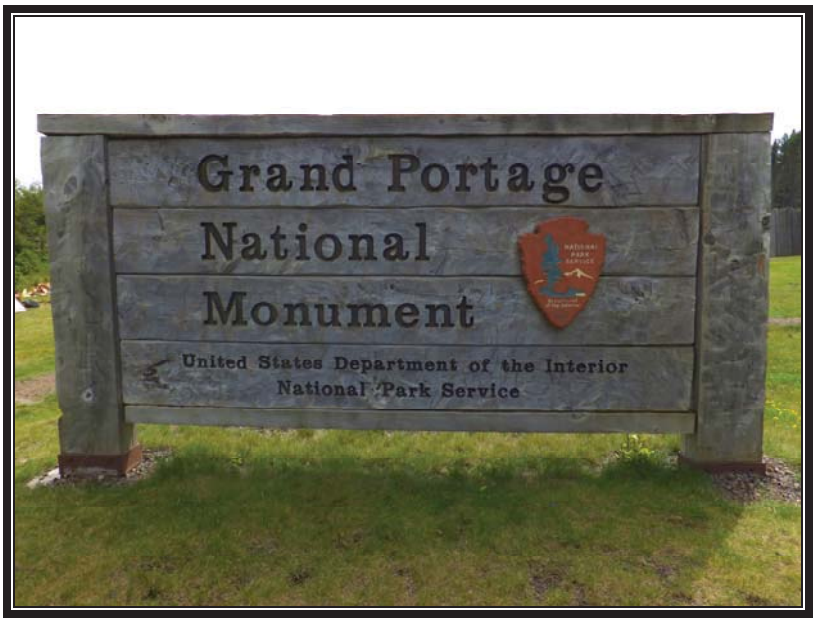
Federal Lands Highway

Road Inventory Program

Road Inventory and Condition Assessment



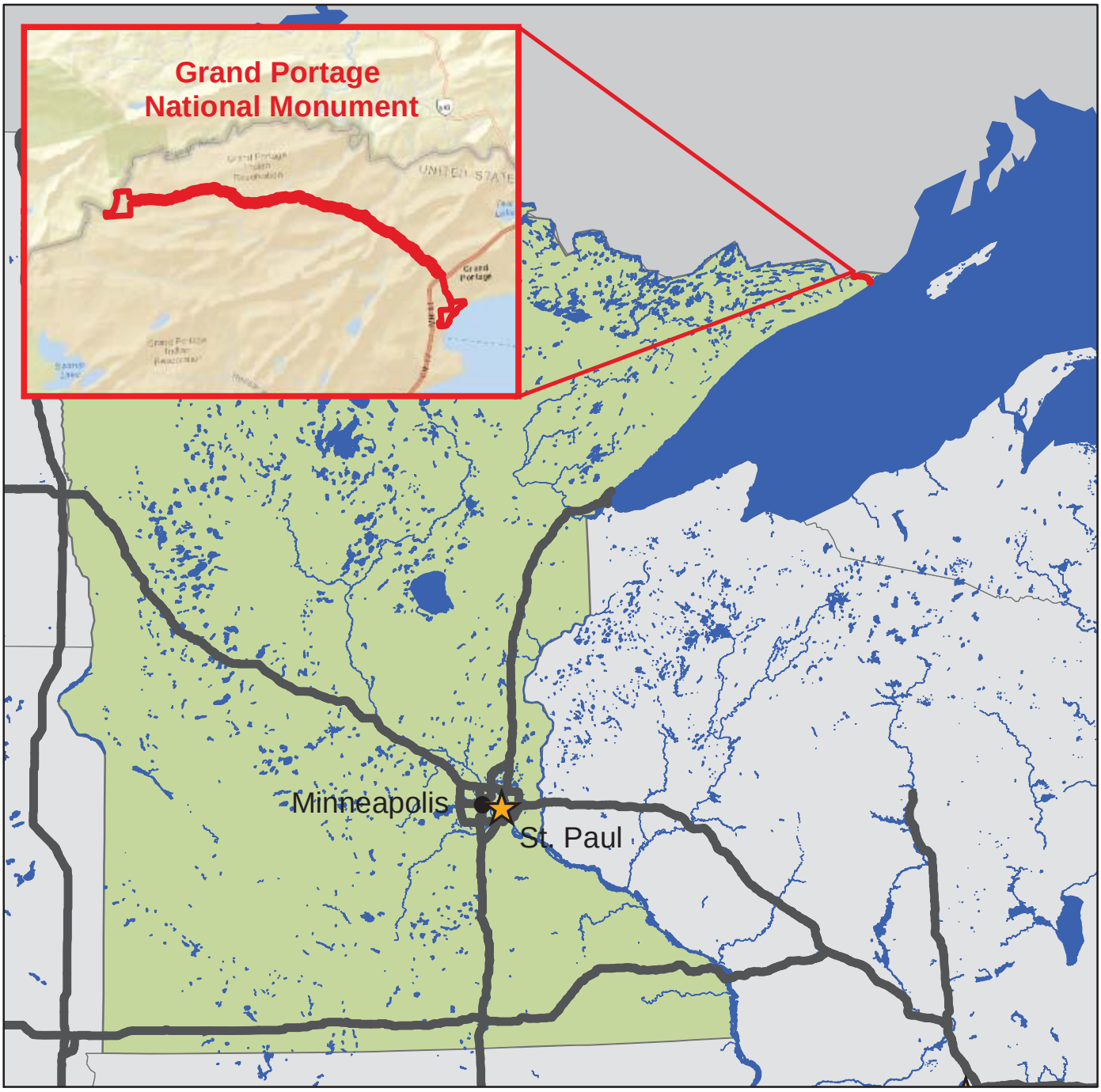
Grand Portage National Monument

GRPO

Cycle 5 Report

Prepared By: Federal Highway Administration
Road Inventory Program (RIP)
Data Collected: 09/2012
Report Date: 04/2013

Grand Portage National Monument
in
Minnesota



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Section 1
Introduction

Grand Portage National Monument

Federal Lands Highway
Road Inventory Program

INTRODUCTION

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

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

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

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

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

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

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

Cycle 5 has launched in the summer of 2010 and will again comprise all parks, large and small, that are served by paved roads and/or parking areas. For Cycle 5, the decision was made to collect condition data in large parks on Functional Class 1, 2, and 7 paved routes only, as well as any new routes that were previously not collected. In small parks, all paved routes and parking areas will be collected. As a result, this will include 81 large parks with 4,459 paved route miles and 231 small parks with 529 paved route miles and associated paved parking areas.

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

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

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

Respectfully,

FHWA RIP Team

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Section 2
Park Route Inventory

Grand Portage National Monument

Federal Lands Highway
Road Inventory Program

Cycle 5 NPS/RIP Route ID Report

Shading Color Key:
Red text denotes approx. mileage

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

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

** DCV - Data Collection Vehicle NC - Not Collected

GRPO

GRAND PORTAGE NATIONAL MONUMENT

Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From	Route Description To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
0402	NC	77659		BONEYARD ROAD	FROM ROUTE 5000 (COUNTY ROAD 17)	TO BONEYARD	N/A	0.00	0.19	0.19	6		GR	
0403	NC	102465		THE PINES PICNIC AREA ACCESS ROAD	FROM ROUTE 5000 (COUNTY ROAD 17)	TO PICNIC GROUNDS	N/A	0.00	0.09	0.09	6		GR	
0404	NC	114437		DEPOT SERVICE ROAD	FROM ROUTE 5000 (COUNTY ROAD 17)	TO GATEHOUSE	N/A	0.00	0.04	0.04	6		GR	
0405	NC	239526		MAINTENANCE SERVICE ROAD	FROM NATURAL RESOURCES DRIVEWAY	TO SERVICE BUILDING	N/A	0.00	0.06	0.06	6		GR	
0902	NC	83247		EMPLOYEE PARKING	FROM ROUTE 5000 (COUNTY ROAD 17)	TO PARKING	N/A	0.00	0.00	0.00		6,450	GR	
0904	NC	102475		MAINTENANCE AREA PARKING	FROM ROUTE 5000 (COUNTY ROAD 17)	TO PARKING	N/A	0.00	0.00	0.00		2,700	GR	
0906	**5**	**106717**		**HERITAGE CENTER PARKING LOT**	**FROM ROUTE 5000 (COUNTY ROAD 17)**	**TO ROUTE 5000 (COUNTY ROAD 17)**	**N/A**	**0.00**	**0.00**	**0.00**		**22,603**	**AS**	**1**
0907	**5**	**238009**		**SEASONAL HOUSING COMPLEX PARKING LOT**	**FROM NATURAL RESOURCES DRIVEWAY**	**TO PARKING**	**N/A**	**0.00**	**0.00**	**0.00**		**6,934**	**AS**	**1**
5000	**5**			**COUNTY ROAD 17**	**FROM SOUTH PARK BOUNDARY**	**TO NORTH PARK BOUNDARY**	**N/A**	**0.61**	**0.00**	**0.61**			**AS**	**1**

Cycle 5 NPS/RIP Route ID Report

Shading Color Key:
Red text denotes approx. mileage

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

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

** DCV - Data Collection Vehicle NC - Not Collected

CYCLE 5 SUMMARY TOTALS FOR GRAND PORTAGE NATIONAL MONUMENT

CYCLE 5 ROUTE TOTALS

DCV Driven Route Miles	0.00
Manually Rated Route Miles	0.00
TOTAL PARK ROUTE MILES COLLECTED IN CYCLE 5	0.00
Manually Rated Routes (SQFT)	0
TOTAL UNPAVED PARK ROUTE MILES	0.38

CYCLE 5 CONCESSION TOTALS

Concession Paved Route Miles	0.00
Concession Unpaved Route Miles	0.00
TOTAL CONCESSION ROUTE MILES	0.00
Concession Paved Parking Area SQFT	0
Concession Unpaved Parking Area SQFT	0
TOTAL CONCESSION PARKING AREA SQFT	0
Concession Manually Rated Rotes SQFT	0

* CYCLE 5 PARKING AREA TOTALS

Paved Parking (SQFT)	29,537
Unpaved Parking (SQFT)	9,150
TOTAL PARKING (SQFT)	38,687

CYCLE 5 WEIGHTED AVERAGE PARK VALUES

DCV Driven PCR	N/A
**Manually Rated Routes PCR	N/A
**Parking PCR	92
***Total Equivalent Lane Miles	0.51

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

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

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

Cycle 5 NPS/RIP Route ID Report

Shading Color Key:
Red text denotes approx. mileage

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

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

** DCV - Data Collection Vehicle NC - Not Collected

General Park Road Functional Classification Table

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

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

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

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

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

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

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

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

****

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

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

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

Surface Type Abbreviations:

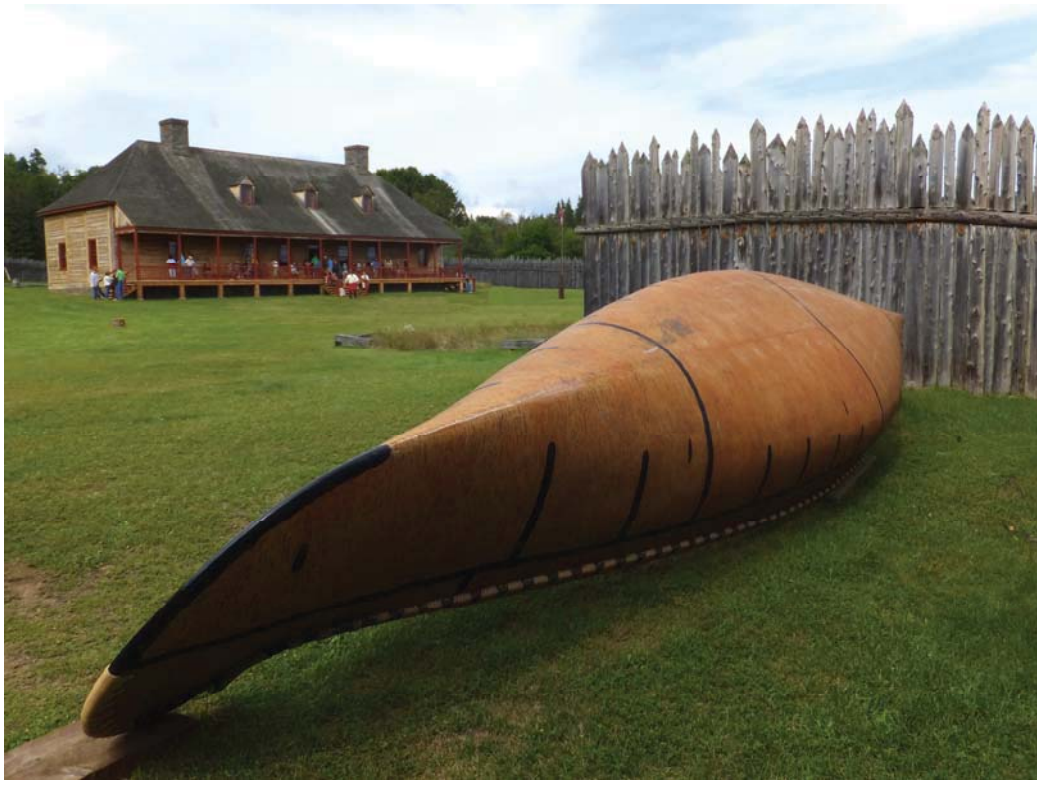
AS - Asphaltic Concrete Pavement
CO - Portland Cement Concrete Pavement
BR - Brick or Pavers Road Bed
CB - Cobble Stone Road Bed
GR - Gravel Road Bed
SA - Sand Road Bed
NV - Native or Dirt Material Road Bed
OT - Other Materials Road Bed

ROUTE IDENTIFICATION CHANGES TO PAVED ROUTES FROM PREVIOUS CYCLE - GRPO

ROUTES ADDED FROM PREVIOUS INVENTORY:			
Route #	**Route Name**	**Reason for Addition**	**Comments**
0906	HERITAGE CENTER PARKING LOT	RECENTLY CONSTRUCTED ROUTE	NEW PARKING LOT ADDED TO INVENTORY IN CYCLE 5.
0907	SEASONAL HOUSING COMPLEX PARKING LOT	RECENTLY CONSTRUCTED ROUTE	NEW PARKING LOT ADDED TO INVENTORY IN CYCLE 5.
5000	COUNTY ROAD 17	OTHER	NEW ROUTE ADDED TO INVENTORY IN CYCLE 5.

ROUTES REMOVED FROM PREVIOUS INVENTORY:			
Route #	**Route Name**	**Reason for Removal**	**Comments**
0900	VISITOR CENTER PARKING AREA	CLOSED/ABANDONED	THE "VISITOR CENTER PARKING AREA" NO LONGER EXISTS NEAR THE STOCKADE AND GREAT HALL.

Section 3
Park Summary Information



Grand Portage National Monument

Federal Lands Highway
Road Inventory Program

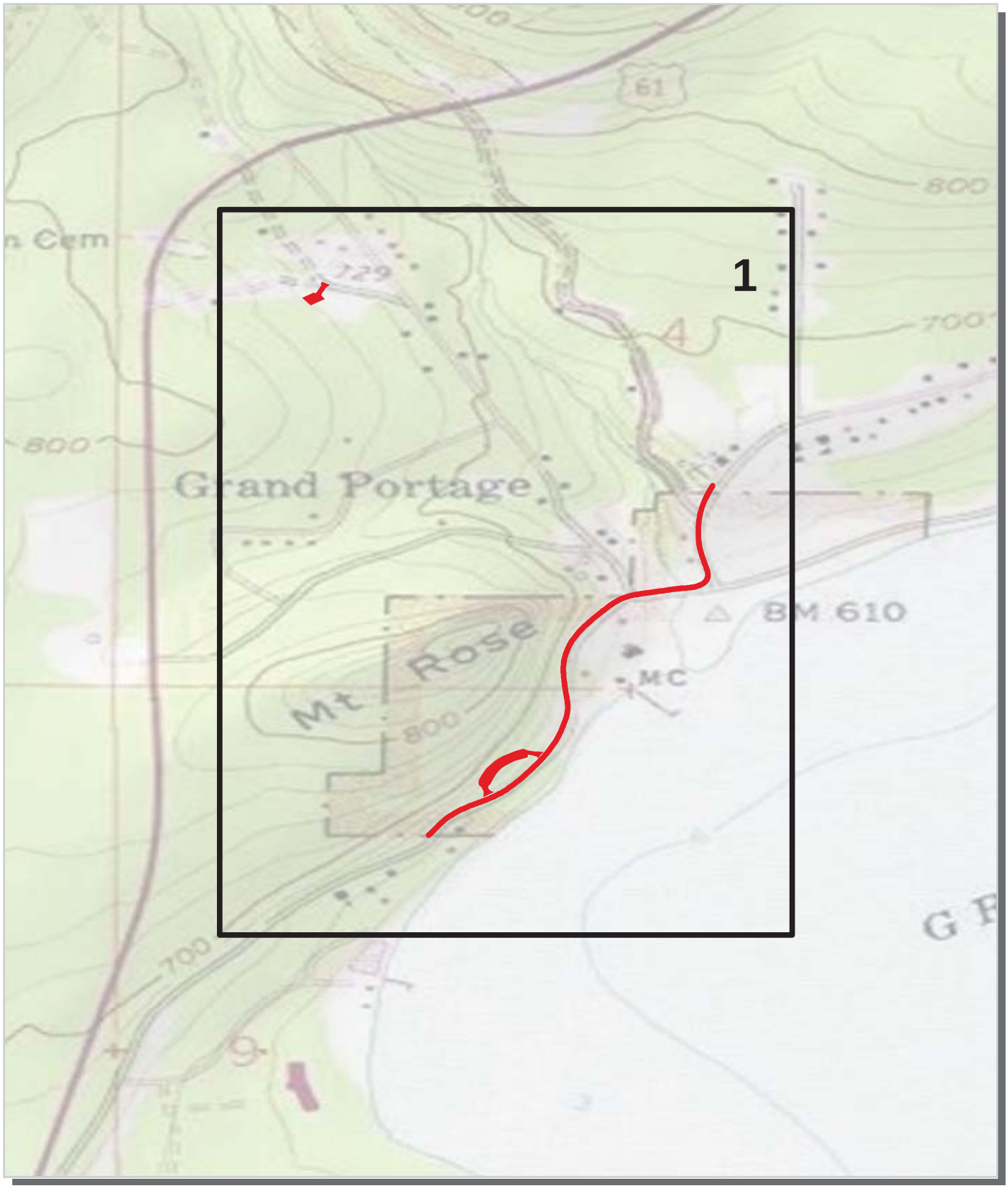
Note: This park is classified as a Small Park. No Data Collection Vehicle routes existed in this park at the time of data collection. Therefore, there is no data to report for this section.

Section 4
Park Route Location Maps

Grand Portage National Monument

Federal Lands Highway
Road Inventory Program

Grand Portage National Monument
Route Location Map
Key Map

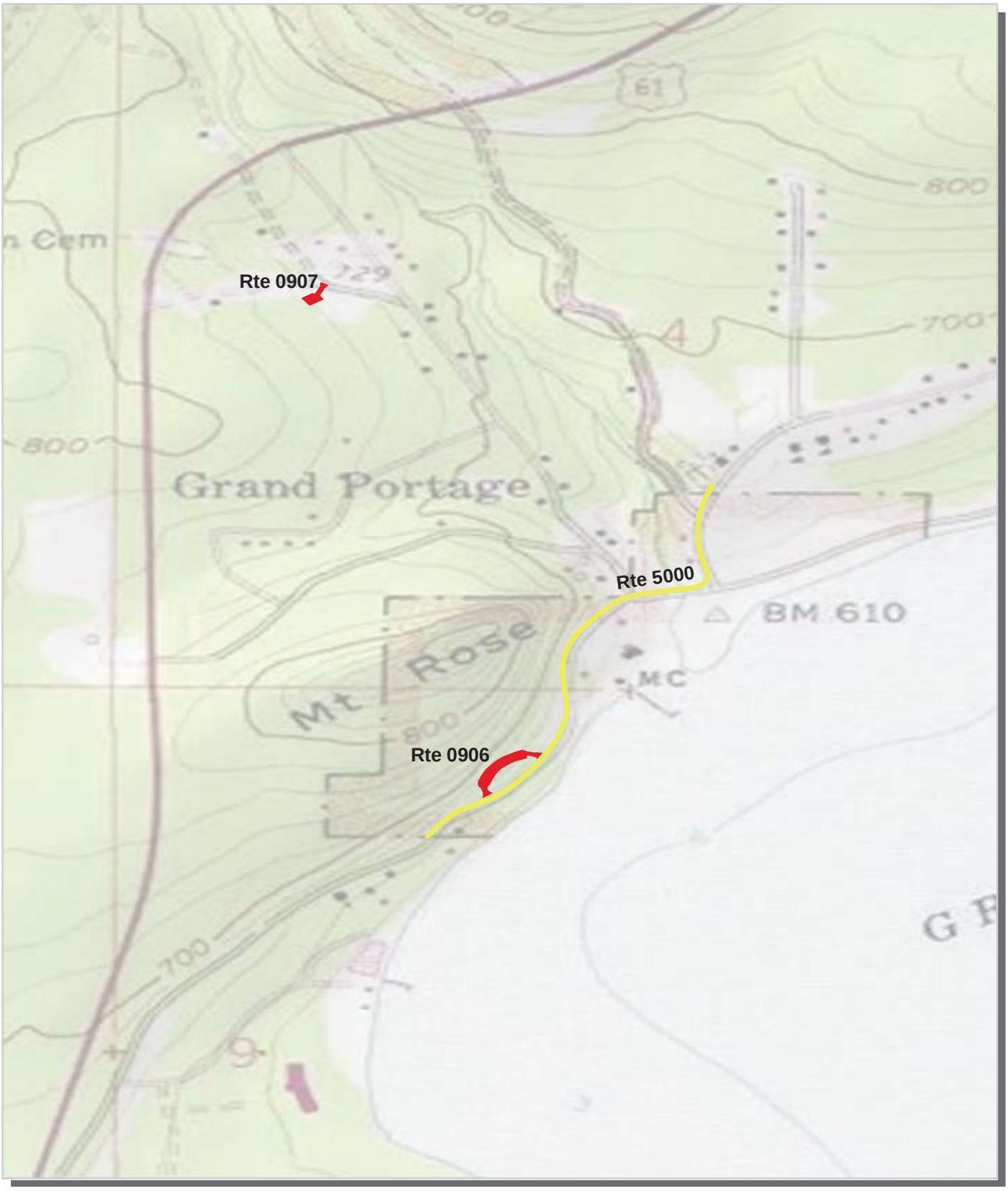


Cycle 5 Collected Routes

0.2 0.1 0 0.2
Miles

N

Grand Portage National Monument
Route Location Map
Area 1



Unique colors used to differentiate routes

0.2 0.1 0 0.2
Miles

N

Section 5
Paved Route
Condition Rating Sheets

Grand Portage National Monument

Federal Lands Highway
Road Inventory Program

Note: This park is classified as a Small Park. No Data Collection Vehicle routes existed in this park at the time of data collection. Therefore, there is no data to report for this section.

Section 6
Manually Rated Paved Route Condition Rating Sheets

Grand Portage National Monument

Federal Lands Highway
Road Inventory Program

MANUALLY RATED ROUTE CONDITION RATING SHEETS

No data available for this section.

Section 7
Parking Area
Condition Rating Sheets

Grand Portage National Monument

Federal Lands Highway
Road Inventory Program

GRAND PORTAGE NATIONAL MONUMENT

Route 0906

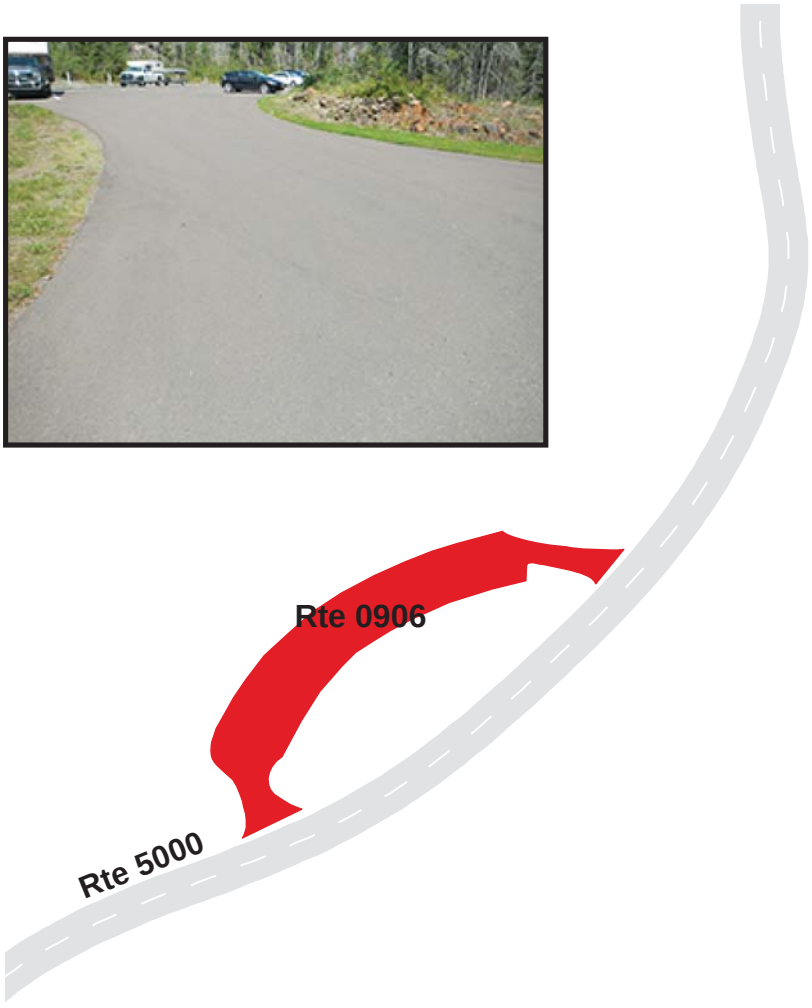
HERITAGE CENTER PARKING LOT

FROM ROUTE 5000 (COUNTY ROAD 17)

TO ROUTE 5000 (COUNTY ROAD 17)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0906	PUBLIC	8/12/2012	22,603	0.39	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
0	0	0	NO CURB AND GUTTER	NO CURB	GOOD/90

* Lane miles are based on 11' lane widths



400 200 0 400 Feet

N

GRAND PORTAGE NATIONAL MONUMENT

Route 0907

SEASONAL HOUSING COMPLEX PARKING LOT

FROM NATURAL RESOURCES DRIVEWAY

TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0907	NONPUBLIC	8/12/2012	6,934	0.12	AS
Culverts	**Drop Inlets**	**Gates**	**Curb & Gutter**	**Curb**	**PCR**
1	0	0	NO CURB AND GUTTER	NO CURB	EXCELLENT/97

* Lane miles are based on 11' lane widths

200 100 0 200 Feet

N

Section 8
Parkwide/Route
Maintenance Features Summaries

Grand Portage National Monument

Federal Lands Highway
Road Inventory Program

GRPO: PARKWIDE / ROUTE MAINTENANCE FEATURES SUMMARY

Note: There are no Data Collection Vehicle routes in this park. However, counts were made of the features listed in the table below.

Route Number	Culverts	Drop Inlets	Gates	Curb	Curb & Gutter
0906	0	0	0	NO CURB	NO CURB AND GUTTER
0907	1	0	0	NO CURB	NO CURB AND GUTTER
Totals	1	0	0		

NC = Not Collected
NO = This feature does not exist

Section 9
Route Maintenance Features
Road Logs

Grand Portage National Monument

Federal Lands Highway
Road Inventory Program

Note: This park is classified as a Small Park. No Data Collection Vehicle routes existed in this park at the time of data collection. Therefore, there is no data to report for this section.

Section 10
Appendix

Grand Portage National Monument

Federal Lands Highway
Road Inventory Program

GLOSSARY OF TERMS AND ABBREVIATIONS

TERM OR ABBREVIATION	DESCRIPTION OR DEFINITION
DCV	Data Collection Vehicle
Excellent	Excellent rating with an index value of 97
Fair	Fair rating with an index value from 73
Func. Class	Functional Classification (see Route ID, Section 2)
Good	Good rating with an index value of 90
MRR	Manually Rated Route
MRL	Manually Rated Line
MRP	Manually Rated Polygon
N/A	Not Applicable
NC	Not Collected
PCR	Pavement Condition Rating
PKG	Parking Area
Poor	Poor rating with an index value of 45
RIP	Road Inventory Program

GPS on Manually Rated Roads (MRR)

Parking areas, some roads, and other paved areas that are not fully drivable with the Data Collection Vehicle are collected manually by field technicians. GPS is collected for these routes using portable Trimble GPS backpack units. Paved campground pads and driveways are not typically included in the inventory or GPS.

Geodatabase – Background and Metadata

In addition to this park report, a ***geodatabase*** containing both tabular and spatial data specific to this park has been provided. All data disseminated in the preceding report has been obtained from the tables and fields within said geodatabase. The geodatabase can be referenced for tabular data via Microsoft Access or for both tabular and spatial data via ESRI's ArcGIS Suite of software which consists of; ArcMap, ArcCatalog and ArcExplorer. Consolidating the RIP data into one database creates a seamless relationship of tabular and geographic data. It will allow RIP to facilitate easier updates and enhancements in the future.

A geodatabase can be thought of as simply a database containing spatial data. Many different tables are contained within the park's geodatabase. A complete and thorough description of the tables and fields contained within this geodatabase can be found in the ***metadata***. The metadata is attached directly within the geodatabase and can be accessed via ESRI's ArcCatalog. The metadata portion of the geodatabase also includes data dictionary report functionality that formats the metadata into an easy to read report.