ROUTE 0010
0.005	0.005	INTERSECTION	RIGHT	ROUTE 0010
0.039	0.039	CULVERT	N/A	
0.098	0.098	CULVERT	N/A	
0.195	0.195	INTERSECTION	RIGHT	INT RT RTE 905
0.200	0.200			ROUTE ENDS AT ROUTE 0905 (KALAHAKU OVERLOOK)

HALE: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0202 : HOSMER GROVE ROAD

<i>FROM MILEPOST</i>	<i>TO MILEPOST</i>	<i>FEATURE</i>	<i>SIDE</i>	<i>COMMENT</i>
0.000	0.000			ROUTE BEGINS AT ROUTE 0010 AT MP 012 ON LEFT
0.001	0.001	INTERSECTION	RIGHT	ROUTE 0010
0.002	0.002	INTERSECTION	LEFT	ROUTE 0010
0.050	0.050	INTERSECTION	LEFT	
0.063	0.063	INTERSECTION	RIGHT	
0.273	0.273	INTERSECTION	LEFT	INT LT FAA SERVICE ROAD
0.470	0.470			ROUTE ENDS AT ROUTE 0906
0.473	0.473	INTERSECTION	LEFT	ROUTE 0906
0.478	0.478	INTERSECTION	RIGHT	ROUTE 0906

HALE: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0401 : PU'U NIANIAU ROAD

<i>FROM MILEPOST</i>	<i>TO MILEPOST</i>	<i>FEATURE</i>	<i>SIDE</i>	<i>COMMENT</i>
0.000	0.000			ROUTE BEGINS AT ROUTE 0010 AT MP 012 ON RIGHT
0.005	0.005	INTERSECTION	LEFT	ROUTE 0010
0.005	0.005	INTERSECTION	RIGHT	ROUTE 0010
0.072	0.072	INTERSECTION	RIGHT	
0.082	0.082	INTERSECTION	RIGHT	INT RT RTE 402
0.150	0.150			ROUTE ENDS AT MAINTENANCE PARKING (LAST GATE)

APPENDIX A: GLOSSARY OF TERMS AND ABBREVIATIONS

TERM OR ABBREVIATION	DESCRIPTION OR DEFINITION
8290	Numeric Code for Haleakala National Park
AADT	Annually Adjusted Daily Traffic. Average daily traffic adjusted for the term period comprising 80% of annual visitation
CRS	Condition Rating Sheets. (Section 5)
Drainage Condition Rating	A visual rating (Good, Poor) of the drainage condition. (see Section 10)
Excellent	Excellent rating with an index value of 95 or greater
Fair	Fair rating with an index value between 61 and 84
Func. Class	Functional Classification (see Route ID, Section 4)
Good	Good rating with an index value between 85 and 94
HALE	Alpha Code for Haleakala National Park
IRI	International Roughness Index
Lane Width	Distance from road centerline to fogline, or from centerline to edge-of-pavement when no fogline exists
MRR	Manually Rated Route
NA	Not Applicable
NC	Not Collected
Paved Width	Distance from edge-of-pavement to edge-of-pavement
PCR	Pavement Condition Rating (see Section 10)

Poor	Poor Rating with an index value of 60 or less
RCI	Roughness Condition Index
SADT	Seasonal Annual Daily Traffic. Average daily traffic for the total defined "season"
SCR	Surface Condition Rating (see Section 10)
Shoulder Condition Rating	Visual rating (Good, Poor) of the condition of shoulder. (see Section 10)
Shoulder Width	Distance from fogline to hinge point, or if no fogline, from edge-of-pavement to hinge point

APPENDIX B: DESCRIPTION OF RATING SYSTEM

A numerical roadway rating system is used to describe the overall condition of the paved roadways and paved parking areas. In this system, a numerical rating between 1 and 100 is ascribed to each 0.02 miles of road. This numerical rating is called a Pavement Condition Rating (PCR). A “perfect” road, newly constructed with no surface distresses and a smooth surface, would be assigned a PCR rating of 100. Based on the type, severity, and extent of surface distresses points are deducted from 100 to arrive at the final PCR.

Data is collected on the following distresses and conditions:

- **Alligator Cracking** - a series of interconnecting cracks resembling alligator skin or chicken wire, which can occur anywhere in the lane.
- **Longitudinal Cracking** - cracks which are parallel to the pavement centerline or asphalt lay-down direction.
- **Transverse Cracking** - cracks perpendicular to the pavement centerline.
- **Pothole (patch)** - a bowl-shaped hole in the pavement surface. May be patched or not.
- **Rutting** - surface depressions in the wheel paths.

Roughness is collected as International Roughness Index (IRI) and is used in the PCR formula. Roughness is measured in inches of vertical displacement of the vehicle per mile traveled.

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

Rating Index Formulas

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

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

Transverse Cracking Index = $100 - [(20 * (low/15.1 + medium/7.5)) + (40 * (high/1.9))]$

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

Rutting Index: $100 - [40 * ((low/160) + (med/80) + (high/40))]$

Roughness Condition Index: (RCI) = $32 * [5 * e^{(-0.0041 * \text{average IRI})}]$

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

Surface Condition Rating (SCR) = $100 - [(100 - AC_INDEX) + (100 - LC_INDEX) + (100 - TC_INDEX) + (100 - PATCH_INDEX) + (100 - RUT_INDEX)]$

Pavement Condition Rating (PCR) = $(SCR * 0.60) + (RCI * 0.40)$

NOTE: Collection of roughness data is dependant on the data collection vehicle traveling at a minimum speed of 12 mph. In the event that a route cannot be safely traveled at this minimum speed, and results in no roughness data, the SCR only will be calculated.

Parking Lot and Manually Rated Road Condition Rating

Surface Condition Distresses- Chip Seal:

- Raveling – loss of surface rock chips revealing previous surface
- Bleeding – asphalt or tar is bleeding through to the surface where surface looks slick with asphalt
- Rutting
- Potholes/Patching

Ratings - Chip Seal:

- Excellent – None of the surface affected by the above (recently constructed)
- Good – Less than 10% of surface affected by the above
- Fair – Between 10% and 40% of surface affected by the above
- Poor – More than 40% of surface affected by the above

Surface Condition - Asphalt:

- Cracking of any type
- Rutting
- Potholes/Patching

Ratings - Asphalt:

- Excellent – None of the surface affected by the above (recently constructed)
- Good – Less than 10% of surface affected by the above
- Fair – Between 10% and 40% of surface affected by the above
- Poor – More than 40% of surface affected by the above

Index Values of Visual Ratings on Parking Lots and Manually Rated Roads

Excellent	97
Good	90
Fair	73
Poor	45

Drainage Condition Rating Definitions

- Good:** Minimal overall drainage problems. If funding were available for pavement maintenance, 25% or less is estimated to correct drainage deficiencies.
- Poor:** Problems exist that jeopardizes the integrity of the road in this section. If funding were available for pavement maintenance, 50% to 100% is estimated to correct drainage deficiencies.

Drainage Condition Rating Criteria

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

Good Drainage

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

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

Poor Drainage

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

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

Shoulder Condition Rating Definitions

- Good:** The shoulder is generally in good functional condition. If curbs are present, they are functional.
- Poor:** There is no shoulder because erosion has removed it. If curbs are present, they need to be replaced.

Shoulder Rating Criteria

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

Good Shoulders

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

Poor Shoulder

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

APPENDIX C: DIGITAL IMAGE INFORMATION

All images collected in Cycle 3 are digital images. These images provide the best resolution for identifying sign inventories and pavement evaluations. The images can be viewed with an interactive software program called **Visi-Data**. Each park will have a copy of the Visi-Data program installed in the park for park personnel to access and use.

Only Cycle 3 data can be queried and reviewed using the Visi-Data software program. This program is a multimedia data presentation and analysis tool that can be accessed either at the individual park, park region or at NPS headquarters. The data is organized in a hierarchical manner and presented in tabular and graphical formats. The user is able to perform queries and drill down through the data to find the particular information they are trying to query. Associated digital right-of-way images from either the LAN, USB port, individual DVD, or from the Visi-web application, can be presented along with the GPS locations.

APPENDIX D: METADATA

ARAN ROUTE GPS DATA

Background information of route spatial data.

GPS Records: GPS data for NPS routes is stored in the MS Access database for the park. The coordinates of the road traces are stored in the 'PMS_20' table in the 'GPS_LAT' and 'GPS_LON' fields.

Data Collection Device:

Vehicle Information: Ford Van
Type of GPS Unit: NovAtel MiLLennium, 12 channel, dual frequency L1/L2, DGPS ready receiver w/MiLLennium 502 GPS antenna and OmniSTAR System 3000 LR
Inertial System: Applanix POS LV

Accuracy: Expected ground accuracy is 1 meter *

*The above accuracy assumes good GPS mission planning resulting in maximum GPS satellite observation and ideal environmental conditions. Due to less than ideal satellite and environmental conditions, some routes may lack the expected ground accuracy.

Geographic Datum: WGS 1984

Post Collection GPS Correction: Due to unanticipated GPS collection inaccuracies, some route locations have been digitized using DOQQ's and other data sources.

FHWA – NPS Road Inventory Program Cycle 3 Metadata for the Park Database

The purpose of these sheets is to provide users of the Road Inventory Program's data with data accuracies and tolerances to help users define ways in which the RIP data can and cannot be used. For further information on specifics of data collection equipment, data collection procedures, equipment calibrations, or quality control/quality assurance procedures, please contact Jim Kennedy, Project Manager, Data Quality Assurance, at 720-963-3560 or jim.kennedy@fhwa.dot.gov.

All Road Inventory Program data undergoes quality control and quality assurance testing. This document represents the known data accuracies and tolerances for the data collection equipment, data collection procedures, and data processing procedures currently in use. Many additional tests conducted on the park databases during the quality assurance phase to ensure data integrity are not listed as a part of this document. Before it is delivered, a park database undergoes a large set of table design consistency, field data format consistency, data completeness, uniqueness of key fields, data reasonableness, acceptable data range, within-field data consistency, between-field data consistency, and between-table data consistency tests. Additional data sampling checks are conducted to ensure proper data upload from raw files into the park database and to quality check the pavement crack analysis. Further information is detailed in the FHWA – NPS RIP Quality Assurance Manual, available upon request.

This description of metadata includes only the known accuracies with which a data field matches its expected value. The tables that follow this page show each database field's:

- Field – field name
- Format – data type and number of characters of field
- Expected Value – meaning of value assigned to field
- Source – when in process field value obtained
- Validation – how field value obtained
- Expected Accuracy – accuracy with which contents of field match Expected Value

Verifying and continually improving the accuracy of Road Inventory Program data is an ongoing goal of the Federal Highway Administration and the National Park Service. Field testing and post-collection analysis of ARAN (Automatic Road Analyzer) -collected data will continue in Cycle 4. Data quality is expected to improve as the FHWA – NPS Road Inventory Program continues to operate, due to the fact that future data collection cycles will consist in large part of data updates. Also, technological improvements are expected to render the data increasingly consistent with actual roadway conditions as data collection cycles progress.

Specific Caveats

- Three canned reports are titled “Features in Good Condition”, “Features in Fair Condition,” and “Features in Poor Condition.” These titles could be misleading. In Cycle 3, condition assessments have been conducted on **signs only**. Condition assessments have not been conducted on non-sign features, such as culverts, guardrails, pullouts, etc. Although the database and canned reports might report a default value of “good” for un-assessed features, these condition values are not valid for import into FMSS.
- Database records that show a concrete surface type sometimes include index values that seem to show a perfect roadway (e.g., a Pavement Condition Rating (PCR) of 100). The Road Inventory Program does not actually conduct condition assessments of concrete surfaces. The perfect values are just default values assigned to unassessed sections of pavement and do not represent an assessment of the roadway surface's quality.
- On the USB drive, in the Database folder, parks are provided with intersection lists and exceptions lists. These documents should be treated as raw files and are **not accurate**. Refer to the final database for accurately post-processed intersection data.
- Most roadway data is collected in the primary direction lane of a roadway. To save data storage

space and to reduce data analysis efforts, the assumption was made that the paved surface condition of a route's primary lane adequately represents the surface condition of the full roadway. Therefore, in the database, opposite-direction records in the PMS_Visidata table do not include assessed values for roadway surface distresses. Values such as 0, N/A, -1, or a repeat of the primary-direction assessed value indicate that no assessment was performed. The PMS_20 and PMS_Mile tables simply exclude all opposite routes.

- Most roadway features are collected relative to the primary direction lane of a roadway, using the primary-direction video. Signs are the only features collected using the opposite-direction video.

Key to Notes in Tables

(1): Note that only one value fits in field, so even if this value varies throughout the route, only one value is recorded here.

(2): Note that some MP values listed here are estimates recorded during the Route ID process for use by the data collection crew (e.g. "FROM ROUTE 0010 AT MILEPOST 30.3"). They are estimates only and are not expected to match the more accurate milepost values included elsewhere in the database in the BEG_MP, END_MP, and MP fields.

(3): Mileage is measured by the ARAN (Automatic Road ANalyzer) data collection vehicle out to the 0.001 decimal place. The DMI (distance measuring instrument) is very accurate, with extremely slight variations in measurement due to air temperature, tire inflation, curves, hills, and equipment calibration.

(4): Features are measured differently depending on whether they are visible in the forward-facing video of the roadway, but every feature milepost measurement depends on the baseline measurement of the data collection vehicle's mileage. The ARAN (Automatic Road ANalyzer) data collection vehicle's mileage is measured by the DMI (distance measuring instrument) out to the 0.001 decimal place. The DMI is very accurate, with extremely slight variations in measurement due to air temperature, tire inflation, curves, hills, and equipment calibration. If a feature will not be visible in the forward-facing video, its milepost is determined by the data collectors' key press tagging the milepost when the ARAN passes the feature. Key presses are entered into the ARAN software when the vehicle travels typically between 15 and 45 miles/hour, so a delay of a single second as the vehicle passes a feature would result in an inaccuracy of 0.004 miles (22 feet) to 0.012 miles (66 feet). If a feature is visible in the video, its milepost is determined during post-processing using a video measurement software called Surveyor. Features along the side of a roadway that are measured using the Surveyor software might not be located very accurately. Surveyor is known to be most accurate when measuring quantities near the center of the video frame, as opposed to in the edges of the video image.

(5): Only signs are evaluated for condition. No other features' conditions are assessed, so "N/A" was originally intended to be the default value for unassessed features. However, some non-sign features do have condition ratings in the database. These are not accurate, because no assessment was ever done on non-sign features.

(6): Condition assessments are not conducted on concrete (CO) surface types. Perfect values for concrete road sections are default values and do not represent a condition assessment of the concrete surfaces.

(7): Roadway cracking presence, type, severity, and extent are determined by filming the roadway in the primary lane continuously with two overlapping analog cameras of 640 x 480 resolution. The images from both cameras are stitched together in real time to create a continuous strip image of the roadway pavement in the primary lane. Cracks 3 mm or greater in width are visible in this video. A semi-automatic process running the WiseCrax software with additional input by human operators provides the cracking quantities recorded in these database fields. Quality checks have determined that a consistent 80% or better of the visible cracks are recorded.

Access Database Metadata

Master Table Metadata:

FIELD	FORMAT	EXPECTED VALUE	SOURCE	VALIDATION	EXPECTED ACCURACY
RIP_CYCLE	X	3, for data collection cycle 3	Route ID Meeting	FHWA Determination	100%
STATE	XX	State where route is located	Route ID Meeting	Park Input/FHWA Determination	Untested. (1)
PARK_ALPHA	XXXX	Park alpha code	Route ID Meeting	NPS References	Untested
PARK_NO	XXXX	Park numeric code	Route ID Meeting	NPS References	Untested
RTE_NO	XXXXXX	Route number	Route ID Meeting	Park Input/FHWA Classification	Untested
RTE_NAME	(Text)	Route name	Route ID Meeting	Park Input	Untested. 50 characters fit in field
FUNCT_CLAS	X	Route functional classification	Route ID Meeting	Park Input/FHWA Classification	Untested
DIRECTION	XXX	Survey lane: PRI (primary) or OPP (opposite)	Route ID Meeting	Park Input/FHWA Determination	Untested
BEG_MP_EST	999.999 (miles)	Estimated starting MP	Route ID Meeting	Park Input/FHWA Determination	Estimated before data collected
END_MP_EST	999.999 (miles)	Estimated ending MP	Route ID Meeting	Park Input/FHWA Determination	Estimated before data collected
RTE_LENGTH	999.999 (miles)	Collected route length	ARAN Data Collection	Automatic Output	100%
FROM_DESC	(Text)	Beginning terminus of route	Route ID Meeting	Park Input/FHWA Determination	Estimated before data collected. (2)
TO_DESC	(Text)	Ending terminus of route	Route ID Meeting	Park Input/FHWA Determination	Estimated before data collected. (2)
NO_LANES	X	Number of lanes in route	ARAN Data Collection	Survey Crew Input	Untested. (1)
SURF_TYPE	XX	Surface type of route	ARAN Data Collection	Survey Crew Input	Untested. (1)
COMP_DIR	XX	Compass direction of route's primary lane (nearest cardinal direction)	Route ID Meeting	Park Input/FHWA Determination	Untested
COMMENTS	(Text)	Special information, if any	Contractor Post-processing	Contractor Input	Untested
FILENAME	XXXXXXXXXX	Filename of raw data files	ARAN Data Collection	Automatic Output	100%
SECTION	XXXXXX	Route section ID	Route ID Meeting/ARAN Data Collection	Survey Crew Input/Automatic Output	100%
FKEY	9999999	Unique record ID	Contractor Post-processing	Database Processing	100%
DATE	DD/MM/YY	Data collection date	ARAN Data Collection	Automatic Output	100%
BEG_MP	999.999 (miles)	Beginning MP collected	ARAN Data Collection	Automatic Output	100% (3)
END_MP	999.999 (miles)	Ending MP collected	ARAN Data Collection	Automatic Output	100% (3)

PMS_Feature Table Metadata:

FIELD	FORMAT	EXPECTED VALUE	SOURCE	VALIDATION	EXPECTED ACCURACY
RIP_CYCLE	X	3, for data collection cycle 3	Route ID Meeting	FHWA Determination	100%
STATE	XX	State where route is located	Route ID Meeting	Park Input/FHWA Determination	Untested. (1)
PARK_ALPHA	XXXX	Park alpha code	Route ID Meeting	NPS References	Untested
PARK_NO	XXXX	Park numeric code	Route ID Meeting	NPS References	Untested
RTE_NO	XXXXXXXX	Route number	Route ID Meeting	Park Input/FHWA Classification	Untested
FUNCT_CLAS	X	Route functional class	Route ID Meeting	Park Input/FHWA Classification	Untested
DIRECTION	XXX	Survey lane: PRI (primary) or OPP (opposite)	Route ID Meeting	Park Input/FHWA Determination	Untested
MP	999.999 (miles)	Feature location along route	ARAN Data Collection/Contractor Post-processing	Survey Crew Input/Video Processing	Untested (4)
EVENT	XXXX	Event category of feature	Contractor Post-processing	Video Processing	Untested
EVENT_CODE	XXXX	Event sub-category of feature	Contractor Post-processing	Video Processing	Untested
EVENT_DESC	(Text)	Description of feature/contents of sign	Contractor Post-processing	Video Processing	Untested
MUTCD	"N/A"	N/A. Intended to be sign MUTCD code	Contractor Post-processing	Database Processing	Values inaccurate, defaulted to N/A
CONDITION	XXX	Sign condition (G-D, F-R, P-R, N/A)	Contractor Post-processing	Video Processing	Untested (5)
COMMENT	(Text)	Sign label, intersecting route, etc.	Contractor Post-processing	Database Processing	Untested
OFFSET	"N/A"	N/A. Intended to be offset from pavement edge	Contractor Post-processing	Database Processing	Values inaccurate, defaulted to N/A
SIDE	XXX	Side of route; "N/A" if not on one side	Contractor Post-processing	Video Processing	Untested
STR_NUMBER	XXXXXXXXXXXX	FHWA bridge structure number	FHWA Post-processing	Database Processing	Untested
GPS_LAT	"N/A"	N/A. Intended to be latitude coordinate	Contractor Post-processing	Database Processing	Values inaccurate, defaulted to N/A
GPS_LON	"N/A"	N/A. Intended to be longitude coordinate	Contractor Post-processing	Database Processing	Values inaccurate, defaulted to N/A
GPS_ELEV	"N/A"	N/A. Intended to be elevation	Contractor Post-processing	Database Processing	Values inaccurate, defaulted to N/A
GPS_MODE	"N/A"	N/A. Intended to be GPS mode	Contractor Post-processing	Database Processing	Values inaccurate, defaulted to N/A
VIDEO	<Park-C03VID-#>	Removable USB video hard drive number	Contractor Post-processing	Database Processing	Untested
IMAGE	(Text)	Filename of .jpg image showing feature	Contractor Post-processing	Automatic Output	Untested
DATE	DD/MM/YY	Data collection date	ARAN Data Collection	Automatic Output	100%
FILENAME	XXXXXXXXXX	Filename of raw data files	ARAN Data Collection	Automatic Output	100%
SECTION	XXXXXX	Route section ID	Route ID Meeting/ARAN Data Collection	Survey Crew Input/Automatic Output	100%
FKEY	9999999	Unique record ID	Contractor Post-processing	Database Processing	100%
VISL_FROM	999999 (millimiles)	Raw MP of first video frame showing feature	Contractor Post-processing	Database Processing	Untested
VISL_TO	999999 (millimiles)	Raw MP of last video frame showing feature	Contractor Post-processing	Database Processing	Untested

FIELD	FORMAT	EXPECTED VALUE	SOURCE	VALIDATION	EXPECTED ACCURACY
IDKEY	(Text)	Unique record ID used by VisiData	Contractor Post-processing	Database Processing	Untested
MP_REF	(Text)	Range of mileage to play in VisiData	Contractor Post-processing	Database Processing	Untested

PMS 20, PMS Mile & PMS Visidata Tables Metadata:

FIELD	FORMAT	EXPECTED VALUE	SOURCE	VALIDATION	EXPECTED ACCURACY
RIP_CYCLE	X	3, for data collection cycle 3	Route ID Meeting	FHWA Determination	100%
STATE	XX	State where route is located	Route ID Meeting	Park Input/FHWA Determination	Untested. (1)
PARK_ALPHA	XXXX	Park alpha code	Route ID Meeting	NPS References	Untested
PARK_NO	XXXX	Park numeric code	Route ID Meeting	NPS References	Untested
RTE_NO	XXXXXX	Route number	Route ID Meeting	Park Input/FHWA Classification	Untested
FUNCT_CLASS	X	Route functional class	Route ID Meeting	Park Input/FHWA Classification	Untested
DIRECTION	XXX	Survey lane: PRI (primary) or OPP (opposite)	Route ID Meeting	Park Input/FHWA Determination	Untested
BEG_MP	999.999 (miles)	MP at start of road interval described by database record	Contractor Post-processing	Database Processing	100% (3)
END_MP	999.999 (miles)	MP at end of road interval described by database record	Contractor Post-processing	Database Processing	100% (3)
INT_LENGTH	999.9 (ft)	Length of road interval as aggregated for data table	Contractor Post-processing	Database Processing	100%
RTE_LENGTH	999.999 (miles)	Collected route length	ARAN Data Collection	Automatic Output	100%
NO_LANES	X	Number of lanes in route	ARAN Data Collection	Survey Crew Input	Untested. (1)
LANE_NO	X	Data collection lane	Contractor Post-processing	Database Processing	Untested
WX_LANE_WIDTH	99.999 (ft)	WiseCrax (crack detection software) analysis width	Contractor Post-processing	Automatic Output	Untested
LANE_WIDTH	99.999 (ft)	Width of lane	Contractor Post-processing	Video Processing	Untested
PAVE_WIDTH	99.999 (ft)	Full pavement width	Contractor Post-processing	Video Processing	Untested
SHLD_WIDTH_L	99.999 (ft)	Left shoulder width	Contractor Post-processing	Video Processing	Untested
SHLD_WIDTH_R	99.999 (ft)	Right shoulder width	Contractor Post-processing	Video Processing	Untested
SHLD_COND_L	XXXX	Left shoulder condition	ARAN Data Collection	Survey Crew Input	Untested
SHLD_COND_R	XXXX	Right shoulder condition	ARAN Data Collection	Survey Crew Input	Untested
DRAIN_COND_L	XXXX	Left drainage condition	ARAN Data Collection	Survey Crew Input	Untested
DRAIN_COND_R	XXXX	Right drainage condition	ARAN Data Collection	Survey Crew Input	Untested
SURF_TYPE	XX	Surface type of route	ARAN Data Collection	Survey Crew Input	Untested. (1)
PCR	999	Pavement Condition Rating	Contractor Post-processing	Database Processing	100% for calculation (6)
RCI	999	Roughness Condition Index; -1 if invalid IRI	Contractor Post-processing	Database Processing	100% for calculation

FIELD	FORMAT	EXPECTED VALUE	SOURCE	VALIDATION	EXPECTED ACCURACY
SCR	999	Surface Condition Rating	Contractor Post-processing	Database Processing	100% for calculation (6)
IRI_AVG	999.9 (inches/mile)	Average IRI	Contractor Post-processing	Database Processing	Untested
IRI_SD	999.9 (inches/mile)	IRI standard deviation	Contractor Post-processing	Database Processing	Untested
IRI_L	999.9 (inches/mile)	Left wheel path IRI	ARAN Data Collection	Automatic Output	Untested
IRI_R	999.9 (inches/mile)	Right wheel path IRI	ARAN Data Collection	Automatic Output	Untested
IRI_FLAG	0 or -1	-1 if invalid IRI data	Contractor Post-processing	Database Processing	Untested
RUT_INDEX	999	Rut index	Contractor Post-processing	Database Processing	100% for calculation (6)
RUT_AVG	99.99 (inches)	Average rut depth of both wheelpaths	Contractor Post-processing	Database Processing	Untested (6)
RUT_MAX	99.99 (inches)	Maximum rut depth of both wheelpaths	Contractor Post-processing	Database Processing	Untested (6)
RUT_SD	9.9	Rut depth standard deviation	Contractor Post-processing	Database Processing	Untested (6)
RUT_LOW	999 (%)	Percent of low severity ruts (on a 0-200% scale) in both wheelpaths	Contractor Post-processing	Database Processing	Untested (6)
RUT_MED	999 (%)	Percent of medium severity ruts (on a 0-200% scale) in both wheelpaths	Contractor Post-processing	Database Processing	Untested (6)
RUT_HI	999 (%)	Percent of high severity ruts (on a 0-200% scale) in both wheelpaths	Contractor Post-processing	Database Processing	Untested (6)
XFALL	999.9 (% slope)	Cross fall at start of road interval	ARAN Data Collection	Automatic Output	Precise but inaccurate. Not reported in Cycle 4
GRADE	999.9 (% slope)	Grade at start of road interval	ARAN Data Collection	Automatic Output	Precise but inaccurate. Not reported in Cycle 4
AC_INDEX	999	Alligator cracking index	Contractor Post-processing	Database Processing	100% for calculation (6)
AC_LOW	999.9999 (%)	Percent of WiseCrax measured lane area with low-severity alligator cracking	Contractor Post-processing	Automatic Output	(6) (7)
AC_MED	999.9999 (%)	Percent of WiseCrax measured lane area with medium-severity alligator cracking	Contractor Post-processing	Automatic Output	(6) (7)
AC_HI	999.9999 (%)	Percent of WiseCrax measured lane area with high-severity alligator cracking	Contractor Post-processing	Automatic Output	(6) (7)
LC_INDEX	999	Longitudinal cracking index	Contractor Post-processing	Database Processing	100% for calculation (6)
LC_LOW	999.99 (%)	Low-severity longitudinal cracking in lane as a percentage of road interval length	Contractor Post-processing	Automatic Output	(6) (7)
LC_MED	999.99 (%)	Medium-severity longitudinal cracking in lane as a percentage of road interval length	Contractor Post-processing	Automatic Output	(6) (7)
LC_HI	999.99 (%)	High-severity longitudinal cracking in lane as a percentage of road interval length	Contractor Post-processing	Automatic Output	(6) (7)
TC_INDEX	999	Transverse cracking index	Contractor Post-processing	Database Processing	100% for calculation (6)
TC_LOW	999.99 (cracks)	Count of low-severity transverse cracks, where one crack unit equals the WiseCrax measured lane width	Contractor Post-processing	Automatic Output	(6) (7)
TC_MED	999.99 (cracks)	Count of medium-severity transverse cracks, where one crack unit equals the WiseCrax measured lane width	Contractor Post-processing	Automatic Output	(6) (7)
TC_HI	999.99 (cracks)	Count of high-severity transverse cracks, where one crack unit equals the WiseCrax measured lane width	Contractor Post-processing	Automatic Output	(6) (7)
PATCH_INDEX	999	Patching index	Contractor Post-processing	Database Processing	100% for calculation (6)

FIELD	FORMAT	EXPECTED VALUE	SOURCE	VALIDATION	EXPECTED ACCURACY
PATCHING	999.9999 (%)	Percent of WiseCrax measured lane area affected by patching	Contractor Post-processing	Manual Pavement Video Processing	Untested (6)
GPS_LAT	999.9999999	Latitude coordinate	ARAN Data Collection	Automatic Output	See GPS Metadata sheet distributed with data
GPS_LON	-999.9999999	Longitude coordinate	ARAN Data Collection	Automatic Output	See GPS Metadata sheet distributed with data
GPS_ELEV	999999.9	Elevation	ARAN Data Collection	Automatic Output	See GPS Metadata sheet distributed with data
GPS_MODE	XXX	GPS mode during collection	ARAN Data Collection	Automatic Output	See GPS Metadata sheet distributed with data
VIDEO	<Par/>C03VID<#>	Removable USB video hard drive number	Contractor Post-processing	Database Processing	Untested
IMAGE	(Text)	Filename of .jpg image showing road interval	Contractor Post-processing	Automatic Output	Untested
SPEED	999 (miles/hour)	Average ARAN speed during data collection	ARAN Data Collection	Automatic Output	Untested
BRIDGE_FLAG	0 or 1	Flag indicating presence of bridge in interval	ARAN Data Collection	Survey Crew Input	Untested
CONSTR_FLAG	0 or 1	Flag indicating construction in interval	ARAN Data Collection	Survey Crew Input	Untested
LANEDEV_FLG	0 or 1	Flag indicating lane deviation in interval	ARAN Data Collection	Survey Crew Input	Untested
DATE	DD/MM/YY	Data collection date	ARAN Data Collection	Automatic Output	100%
NODISTRESS	0 OR 1	Flag indicating absence of pavement distress	Contractor Post-processing	Database Processing	100%
FILENAME	XXXXXXXXXX	Filename of raw data files	ARAN Data Collection	Automatic Output	100%
SECTION	XXXXXX	Route section ID	Route ID Meeting/ARAN Data Collection	Survey Crew Input/Automatic Output	100%
FKEY	9999999	Unique record ID	Contractor Post-processing	Database Processing	100%
VISL_FROM	999999 (millimiles)	Raw MP of first video frame in section	Contractor Post-processing	Database Processing	Untested
VISL_TO	999999 (millimiles)	Raw MP of last video frame in section	Contractor Post-processing	Database Processing	Untested
IDKEY	(Text)	Unique record ID used by VisiData	Contractor Post-processing	Database Processing	Untested
MP_REF	(Text)	Range of mileage to play in VisiData	Contractor Post-processing	Database Processing	Untested

Cycle 3 Shapefile Metadata

Metadata is provided for all shapefiles used for the creation of RIP report documents. The metadata for each shapefile associated with the park can be found in Section 10 of the PDF report provided on your park CD.

All shapefiles have the following spatial characteristics:

Geographic_Coordinate_Units: Decimal degrees
Spheroid: WGS 1984

hale_seg

Metadata also available as

Metadata:

- [Identification Information](#)
 - [Data Quality Information](#)
 - [Spatial Data Organization Information](#)
 - [Spatial Reference Information](#)
 - [Entity and Attribute Information](#)
 - [Distribution Information](#)
 - [Metadata Reference Information](#)
-

Identification_Information:

Citation:

Citation_Information:

Originator: The TSR Group

Publication_Date: 2005

Title: hale_seg

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: Not Available

Description:

Abstract: Routes

Purpose: Road Inventory Program

Supplemental_Information:

Data created by The TSR Group from GPS coordinates provided in the PMS_20 table. The shapefile is processed to aggregate adjacent segments with the same PCR rating.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2005

Currentness_Reference: ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: As per RIP cycle

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -156.400711

East_Bounding_Coordinate: -155.984787

North_Bounding_Coordinate: 20.917158

South_Bounding_Coordinate: 20.609760

Keywords:

Theme:

Theme_Keyword_Thesaurus: HALE

Theme_Keyword: HALE

Access_Constraints: None

Use_Constraints: Redistribution needs permission from EFLHD/NPS

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Dan VanGilder

Contact_Organization: EFLHD

Contact_Position: GIS Coordinator

Contact_Address:

Address_Type: mailing and physical address

Address: 21400 Ridgetop Circle

City: Sterling

State_or_Province: Virginia

Postal_Code: 20166

Country: United States

Contact_Voice_Telephone: 703-404-6361

Contact_Electronic_Mail_Address: dvangilder@fhwa.dot.gov

Native_Data_Set_Environment:

Microsoft Windows 2000 Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog
8.3.0.800

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: Good

Completeness_Report: Complete for routes

Lineage:

Source_Information:

Type_of_Source_Media: GPS

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: String

Point_and_Vector_Object_Count: 257

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.000000

Longitude_Resolution: 0.000000

Geographic_Coordinate_Units: Decimal degrees

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927

Ellipsoid_Name: Clarke 1866

Semi-major_Axis: 6378206.400000
Denominator_of_Flattening_Ratio: 294.978698

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: hale_seg

Attribute:

Attribute_Label: FID

Attribute_Definition: Internal feature number.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition: Feature geometry.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the features.

Attribute:

Attribute_Label: FNODE_

Attribute_Definition: Length of feature

Attribute_Definition_Source: ESRI

Attribute:

Attribute_Label: TNODE_

Attribute:

Attribute_Label: LPOLY_

Attribute_Definition: Route number

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: RPOLY_

Attribute_Definition: Collected route length

Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: LENGTH

Attribute_Definition:

Numeric PCR definition. Average PCR value based on programatic averaging of adjacent segments.

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0

Range_Domain_Maximum: 100

Attribute:

Attribute_Label: HALE_SEG_

Attribute_Definition: Verbal PCR definition based on value in PCRAV field

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: POOR

Enumerated_Domain_Value_Definition: PCR value <= 60
Enumerated_Domain:
Enumerated_Domain_Value: FAIR
Enumerated_Domain_Value_Definition: PCR value 61-84
Enumerated_Domain:
Enumerated_Domain_Value: GOOD
Enumerated_Domain_Value_Definition: PCR value 85-94
Enumerated_Domain:
Enumerated_Domain_Value: EXCELLENT
Enumerated_Domain_Value_Definition: PCR value 95-100

Attribute:

Attribute_Label: HALE_SEG_I
Attribute_Definition: Indicates whether feature has been edited for graphic purposes.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: 1
Enumerated_Domain_Value_Definition: Edit has been made to feature for graphic purposes
Enumerated_Domain:
Enumerated_Domain_Value: 0
Enumerated_Domain_Value_Definition: No edit made to feature.

Attribute:

Attribute_Label: ID

Attribute:

Attribute_Label: RTE_NO

Attribute:

Attribute_Label: BMP

Attribute:

Attribute_Label: EMP

Attribute:

Attribute_Label: PCR

Attribute:

Attribute_Label: PCR_RATE

Attribute:

Attribute_Label: RT_LENGTH

Attribute:

Attribute_Label: PCRMI

Attribute:

Attribute_Label: PCR_RATEMI

Attribute:

Attribute_Label: PCR_RATEAV

Attribute:

Attribute_Label: PCRAV

Attribute:

Attribute_Label: TSR_EDIT

Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:
Digital_Transfer_Information:
Transfer_Size: 0.016

Metadata_Reference_Information:
Metadata_Date: 20060119
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: EFLHD Sterling
Contact_Person: Dan VanGilder
Contact_Position: GIS Coordinator
Contact_Address:
Address_Type: mailing and physical address
City: Sterling
State_or_Province: Virginia
Postal_Code: 20166
Country: United States
Contact_Voice_Telephone: 703-404-6361
Contact_Electronic_Mail_Address: dvangilder@fhwa.dot.gov
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <<http://www.esri.com/metadata/esriprof80.html>>
Profile_Name: ESRI Metadata Profile

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hale_pkg_03

Metadata also available as

Metadata:

- [Identification Information](#)
 - [Data Quality Information](#)
 - [Spatial Data Organization Information](#)
 - [Spatial Reference Information](#)
 - [Entity and Attribute Information](#)
 - [Distribution Information](#)
 - [Metadata Reference Information](#)
-

Identification_Information:

Citation:

Citation_Information:

Originator: Eastern Federal Lands Highway Division

Publication_Date: Unknown

Title: hale_pkg_03

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: Not Available

Description:

Abstract: Parking Areas

Purpose: Road Inventory Program

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 5/13/2001

Currentness_Reference: ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: As per RIP cycle

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -156.253304

East_Bounding_Coordinate: -156.045114

North_Bounding_Coordinate: 20.768647

South_Bounding_Coordinate: 20.659112

Keywords:

Theme:

Theme_Keyword_Thesaurus: HALE

Theme_Keyword: HALE

Access_Constraints: None

Use_Constraints: Redistribution needs permission from EFLHD/NPS

Point_of_Contact:

Contact_Information:

*Contact_Person_Primary:**Contact_Person:* Dan VanGilder*Contact_Organization:* EFLHD*Contact_Position:* GIS Coordinator*Contact_Address:**Address_Type:* mailing and physical address*Address:* 21400 Ridgetop Circle*City:* Sterling*State_or_Province:* Virginia*Postal_Code:* 20166*Country:* United States*Contact_Voice_Telephone:* 703-404-6361*Contact_Electronic_Mail_Address:* dvangilder@fhwa.dot.gov*Native_Data_Set_Environment:*

Microsoft Windows 2000 Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog
8.3.0.800

*Data_Quality_Information:**Attribute_Accuracy:**Attribute_Accuracy_Report:* Good*Completeness_Report:* Complete for parking areas*Lineage:**Source_Information:**Type_of_Source_Media:* GPS*Spatial_Data_Organization_Information:**Direct_Spatial_Reference_Method:* Vector*Point_and_Vector_Object_Information:**SDTS_Terms_Description:**SDTS_Point_and_Vector_Object_Type:* G-polygon*Point_and_Vector_Object_Count:* 11*Spatial_Reference_Information:**Horizontal_Coordinate_System_Definition:**Geographic:**Latitude_Resolution:* 0.000000*Longitude_Resolution:* 0.000000*Geographic_Coordinate_Units:* Decimal degrees*Geodetic_Model:**Horizontal_Datum_Name:* North American Datum of 1927*Ellipsoid_Name:* Clarke 1866*Semi-major_Axis:* 6378206.400000*Denominator_of_Flattening_Ratio:* 294.978698

*Entity_and_Attribute_Information:**Detailed_Description:**Entity_Type:**Entity_Type_Label:* hale_pkg_03*Attribute:**Attribute_Label:* FID*Attribute_Definition:* Internal feature number.*Attribute_Definition_Source:* ESRI*Attribute_Domain_Values:**Unrepresentable_Domain:*

Sequential unique whole numbers that are automatically generated.

*Attribute:**Attribute_Label:* Shape*Attribute_Definition:* Feature geometry.*Attribute_Definition_Source:* ESRI*Attribute_Domain_Values:**Unrepresentable_Domain:* Coordinates defining the features.*Attribute:**Attribute_Label:* PARK_ALPHA*Attribute_Definition:* Park alpha code*Attribute_Definition_Source:* Route ID Meeting*Attribute:**Attribute_Label:* RTE_NO*Attribute_Definition:* Route number*Attribute_Definition_Source:* Route ID Meeting*Attribute:**Attribute_Label:* RTE_NAME*Attribute_Definition:* Route name*Attribute_Definition_Source:* Route ID Meeting*Attribute:**Attribute_Label:* FEATURE*Attribute:**Attribute_Label:* SURF_TYPE*Attribute_Definition:* Surface type of route*Attribute_Domain_Values:**Attribute:**Attribute_Label:* CONDITION*Attribute_Definition:* Condition rating for route*Attribute:**Attribute_Label:* PHOTOS*Attribute_Definition:* Photo filename associated with feature*Attribute:**Attribute_Label:* COMMENT*Attribute_Definition:* Field comment*Attribute:**Attribute_Label:* GPS_DATE*Attribute_Definition:* Date of GPS collection*Attribute:**Attribute_Label:* DATAFILE*Attribute:**Attribute_Label:* SQ_FT

Attribute_Definition: Feature area in square feet

Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 0.018

Metadata_Reference_Information:

Metadata_Date: 20060119

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: EFLHD Sterling

Contact_Person: Dan VanGilder

Contact_Position: GIS Coordinator

Contact_Address:

Address_Type: mailing and physical address

Address: 21400 Ridgetop Circle

City: Sterling

State_or_Province: Virginia

Postal_Code: 20166

Country: United States

Contact_Voice_Telephone: 703-404-6361

Contact_Electronic_Mail_Address: dvangilder@fhwa.dot.gov

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <<http://www.esri.com/metadata/esriprof80.html>>

Profile_Name: ESRI Metadata Profile

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hale_pkg_03_map

Metadata also available as

Metadata:

- [Identification Information](#)
 - [Data Quality Information](#)
 - [Spatial Data Organization Information](#)
 - [Spatial Reference Information](#)
 - [Entity and Attribute Information](#)
 - [Distribution Information](#)
 - [Metadata Reference Information](#)
-

Identification_Information:

Citation:

Citation_Information:

Originator: Eastern Federal Lands Highway Division

Publication_Date: Unknown

Title: hale_pkg_03_map

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: Not Available

Description:

Abstract: Copy of Parking Areas

Purpose: Road Inventory Program

Supplemental_Information:

This shapefile is a copy of the source parking shapefile. The features are edited as needed for graphic purposes.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 5/13/2001

Currentness_Reference: ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: As per RIP cycle

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -156.253360

East_Bounding_Coordinate: -156.045114

North_Bounding_Coordinate: 20.768647

South_Bounding_Coordinate: 20.659112

Keywords:

Theme:

Theme_Keyword_Thesaurus: HALE

Theme_Keyword: HALE

Access_Constraints: None

Use_Constraints: Redistribution needs permission from EFLHD/NPS

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Dan VanGilder

Contact_Organization: EFLHD

Contact_Position: GIS Coordinator

Contact_Address:

Address_Type: mailing and physical address

Address: 21400 Ridgetop Circle

City: Sterling

State_or_Province: Virginia

Postal_Code: 20166

Country: United States

Contact_Voice_Telephone: 703-404-6361

Contact_Electronic_Mail_Address: dvangilder@fhwa.dot.gov

Native_Data_Set_Environment:

Microsoft Windows 2000 Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 8.3.0.800

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: Good

Completeness_Report: Complete for parking areas

Lineage:

Source_Information:

Type_of_Source_Media: GPS

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: G-polygon

Point_and_Vector_Object_Count: 11

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.000000

Longitude_Resolution: 0.000000

Geographic_Coordinate_Units: Decimal degrees

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927

Ellipsoid_Name: Clarke 1866

Semi-major_Axis: 6378206.400000

Denominator_of_Flattening_Ratio: 294.978698

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: hale_pkg_03_map

Attribute:

Attribute_Label: FID

Attribute_Definition: Internal feature number.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition: Feature geometry.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the features.

Attribute:

Attribute_Label: PARK_ALPHA

Attribute_Definition: Park alpha code

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: RTE_NO

Attribute_Definition: Route number

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: RTE_NAME

Attribute_Definition: Route name

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: FEATURE

Attribute:

Attribute_Label: SURF_TYPE

Attribute_Definition: Surface type of route

Attribute_Domain_Values:

Attribute:

Attribute_Label: CONDITION

Attribute_Definition: Condition rating for route

Attribute:

Attribute_Label: PHOTOS

Attribute_Definition: Photo filename associated with feature

Attribute:

Attribute_Label: COMMENT

Attribute_Definition: Field comment

Attribute:

Attribute_Label: GPS_DATE

Attribute_Definition: Date of GPS collection

*Attribute:**Attribute_Label:* DATAFILE*Attribute:**Attribute_Label:* SQ_FT*Attribute_Definition:* Feature area in square feet

*Distribution_Information:**Resource_Description:* Downloadable Data*Standard_Order_Process:**Digital_Form:**Digital_Transfer_Information:**Transfer_Size:* 0.018

*Metadata_Reference_Information:**Metadata_Date:* 20060119*Metadata_Contact:**Contact_Information:**Contact_Organization_Primary:**Contact_Organization:* EFLHD Sterling*Contact_Person:* Dan VanGilder*Contact_Position:* GIS Coordinator*Contact_Address:**Address_Type:* mailing and physical address*Address:* 21400 Ridgetop Circle*City:* Sterling*State_or_Province:* Virginia*Postal_Code:* 20166*Country:* United States*Contact_Voice_Telephone:* 703-404-6361*Contact_Electronic_Mail_Address:* dvangilder@fhwa.dot.gov*Metadata_Standard_Name:* FGDC Content Standards for Digital Geospatial Metadata*Metadata_Standard_Version:* FGDC-STD-001-1998*Metadata_Time_Convention:* local time*Metadata_Extensions:**Online_Linkage:* <<http://www.esri.com/metadata/esriprof80.html>>*Profile_Name:* ESRI Metadata Profile

Generated by [mp](#) version 2.7.33 on Thu Jan 19 08:54:04 2006

hale_mrp_03

Metadata also available as

Metadata:

- [Identification Information](#)
 - [Data Quality Information](#)
 - [Spatial Data Organization Information](#)
 - [Spatial Reference Information](#)
 - [Entity and Attribute Information](#)
 - [Distribution Information](#)
 - [Metadata Reference Information](#)
-

Identification_Information:

Citation:

Citation_Information:

Originator: Eastern Federal Lands Highway Division

Publication_Date: Unknown

Title: hale_mrp_03

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: Not Available

Description:

Abstract: Manually Rated Roads - Polygons

Purpose: Road Inventory Program

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 5/13/2001

Currentness_Reference: ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: As per RIP cycle

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -156.248095

East_Bounding_Coordinate: -156.042280

North_Bounding_Coordinate: 20.768583

South_Bounding_Coordinate: 20.659248

Keywords:

Theme:

Theme_Keyword_Thesaurus: HALE

Theme_Keyword: HALE

Access_Constraints: None

Use_Constraints: None

Point_of_Contact:

Contact_Information:

*Contact_Person_Primary:**Contact_Person:* Dan VanGilder*Contact_Organization:* EFLHD*Contact_Position:* GIS Coordinator*Contact_Address:**Address_Type:* mailing and physical address*Address:* 21400 Ridgetop Circle*City:* Sterling*State_or_Province:* Virginia*Postal_Code:* 20166*Country:* United States*Contact_Voice_Telephone:* 703-404-6361*Contact_Electronic_Mail_Address:* dvangilder@fhwa.dot.gov*Native_Data_Set_Environment:*

Microsoft Windows 2000 Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 8.3.0.800

*Data_Quality_Information:**Attribute_Accuracy:**Attribute_Accuracy_Report:* Good*Completeness_Report:* Complete for manually rated roads.*Lineage:**Source_Information:**Type_of_Source_Media:* GPS

*Spatial_Data_Organization_Information:**Direct_Spatial_Reference_Method:* Vector*Point_and_Vector_Object_Information:**SDTS_Terms_Description:**SDTS_Point_and_Vector_Object_Type:* G-polygon*Point_and_Vector_Object_Count:* 5

*Spatial_Reference_Information:**Horizontal_Coordinate_System_Definition:**Geographic:**Latitude_Resolution:* 0.000000*Longitude_Resolution:* 0.000000*Geographic_Coordinate_Units:* Decimal degrees*Geodetic_Model:**Horizontal_Datum_Name:* North American Datum of 1927*Ellipsoid_Name:* Clarke 1866*Semi-major_Axis:* 6378206.400000*Denominator_of_Flattening_Ratio:* 294.978698

*Entity_and_Attribute_Information:**Detailed_Description:**Entity_Type:**Entity_Type_Label:* hale_mrp_03*Attribute:**Attribute_Label:* FID*Attribute_Definition:* Internal feature number.*Attribute_Definition_Source:* ESRI*Attribute_Domain_Values:**Unrepresentable_Domain:*

Sequential unique whole numbers that are automatically generated.

*Attribute:**Attribute_Label:* Shape*Attribute_Definition:* Feature geometry.*Attribute_Definition_Source:* ESRI*Attribute_Domain_Values:**Unrepresentable_Domain:* Coordinates defining the features.*Attribute:**Attribute_Label:* PARK_ALPHA*Attribute_Definition:* Park alpha code*Attribute_Definition_Source:* Route ID Meeting*Attribute:**Attribute_Label:* RTE_NO*Attribute_Definition:* Route Number*Attribute_Definition_Source:* Route ID Meeting*Attribute:**Attribute_Label:* RTE_NAME*Attribute_Definition:* Route Name*Attribute_Definition_Source:* Route ID Meeting*Attribute:**Attribute_Label:* SECTION_*Attribute_Definition:* Route section ID*Attribute:**Attribute_Label:* SURF_TYPE*Attribute_Definition:* Surface type of route*Attribute:**Attribute_Label:* CONDITION*Attribute_Definition:* Condition rating*Attribute:**Attribute_Label:* COMMENT*Attribute_Definition:* Field comment*Attribute:**Attribute_Label:* GPS_DATE*Attribute_Definition:* Date of GPS collection*Attribute:**Attribute_Label:* DATAFILE*Attribute:**Attribute_Label:* SQ_FT*Attribute_Definition:* Area of manually rated road in square feet

*Distribution_Information:**Resource_Description:* Downloadable Data*Standard_Order_Process:**Digital_Form:**Digital_Transfer_Information:**Transfer_Size:* 0.187

*Metadata_Reference_Information:**Metadata_Date:* 20060119*Metadata_Contact:**Contact_Information:**Contact_Organization_Primary:**Contact_Organization:* EFLHD Sterling*Contact_Person:* Dan VanGilder*Contact_Position:* GIS Coordinator*Contact_Address:**Address_Type:* mailing and physical address*Address:* 21400 Ridgetop Circle*City:* Sterling*State_or_Province:* Virginia*Postal_Code:* 20166*Country:* United States*Contact_Voice_Telephone:* 703-404-6361*Contact_Electronic_Mail_Address:* dvangilder@fhwa.dot.gov*Metadata_Standard_Name:* FGDC Content Standards for Digital Geospatial Metadata*Metadata_Standard_Version:* FGDC-STD-001-1998*Metadata_Time_Convention:* local time*Metadata_Extensions:**Online_Linkage:* <<http://www.esri.com/metadata/esriprof80.html>>*Profile_Name:* ESRI Metadata Profile

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hale_mrp_03_map

Metadata also available as

Metadata:

- [Identification Information](#)
 - [Data Quality Information](#)
 - [Spatial Data Organization Information](#)
 - [Spatial Reference Information](#)
 - [Entity and Attribute Information](#)
 - [Distribution Information](#)
 - [Metadata Reference Information](#)
-

Identification_Information:

Citation:

Citation_Information:

Originator: Eastern Federal Lands Highway Division

Publication_Date: Unknown

Title: hale_mrp_03_map

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: Not Available

Description:

Abstract: Manually Rated Roads - Polygons

Purpose: Road Inventory Program

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 5/13/2001

Currentness_Reference: ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: As per RIP cycle

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -156.248095

East_Bounding_Coordinate: -156.042320

North_Bounding_Coordinate: 20.768583

South_Bounding_Coordinate: 20.659215

Keywords:

Theme:

Theme_Keyword_Thesaurus: HALE

Theme_Keyword: HALE

Access_Constraints: None

Use_Constraints: None

Point_of_Contact:

Contact_Information:

*Contact_Person_Primary:**Contact_Person:* Dan VanGilder*Contact_Organization:* EFLHD*Contact_Position:* GIS Coordinator*Contact_Address:**Address_Type:* mailing and physical address*Address:* 21400 Ridgetop Circle*City:* Sterling*State_or_Province:* Virginia*Postal_Code:* 20166*Country:* United States*Contact_Voice_Telephone:* 703-404-6361*Contact_Electronic_Mail_Address:* dvangilder@fhwa.dot.gov*Native_Data_Set_Environment:*

Microsoft Windows 2000 Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 8.3.0.800

*Data_Quality_Information:**Attribute_Accuracy:**Attribute_Accuracy_Report:* Good*Completeness_Report:* Complete for manually rated roads.*Lineage:**Source_Information:**Type_of_Source_Media:* GPS

*Spatial_Data_Organization_Information:**Direct_Spatial_Reference_Method:* Vector*Point_and_Vector_Object_Information:**SDTS_Terms_Description:**SDTS_Point_and_Vector_Object_Type:* G-polygon*Point_and_Vector_Object_Count:* 5

*Spatial_Reference_Information:**Horizontal_Coordinate_System_Definition:**Geographic:**Latitude_Resolution:* 0.000000*Longitude_Resolution:* 0.000000*Geographic_Coordinate_Units:* Decimal degrees*Geodetic_Model:**Horizontal_Datum_Name:* North American Datum of 1927*Ellipsoid_Name:* Clarke 1866*Semi-major_Axis:* 6378206.400000*Denominator_of_Flattening_Ratio:* 294.978698

*Entity_and_Attribute_Information:**Detailed_Description:**Entity_Type:**Entity_Type_Label:* hale_mrp_03_map*Attribute:**Attribute_Label:* FID*Attribute_Definition:* Internal feature number.*Attribute_Definition_Source:* ESRI*Attribute_Domain_Values:**Unrepresentable_Domain:*

Sequential unique whole numbers that are automatically generated.

*Attribute:**Attribute_Label:* Shape*Attribute_Definition:* Feature geometry.*Attribute_Definition_Source:* ESRI*Attribute_Domain_Values:**Unrepresentable_Domain:* Coordinates defining the features.*Attribute:**Attribute_Label:* PARK_ALPHA*Attribute_Definition:* Park alpha code*Attribute_Definition_Source:* Route ID Meeting*Attribute:**Attribute_Label:* RTE_NO*Attribute_Definition:* Route Number*Attribute_Definition_Source:* Route ID Meeting*Attribute:**Attribute_Label:* RTE_NAME*Attribute_Definition:* Route Name*Attribute_Definition_Source:* Route ID Meeting*Attribute:**Attribute_Label:* SECTION_*Attribute_Definition:* Route section ID*Attribute:**Attribute_Label:* SURF_TYPE*Attribute_Definition:* Surface type of route*Attribute:**Attribute_Label:* CONDITION*Attribute_Definition:* Condition rating*Attribute:**Attribute_Label:* COMMENT*Attribute_Definition:* Field comment*Attribute:**Attribute_Label:* GPS_DATE*Attribute_Definition:* Date of GPS collection*Attribute:**Attribute_Label:* DATAFILE*Attribute:**Attribute_Label:* SQ_FT*Attribute_Definition:* Area of manually rated road in square feet

*Distribution_Information:**Resource_Description:* Downloadable Data*Standard_Order_Process:**Digital_Form:**Digital_Transfer_Information:**Transfer_Size:* 0.187

*Metadata_Reference_Information:**Metadata_Date:* 20060119*Metadata_Contact:**Contact_Information:**Contact_Organization_Primary:**Contact_Organization:* EFLHD Sterling*Contact_Person:* Dan VanGilder*Contact_Position:* GIS Coordinator*Contact_Address:**Address_Type:* mailing and physical address*Address:* 21400 Ridgetop Circle*City:* Sterling*State_or_Province:* Virginia*Postal_Code:* 20166*Country:* United States*Contact_Voice_Telephone:* 703-404-6361*Contact_Electronic_Mail_Address:* dvangilder@fhwa.dot.gov*Metadata_Standard_Name:* FGDC Content Standards for Digital Geospatial Metadata*Metadata_Standard_Version:* FGDC-STD-001-1998*Metadata_Time_Convention:* local time*Metadata_Extensions:**Online_Linkage:* <<http://www.esri.com/metadata/esriprof80.html>>*Profile_Name:* ESRI Metadata Profile

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hale_mi_pt

Metadata also available as

Metadata:

- [Identification Information](#)
 - [Data Quality Information](#)
 - [Spatial Data Organization Information](#)
 - [Spatial Reference Information](#)
 - [Entity and Attribute Information](#)
 - [Distribution Information](#)
 - [Metadata Reference Information](#)
-

Identification_Information:

Citation:

Citation_Information:

Originator: The TSR Group

Publication_Date: 2005

Title: hale_mi_pt

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: Not Available

Description:

Abstract: Mile Points

Purpose: Road Inventory Program

Supplemental_Information:

Data created by The TSR Group from GPS coordinates provided in the PMS_20 table. All attributes found in the PMS_20 table are found on the miles points.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2005

Currentness_Reference: ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Not Available

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -156.400284

East_Bounding_Coordinate: -155.985489

North_Bounding_Coordinate: 20.917158

South_Bounding_Coordinate: 20.611204

Keywords:

Theme:

Theme_Keyword_Thesaurus: HALE

Theme_Keyword: HALE

Access_Constraints: None

Use_Constraints: Redistribution needs permission from EFLHD/NPS

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Dan VanGilder

Contact_Organization: EFLHD Sterling

Contact_Position: GIS Coordinator

Contact_Address:

Address_Type: mailing and physical address

Address: 21400 Ridgetop Circle

City: Sterling

State_or_Province: Virginia

Postal_Code: 20166

Country: United States

Contact_Voice_Telephone: 703-404-6361

Contact_Electronic_Mail_Address: dvangilder@fhwa.dot.gov

Native_Data_Set_Environment:

Microsoft Windows 2000 Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog
8.3.0.800

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: Good

Completeness_Report: Complete for mile points

Lineage:

Source_Information:

Type_of_Source_Media: GPS

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 105

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.000000

Longitude_Resolution: 0.000000

Geographic_Coordinate_Units: Decimal degrees

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927

Ellipsoid_Name: Clarke 1866

Semi-major_Axis: 6378206.400000

Denominator_of_Flattening_Ratio: 294.978698

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: hale_mi_pt

Attribute:

Attribute_Label: FID

Attribute_Definition: Internal feature number.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition: Feature geometry.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the features.

Attribute:

Attribute_Label: RIP_CYCLE

Attribute_Definition: 3, for data collection cycle 3

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: STATE

Attribute_Definition: State where route is located

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: PARK_ALPHA

Attribute_Definition: Park alpha code

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: PARK_NO

Attribute_Definition: Park numeric code

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: RTE_NO

Attribute_Definition: Route number

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: FUNCT_CLAS

Attribute_Definition: Route functional class

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: DIRECTION

Attribute_Definition: Survey lane: PRI (primary) or OPP (opposite)

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: BEG_MP

Attribute_Definition: MP at end of road interval described by database record

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: END_MP

Attribute_Definition: MP at end of road interval described by database record

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: INT_LENGTH

Attribute_Definition: Length of road interval as aggregated from data table

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: RTE_LENGTH

Attribute_Definition: Collected route length

Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: NO_LANES

Attribute_Definition: Number of lanes in route

Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: LANE_NO

Attribute_Definition: Data collection lane

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: WX_LANE_WI

Attribute_Definition: WiseCrax (crack detection software) analysis width

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: LANE_WIDTH

Attribute_Definition: Width of lane

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: PAVE_WIDTH

Attribute_Definition: Full pavement width

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: SHLD_WIDTH

Attribute_Definition: Left shoulder width

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: SHLD_WID_1

Attribute_Definition: Right shoulder width

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: SHLD_COND_

Attribute_Definition: Left shoulder condition

Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: SHLD_COND1

Attribute_Definition: Right shoulder condition

Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: DRAIN_COND
Attribute_Definition: Left drainage condition
Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: DRAIN_CO_1
Attribute_Definition: Right drainage condition
Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: SURF_TYPE
Attribute_Definition: Surface type of route
Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: PCR
Attribute_Definition: Pavement Condition Rating
Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: RCI
Attribute_Definition: Roughness Condition Index; -1 if invalid IRI
Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: SCR
Attribute_Definition: Surface Condition Rating
Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: IRI_AVG
Attribute_Definition: Average IRI
Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: IRI_SD
Attribute_Definition: IRI Standard Deviation
Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: IRI_L
Attribute_Definition: Left wheel path IRI
Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: IRI_R
Attribute_Definition: Right wheel path IRI
Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: IRI_FLAG
Attribute_Definition: -1 if invalid IRI data
Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: RUT_INDEX
Attribute_Definition: Rut index
Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: RUT_AVG
Attribute_Definition: Average rut depth of both wheelpaths
Attribute_Definition_Source: Contractor Post-processing

*Attribute:**Attribute_Label:* RUT_MAX*Attribute_Definition:* Maximum rut depth of both wheelpaths*Attribute_Definition_Source:* Contractor Post-processing*Attribute:**Attribute_Label:* RUT_SD*Attribute_Definition:* Rut depth standard deviation*Attribute_Definition_Source:* Contractor Post-processing*Attribute:**Attribute_Label:* RUT_LOW*Attribute_Definition:*

Percent of low severity ruts (on a 0-200% scale) in both wheelpaths

Attribute_Definition_Source: Contractor Post-processing*Attribute:**Attribute_Label:* RUT_MED*Attribute_Definition:*

Percent of medium severity ruts (on a 0-200% scale) in both wheelpaths

Attribute_Definition_Source: Contractor Post-processing*Attribute:**Attribute_Label:* RUT_HI*Attribute_Definition:*

Percent of high severity ruts (on a 0-200% scale) in both wheelpaths

Attribute_Definition_Source: Contractor Post-processing*Attribute:**Attribute_Label:* XFALL*Attribute_Definition:* Cross fall at start of road interval*Attribute_Definition_Source:* ARAN Data Collection*Attribute:**Attribute_Label:* GRADE*Attribute_Definition:* Grade at start of road interval*Attribute_Definition_Source:* ARAN Data Collection*Attribute:**Attribute_Label:* AC_INDEX*Attribute_Definition:* Alligator cracking index*Attribute_Definition_Source:* Contractor Post-processing*Attribute:**Attribute_Label:* AC_LOW*Attribute_Definition:*

Percent of WiseCrax measured lane area with low-severity alligator cracking

Attribute_Definition_Source: Contractor Post-processing*Attribute:**Attribute_Label:* AC_MED*Attribute_Definition:*

Percent of WiseCrax measured lane area with medium-severity alligator cracking

Attribute_Definition_Source: Contractor Post-processing*Attribute:**Attribute_Label:* AC_HI*Attribute_Definition:*

Percent of WiseCrax measured lane area with high-severity alligator cracking

Attribute_Definition_Source: Contractor Post-processing

*Attribute:**Attribute_Label:* LC_INDEX*Attribute_Definition:* Longitudinal cracking index*Attribute_Definition_Source:* Contractor Post-processing*Attribute:**Attribute_Label:* LC_LOW*Attribute_Definition:*

Low-severity longitudinal cracking in lane as a percentage of road interval length

Attribute_Definition_Source: Contractor Post-processing*Attribute:**Attribute_Label:* LC_MED*Attribute_Definition:*

Medium-severity longitudinal cracking in lane as a percentage of road interval length

Attribute_Definition_Source: Contractor Post-processing*Attribute:**Attribute_Label:* LC_HI*Attribute_Definition:*

High-severity longitudinal cracking in lane as a percentage of road interval length

Attribute_Definition_Source: Contractor Post-processing*Attribute:**Attribute_Label:* TC_INDEX*Attribute_Definition:* Transverse cracking index*Attribute_Definition_Source:* Contractor Post-processing*Attribute:**Attribute_Label:* TC_LOW*Attribute_Definition:*

Count of low-severity transverse cracks, where one crack unit equals the WiseCrax measured land width

Attribute_Definition_Source: Contractor Post-processing*Attribute:**Attribute_Label:* TC_MED*Attribute_Definition:*

Count of medium-severity transverse cracks, where one crack unit equals the WiseCrax measured land width

Attribute_Definition_Source: Contractor Post-processing*Attribute:**Attribute_Label:* TC_HI*Attribute_Definition:*

Count of high-severity transverse cracks, where one crack unit equals the WiseCrax measured land width

Attribute_Definition_Source: Contractor Post-processing*Attribute:**Attribute_Label:* PATCH_INDE*Attribute_Definition:* Patching index*Attribute_Definition_Source:* Contractor Post-processing*Attribute:**Attribute_Label:* PATCHING*Attribute_Definition:* Percent of WiseCrax measured lane area affected by patching

Attribute_Definition_Source: Contractor Post-processing
Attribute:
Attribute_Label: GPS_LAT
Attribute_Definition: Latitude coordinate
Attribute_Definition_Source: ARAN Data Collection
Attribute:
Attribute_Label: GPS_LON
Attribute_Definition: Longitude coordinate
Attribute_Definition_Source: ARAN Data Collection
Attribute:
Attribute_Label: GPS_ELEV
Attribute_Definition: Elevation
Attribute_Definition_Source: ARAN Data Collection
Attribute:
Attribute_Label: GPS_MODE
Attribute_Definition: GPS mode during collection
Attribute_Definition_Source: ARAN Data Collection
Attribute:
Attribute_Label: VIDEO
Attribute_Definition: Removable USB video hard drive number
Attribute_Definition_Source: Contractor Post-processing
Attribute:
Attribute_Label: IMAGE
Attribute_Definition: Filename of .jpg image showing road interval
Attribute_Definition_Source: Contractor Post-processing
Attribute:
Attribute_Label: SPEED
Attribute_Definition: Average ARAN speed during data collection
Attribute_Definition_Source: ARAN Data Collection
Attribute:
Attribute_Label: BRIDGE_FL
Attribute_Definition: Flag indicating presence of bridge in interval
Attribute_Definition_Source: ARAN Data Collection
Attribute:
Attribute_Label: CONSTR_FL
Attribute_Definition: Flag indicating construction in interval
Attribute_Definition_Source: ARAN Data Collection
Attribute:
Attribute_Label: LANEDEV_FL
Attribute_Definition: Flag indicating lane deviation in interval
Attribute_Definition_Source: ARAN Data Collection
Attribute:
Attribute_Label: DATE
Attribute_Definition: Data collection date
Attribute_Definition_Source: ARAN Data Collection
Attribute:
Attribute_Label: NODISTRESS
Attribute_Definition: Flag indicating absence of pavement distress
Attribute_Definition_Source: Contractor Post-processing
Attribute:
Attribute_Label: FILENAME

Attribute_Definition: Filename of raw data files
Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: SECTION
Attribute_Definition: route section ID
Attribute_Definition_Source: Route ID Meeting / ARAN Data Collection

Attribute:

Attribute_Label: FKEY
Attribute_Definition: Unique record ID
Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: VISI_FROM
Attribute_Definition: Raw MP of first video frame in section
Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: VISI_TO
Attribute_Definition: Raw MP of last video frame in section
Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: IDKEY
Attribute_Definition: Unique record ID used by VisiData
Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: MP_REF
Attribute_Definition: Range of mileage to play in VisiData
Attribute_Definition_Source: Contractor Post-processing

Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 0.030

Metadata_Reference_Information:

Metadata_Date: 20060119

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: EFLHD Sterling

Contact_Person: Dan VanGilder

Contact_Position: GIS Coordinator

Contact_Address:

Address_Type: mailing and physical address

Address: 21400 Ridgetop Circle

City: Sterling

State_or_Province: Virginia

Postal_Code: 20166

Country: United States

Contact_Voice_Telephone: 703-404-6361

Contact_Electronic_Mail_Address: dvangilder@fhwa.dot.gov

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <<http://www.esri.com/metadata/esriprof80.html>>

Profile_Name: ESRI Metadata Profile

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hale_mi

Metadata also available as

Metadata:

- [Identification Information](#)
 - [Data Quality Information](#)
 - [Spatial Data Organization Information](#)
 - [Spatial Reference Information](#)
 - [Entity and Attribute Information](#)
 - [Distribution Information](#)
 - [Metadata Reference Information](#)
-

Identification_Information:

Citation:

Citation_Information:

Originator: The TSR Group

Publication_Date: 2005

Title: hale_mi

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: Not Available

Description:

Abstract: Routes

Purpose: Road Inventory Program

Supplemental_Information:

Data created by The TSR Group from GPS coordinates provided in the PMS_20 table. The shapefile is processed to aggregate adjacent segments with the same PCR rating provided in the PMS_mile table.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2005

Currentness_Reference: ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: As per RIP cycle

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -156.400711

East_Bounding_Coordinate: -155.984787

North_Bounding_Coordinate: 20.917158

South_Bounding_Coordinate: 20.609760

Keywords:

Theme:

Theme_Keyword_Thesaurus: HALE

Theme_Keyword: HALE

Access_Constraints: None

Use_Constraints: Redistribution needs permission from EFLHD/NPS

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Dan VanGilder

Contact_Organization: EFLHD

Contact_Position: GIS Coordinator

Contact_Address:

Address_Type: mailing and physical address

Address: 21400 Ridgetop Circle

City: Sterling

State_or_Province: Virginia

Postal_Code: 20166

Country: United States

Contact_Voice_Telephone: 703-404-6361

Contact_Electronic_Mail_Address: dvangilder@fhwa.dot.gov

Native_Data_Set_Environment:

Microsoft Windows 2000 Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog
8.3.0.800

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: Good

Completeness_Report: Complete for routes

Lineage:

Source_Information:

Type_of_Source_Media: GPS

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: String

Point_and_Vector_Object_Count: 69

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.000000

Longitude_Resolution: 0.000000

Geographic_Coordinate_Units: Decimal degrees

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927

Ellipsoid_Name: Clarke 1866

Semi-major_Axis: 6378206.400000
Denominator_of_Flattening_Ratio: 294.978698

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: hale_mi

Attribute:

Attribute_Label: FID

Attribute_Definition: Internal feature number.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition: Feature geometry.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the features.

Attribute:

Attribute_Label: FNODE_

Attribute_Definition: Length of feature

Attribute_Definition_Source: ESRI

Attribute:

Attribute_Label: TNODE_

Attribute:

Attribute_Label: LPOLY_

Attribute_Definition: Route number

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: RPOLY_

Attribute_Definition: Collected route length

Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: LENGTH

Attribute_Definition: Numeric PCR definition

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0

Range_Domain_Maximum: 100

Attribute:

Attribute_Label: HALE_MI_

Attribute_Definition: Verbal PCR definition

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: POOR

Enumerated_Domain_Value_Definition: PCR value <= 60

Enumerated_Domain:

Enumerated_Domain_Value: FAIR

Enumerated_Domain_Value_Definition: PCR value 61-84

Enumerated_Domain:

Enumerated_Domain_Value: GOOD

Enumerated_Domain_Value_Definition: PCR value 85-94

Enumerated_Domain:

Enumerated_Domain_Value: EXCELLENT

Enumerated_Domain_Value_Definition: PCR value 95-100

Attribute:

Attribute_Label: HALE_MI_ID

Attribute_Definition: Indicates whether feature has been edited for graphic purposes.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1

Enumerated_Domain_Value_Definition: Edit has been made to feature for graphic purposes

Enumerated_Domain:

Enumerated_Domain_Value: 0

Enumerated_Domain_Value_Definition: No edit made to feature.

Attribute:

Attribute_Label: ID

Attribute:

Attribute_Label: RTE_NO

Attribute:

Attribute_Label: BMP

Attribute:

Attribute_Label: EMP

Attribute:

Attribute_Label: PCR

Attribute:

Attribute_Label: PCR_RATE

Attribute:

Attribute_Label: RT_LENGTH

Attribute:

Attribute_Label: PCRMI

Attribute:

Attribute_Label: PCR_RATEMI

Attribute:

Attribute_Label: PCR_RATEAV

Attribute:

Attribute_Label: PCRAV

Attribute:

Attribute_Label: TSR_EDIT

Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 0.016

Metadata_Reference_Information:

Metadata_Date: 20060119

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: EFLHD Sterling

Contact_Person: Dan VanGilder

Contact_Position: GIS Coordinator

Contact_Address:

Address_Type: mailing and physical address

City: Sterling

State_or_Province: Virginia

Postal_Code: 20166

Country: United States

Contact_Voice_Telephone: 703-404-6361

Contact_Electronic_Mail_Address: dvangilder@fhwa.dot.gov

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <<http://www.esri.com/metadata/esriprof80.html>>

Profile_Name: ESRI Metadata Profile

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