



national park service

**The Road Inventory
of
North Cascades National Park
NOCA – 9470
Cycle 4**



**Prepared By:
Federal Highway Administration
Road Inventory Program
Cycle 4**



North Cascades National Park in Washington





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North Cascades National Park



Section 1 **Introduction**

INTRODUCTION

Background: In 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 costs and programs to bring National Park Service (NPS) roads up to, or to maintain, designated standards, and 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 reestablished in the 1990's. The FLH completed two cycles of RIP data collection between 1994 and 2001. Cycle 1 was collected in 44 large parks from 1994 to 1996. 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". Cycle 3 was completed from 2001 through 2004, and included data collection in all parks that contain pavement.

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 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 4: Cycle 4 data collection was initiated in spring 2006, where 86 large parks, consisting of 5,553 route miles and 6,232 paved parking areas, were selected as a representative sample of the entire NPS paved road network. Cycle 4 is scheduled for completion in spring 2009 and will serve the PMS in further development of its pavement preservation techniques.

In the Cycle 4 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 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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North Cascades National Park



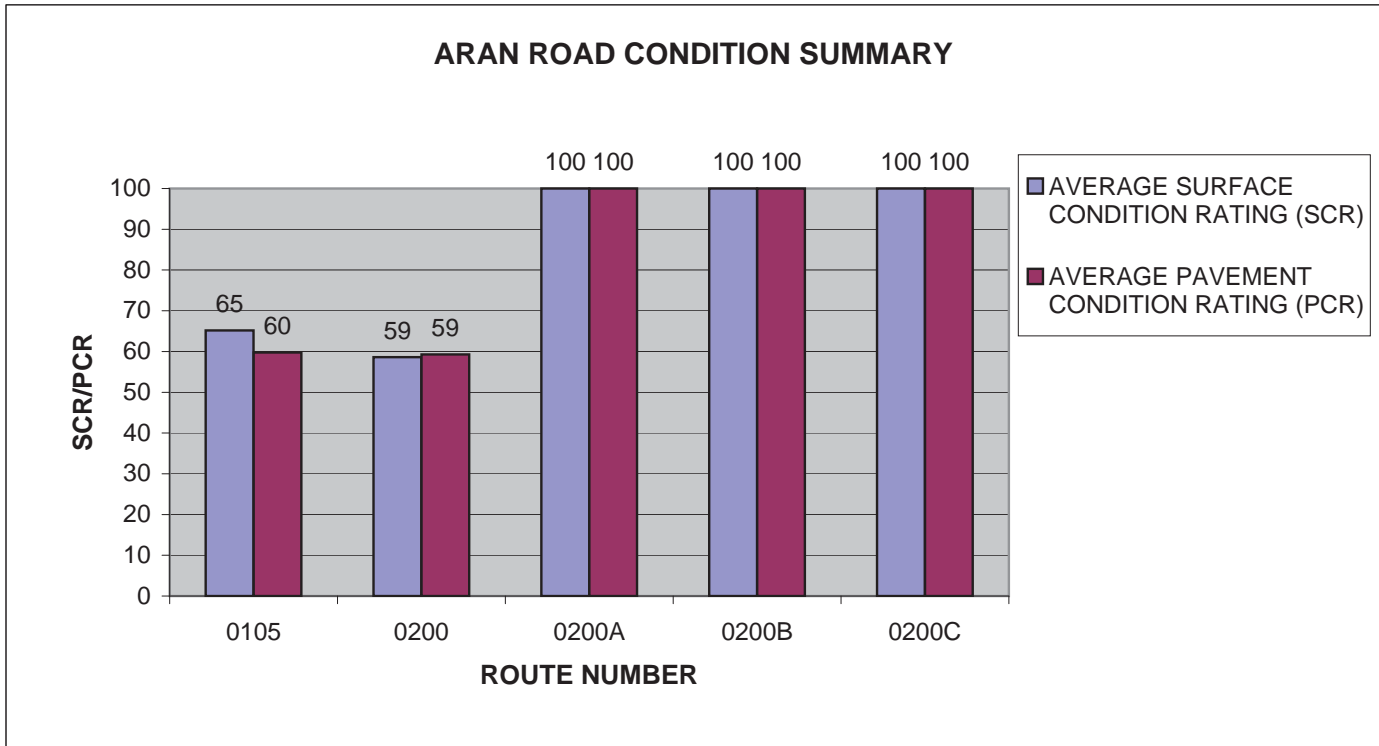
Section 2 **Park Summary Information**

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

F.C.	Pavement Condition Rating (PCR)								TOTAL MILES
	Poor (<=60)		Fair (61-84)		Good (85-94)		Excellent (95-100)		
	MILES	%	MILES	%	MILES	%	MILES	%	
1									
2	0.44	8.54%	0.20	3.88%	0.05	0.97%			0.69
3	0.34	6.60%	1.09	21.17%	0.24	4.66%	2.26	43.88%	3.93
4							0.11	2.14%	0.11
5	0.03	0.58%	0.04	0.78%	0.03	0.58%	0.32	6.21%	0.42
6									
7									
8									
Totals	0.81	15.73%	1.33	25.82%	0.32	6.21%	2.69	52.23%	5.15

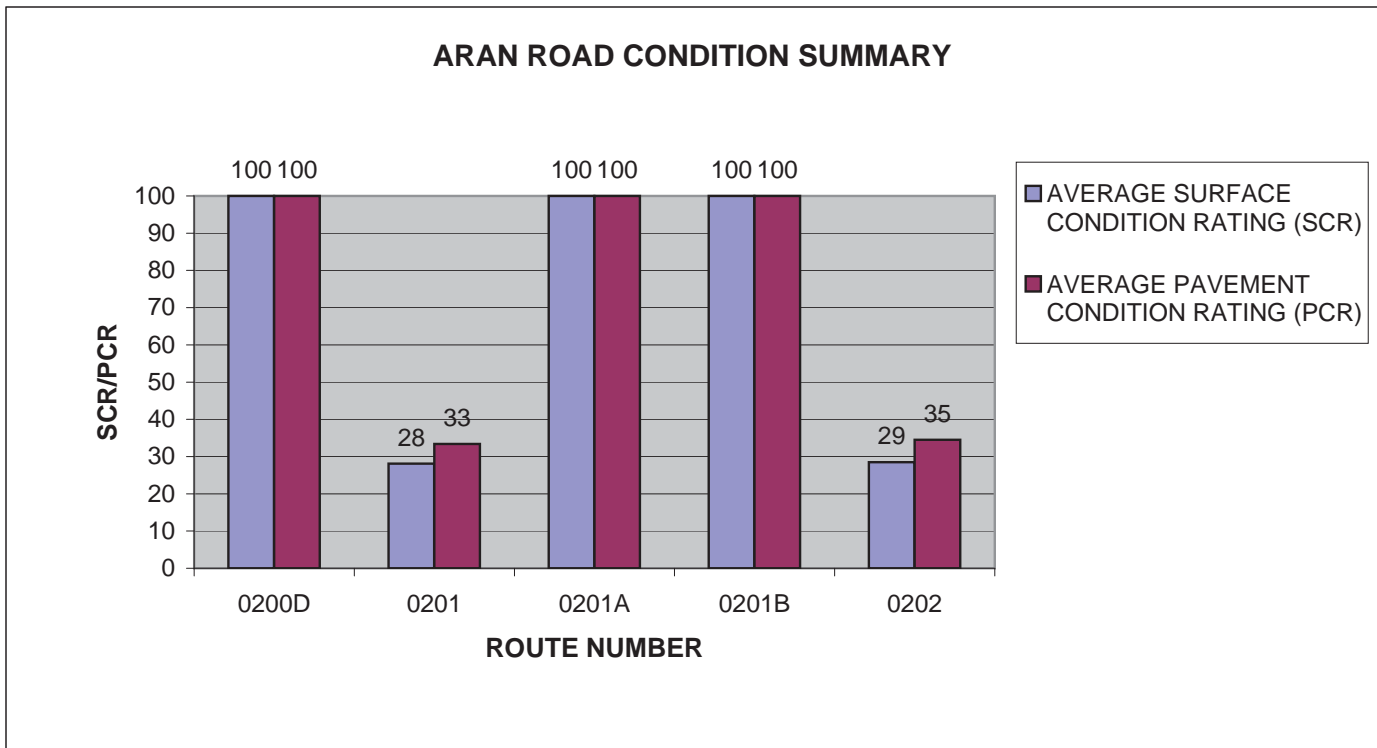
NOCA: ARAN ROAD CONDITION SUMMARY

ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	ROUTE LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0105	ENVIRONMENTAL LEARNING CENTER ACCESS ROAD	2	0.19	ASPHALT	65	60
0200	COLONIAL CREEK CAMPGROUND ACCESS SOUTH	2	0.20	ASPHALT	59	59
0200A	COLONIAL CREEK CAMPGROUND LOOP A	3	0.53	ASPHALT	100	100
0200B	COLONIAL CREEK CAMPGROUND LOOP B	3	0.24	ASPHALT	100	100
0200C	COLONIAL CREEK CAMPGROUND LOOP C	4	0.08	ASPHALT	100	100



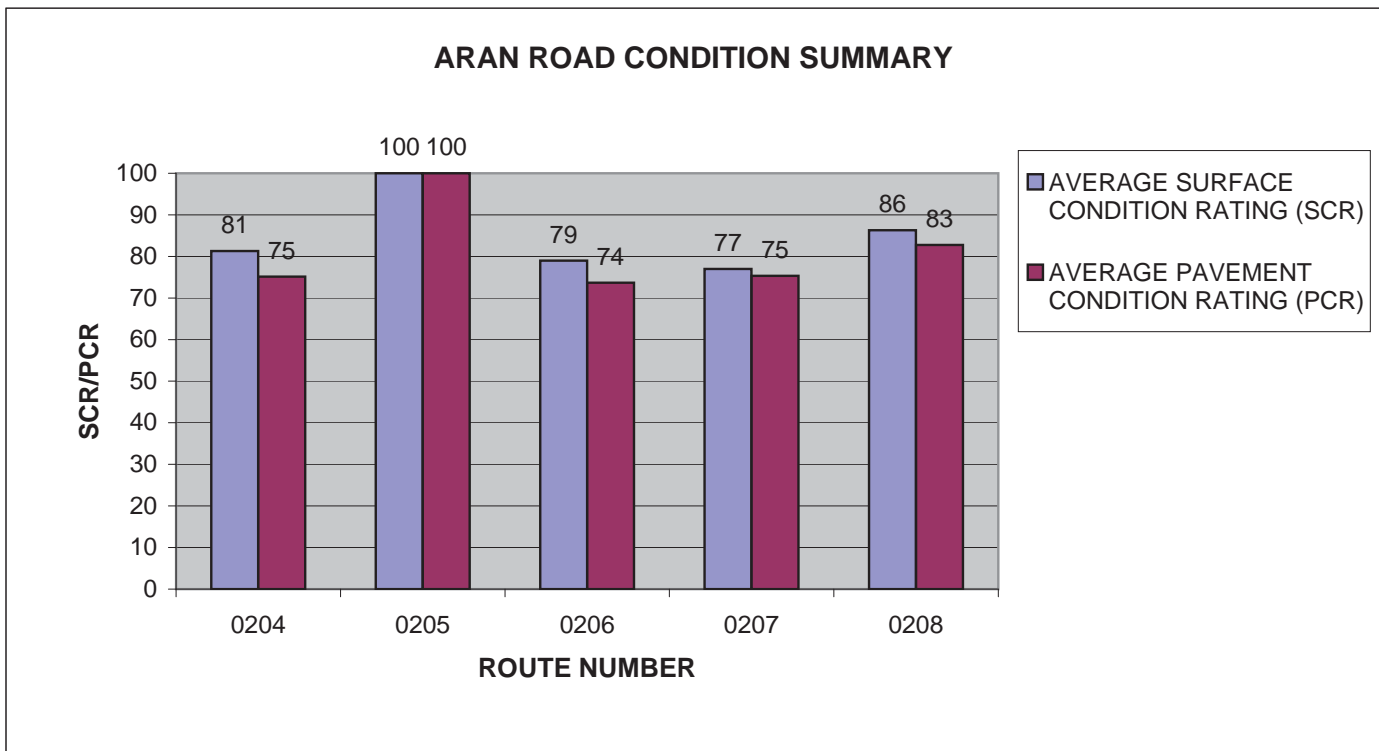
NOCA: ARAN ROAD CONDITION SUMMARY

ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	ROUTE LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0200D	COLONIAL CREEK CAMPGROUND LOOP D	4	0.03	ASPHALT	100	100
0201	GOODELL CREEK CAMPGROUND ACCESS ROAD	2	0.2	ASPHALT	28	33
0201A	GOODELL CREEK CAMPGROUND LOOP A	3	0.27	ASPHALT	100	100
0201B	GOODELL CREEK CAMPGROUND LOOP B	3	0.16	ASPHALT	100	100
0202	NEWHALEM CREEK CAMPGROUND ACCESS ROAD	2	0.1	ASPHALT	29	35



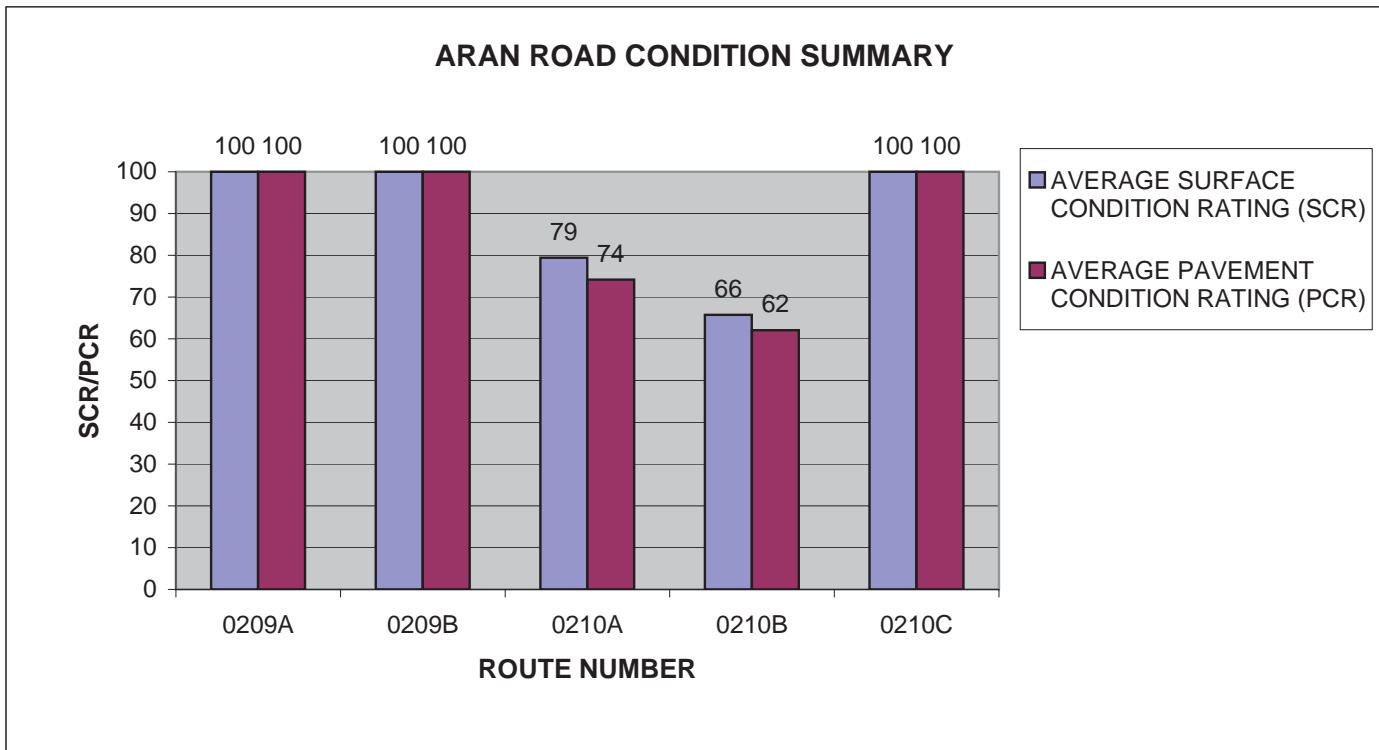
NOCA: ARAN ROAD CONDITION SUMMARY

ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	ROUTE LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0204	NORTH CASCADES VISITOR CENTER ACCESS ROAD	3	0.72	ASPHALT	81	75
0205	RAFT LAUNCH LOOP	3	0.04	ASPHALT	100	100
0206	NEWHALEM CREEK CAMPGROUND ACCESS TO LOOPS A & B	3	0.06	ASPHALT	79	74
0207	NEWHALEM CREEK CAMPGROUND ACCESS TO LOOPS C & D	3	0.12	ASPHALT	77	75
0208	NEWHALEM CREEK CAMP TENDER STATION	3	0.17	ASPHALT	86	83



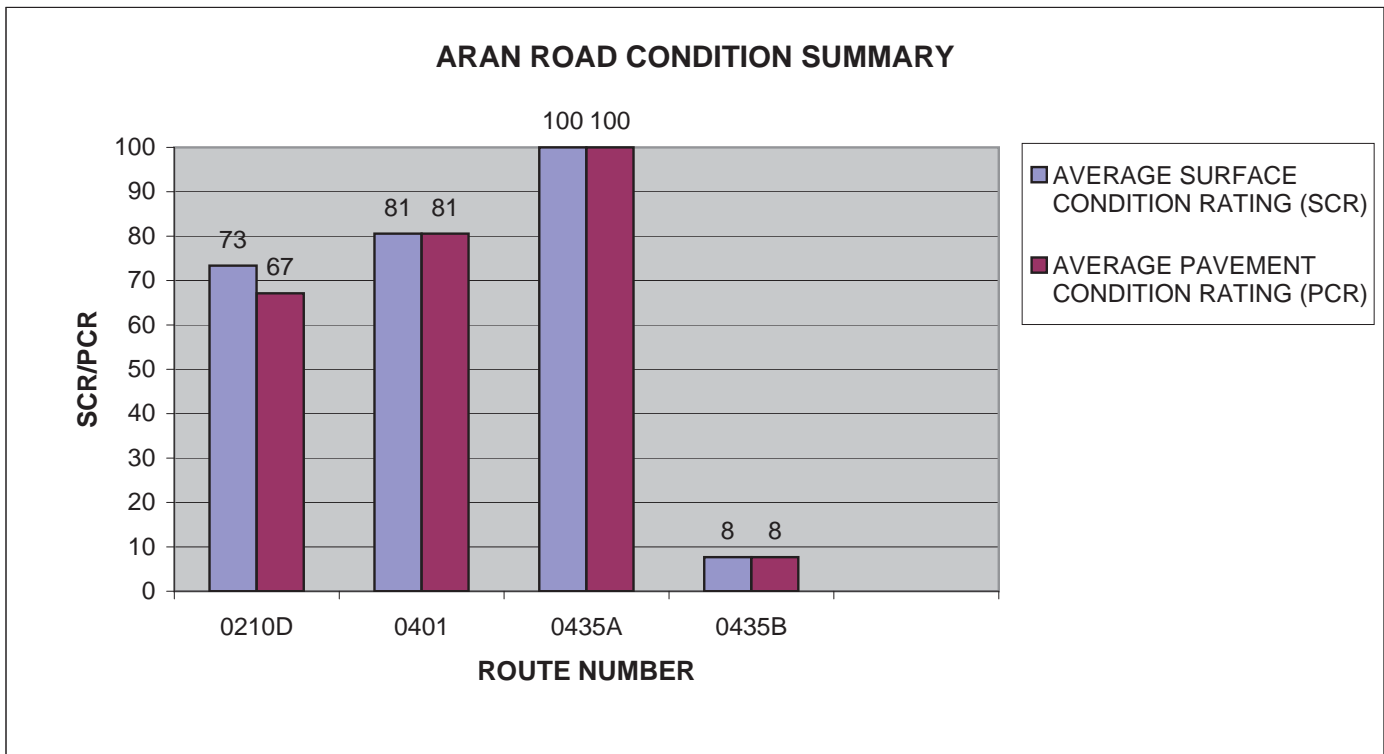
NOCA: ARAN ROAD CONDITION SUMMARY

ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	ROUTE LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0209A	COLONIAL CREEK CAMPGROUND NORTH LOOP A	3	0.44	ASPHALT	100	100
0209B	COLONIAL CREEK CAMPGROUND NORTH LOOP B	3	0.04	ASPHALT	100	100
0210A	NEWHALEM CREEK CAMPGROUND LOOP A	3	0.31	ASPHALT	79	74
0210B	NEWHALEM CREEK CAMPGROUND LOOP B	3	0.24	ASPHALT	66	62
0210C	NEWHALEM CREEK CAMPGROUND LOOP C	3	0.42	ASPHALT	100	100



NOCA: ARAN ROAD CONDITION SUMMARY

ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	ROUTE LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0210D	NEWHALEM CREEK GROUP CAMPGROUND LOOP D	3	0.17	ASPHALT	73	67
0401	NORTH CASCADES VISITOR CENTER SERVICE ROAD	5	0.07	ASPHALT	81	81
0435A	MARBLEMOUNT COUNCIL OAK DRIVE	5	0.32	ASPHALT	100	100
0435B	MARBLEMOUNT COUNCIL OAK SPUR	5	0.03	ASPHALT	8	8

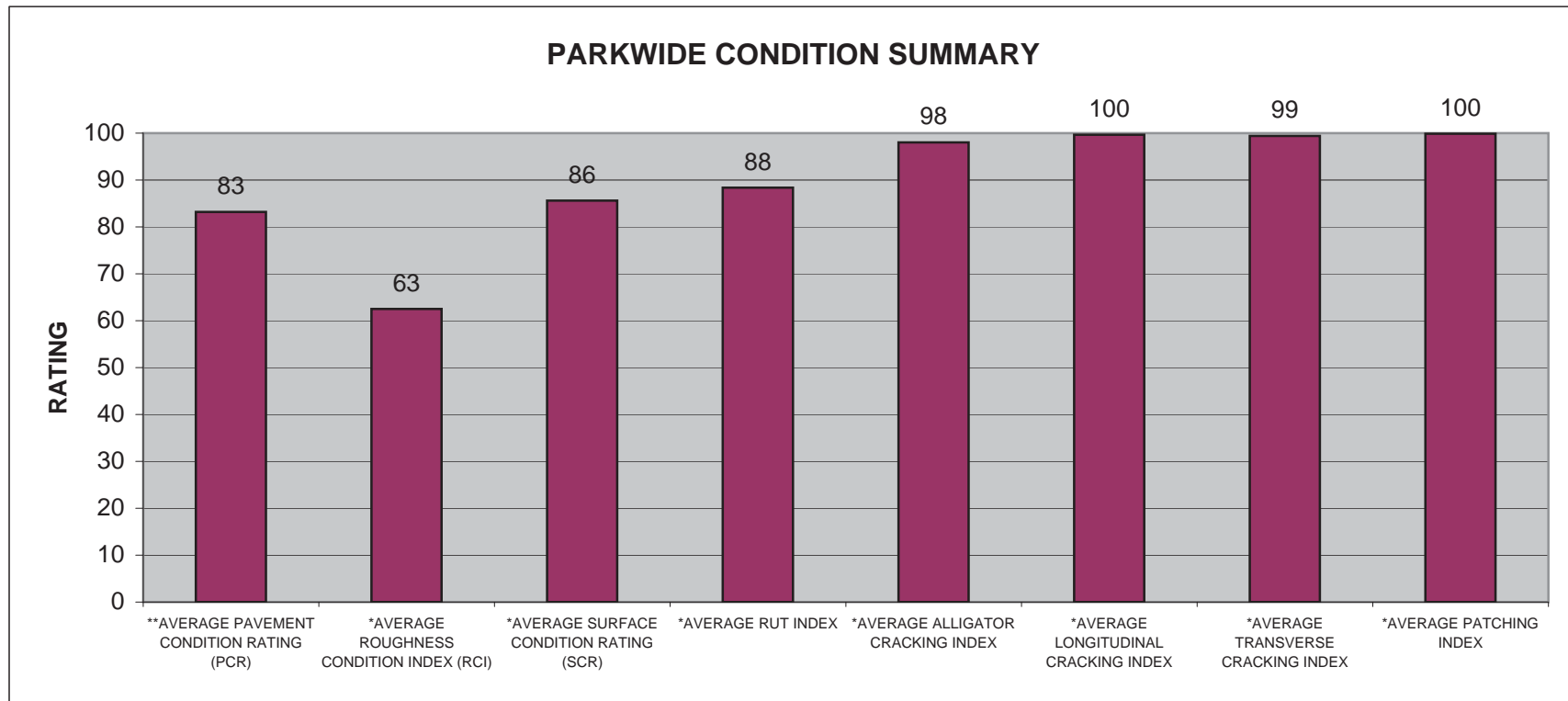


NOCA: PARKWIDE CONDITION SUMMARY

**AVERAGE PAVEMENT CONDITION RATING (PCR)	*AVERAGE ROUGHNESS CONDITION INDEX (RCI)	*AVERAGE SURFACE CONDITION RATING (SCR)	*AVERAGE RUT INDEX	*AVERAGE ALLIGATOR CRACKING INDEX	*AVERAGE LONGITUDINAL CRACKING INDEX	*AVERAGE TRANSVERSE CRACKING INDEX	*AVERAGE PATCHING INDEX
83	63	86	88	98	100	99	100

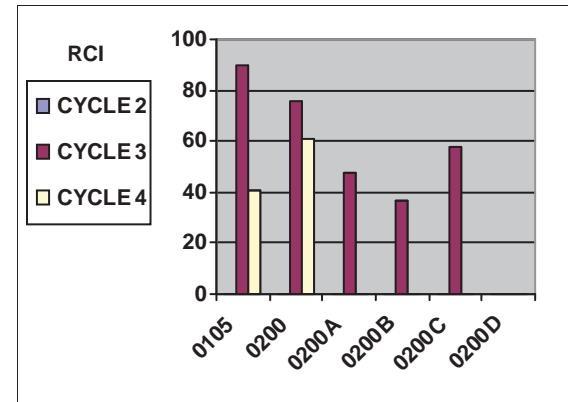
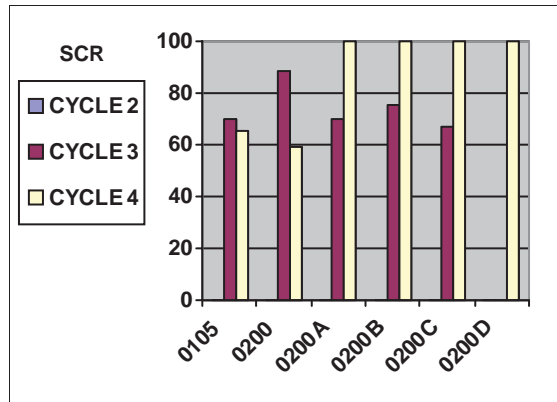
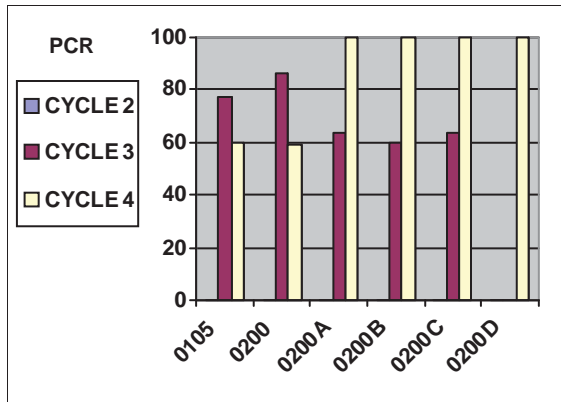
** PCR Index is based on all ARAN-driven roads, parking areas, and manually rated routes.

* Index values are based on ARAN-driven roads only.



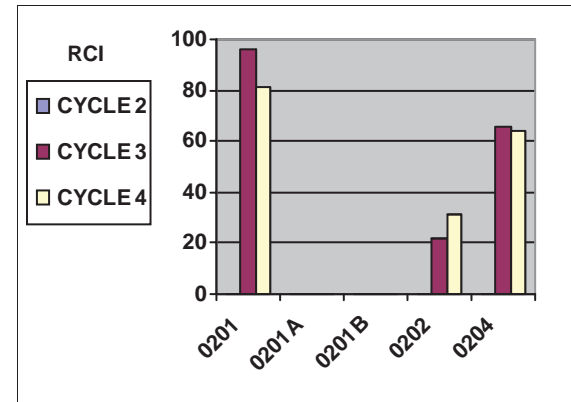
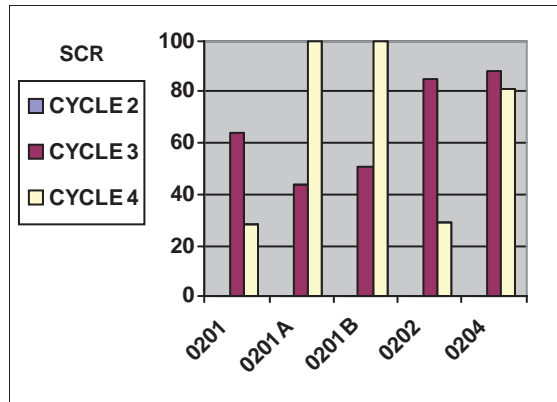
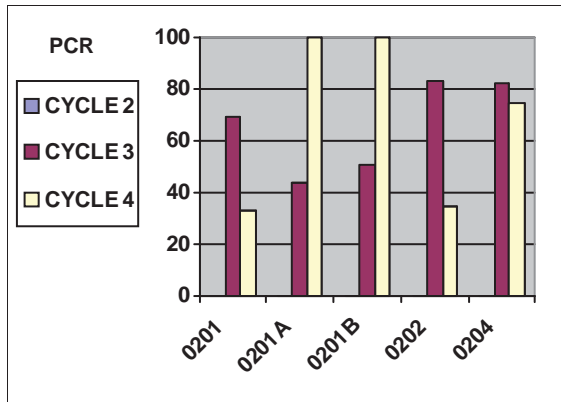
NOCA : CYCLE 2 vs CYCLE 3 vs CYCLE 4 CONDITION COMPARISONS

ROUTE NUMBER	PAVED MILES	FROM MILLEPOST	TO MILLEPOST	PAVEMENT CONDITION RATING (PCR)				SURFACE CONDITION RATING (SCR)				ROUGHNESS CONDITION INDEX (RCI)				COMMENT
				CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	
0105	0.66	0.00	0.66	N/A	77	60	-22%	N/A	70	65	-7%	N/A	90	41	-54%	
0200	0.20	0.00	0.20	N/A	86	59	-31%	N/A	88	59	-33%	N/A	76	61	-20%	
0200A	0.53	0.00	0.53	N/A	64	100	+56%	N/A	70	100	+43%	N/A	48	N/A	N/A	No RCI collected in Cycle 4.
0200B	0.25	0.00	0.25	N/A	60	100	+67%	N/A	75	100	+33%	N/A	37	N/A	N/A	No RCI collected in Cycle 4.
0200C	0.09	0.00	0.09	N/A	64	100	+56%	N/A	67	100	+49%	N/A	58	N/A	N/A	No RCI collected in Cycle 4.
0200D	0.03	0.00	0.03	N/A	N/A	100	N/A	N/A	N/A	100	N/A	N/A	N/A	N/A	N/A	No data collection from Cycle 3. No RCI collected in Cycle 4.



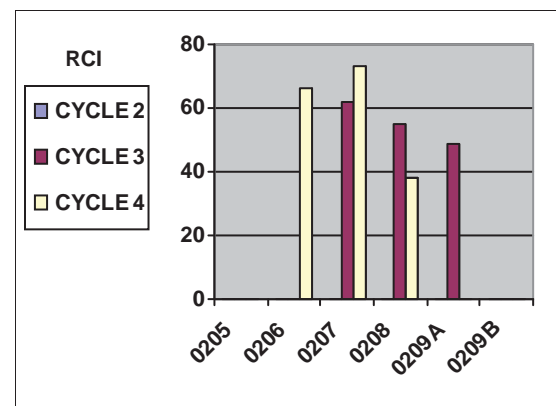
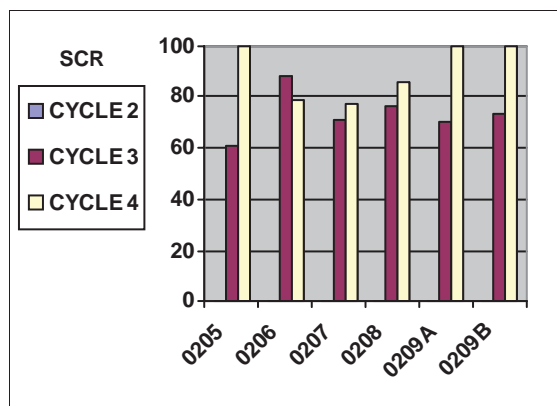
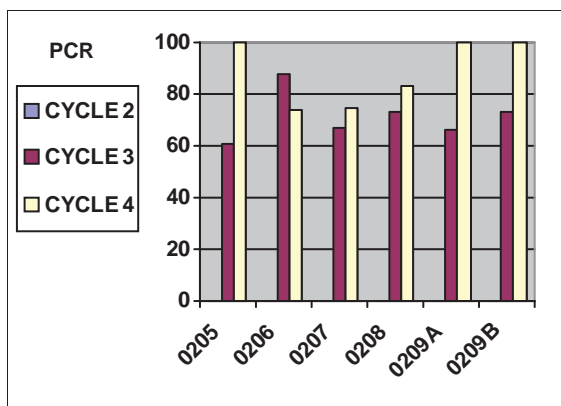
NOCA : CYCLE 2 vs CYCLE 3 vs CYCLE 4 CONDITION COMPARISONS

ROUTE NUMBER	PAVED MILES	FROM MILLEPOST	TO MILLEPOST	PAVEMENT CONDITION RATING (PCR)				SURFACE CONDITION RATING (SCR)				ROUGHNESS CONDITION INDEX (RCI)				COMMENT
				CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	
0201	0.20	0.00	0.20	N/A	69	33	-52%	N/A	64	28	-56%	N/A	96	81	-16%	
0201A	0.27	0.00	0.27	N/A	44	100	+127%	N/A	44	100	+127%	N/A	N/A	N/A	N/A	No RCI collected in Cycle 3 or Cycle 4.
0201B	0.18	0.00	0.18	N/A	51	100	+96%	N/A	51	100	+96%	N/A	N/A	N/A	N/A	No RCI collected in Cycle 3 or Cycle 4.
0202	0.11	0.00	0.11	N/A	83	35	-58%	N/A	85	29	-66%	N/A	22	31	+41%	
0204	0.72	0.00	0.72	N/A	82	75	-9%	N/A	88	81	-8%	N/A	66	64	-3%	



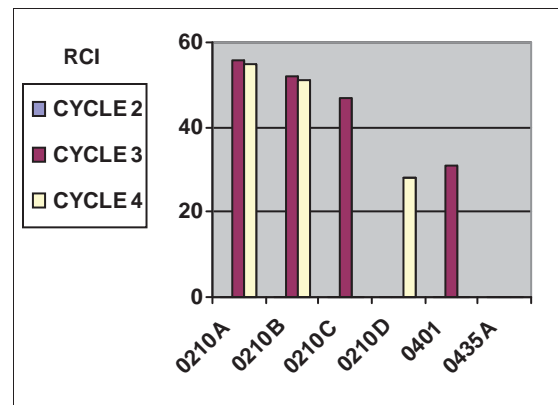
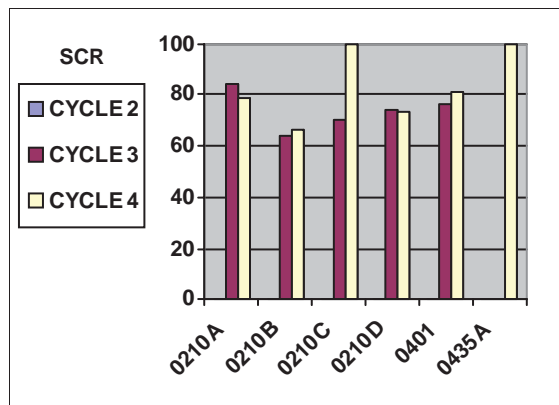
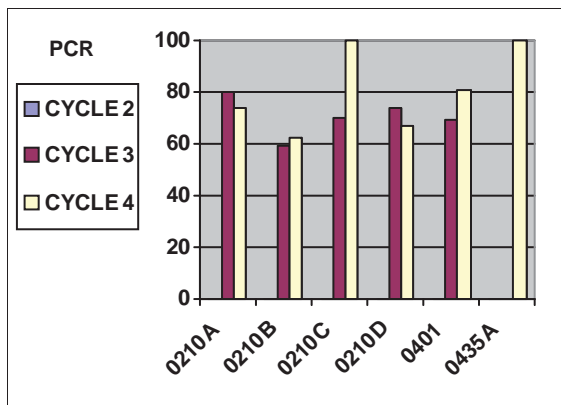
NOCA : CYCLE 2 vs CYCLE 3 vs CYCLE 4 CONDITION COMPARISONS

ROUTE NUMBER	PAVED MILES	FROM MILLEPOST	TO MILLEPOST	PAVEMENT CONDITION RATING (PCR)				SURFACE CONDITION RATING (SCR)				ROUGHNESS CONDITION INDEX (RCI)				COMMENT
				CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	
0205	0.05	0.00	0.05	N/A	61	100	+64%	N/A	61	100	+64%	N/A	N/A	N/A	N/A	No RCI collected in Cycle 3 or Cycle 4.
0206	0.07	0.00	0.07	N/A	88	74	-16%	N/A	88	79	-10%	N/A	N/A	66	N/A	No RCI collected in Cycle 3.
0207	0.13	0.00	0.13	N/A	67	75	+12%	N/A	71	77	+8%	N/A	62	73	+18%	
0208	0.17	0.00	0.17	N/A	73	83	+14%	N/A	76	86	+13%	N/A	55	38	-31%	
0209A	0.49	0.00	0.49	N/A	66	100	+52%	N/A	70	100	+43%	N/A	49	N/A	N/A	No RCI collected in Cycle 4.
0209B	0.10	0.00	0.10	N/A	73	100	+37%	N/A	73	100	+37%	N/A	N/A	N/A	N/A	No RCI collected in Cycle 3 or Cycle 4.



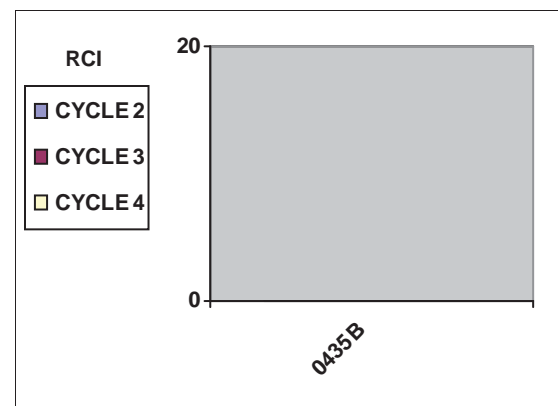
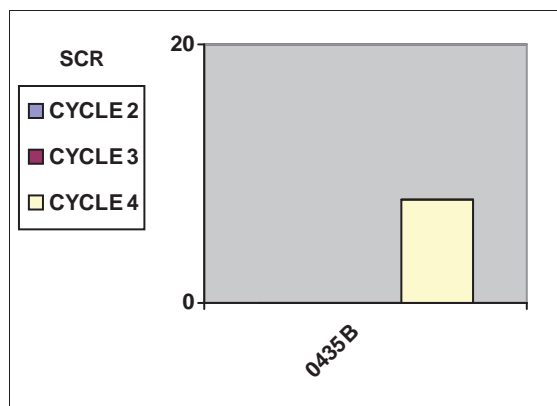
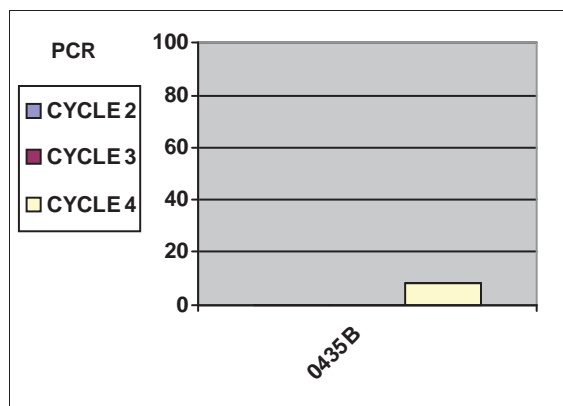
NOCA : CYCLE 2 vs CYCLE 3 vs CYCLE 4 CONDITION COMPARISONS

ROUTE NUMBER	PAVED MILES	FROM MILLEPOST	TO MILLEPOST	PAVEMENT CONDITION RATING (PCR)				SURFACE CONDITION RATING (SCR)				ROUGHNESS CONDITION INDEX (RCI)				COMMENT
				CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	
0210A	0.32	0.00	0.32	N/A	80	74	-8%	N/A	84	79	-6%	N/A	56	55	-2%	
0210B	0.25	0.00	0.25	N/A	59	62	+5%	N/A	64	66	+3%	N/A	52	51	-2%	
0210C	0.42	0.00	0.42	N/A	70	100	+43%	N/A	70	100	+43%	N/A	47	N/A	N/A	No RCI collected in Cycle 4.
0210D	0.17	0.00	0.17	N/A	74	67	-9%	N/A	74	73	-1%	N/A	N/A	28	N/A	No RCI collected in Cycle 3.
0401	0.07	0.00	0.07	N/A	69	81	+17%	N/A	76	81	+7%	N/A	31	N/A	N/A	No RCI collected in Cycle 4.
0435A	0.32	0.00	0.32	N/A	N/A	100	N/A	N/A	N/A	100	N/A	N/A	N/A	N/A	N/A	Part of 0900A in Cycle 3. No RCI collected in Cycle 4.



NOCA : CYCLE 2 vs CYCLE 3 vs CYCLE 4 CONDITION COMPARISONS

ROUTE NUMBER	PAVED MILES	FROM MILPOST	TO MILPOST	PAVEMENT CONDITION RATING (PCR)				SURFACE CONDITION RATING (SCR)				ROUGHNESS CONDITION INDEX (RCI)				COMMENT
				CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	CYCLE 2	CYCLE 3	CYCLE 4	PERCENT CHANGE	
0435B	0.03	0.00	0.03	N/A	N/A	8	N/A	N/A	N/A	8	N/A	N/A	N/A	N/A	N/A	Part of 0900A in Cycle 3. No RCI collected in Cycle 4.

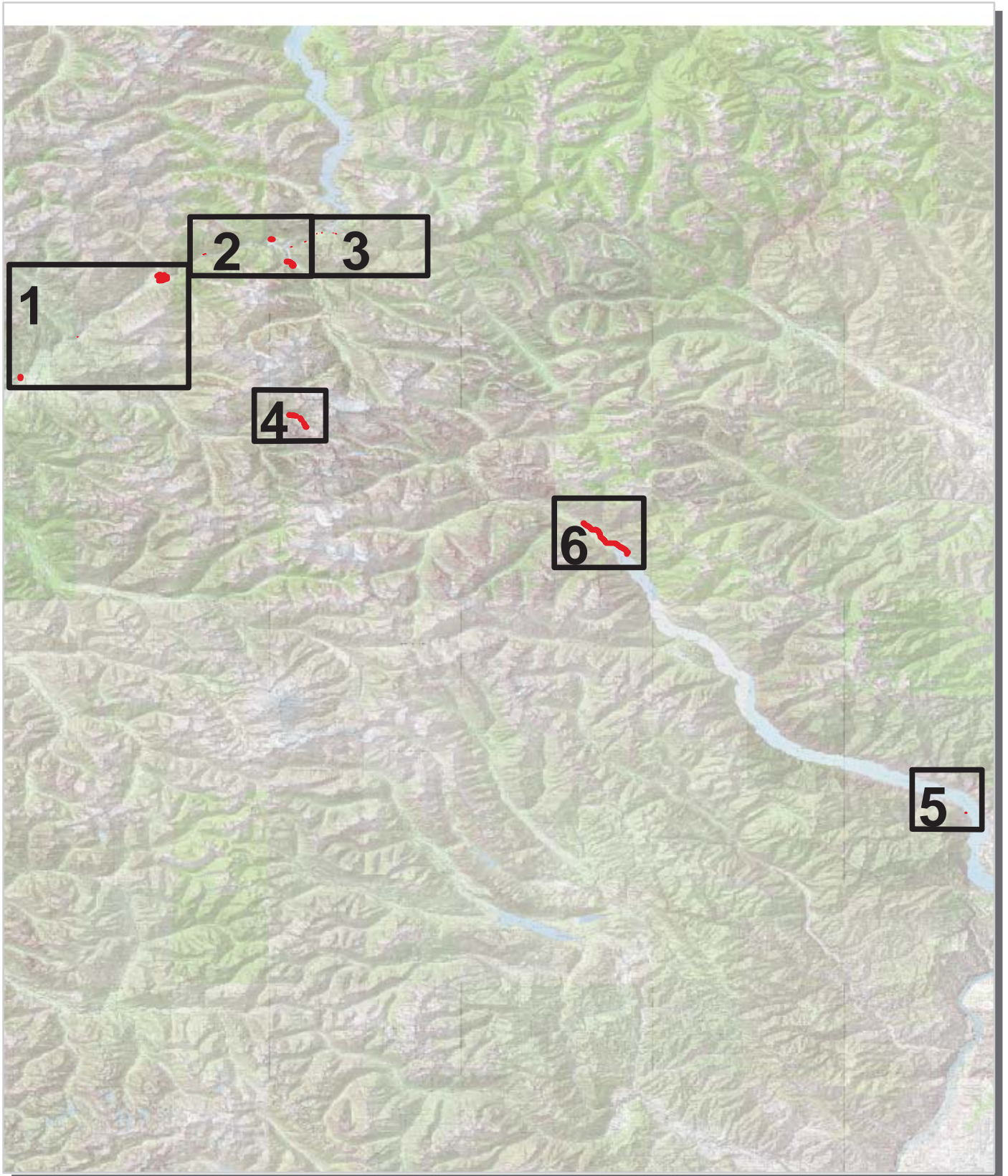


North Cascades National Park



Section 3 **Park Route Location / Condition** **Maps**

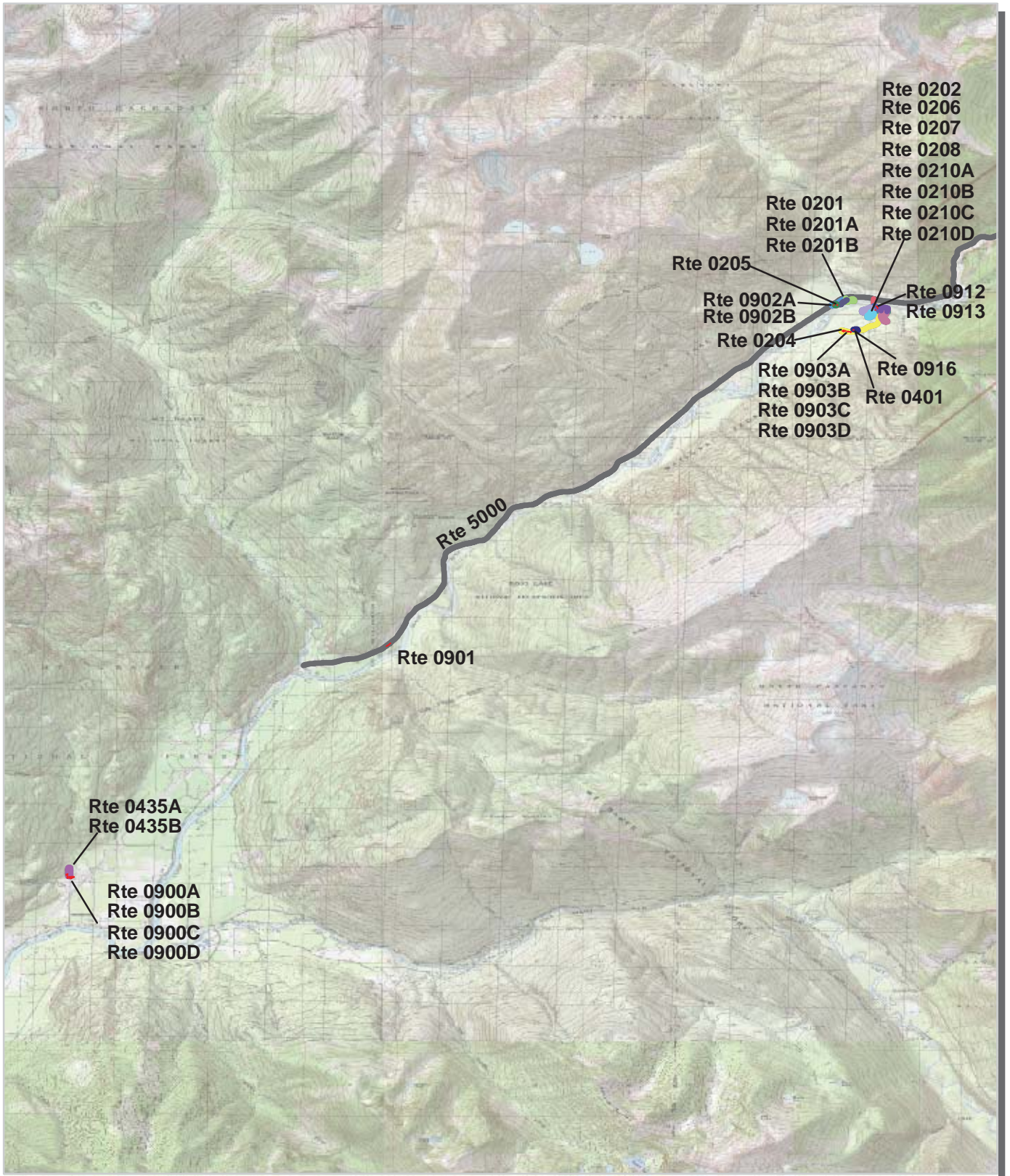
North Cascades National Park
Route Location Map
Key Map



— Park Owned Routes



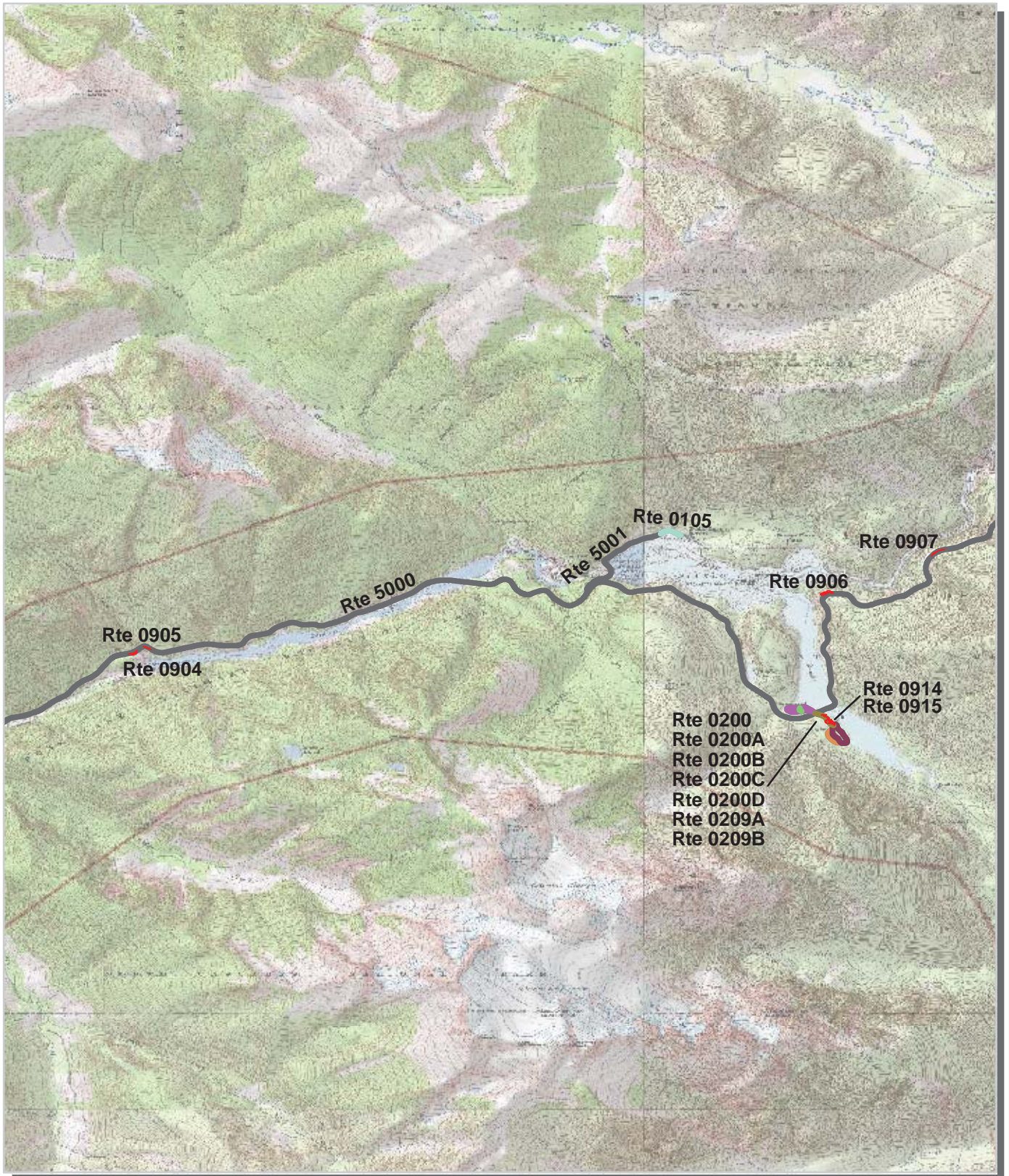
North Cascades National Park Route Location Map Area 1



Unique colors used to differentiate routes



North Cascades National Park Route Location Map Area 2



Unique colors used to differentiate routes



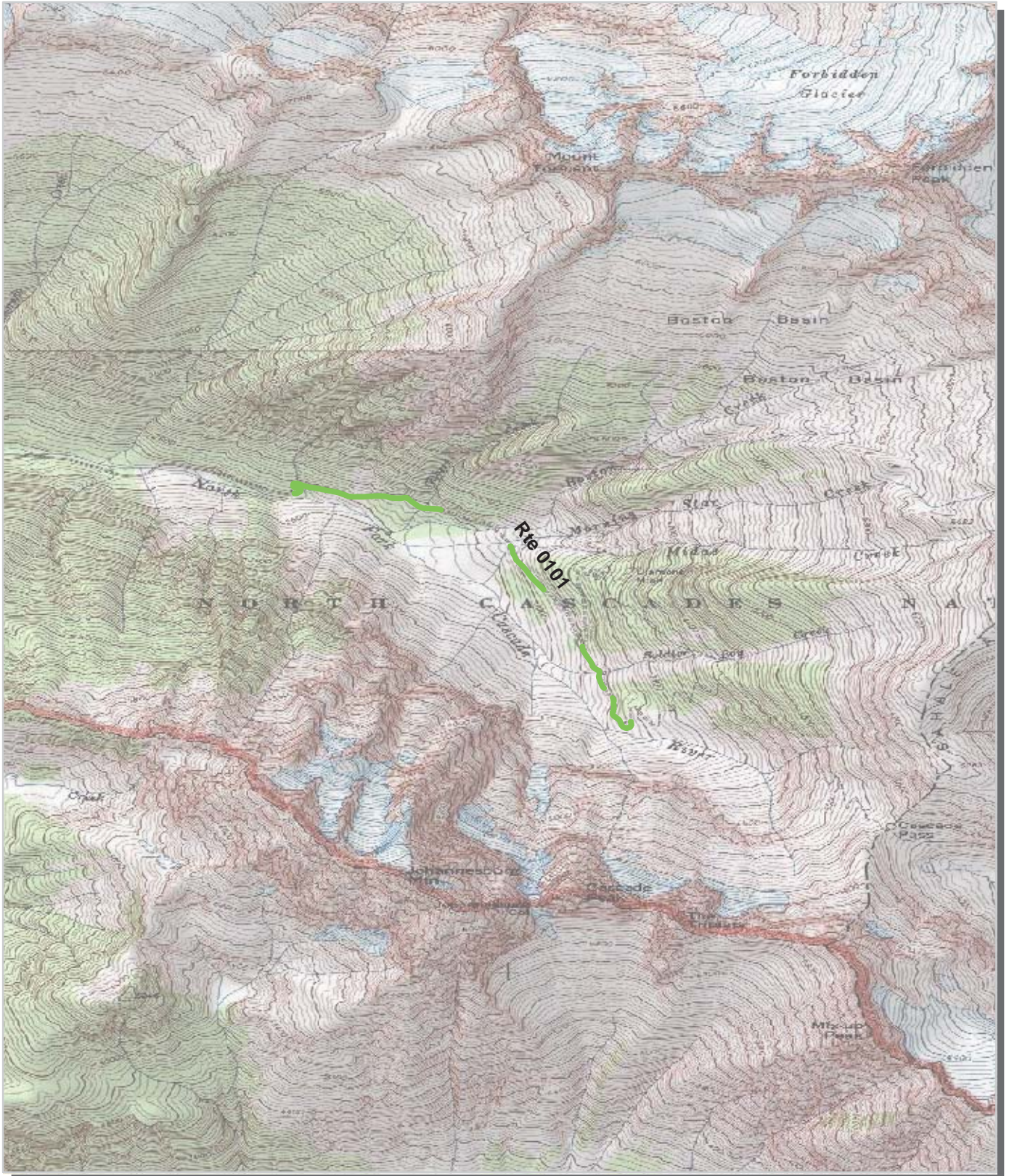
North Cascades National Park Route Location Map Area 3



Unique colors used to differentiate routes



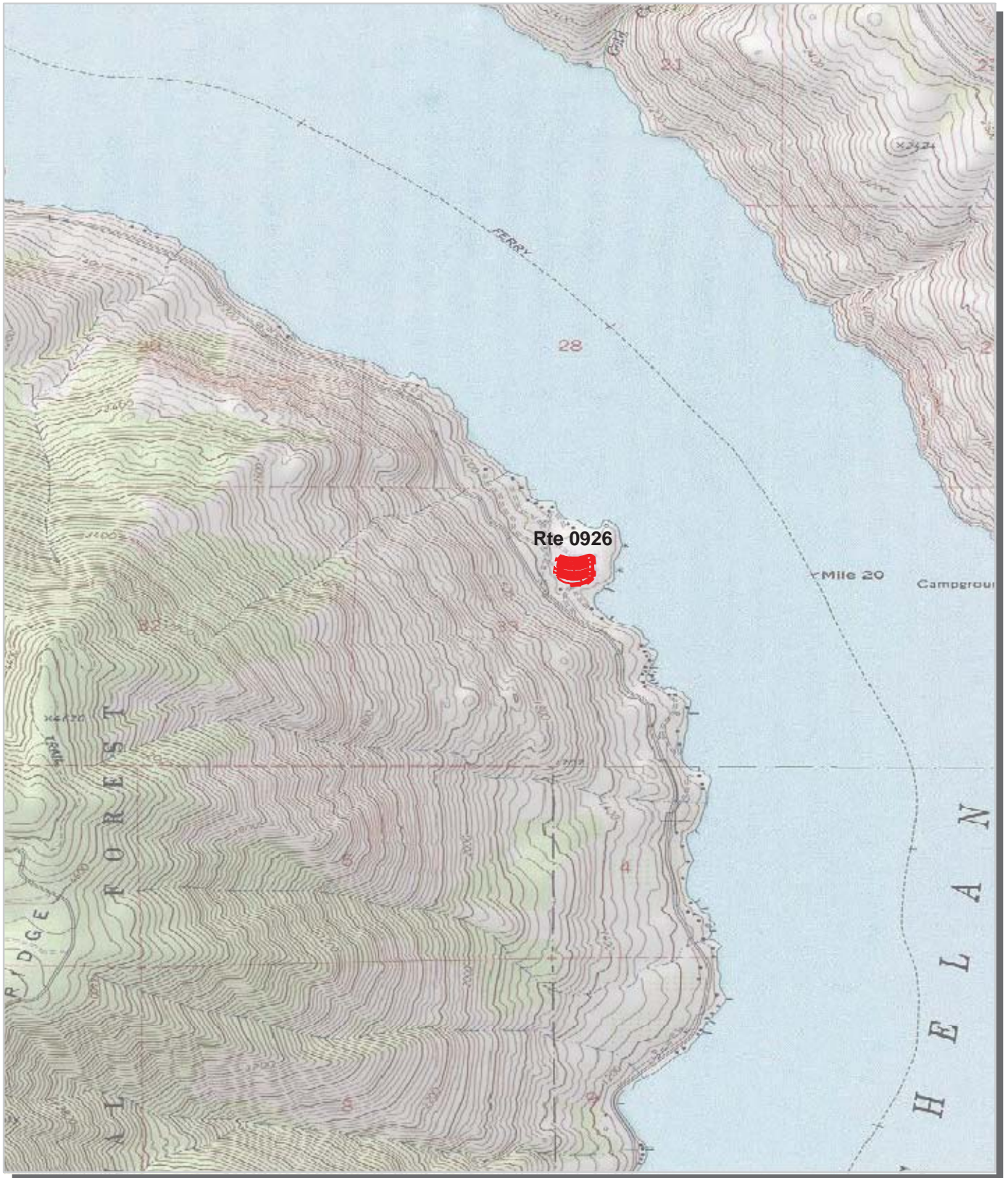
North Cascades National Park Route Location Map Area 4



Unique colors used to differentiate routes



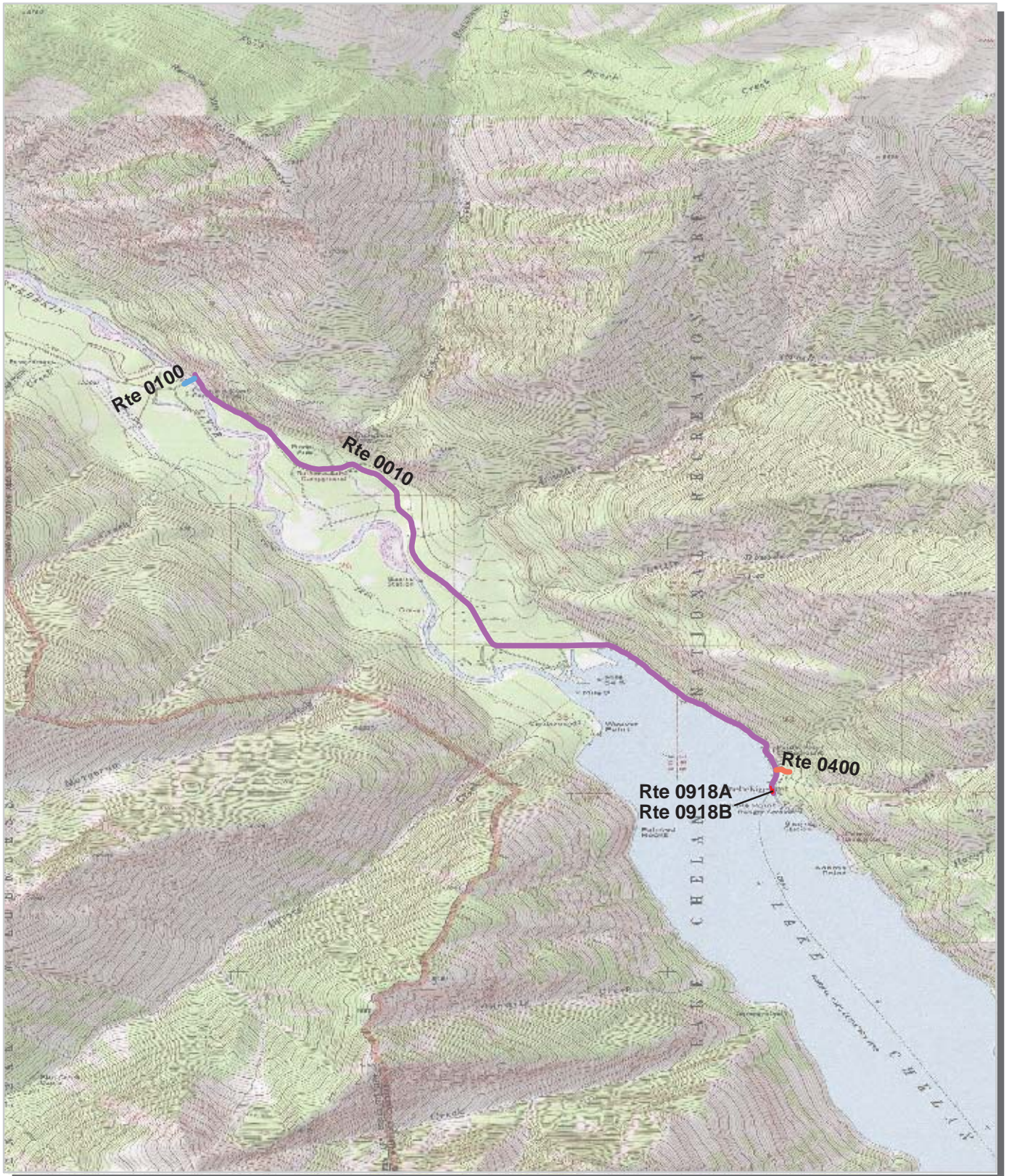
North Cascades National Park
Route Location Map
Area 5



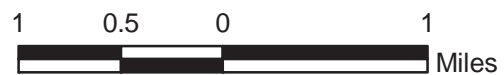
Unique colors used to differentiate routes



North Cascades National Park Route Location Map Area 6



Unique colors used to differentiate routes

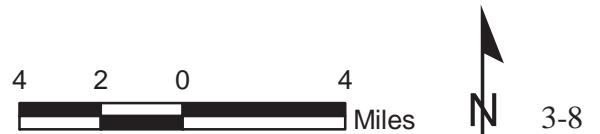
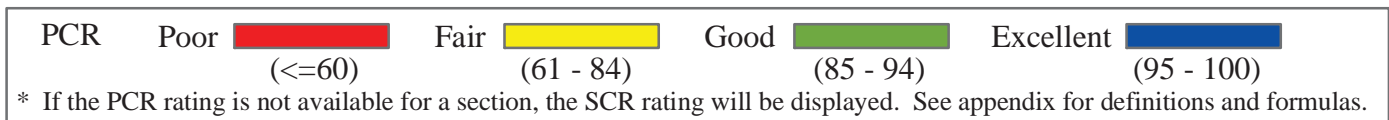
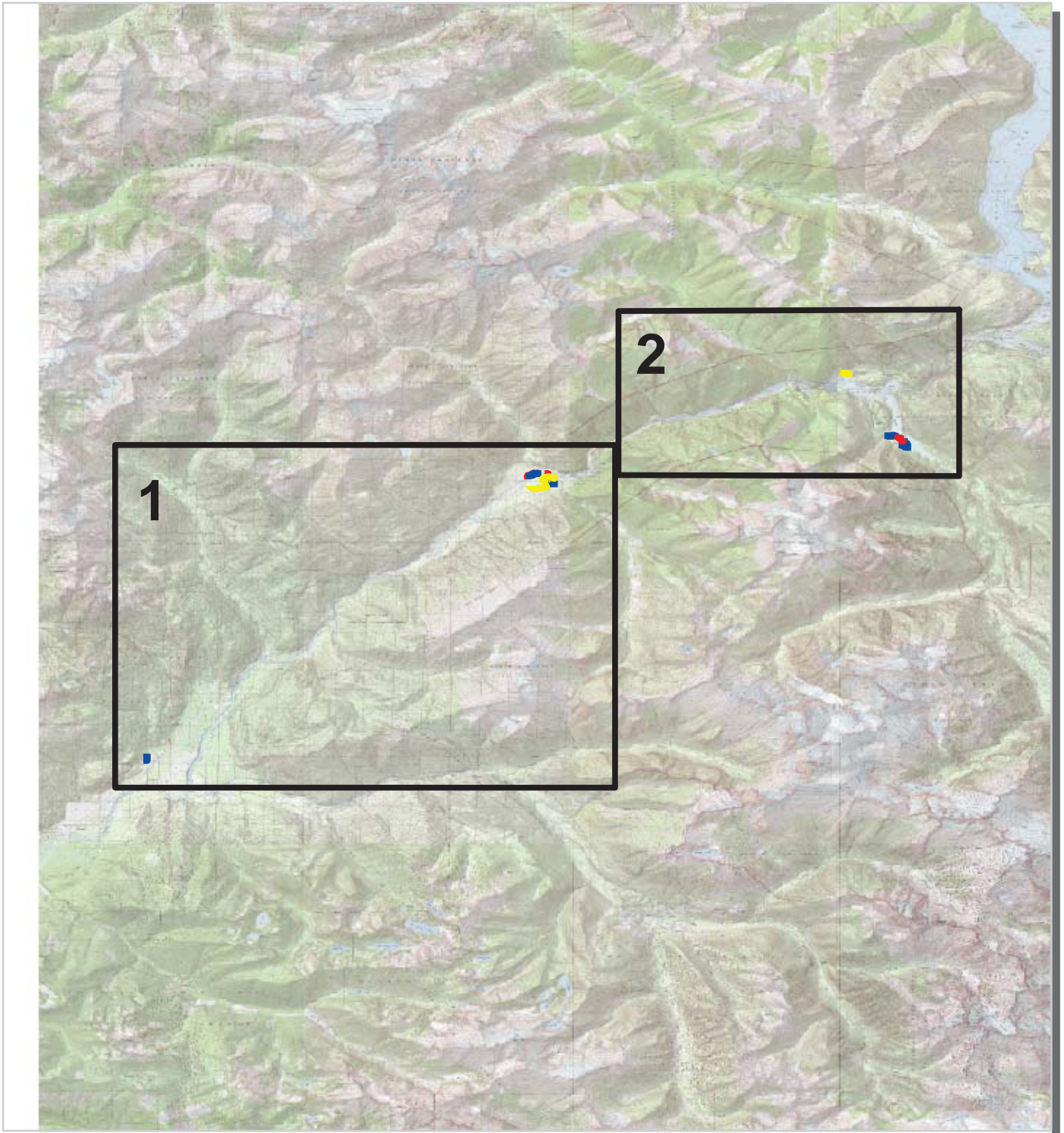


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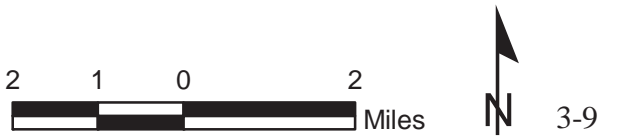
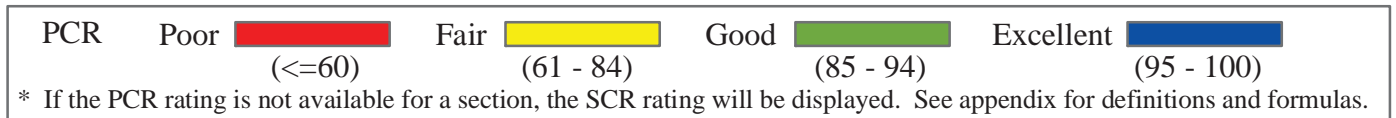
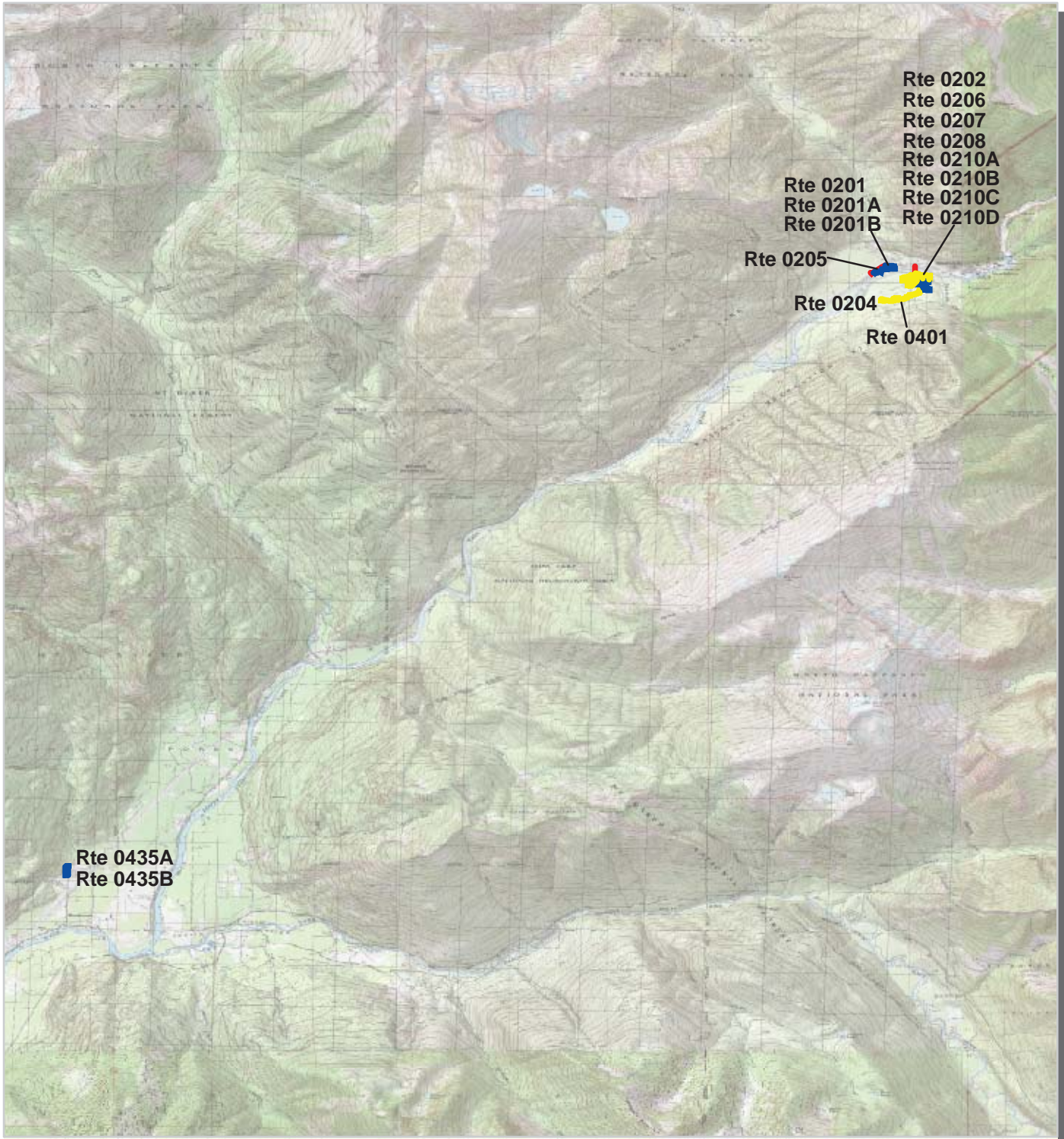
Route Condition Map

PCR - Mile by Mile

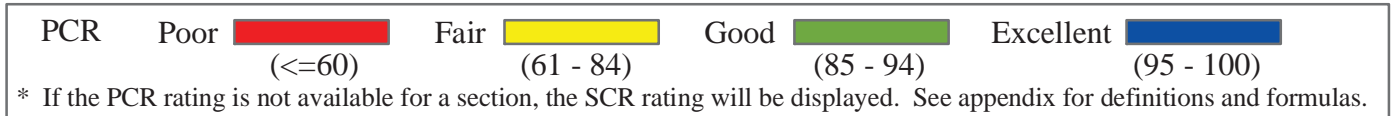
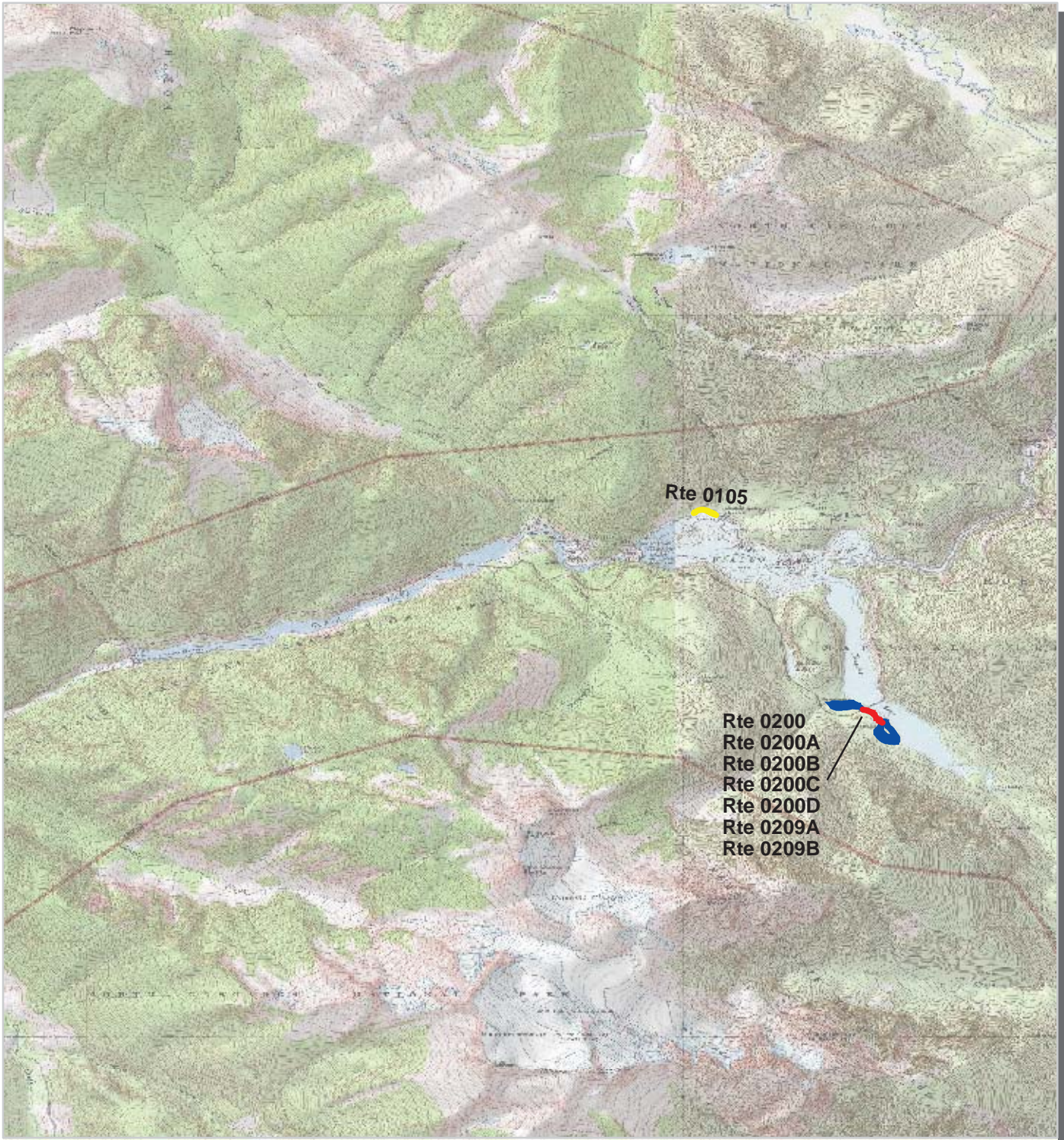
Key Map



North Cascades National Park Route Condition Map PCR - Mile by Mile Area 1



North Cascades National Park Route Condition Map PCR - Mile by Mile Area 2



North Cascades National Park



Section 4 **Park Route Inventory**