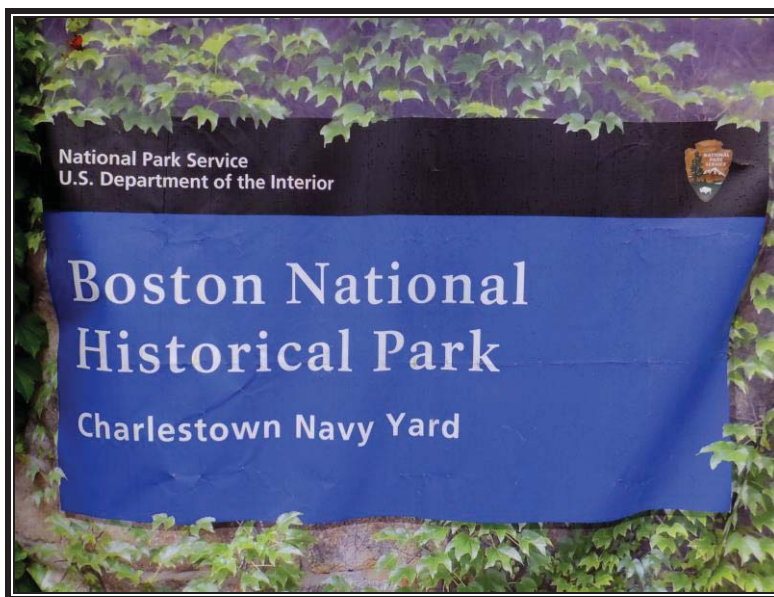




# Federal Lands Highway Road Inventory Program

Road Inventory and Condition Assessment

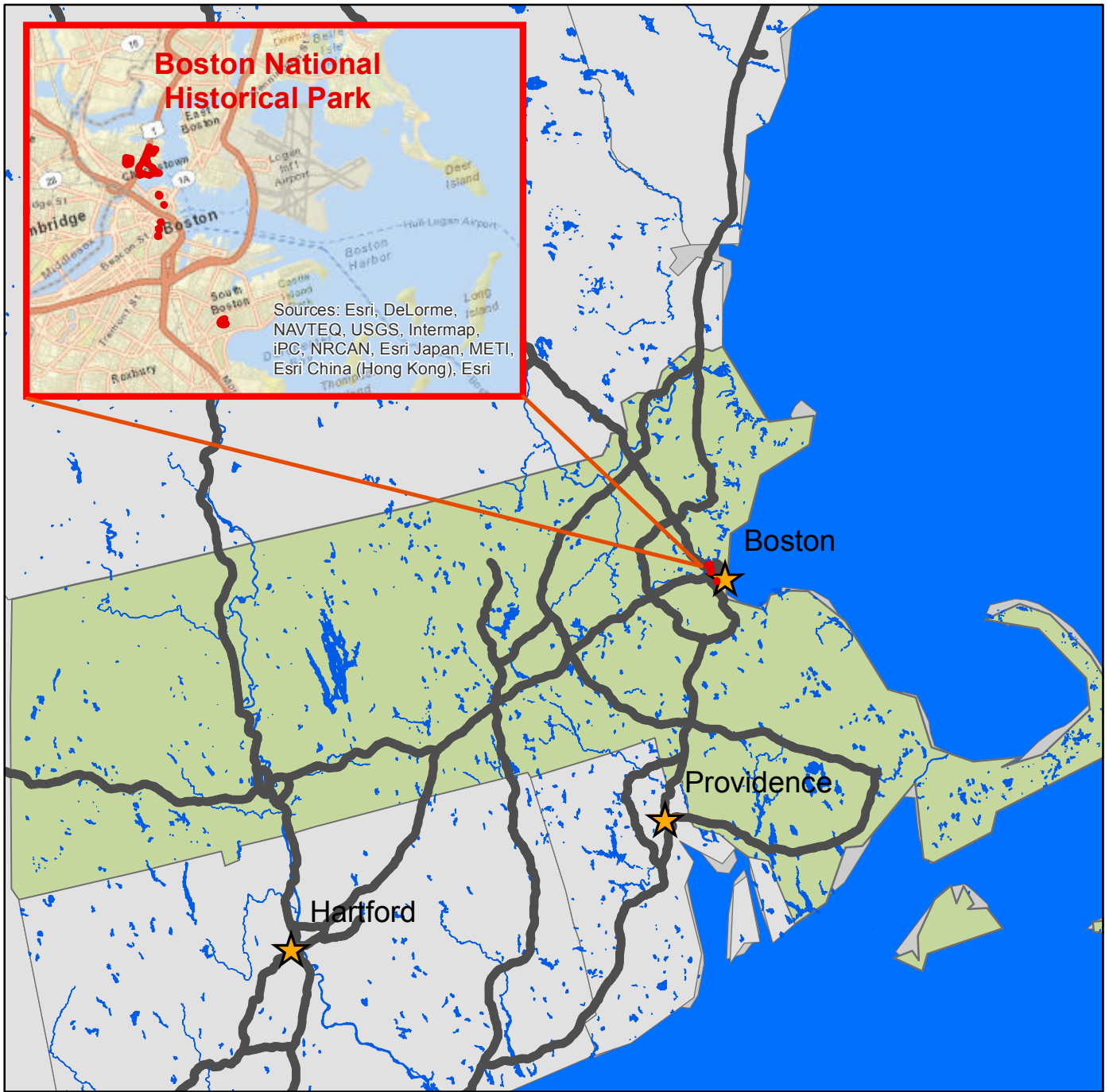


## Boston National Historical Park BOST

### Cycle 5 Report

**Prepared By: Federal Highway Administration  
Road Inventory Program (RIP)  
Data Collected: 08/2013  
Report Date: 03/2014**

# Boston National Historical Park in Massachusetts





DCV = Data Collection Vehicle

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# Section 1 Introduction



Boston National Historical Park



Federal Lands Highway  
Road Inventory Program



## INTRODUCTION

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

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

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

Cycle 4 was initiated in the spring of 2006 covering 86 large parks and several associated small parks consisting of 5,553 paved route miles and 6,232 paved parking areas. 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 21<sup>st</sup> Century (TEA-21) amended Title 23 U.S.C., and inserted Section 204(a)(6) requiring the FHWA and NPS, to develop by rule, a Pavement Management System (PMS) applied to park roads and parkways serving the National Park System.

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

Respectfully,

FHWA RIP Team

FHWA/Eastern Federal Lands  
21400 Ridgetop Circle  
Sterling, VA 20166  
(703) 404-6371

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# Section 2

## Park Route Inventory



Boston National Historical Park



Federal Lands Highway  
Road Inventory Program

# Cycle 5 NPS/RIP Route ID Report

Road Inventory Program 03/20/2014

(Numerical By Route #)

Page 1 of 5

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

## BOST

### BOSTON NATIONAL HISTORICAL PARK

Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
0010	5	60362		FIRST AVENUE	FROM GATE 1 TO INTERSECTION OF ROUTES 0103 (BAXTER ROAD) AND 0600 (FIFTH STREET)	N/A	0.15	0.00	0.15	5		AS	1
0011	5	60349		LINCOLN AVENUE	FROM PEDESTRIAN ENTRANCE GATE TO ROUTE 0904 (THIRD STREET / PIER 1 PARKING)	N/A	0.06	0.00	0.06	5		AS	1
0012	5	60364		SECOND AVENUE	FROM GATE 2 TO END AT GATE AT ROUTE 0600 (FIFTH STREET)	N/A	0.13	0.00	0.13	5		AS	1
0013	5	60382		THIRD STREET / PIER 1	FROM ROUTE 0010 (FIRST AVENUE) TO END OF PIER 1	N/A	0.15	0.00	0.15	5		AS	1
0014	5	60393		DRY DOCK WEST	FROM ROUTE 0404 (DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD) TO END OF PIER 1 AT MP 0.17	N/A	0.17	0.00	0.17	5		AS	1
0100	5	60367		FOURTH STREET	FROM ROUTE 0010 (FIRST AVENUE) TO ROUTE 0012 (SECOND AVENUE)	N/A	0.00	0.00	0.00	5	1,922	AS	1
0101	5	60365		THIRD STREET	FROM ROUTE 0012 (SECOND AVENUE) TO ROUTE 0010 (FIRST AVENUE)	N/A	0.00	0.00	0.00	5	3,593	BR	1
0103	5	60370		BAXTER ROAD	FROM INTERSECTION OF ROUTES 0010 (FIRST AVENUE) AND 0600 (FIFTH STREET) TO END AT PIER 3	N/A	0.11	0.00	0.11	5		AS	1
0105	5	60360		DRY DOCK 1 AND 2 CONNECTOR ROAD	FROM ROUTE 0404 (DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD) TO ROUTE 0103 (BAXTER ROAD)	N/A	0.03	0.00	0.03	5		AS	1
0402	5	60500		COMMANDANT'S HOUSE DRIVEWAY	FROM ROUTE 0012 (SECOND AVENUE) TO END OF LOOP	N/A	0.07	0.00	0.07	5	5,745	AS	1
0404	5	74846		DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD	FROM ROUTE 0010 (FIRST AVENUE) TO END AT DRY DOCK 1 / PIER 2	N/A	0.09	0.00	0.09	5		AS	1
0600	5	60368		FIFTH STREET	FROM CHELSEA STREET TO INTERSECTION OF ROUTES 0010 (FIRST AVENUE) AND 0103 (BAXTER ROAD)	N/A	0.08	0.00	0.08	8		AS	1
0601	5	60317		MONUMENT SQUARE	FROM END OF LEXINGTON STREET TO END OF TREMONT STREET	N/A	0.34	0.00	0.34	8		AS	2



# Cycle 5 NPS/RIP Route ID Report

Road Inventory Program 03/20/2014

(Numerical By Route #)

Page 2 of 5

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

## BOST

**BOSTON NATIONAL HISTORICAL PARK**

Rte. No.	Cycle Collected	FMSS No.	Concess Route	Route Name	Route Description From To	Maint. District	Paved Miles	Un-Paved Miles	Total Route Length	Func. Class	Manual Rated SQ/FT	Surf. Type	Area Maps
0900	5	60391		HOOSAC PARKING	FROM CONSTITUTION ROAD TO PARKING	N/A	0.00	0.00	0.00		8,298	AS	1
0902	5	60384		LINCOLN AVENUE PARKING	FROM ROUTE 0011 (LINCOLN AVENUE) TO PARKING	N/A	0.00	0.00	0.00		14,987	AS	1
0903A	5	60313		SECOND AVENUE PARKING A	ADJACENT TO ROUTE 0012 (SECOND AVENUE) ON RIGHT	N/A	0.00	0.00	0.00		1,172	AS	1
0903B	5	60311		SECOND AVENUE PARKING B	ADJACENT TO ROUTE 0012 (SECOND AVENUE) ON RIGHT	N/A	0.00	0.00	0.00		5,908	AS	1
0903C	5	60314		SECOND AVENUE PARKING C	ADJACENT TO ROUTE 0012 (SECOND AVENUE) ON RIGHT	N/A	0.00	0.00	0.00		1,220	AS	1
0903D	5	60315		SECOND AVENUE PARKING D	ADJACENT TO ROUTE 0012 (SECOND AVENUE) ON LEFT	N/A	0.00	0.00	0.00		2,354	AS	1
0903E	5	60316		SECOND AVENUE PARKING E	ADJACENT TO ROUTE 0012 (SECOND AVENUE) ON LEFT	N/A	0.00	0.00	0.00		2,062	AS	1
0903F	5	60324		SECOND AVENUE PARKING F	ADJACENT TO ROUTE 0012 (SECOND AVENUE) ON LEFT	N/A	0.00	0.00	0.00		908	AS	1
0904	5	81721		THIRD STREET / PIER 1 PARKING	FROM ROUTE 0013 (THIRD STREET / PIER 1) TO PARKING	N/A	0.00	0.00	0.00		50,526	AS	1
0905A	5	81724		DRY DOCK 1 WEST PARKING A	FROM ROUTE 0014 (DRY DOCK WEST) TO ROUTE 0013 (THIRD STREET / PIER 1)	N/A	0.00	0.00	0.00		16,007	AS	1
0905B	5	81725		DRY DOCK 1 WEST PARKING B	ADJACENT TO ROUTE 0013 (THIRD STREET / PIER 1)	N/A	0.00	0.00	0.00		3,093	CB	1
0906	5	81733		BAXTER ROAD PARKING	ADJACENT TO ROUTE 0103 (BAXTER ROAD) ON RIGHT	N/A	0.00	0.00	0.00		3,710	AS	1
0907	5	81726		DRY DOCK 1 AND 2 CONNECTOR PARKING	ADJACENT TO ROUTE 0105 (DRY DOCK 1 AND 2 CONNECTOR ROAD) ON LEFT	N/A	0.00	0.00	0.00		3,058	AS	1
0908	5	81736		MARINE BARRACKS PARKING	FROM ROUTE 0012 (SECOND AVENUE) TO ROUTE 0012 (SECOND AVENUE)	N/A	0.00	0.00	0.00		9,237	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 BOSTON NATIONAL HISTORICAL PARK

### CYCLE 5 ROUTE TOTALS

DCV Driven Route Miles	1.30
Manually Rated Route Miles	0.07
<b>TOTAL PARK ROUTE MILES COLLECTED IN CYCLE 5</b>	<b>1.37</b>
Manually Rated Routes (SQFT)	5,515
<b>TOTAL UNPAVED PARK ROUTE MILES</b>	<b>0.00</b>

### CYCLE 5 CONCESSION TOTALS

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

### \* CYCLE 5 PARKING AREA TOTALS

Paved Parking (SQFT)	143,955
Unpaved Parking (SQFT)	0
<b>TOTAL PARKING (SQFT)</b>	<b>143,955</b>

### CYCLE 5 WEIGHTED AVERAGE PARK VALUES

DCV Driven PCR	76
**Manually Rated Routes PCR	54
**Parking PCR	59
<b>***Total Equivalent Lane Miles</b>	<b>6.39</b>

\* - 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**



**ROUTES ADDED FROM PREVIOUS INVENTORY:**

Route #	Route Name	Reason for Addition	Comments
5000	THOMAS PARK ROAD (AT DORCHESTER HEIGHTS)	OTHER	NON NPS ROAD ADDED TO INVENTORY IN CYCLE 5.

**OTHER CHANGES FROM PREVIOUS INVENTORY:**

Route #	Route Name	Type of Change	Comments
0014	DRY DOCK WEST	OTHER	IN CYCLE 5, CONDITION DATA COULD NOT BE COLLECTED FROM MILE POSTS 0.14 TO 0.17 DUE TO CONSTRUCTION EQUIPMENT PARKED ON THE END OF THE ROUTE.
0103	BAXTER ROAD	LENGTH CHANGE	ROUTE WAS EXTENDED THROUGH WHAT WAS ROUTE 0906 IN CYCLE 3 BECAUSE THE PARKING SPACES ON THE NORTH SIDE OF ROUTE 0103 ARE NON-NPS AND WERE REMOVED FROM THE PARKING AREA GPS.
0402	COMMANDANT'S HOUSE DRIVEWAY	COLLECTION METHOD CHANGE	ROUTE WAS MANUALLY RATED IN CYCLE 5 AND NOT COLLECTED WITH THE DATA COLLECTION VEHICLE (DCV) DUE TO HEAVY EQUIPMENT BEING PARKED ON THE ROADWAY.
0404	DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD	ROUTES COMBINED	CYCLE 3 ROUTE 0104 WAS COMBINED INTO ROUTE 0404 IN CYCLE 5.
0900	HOOSAC PARKING	SQ FEET CHANGE	IMPROVED GPS COLLECTED AND SQUARE FOOTAGE UPDATED.
0902	LINCOLN AVENUE PARKING	SQ FEET CHANGE	IMPROVED GPS COLLECTED AND SQUARE FOOTAGE UPDATED. NORTHEAST PORTION OF PARKING AREA WAS REMOVED FOR THE NEW SECURITY SCREENING BUILDING.
0904	THIRD STREET / PIER 1 PARKING	SQ FEET CHANGE	IMPROVED GPS COLLECTED AND SQUARE FOOTAGE UPDATED. AREA SOUTH OF BOLLARDS / SECURITY FENCE IS NOT PART OF THE PARKING AREA AND WAS REMOVED FROM THE SHAPE. ADDITIONAL ASPHALT ON THE NORTH END WAS INCLUDED IN THE CYCLE 5 SHAPE.

**OTHER CHANGES FROM PREVIOUS INVENTORY:**

Route #	Route Name	Type of Change	Comments
0905B	DRY DOCK 1 WEST PARKING B	SURFACE TYPE CHANGE	SURFACE TYPE CHANGED FROM BRICK TO COBBLESTONE.
0906	BAXTER ROAD PARKING	SQ FEET CHANGE	SQUARE FOOTAGE SIGNIFICANTLY REDUCED BECAUSE THE PARKING SPACES ON THE NORTH SIDE OF ROUTE 0103 ARE NON-NPS AND WERE REMOVED FROM THE PARKING AREA GPS.
0907	DRY DOCK 1 AND 2 CONNECTOR PARKING	SQ FEET CHANGE	IMPROVED GPS COLLECTED AND SQUARE FOOTAGE UPDATED.
0908	MARINE BARRACKS PARKING	SQ FEET CHANGE	IMPROVED GPS COLLECTED AND SQUARE FOOTAGE UPDATED.
0909	DRY DOCK 1 EAST PARKING	SQ FEET CHANGE	IMPROVED GPS COLLECTED AND SQUARE FOOTAGE UPDATED.
0910	BUILDING 1 AND 269 PARKING	SQ FEET CHANGE	IMPROVED GPS COLLECTED AND SQUARE FOOTAGE UPDATED.
0911	TOUR BUS PARKING	SURFACE TYPE CHANGE	SURFACE TYPE UPDATED FROM BRICK TO COBBLESTONE.

**ROUTES REMOVED FROM PREVIOUS INVENTORY:**

Route #	Route Name	Reason for Removal	Comments
0104	DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD	ROUTES COMBINED	CYCLE 3 ROUTE 0104 WAS COMBINED INTO ROUTE 0404 IN CYCLE 5.
0901A	FIRST AVENUE BUS PARKING A	CLOSED/ABANDONED	REMOVED FROM INVENTORY BECAUSE THIS AREA IS NO LONGER USED FOR PARKING.
0901B	FIRST AVENUE BUS PARKING B	CLOSED/ABANDONED	REMOVED FROM INVENTORY BECAUSE THIS AREA IS NO LONGER USED FOR PARKING.

# Section 3

## Park Summary Information



## Boston National Historical Park



Federal Lands Highway  
Road Inventory Program

## BOST: PAVED ROUTE MILES AND PERCENTAGES BY FUNCTIONAL CLASS AND PCR

F.C.	Pavement Condition Rating (PCR)								TOTAL MILES
	Poor (0-60)		Fair (61-84)		Good (85-94)		Excellent (95-100)		
	MILES	%	MILES	%	MILES	%	MILES	%	
1									
2									
3									
4									
5	0.08	6.30%	0.38	29.92%	0.26	20.47%	0.13	10.24%	<b>0.85</b>
6									
7									
8	0.20	15.75%	0.14	11.02%	0.08	6.30%			<b>0.42</b>
<b>Totals</b>	<b>0.28</b>	<b>22.05%</b>	<b>0.52</b>	<b>40.94%</b>	<b>0.34</b>	<b>26.77%</b>	<b>0.13</b>	<b>10.24%</b>	<b>1.27</b>

**Note:** The information in this table is derived from the PMS\_20 table in the Park database, which only contains processed data from routes collected with the Data Collection Vehicle (DCV). Information for Manually Rated Routes (MRR) and Parking Areas is not reported in this table. Only Functional Class 1, 2, & 7 routes, and any new routes not previously collected by RIP, are collected in Large Parks.

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

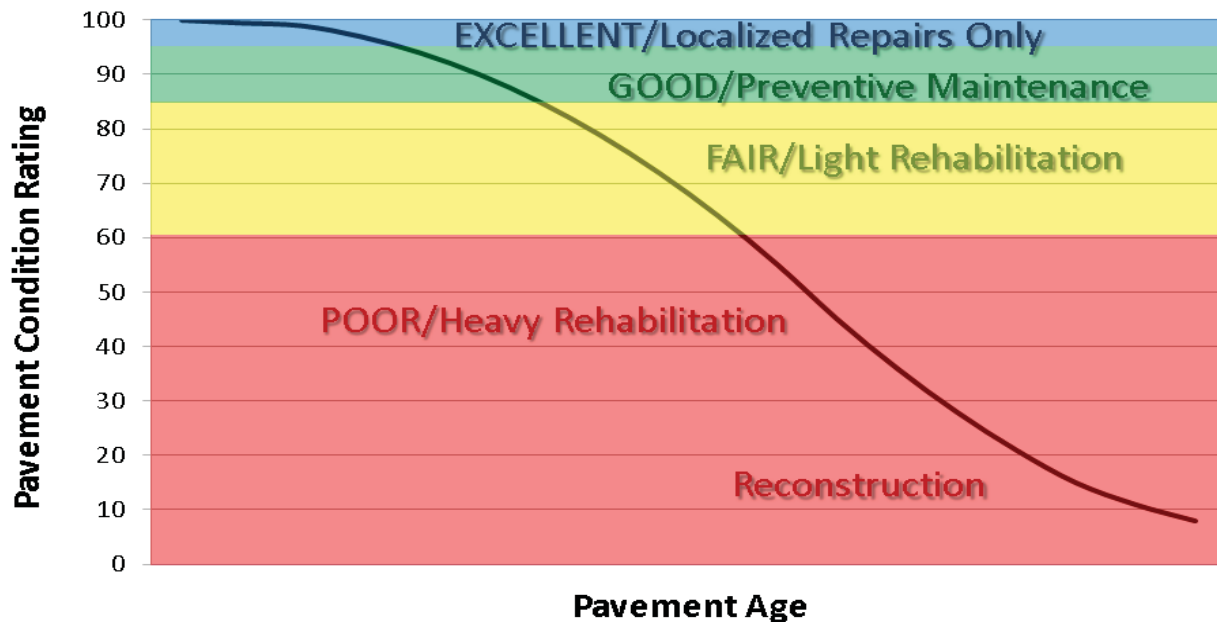
In addition to the RIP Index changes that have been implemented in Cycle 5, we will also aim to provide greater assistance in translating excellent/good/fair/poor categories into pavement needs categories. The PCR can be used to indicate the place in the Pavement Life Cycle and the types of treatments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

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



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

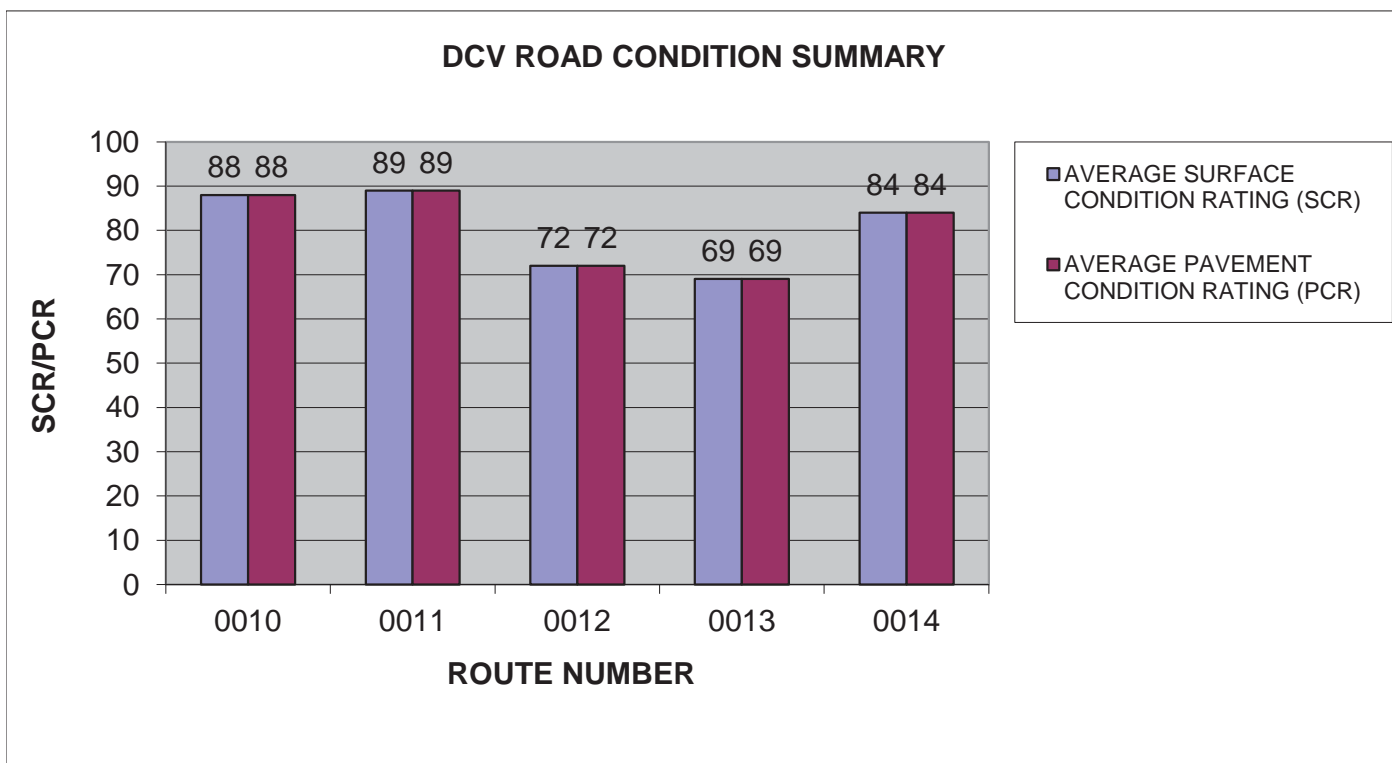
### Condition Categories and Treatments



# BOST: DCV ROAD CONDITION SUMMARY

DCV - Data Collection Vehicle

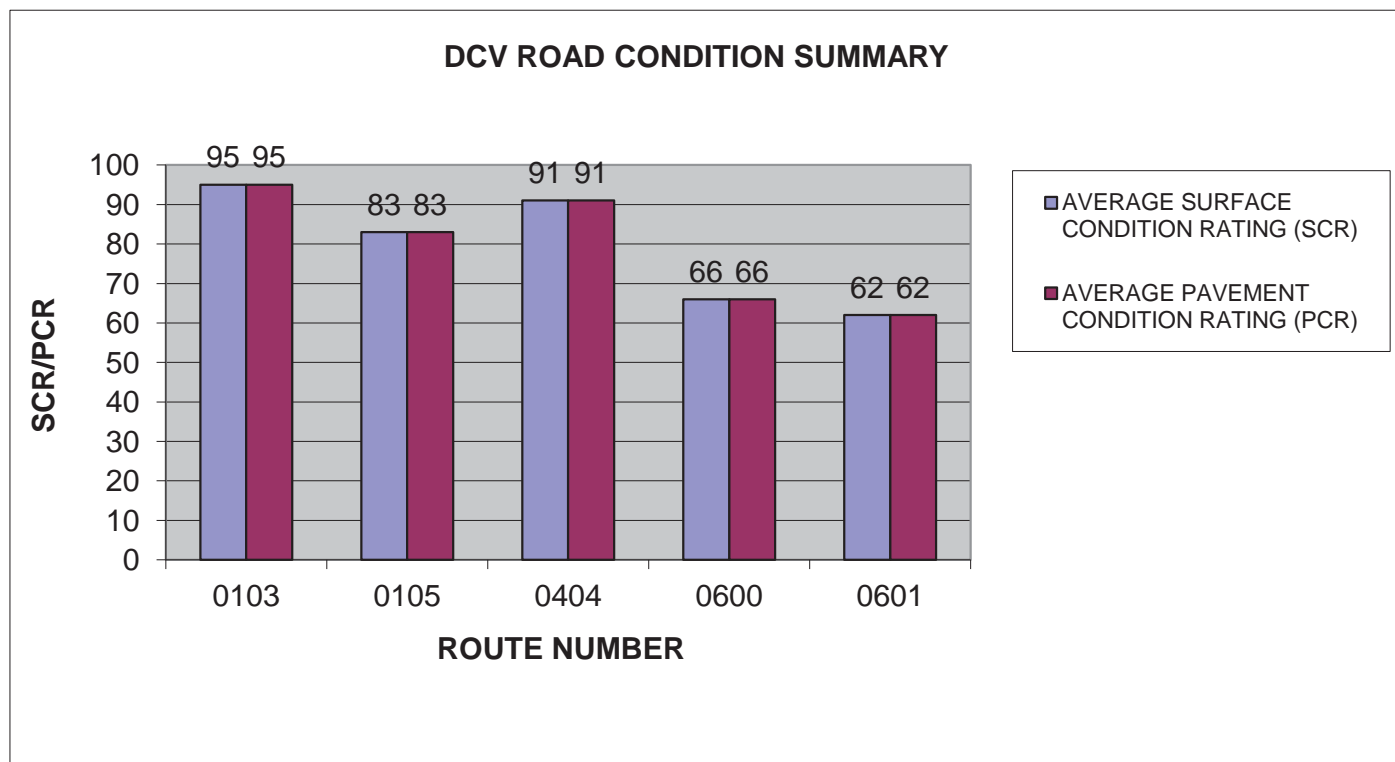
ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	PAVED LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0010	FIRST AVENUE	5	0.15	ASPHALT	88	88
0011	LINCOLN AVENUE	5	0.06	ASPHALT	89	89
0012	SECOND AVENUE	5	0.13	ASPHALT	72	72
0013	THIRD STREET / PIER 1	5	0.15	ASPHALT	69	69
0014	DRY DOCK WEST	5	0.17	ASPHALT	84	84



# BOST: DCV ROAD CONDITION SUMMARY

DCV - Data Collection Vehicle

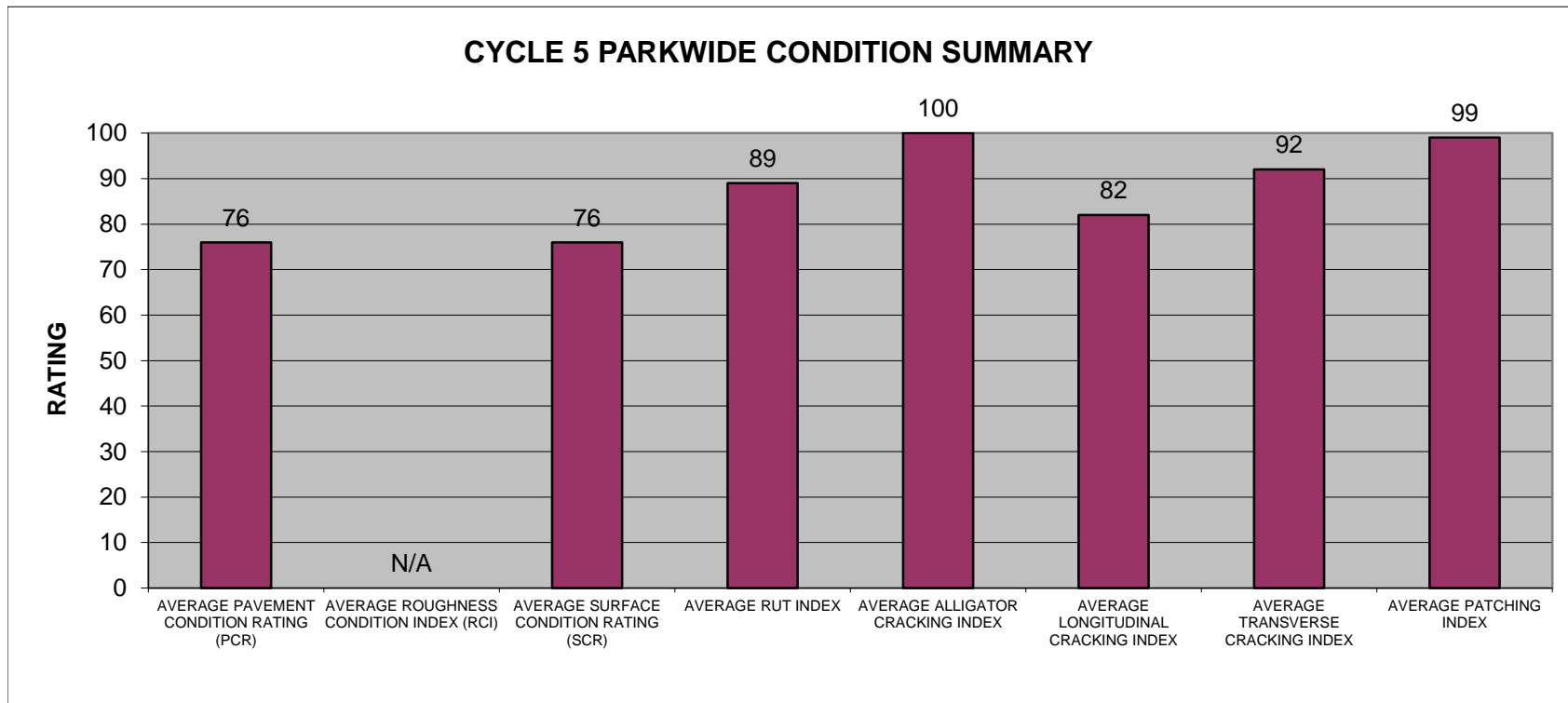
ROUTE NUMBER	ROUTE NAME	FUNCT CLASS	PAVED LENGTH	SURFACE TYPE	AVERAGE SURFACE CONDITION RATING (SCR)	AVERAGE PAVEMENT CONDITION RATING (PCR)
0103	BAXTER ROAD	5	0.11	ASPHALT	95	95
0105	DRY DOCK 1 AND 2 CONNECTOR ROAD	5	0.03	ASPHALT	83	83
0404	DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD	5	0.09	ASPHALT	91	91
0600	FIFTH STREET	8	0.08	ASPHALT	66	66
0601	MONUMENT SQUARE	8	0.34	ASPHALT	62	62



# BOST: PARKWIDE DCV 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
76	N/A	76	89	100	82	92	99

All Index values are based on Data Collection Vehicle (DCV) driven roads that were collected in Cycle-5.  
 Roughness data is only collected on routes with lengths greater than 0.5 miles and a posted speed limit of 25 MPH or greater.



# Section 4

## Park Route Location Maps



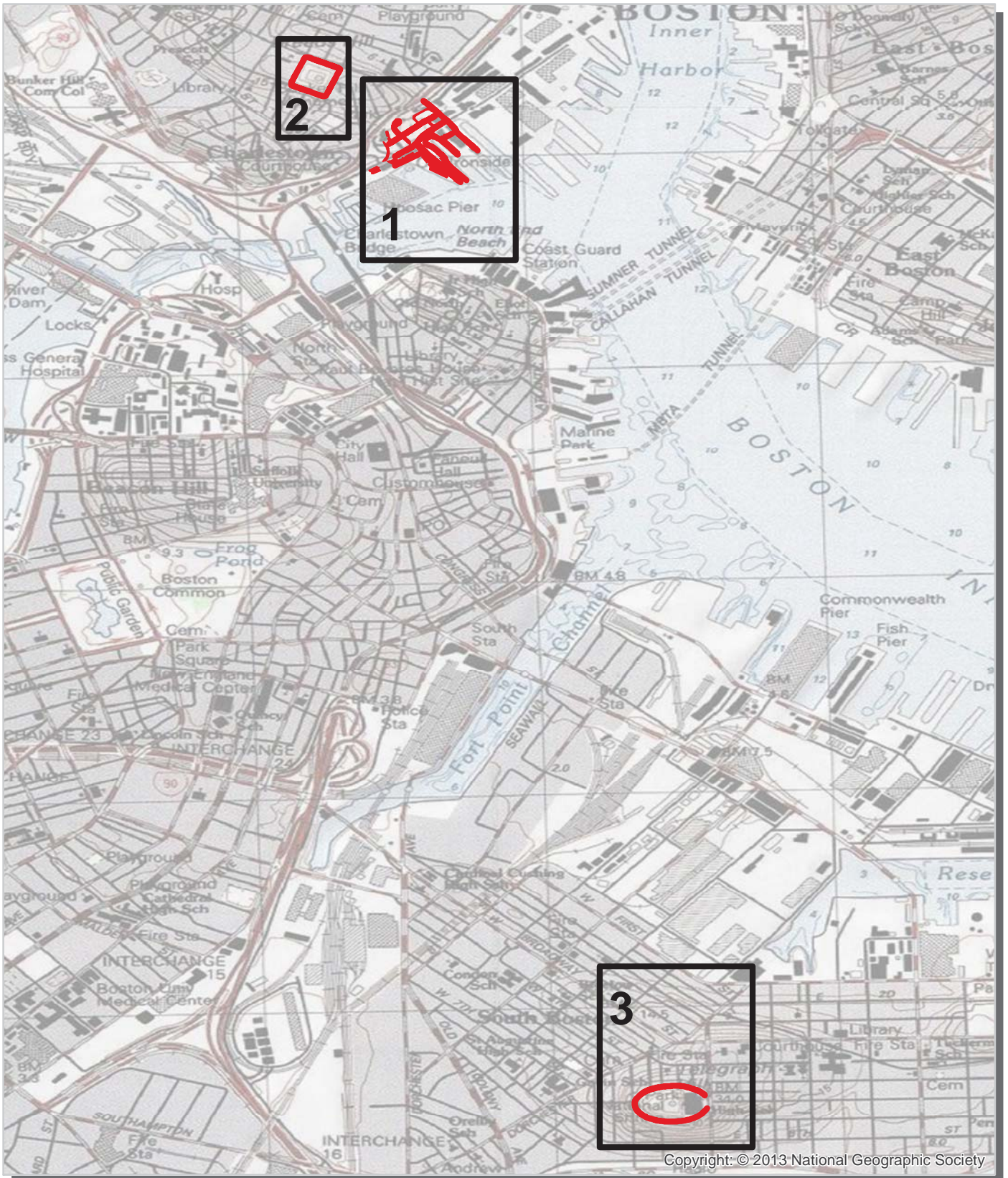
Boston National Historical Park




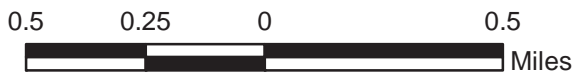
Federal Lands Highway  
Road Inventory Program



# Boston National Historical Park Route Location Map Key Map

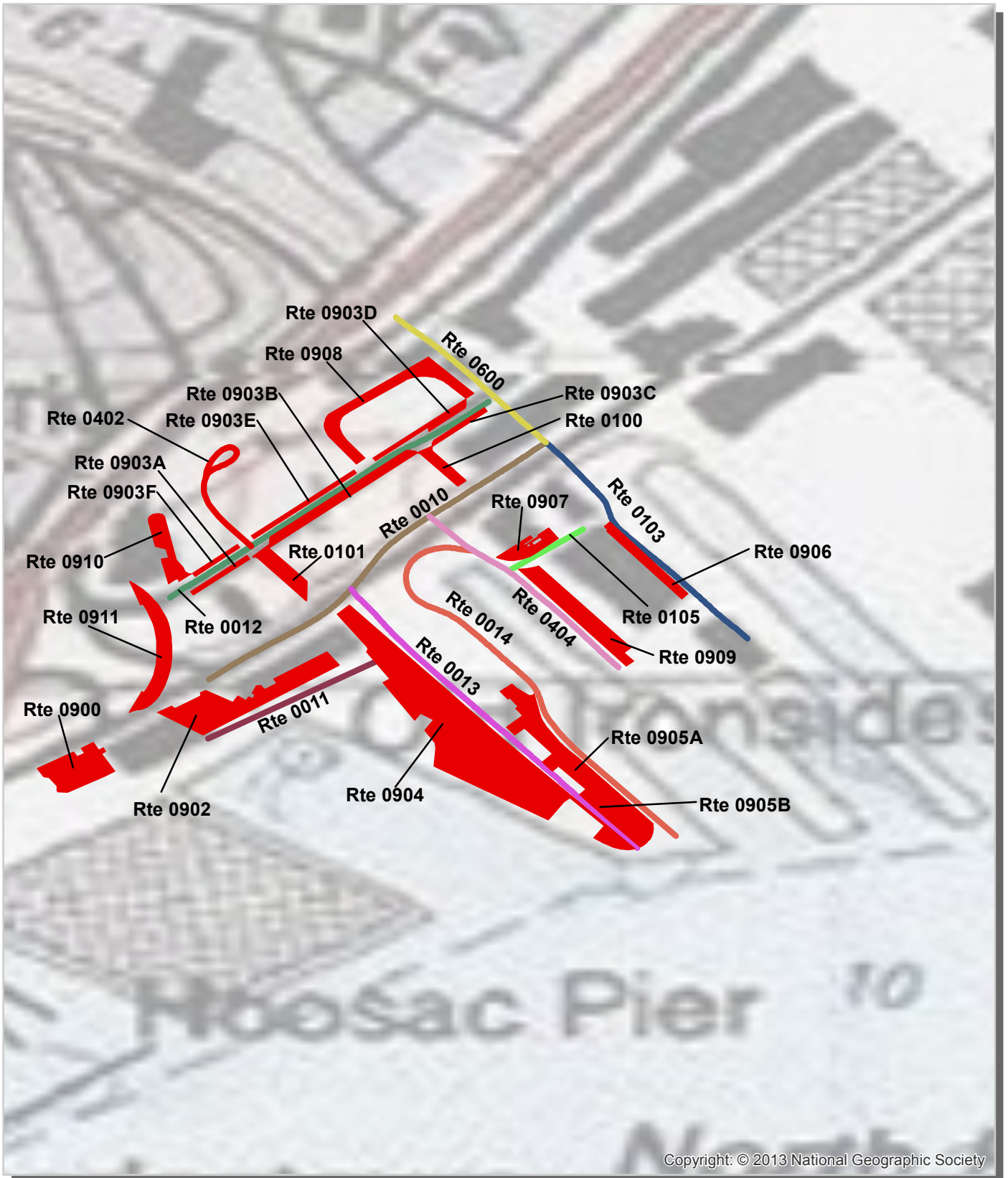


 Cycle 5 Collected Routes





# Boston National Historical Park Route Location Map Area 1



Unique colors used to differentiate routes



**Boston National Historical Park  
Route Location Map  
Area 2**



Unique colors used to differentiate routes

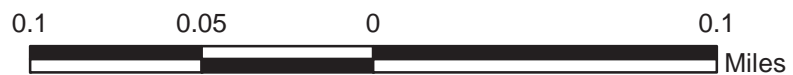


**Boston National Historical Park  
Route Location Map  
Area 3**



Copyright: © 2013 National Geographic Society

Unique colors used to differentiate routes



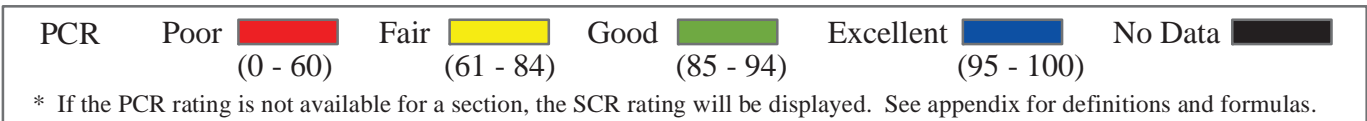
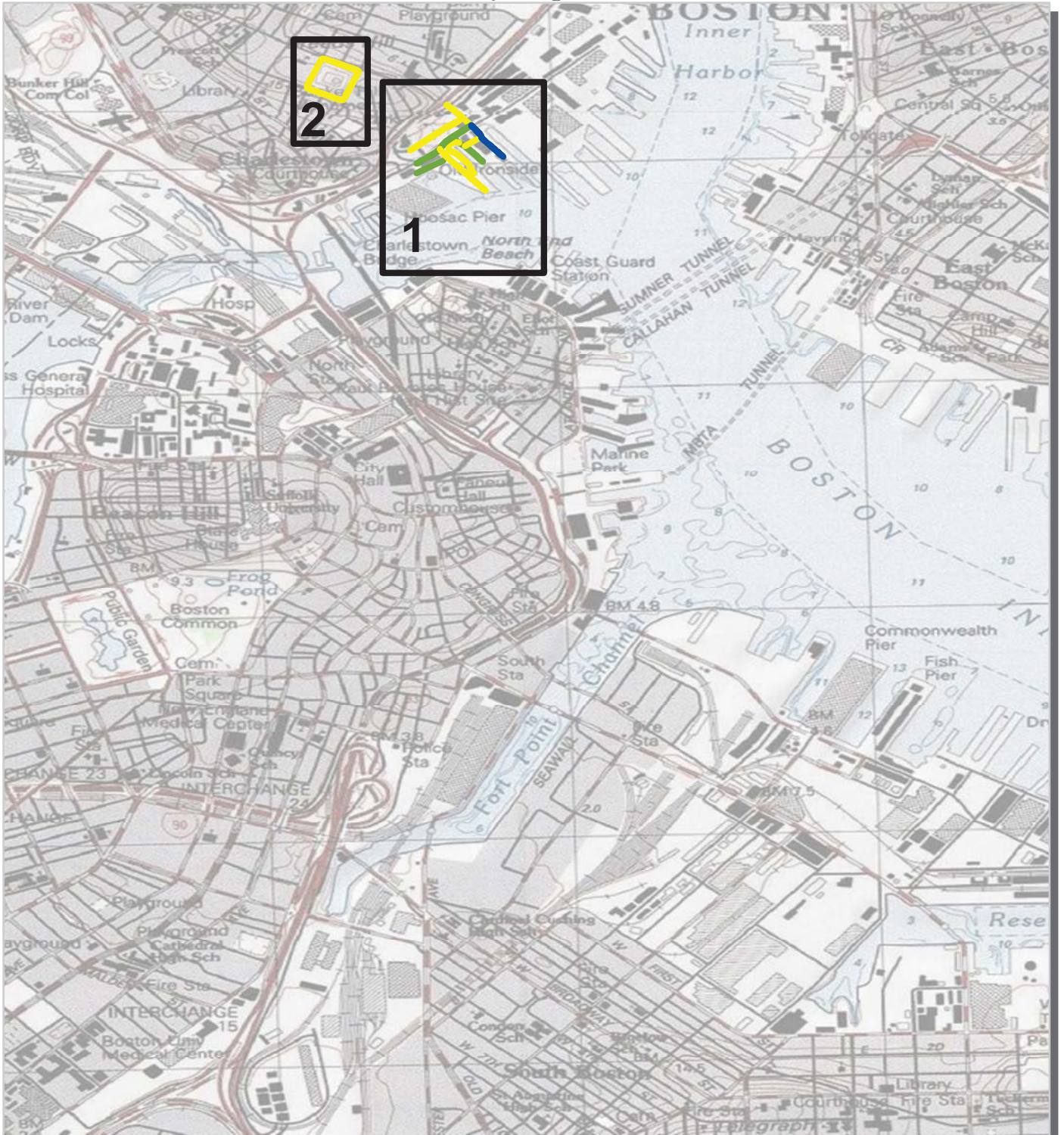


# Boston National Historical Park

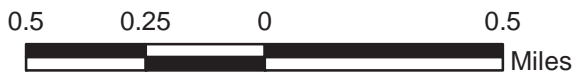
## Route Condition Map

### PCR - Mile by Mile

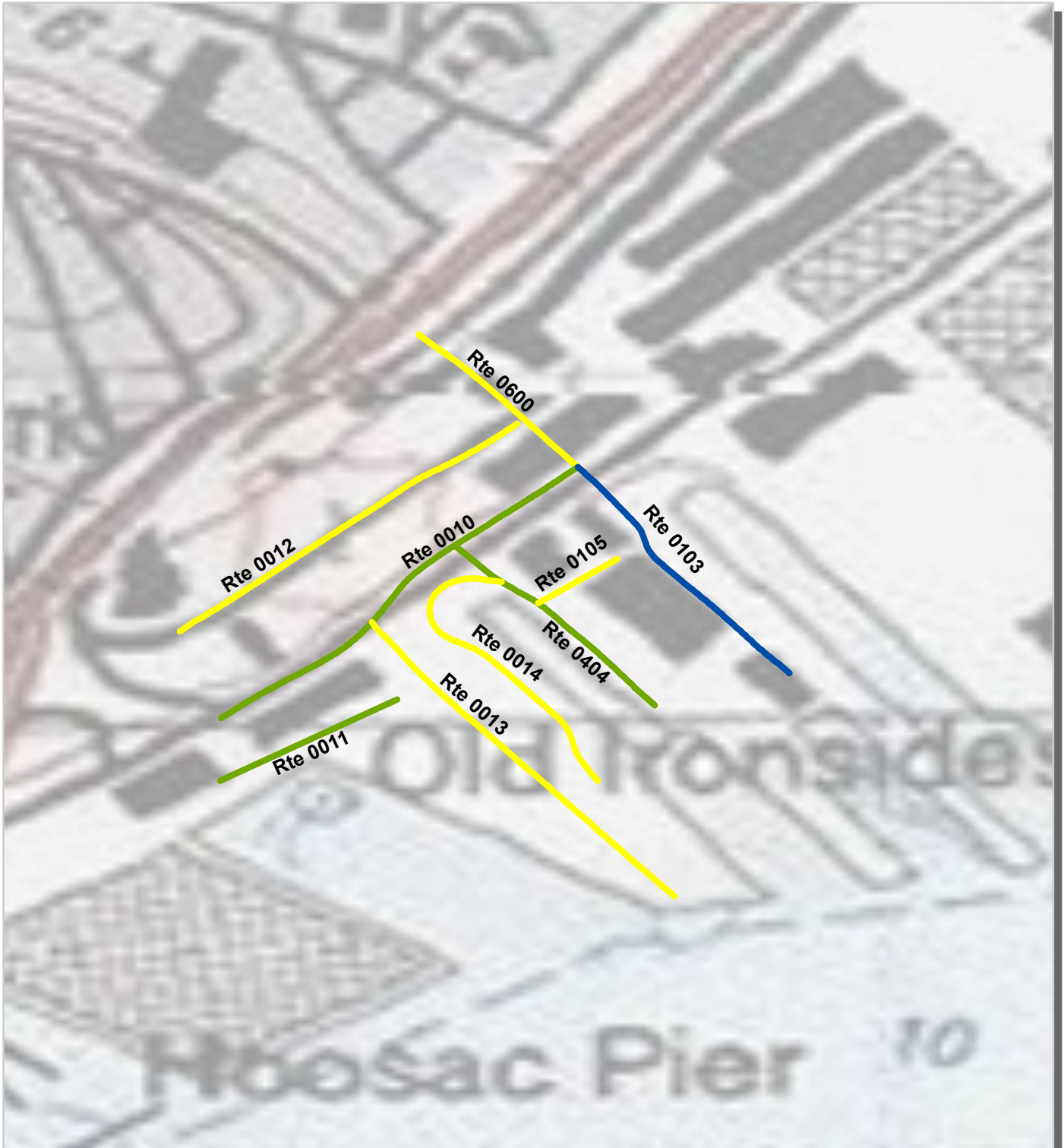
### Key Map








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



**Boston National Historical Park  
Route Condition Map  
PCR - Mile by Mile  
Area 1**



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

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



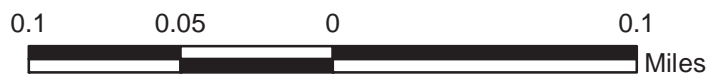


**Boston National Historical Park  
Route Condition Map  
PCR - Mile by Mile  
Area 2**



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

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





# Section 5 Paved Route Condition Rating Sheets



Boston National Historical Park



Federal Lands Highway  
Road Inventory Program



PCR	Poor	<span style="color: red;">■</span>	Fair	<span style="color: yellow;">■</span>	Good	<span style="color: green;">■</span>	Excellent	<span style="color: blue;">■</span>	No Data	<span style="background-color: black; color: black;">■</span>
	(0 - 60)		(61 - 84)	(85 - 94)	(95 - 100)					

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

**ROUTE: 0010 FIRST AVENUE**  
**BOST : BOSTON NATIONAL HISTORICAL PARK**

**COLLECTED: 8/17/2013**  
**TOTAL LENGTH: 0.15 Miles**

**NORTHEAST REGION**

<b>Section Number</b>	0				
<b>Section Length (mi)</b>	0.15				
<b>Cross Section Information</b>					
Number of Lanes	2				
Paved Width (ft)	52				
Lane Width (ft)	26				
<b>Roadway Condition Information</b>					
SCR (Surface Condition Rating)	88				
PCR (Pavement Condition Rating)	88				
<b>Distress Index Values</b>					
Structural Crack Index	88				
Transverse Cracking Index	95				
Patching Index	99				
Rutting Index	97				
Roughness Condition Index (RCI)	NC				

**NOTES:**

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

**ROUTE: 0010 FIRST AVENUE**



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

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

**ROUTE: 0011 LINCOLN AVENUE**  
**BOST : BOSTON NATIONAL HISTORICAL PARK**

**COLLECTED: 8/17/2013**  
**TOTAL LENGTH: 0.06 Miles**

**NORTHEAST REGION**

<b>Section Number</b>	0				
<b>Section Length (mi)</b>	0.06				
<b>Cross Section Information</b>					
Number of Lanes	2				
Paved Width (ft)	38				
Lane Width (ft)	19				
<b>Roadway Condition Information</b>					
SCR (Surface Condition Rating)	89				
PCR (Pavement Condition Rating)	89				
<b>Distress Index Values</b>					
Structural Crack Index	100				
Transverse Cracking Index	98				
Patching Index	100				
Rutting Index	89				
Roughness Condition Index (RCI)	NC				

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

**ROUTE: 0011 LINCOLN AVENUE**





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

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

**ROUTE: 0012 SECOND AVENUE**  
**BOST : BOSTON NATIONAL HISTORICAL PARK**

**COLLECTED: 8/17/2013**  
**TOTAL LENGTH: 0.13 Miles**

**NORTHEAST REGION**

<b>Section Number</b>	0				
<b>Section Length (mi)</b>	0.13				
<b>Cross Section Information</b>					
Number of Lanes	2				
Paved Width (ft)	23				
Lane Width (ft)	12				
<b>Roadway Condition Information</b>					
SCR (Surface Condition Rating)	72				
PCR (Pavement Condition Rating)	72				
<b>Distress Index Values</b>					
Structural Crack Index	72				
Transverse Cracking Index	91				
Patching Index	100				
Rutting Index	99				
Roughness Condition Index (RCI)	NC				

**NOTES:**

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

**ROUTE: 0012 SECOND AVENUE**



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

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

**ROUTE: 0013 THIRD STREET / PIER 1**  
**BOST : BOSTON NATIONAL HISTORICAL PARK**

**COLLECTED: 8/17/2013**  
**TOTAL LENGTH: 0.15 Miles**

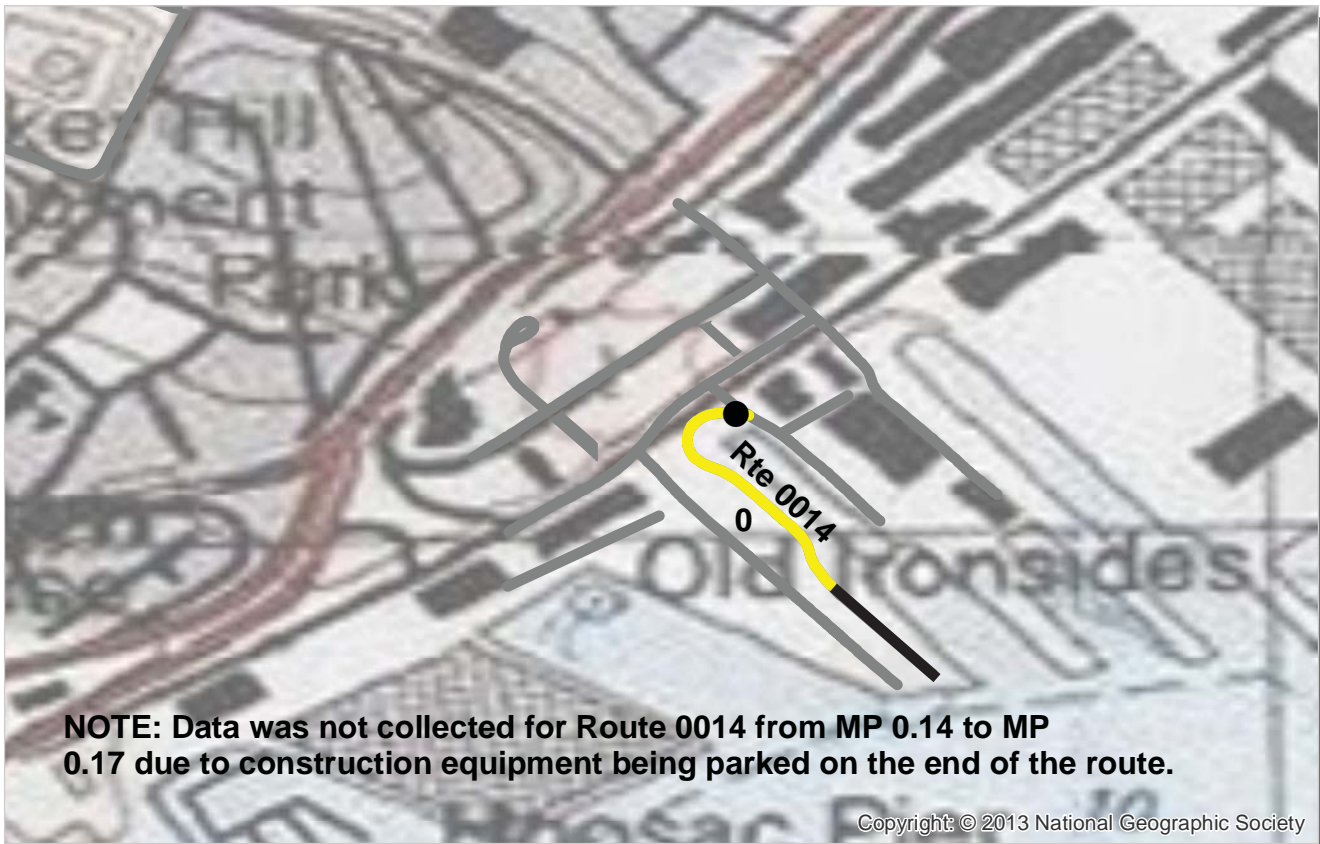
**NORTHEAST REGION**

<b>Section Number</b>	0				
<b>Section Length (mi)</b>	0.15				
<b>Cross Section Information</b>					
Number of Lanes	2				
Paved Width (ft)	28				
Lane Width (ft)	14				
<b>Roadway Condition Information</b>					
SCR (Surface Condition Rating)	69				
PCR (Pavement Condition Rating)	69				
<b>Distress Index Values</b>					
Structural Crack Index	98				
Transverse Cracking Index	94				
Patching Index	100				
Rutting Index	69				
Roughness Condition Index (RCI)	NC				

**NOTES:**

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

**ROUTE: 0013 THIRD STREET / PIER 1**



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

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

**ROUTE: 0014 DRY DOCK WEST**  
**BOST : BOSTON NATIONAL HISTORICAL PARK**

**COLLECTED: 8/17/2013**  
**TOTAL LENGTH: 0.17 Miles**

**NORTHEAST REGION**

<b>Section Number</b>	0				
<b>Section Length (mi)</b>	0.14				
<b>Cross Section Information</b>					
Number of Lanes	2				
Paved Width (ft)	22				
Lane Width (ft)	11				
<b>Roadway Condition Information</b>					
SCR (Surface Condition Rating)	84				
PCR (Pavement Condition Rating)	84				
<b>Distress Index Values</b>					
Structural Crack Index	88				
Transverse Cracking Index	99				
Patching Index	98				
Rutting Index	84				
Roughness Condition Index (RCI)	NC				

**NOTES:**

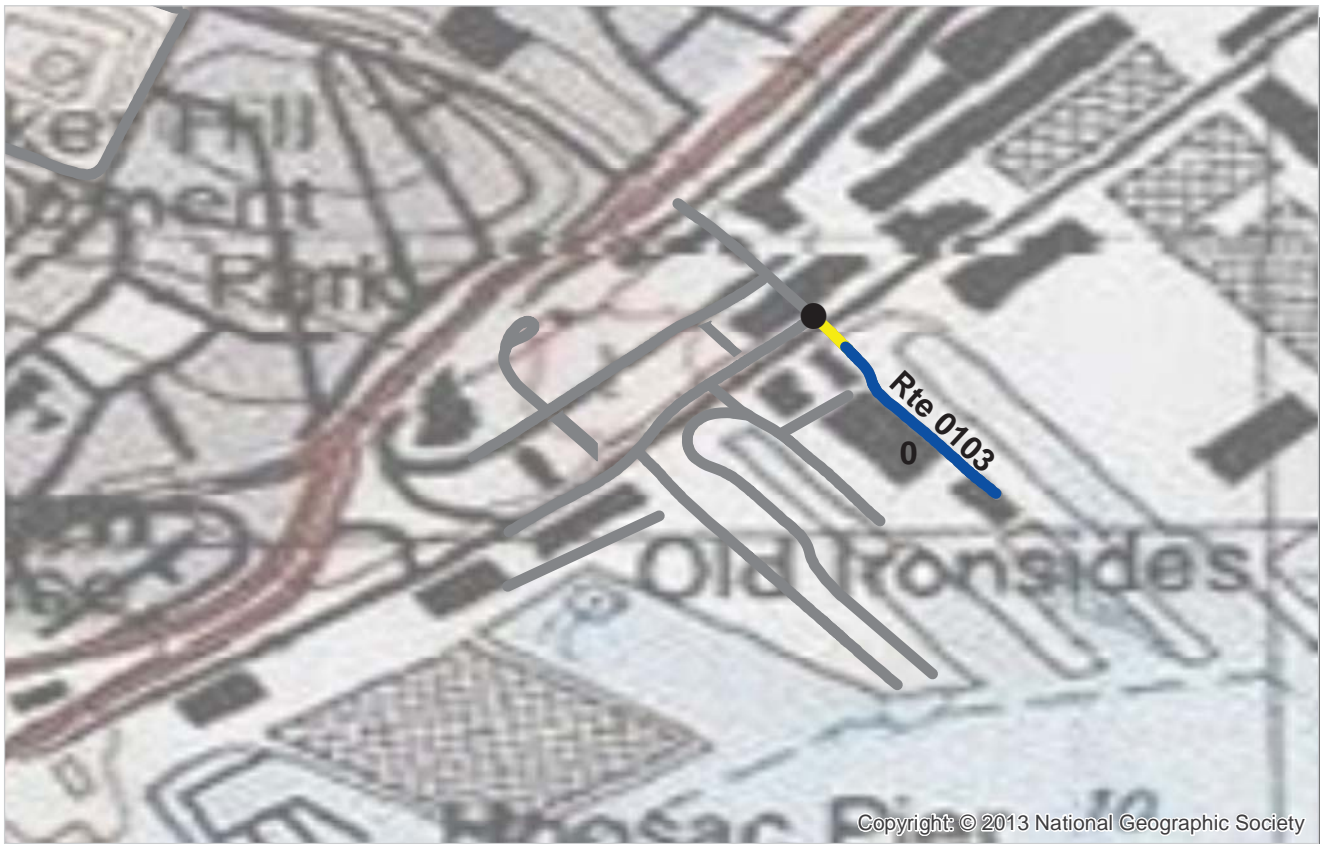
Structural Crack Index is a combination of the Longitudinal Cracking Index and Alligator Cracking Index.

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

NC - Not Collected    N/A - Not Applicable

**ROUTE: 0014 DRY DOCK WEST**





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

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

**ROUTE: 0103 BAXTER ROAD**  
**BOST : BOSTON NATIONAL HISTORICAL PARK**

**COLLECTED: 8/17/2013**  
**TOTAL LENGTH: 0.11 Miles**

**NORTHEAST REGION**

<b>Section Number</b>	0				
<b>Section Length (mi)</b>	0.11				
<b>Cross Section Information</b>					
Number of Lanes	2				
Paved Width (ft)	37				
Lane Width (ft)	18				
<b>Roadway Condition Information</b>					
SCR (Surface Condition Rating)	95				
PCR (Pavement Condition Rating)	95				
<b>Distress Index Values</b>					
Structural Crack Index	97				
Transverse Cracking Index	95				
Patching Index	100				
Rutting Index	96				
Roughness Condition Index (RCI)	NC				

**NOTES:**

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

**ROUTE: 0103 BAXTER ROAD**



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

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

**ROUTE: 0105 DRY DOCK 1 AND 2 CONNECTOR ROAD  
 BOST : BOSTON NATIONAL HISTORICAL PARK**

**COLLECTED: 8/17/2013  
 TOTAL LENGTH: 0.03 Miles**

**NORTHEAST REGION**

<b>Section Number</b>	0				
<b>Section Length (mi)</b>	0.03				
<b>Cross Section Information</b>					
Number of Lanes	1				
Paved Width (ft)	24				
Lane Width (ft)	18				
<b>Roadway Condition Information</b>					
SCR (Surface Condition Rating)	83				
PCR (Pavement Condition Rating)	83				
<b>Distress Index Values</b>					
Structural Crack Index	100				
Transverse Cracking Index	98				
Patching Index	99				
Rutting Index	83				
Roughness Condition Index (RCI)	NC				

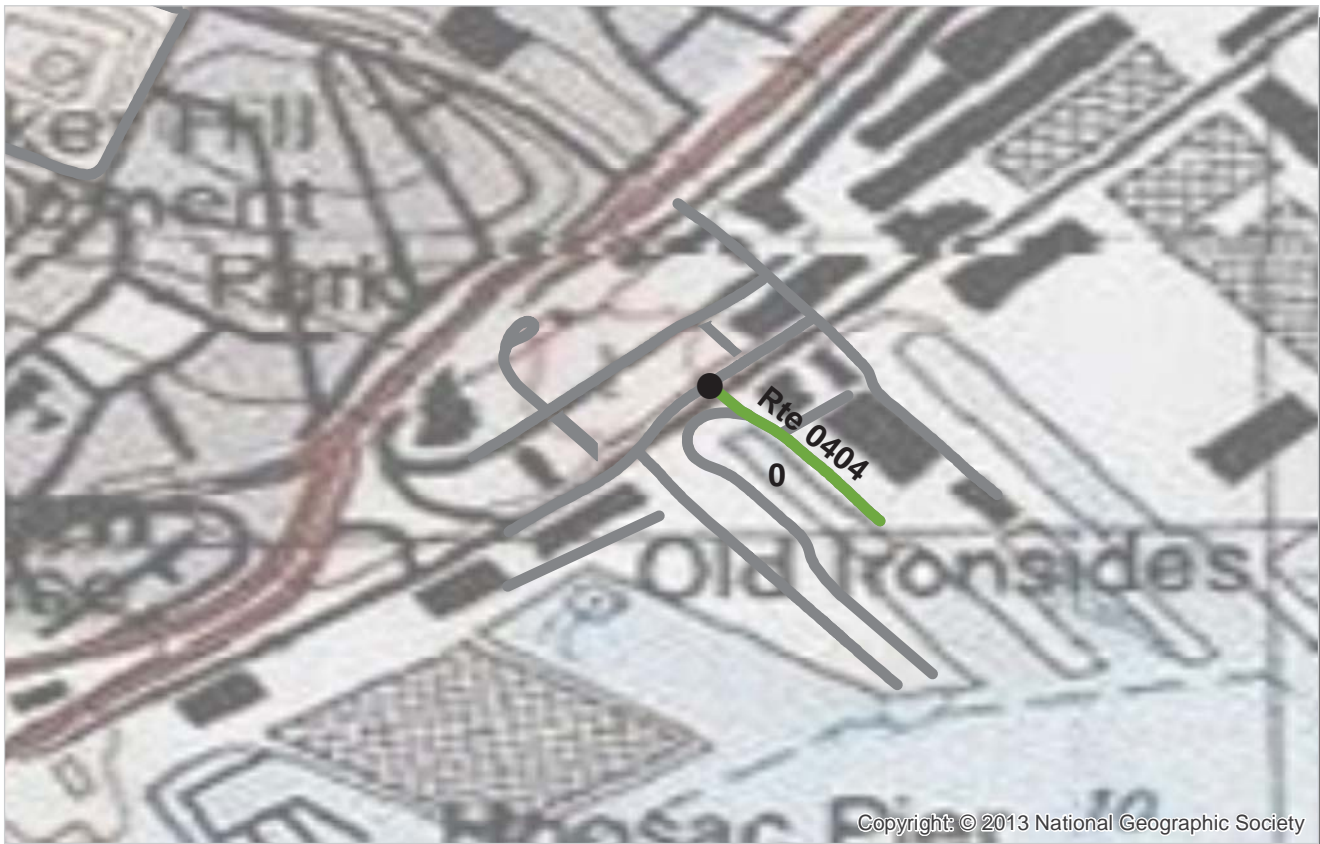
NOTES:

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

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

NC - Not Collected    N/A - Not Applicable

ROUTE: 0105 DRY DOCK 1 AND 2 CONNECTOR ROAD



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

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

**ROUTE: 0404 DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD**  
**BOST : BOSTON NATIONAL HISTORICAL PARK**

**COLLECTED: 8/17/2013**  
**TOTAL LENGTH: 0.09 Miles**

**NORTHEAST REGION**

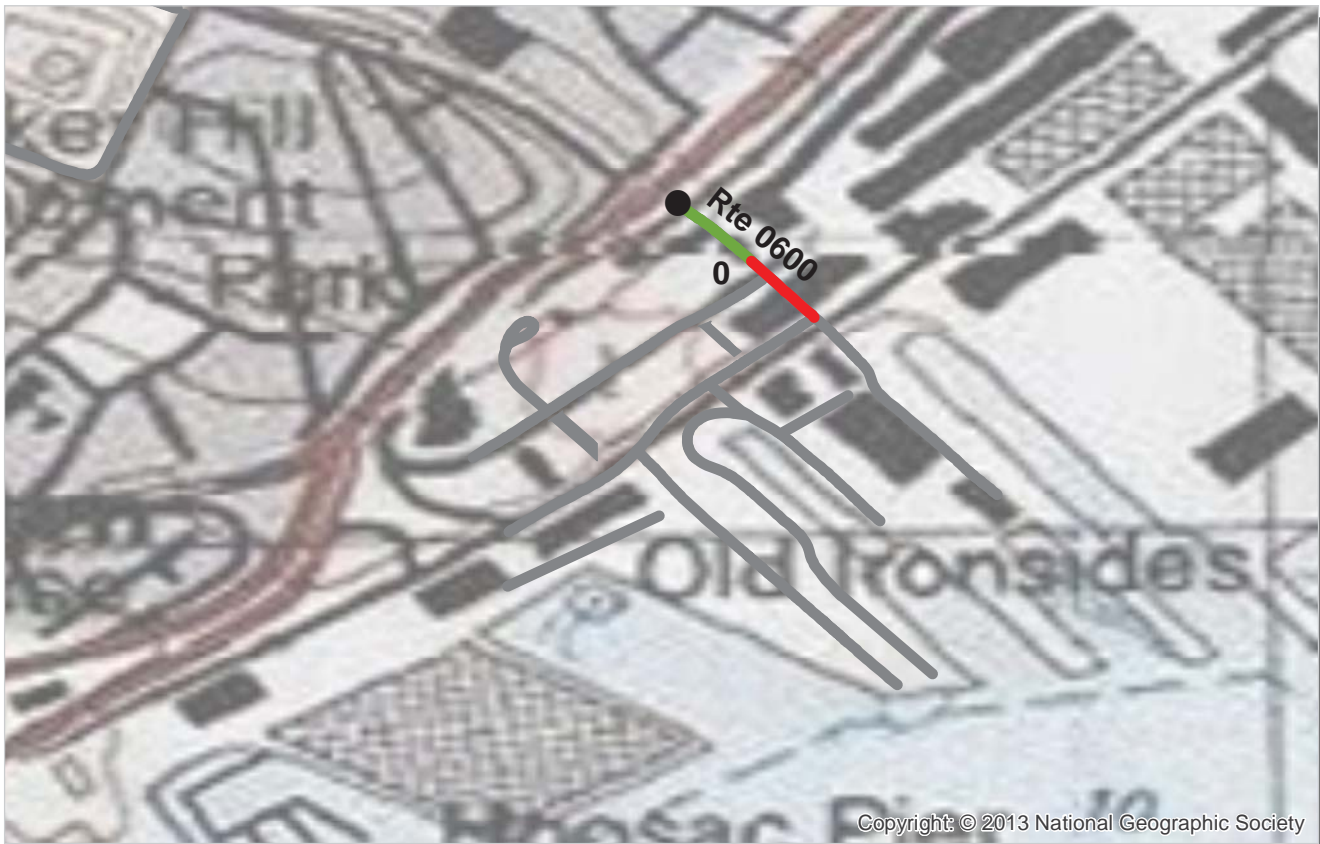
<b>Section Number</b>	0				
<b>Section Length (mi)</b>	0.09				
<b>Cross Section Information</b>					
Number of Lanes	1				
Paved Width (ft)	25				
Lane Width (ft)	18				
<b>Roadway Condition Information</b>					
SCR (Surface Condition Rating)	91				
PCR (Pavement Condition Rating)	91				
<b>Distress Index Values</b>					
Structural Crack Index	91				
Transverse Cracking Index	95				
Patching Index	100				
Rutting Index	91				
Roughness Condition Index (RCI)	NC				

**NOTES:**

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

**ROUTE: 0404 DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD**





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

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

**ROUTE: 0600 FIFTH STREET**  
**BOST : BOSTON NATIONAL HISTORICAL PARK**

**COLLECTED: 8/17/2013**  
**TOTAL LENGTH: 0.08 Miles**

**NORTHEAST REGION**

<b>Section Number</b>	0				
<b>Section Length (mi)</b>	0.08				
<b>Cross Section Information</b>					
Number of Lanes	2				
Paved Width (ft)	27				
Lane Width (ft)	15				
<b>Roadway Condition Information</b>					
SCR (Surface Condition Rating)	66				
PCR (Pavement Condition Rating)	66				
<b>Distress Index Values</b>					
Structural Crack Index	83				
Transverse Cracking Index	91				
Patching Index	95				
Rutting Index	66				
Roughness Condition Index (RCI)	NC				

**NOTES:**

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

**ROUTE: 0600 FIFTH STREET**



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

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

**ROUTE: 0601 MONUMENT SQUARE**  
**BOST : BOSTON NATIONAL HISTORICAL PARK**

**COLLECTED: 8/17/2013**  
**TOTAL LENGTH: 0.34 Miles**

**NORTHEAST REGION**

<b>Section Number</b>	0				
<b>Section Length (mi)</b>	0.34				
<b>Cross Section Information</b>					
Number of Lanes	2				
Paved Width (ft)	33				
Lane Width (ft)	16				
<b>Roadway Condition Information</b>					
SCR (Surface Condition Rating)	62				
PCR (Pavement Condition Rating)	62				
<b>Distress Index Values</b>					
Structural Crack Index	62				
Transverse Cracking Index	84				
Patching Index	99				
Rutting Index	97				
Roughness Condition Index (RCI)	NC				

**NOTES:**

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

**ROUTE: 0601 MONUMENT SQUARE**

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



**Boston National Historical Park**



**Federal Lands Highway**  
**Road Inventory Program**



# BOSTON NATIONAL HISTORICAL PARK

## Route 0100

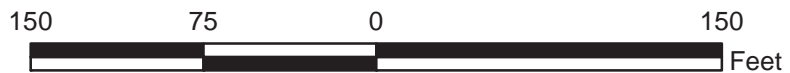
### FOURTH STREET

FROM ROUTE 0010 (FIRST AVENUE)

TO ROUTE 0012 (SECOND AVENUE)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0100	PUBLIC	6/28/2013	1,922	0.03	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	1	0	NO CURB AND GUTTER	STONE CURB	POOR/45

\* Lane miles are based on 11' lane widths



# BOSTON NATIONAL HISTORICAL PARK

## Route 0101

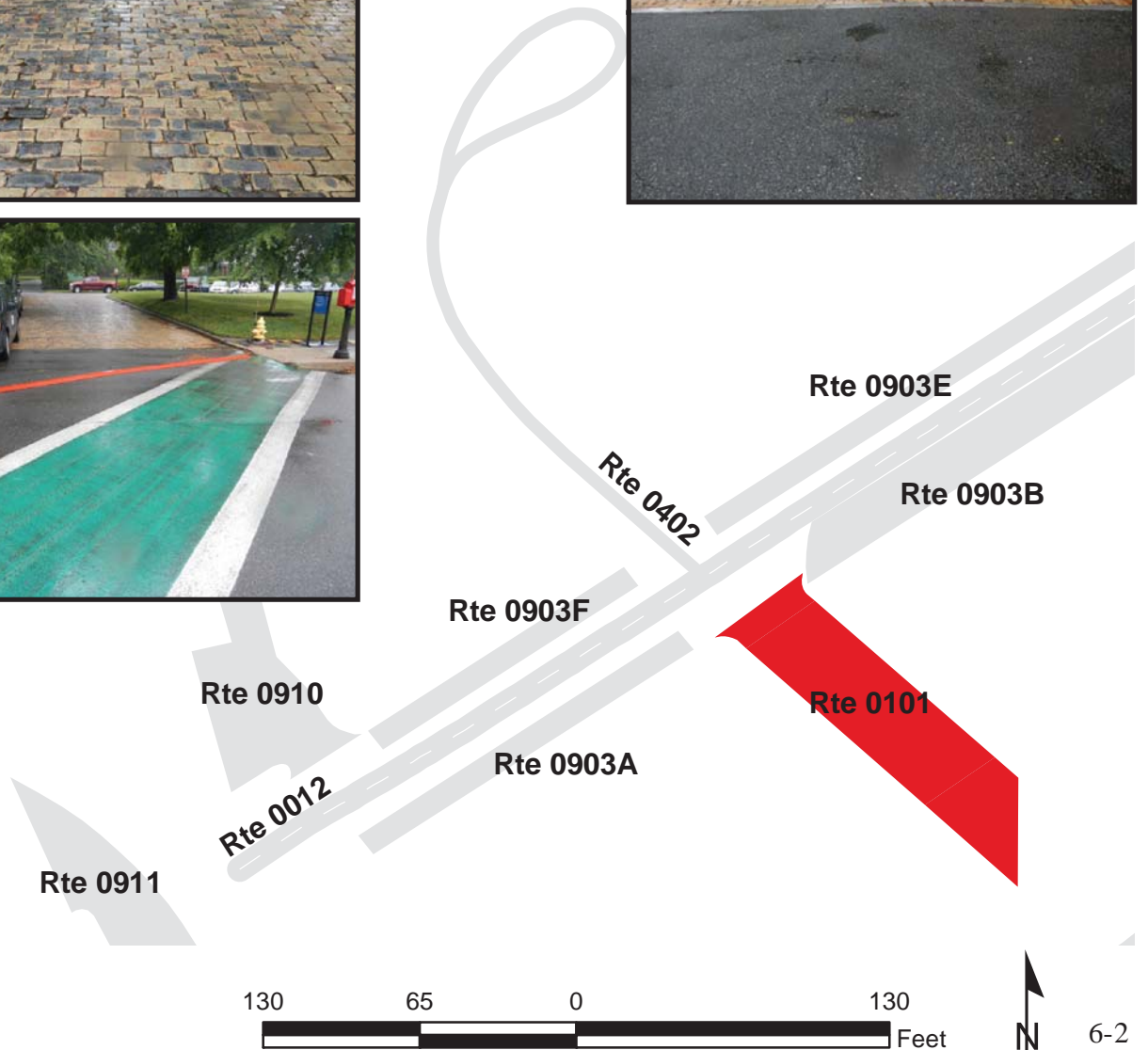
### THIRD STREET

FROM ROUTE 0012 (SECOND AVENUE)

TO ROUTE 0010 (FIRST AVENUE)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0101	PUBLIC	6/28/2013	3,593	0.06	BR
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	1	0	NO CURB AND GUTTER	STONE CURB	FAIR/73

\* Lane miles are based on 11' lane widths



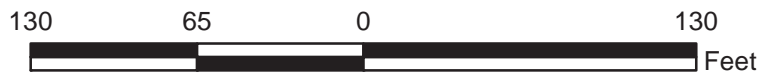
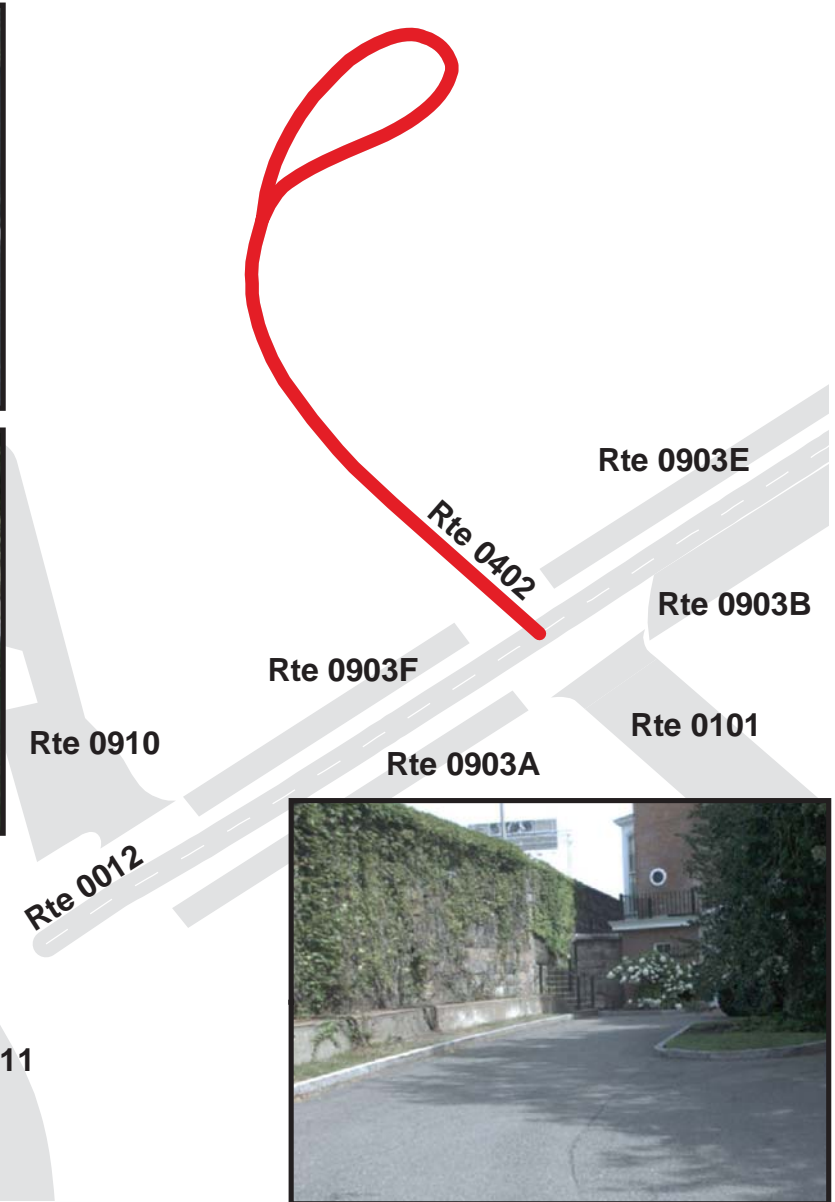
# BOSTON NATIONAL HISTORICAL PARK

## Route 0402

COMMANDANT'S HOUSE DRIVEWAY  
FROM ROUTE 0012 (SECOND AVENUE)  
TO END OF LOOP

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Paved Length (mi)	Paved Width (ft)
0402	PUBLIC	8/17/2013	5,745	0.10	0.07	16
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR	Surface Type
0	0	0	NO CURB AND GUTTER	CONCRETE CURB	POOR/45	AS

\* Lane miles are based on 11' lane widths





**Section 7**  
**Parking Area**  
**Condition Rating Sheets**



**Boston National Historical Park**



**Federal Lands Highway  
Road Inventory Program**



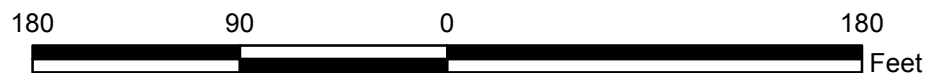
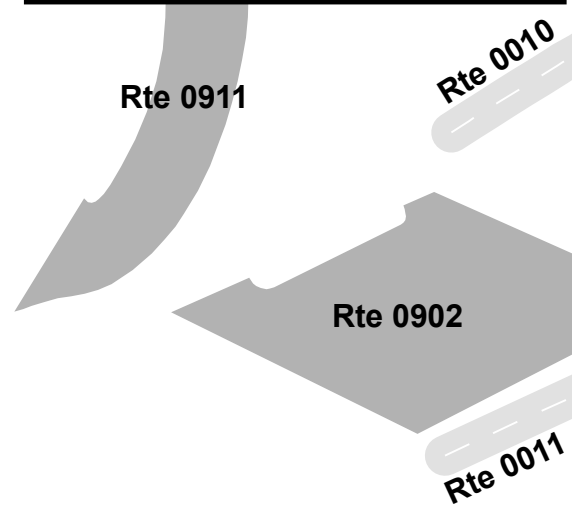
# BOSTON NATIONAL HISTORICAL PARK

## Route 0900

HOOSAC PARKING  
FROM CONSTITUTION ROAD  
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0900	NONPUBLIC	6/28/2013	8,298	0.14	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	1	NO CURB AND GUTTER	NO CURB	POOR/45

\* Lane miles are based on 11' lane widths



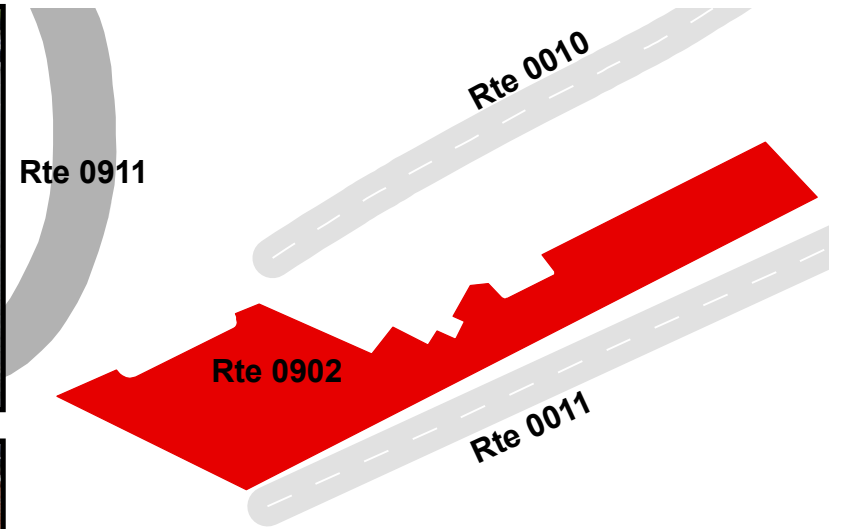
# BOSTON NATIONAL HISTORICAL PARK

## Route 0902

LINCOLN AVENUE PARKING  
FROM ROUTE 0011 (LINCOLN AVENUE)  
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0902	NONPUBLIC	6/28/2013	14,987	0.26	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	6	2	NO CURB AND GUTTER	STONE CURB	FAIR/73

\* Lane miles are based on 11' lane widths



# BOSTON NATIONAL HISTORICAL PARK

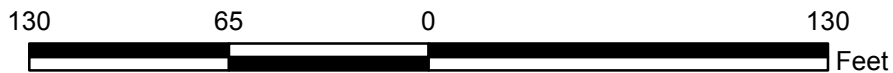
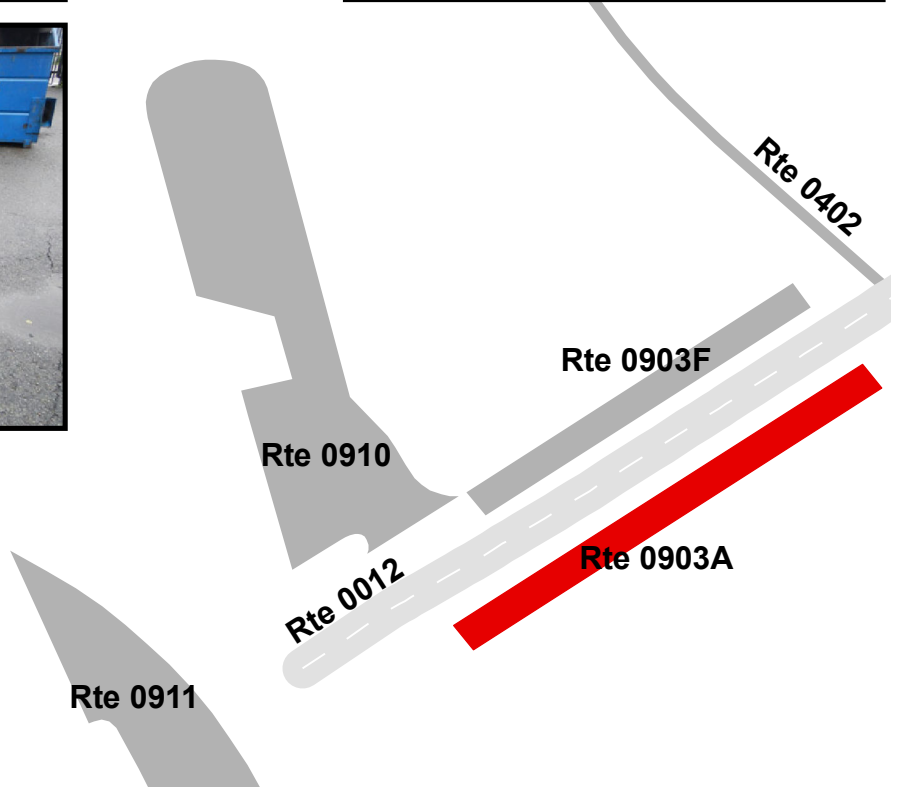
## Route 0903A

### SECOND AVENUE PARKING A

ADJACENT TO ROUTE 0012 (SECOND AVENUE) ON RIGHT

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0903A	NONPUBLIC	6/28/2013	1,172	0.02	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	1	1	NO CURB AND GUTTER	STONE CURB	FAIR/73

\* Lane miles are based on 11' lane widths





# BOSTON NATIONAL HISTORICAL PARK

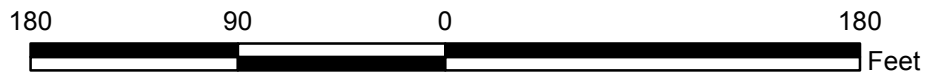
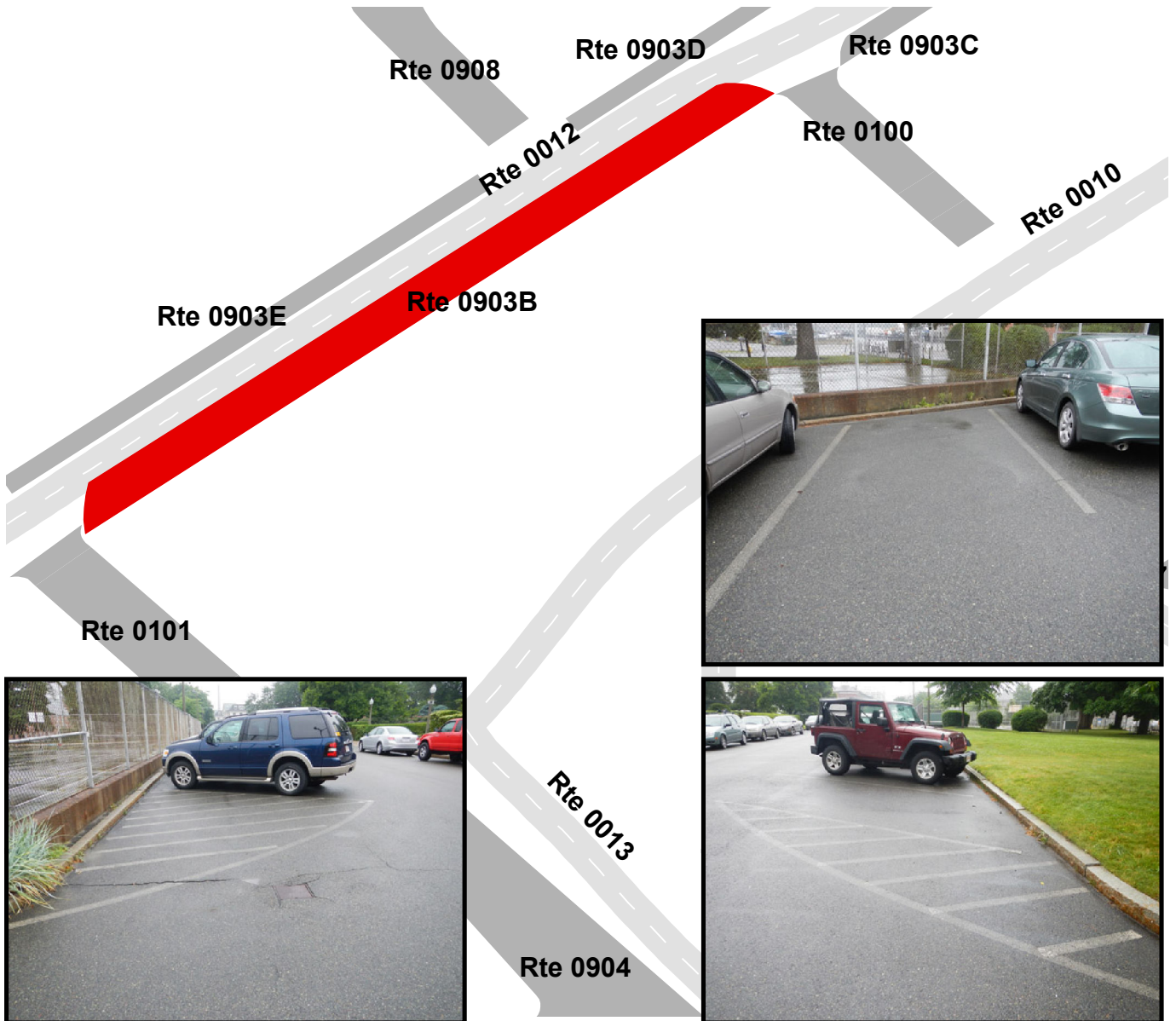
## Route 0903B

### SECOND AVENUE PARKING B

ADJACENT TO ROUTE 0012 (SECOND AVENUE) ON RIGHT

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0903B	NONPUBLIC	6/28/2013	5,908	0.10	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	STONE CURB	FAIR/73

\* Lane miles are based on 11' lane widths





# BOSTON NATIONAL HISTORICAL PARK

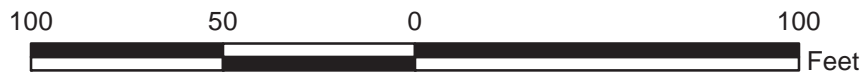
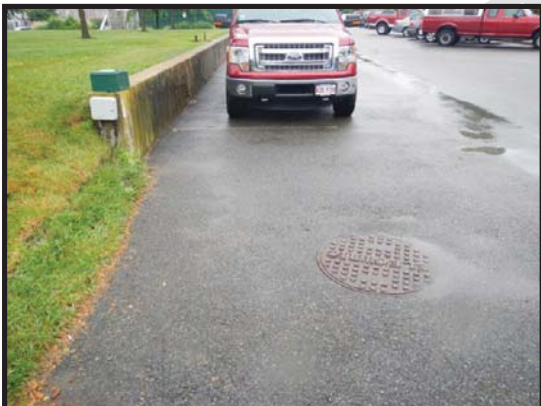
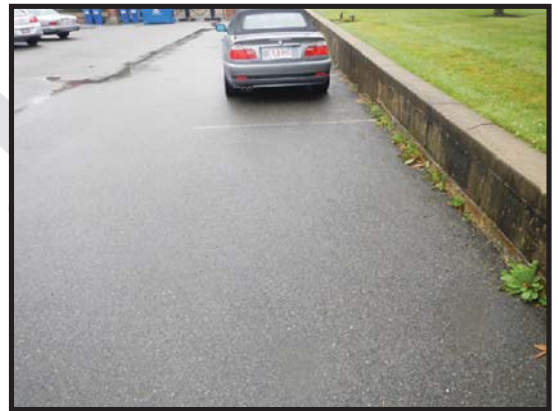
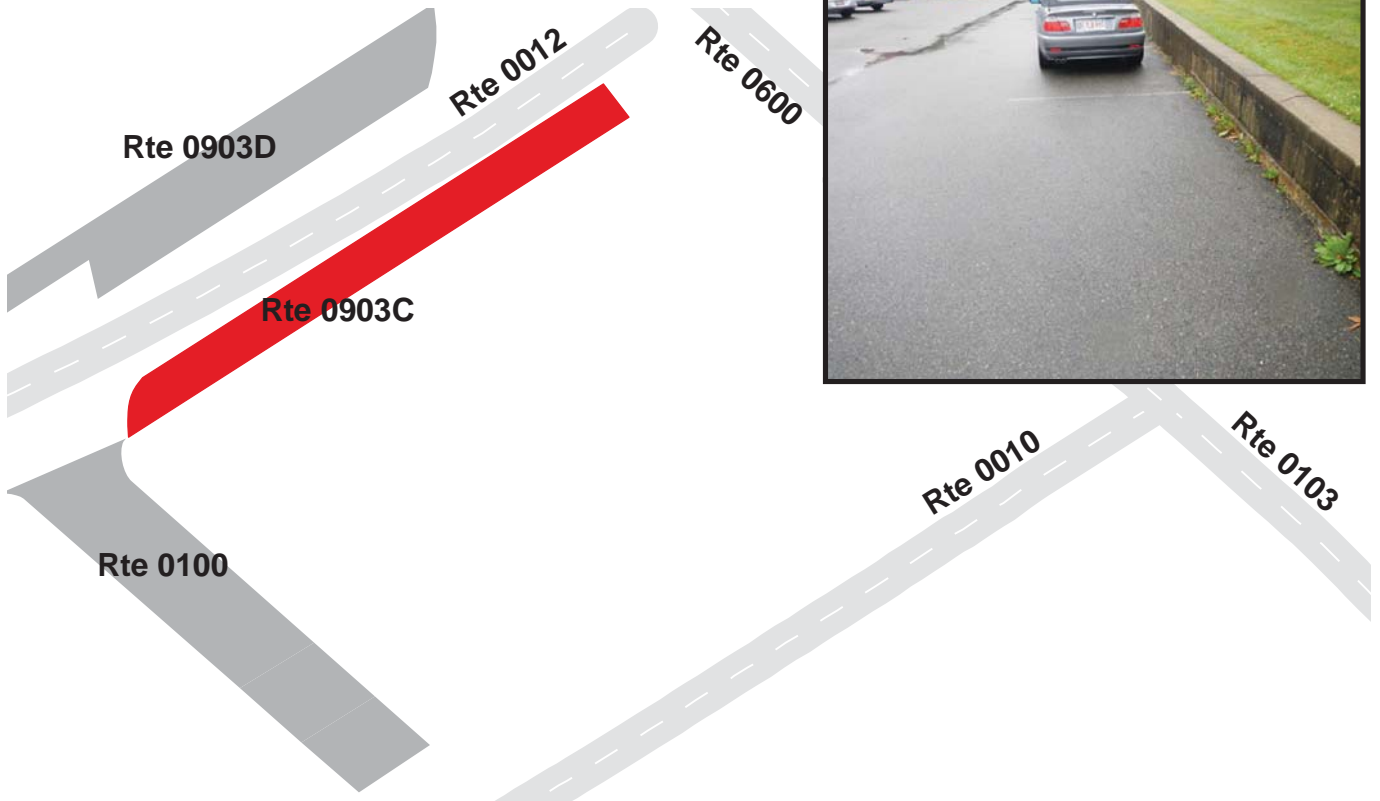
## Route 0903C

### SECOND AVENUE PARKING C

ADJACENT TO ROUTE 0012 (SECOND AVENUE) ON RIGHT

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0903C	NONPUBLIC	6/28/2013	1,220	0.02	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



# BOSTON NATIONAL HISTORICAL PARK

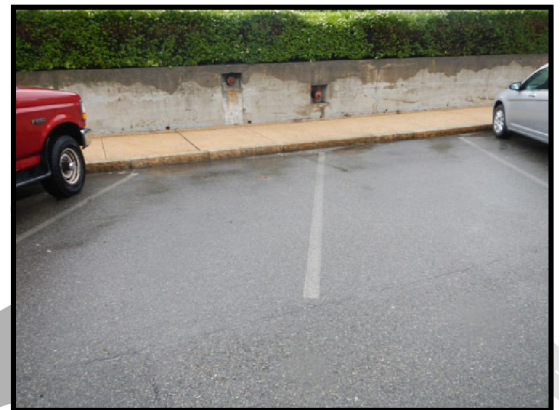
## Route 0903D

### SECOND AVENUE PARKING D

ADJACENT TO ROUTE 0012 (SECOND AVENUE) ON LEFT

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0903D	NONPUBLIC	6/28/2013	2,354	0.04	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	2	0	NO CURB AND GUTTER	STONE CURB	GOOD/90

\* Lane miles are based on 11' lane widths



Rte 0908

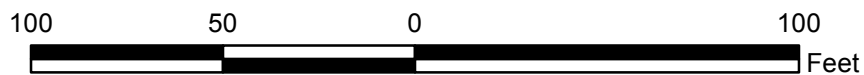
Rte 0903D

Rte 0903C

Rte 0012

Rte 0903B

Rte 0100



# BOSTON NATIONAL HISTORICAL PARK

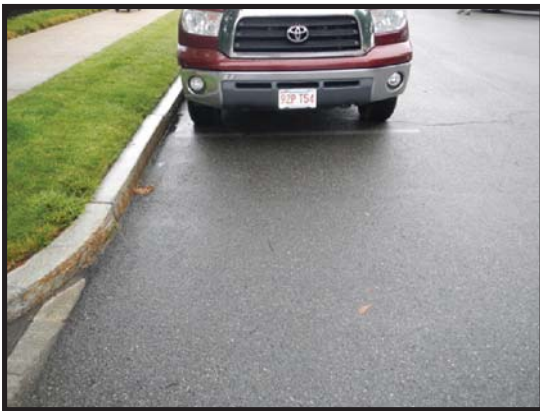
## Route 0903E

### SECOND AVENUE PARKING E

ADJACENT TO ROUTE 0012 (SECOND AVENUE) ON LEFT

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0903E	NONPUBLIC	6/28/2013	2,062	0.04	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	STONE CURB	FAIR/73

\* Lane miles are based on 11' lane widths





# BOSTON NATIONAL HISTORICAL PARK

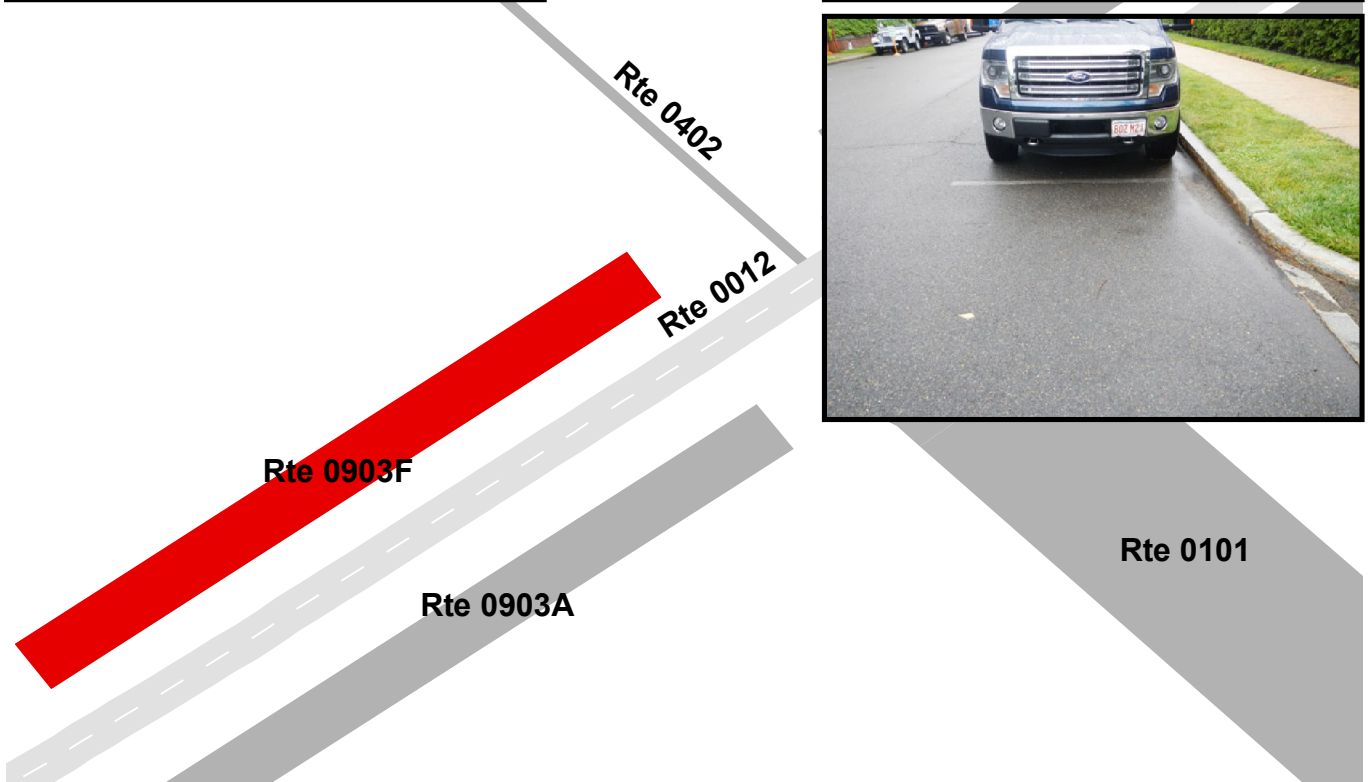
## Route 0903F

### SECOND AVENUE PARKING F

ADJACENT TO ROUTE 0012 (SECOND AVENUE) ON LEFT

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0903F	NONPUBLIC	6/28/2013	908	0.02	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	1	0	NO CURB AND GUTTER	STONE CURB	FAIR/73

\* Lane miles are based on 11' lane widths





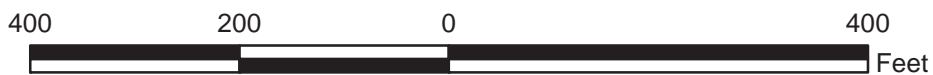
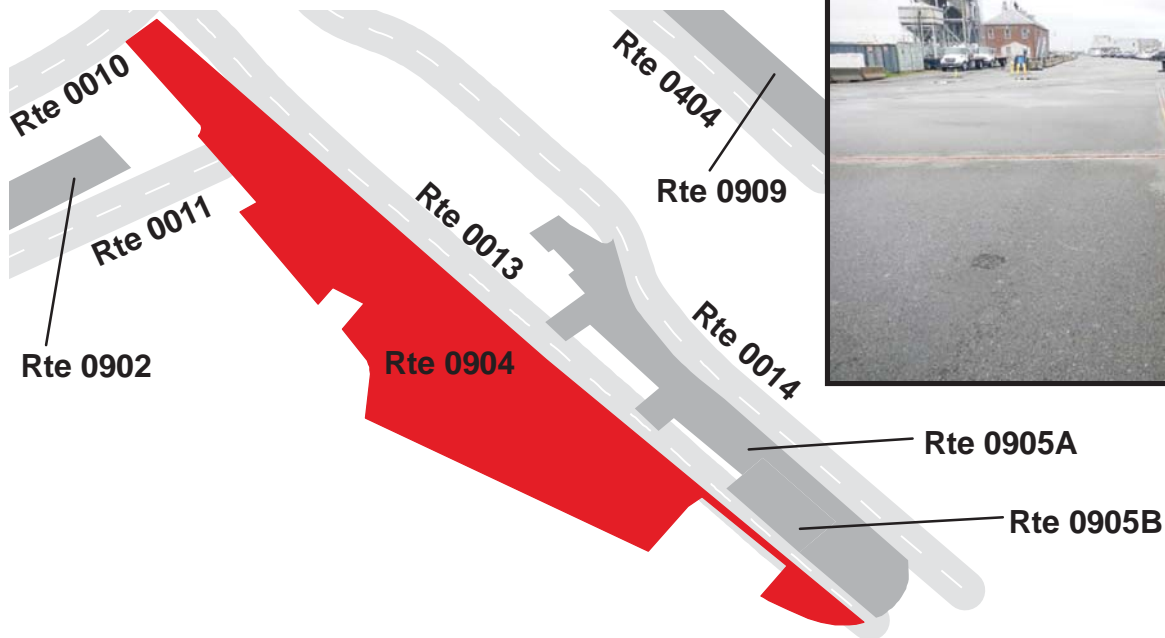
# BOSTON NATIONAL HISTORICAL PARK

## Route 0904

THIRD STREET / PIER 1 PARKING  
 FROM ROUTE 0013 (THIRD STREET / PIER 1)  
 TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0904	NONPUBLIC	6/28/2013	50,526	0.87	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	8	0	NO CURB AND GUTTER	STONE CURB	POOR/45

\* Lane miles are based on 11' lane widths



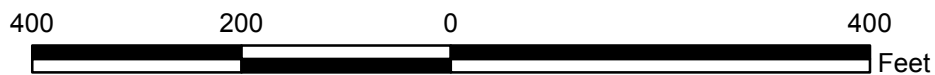
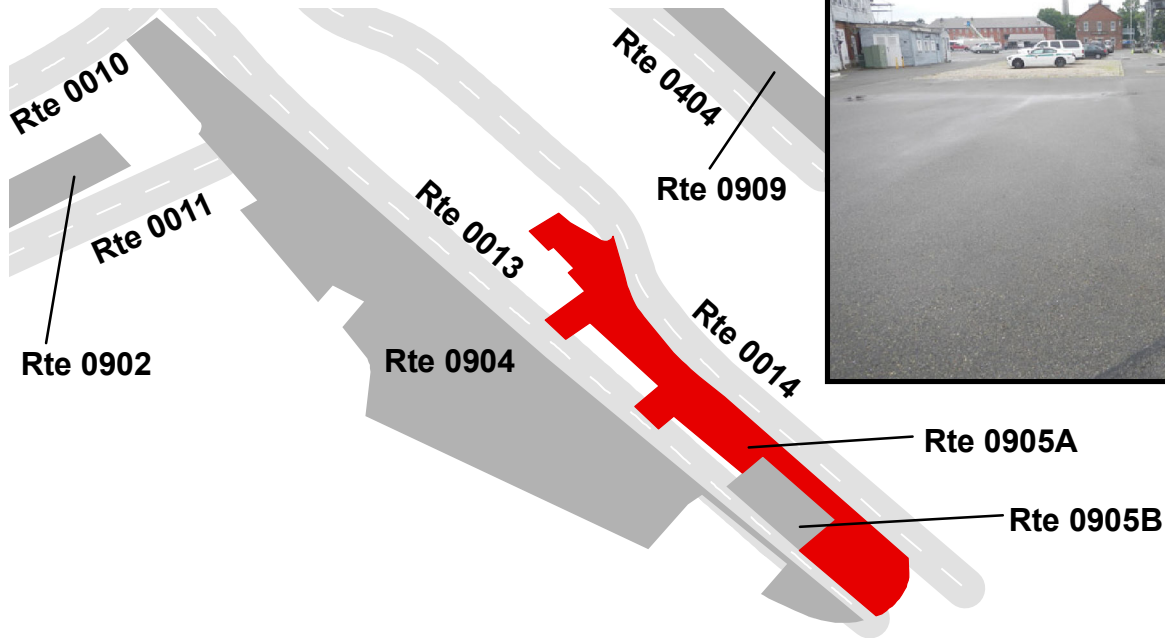
# BOSTON NATIONAL HISTORICAL PARK

## Route 0905A

DRY DOCK 1 WEST PARKING A  
FROM ROUTE 0014 (DRY DOCK WEST)  
TO ROUTE 0013 (THIRD STREET / PIER 1)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0905A	NONPUBLIC	6/28/2013	16,007	0.28	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	5	0	NO CURB AND GUTTER	NO CURB	FAIR/73

\* Lane miles are based on 11' lane widths



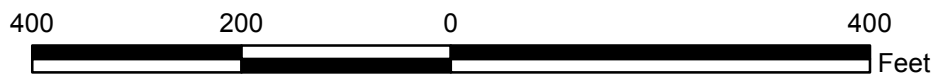
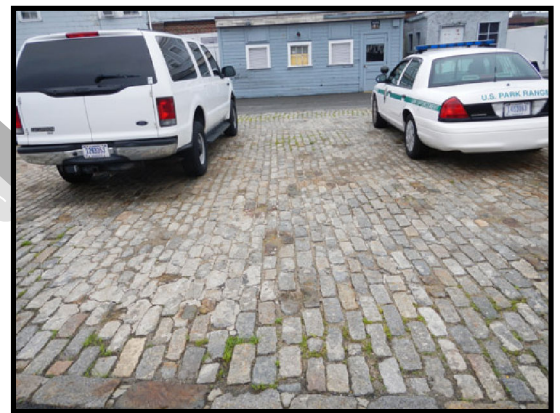
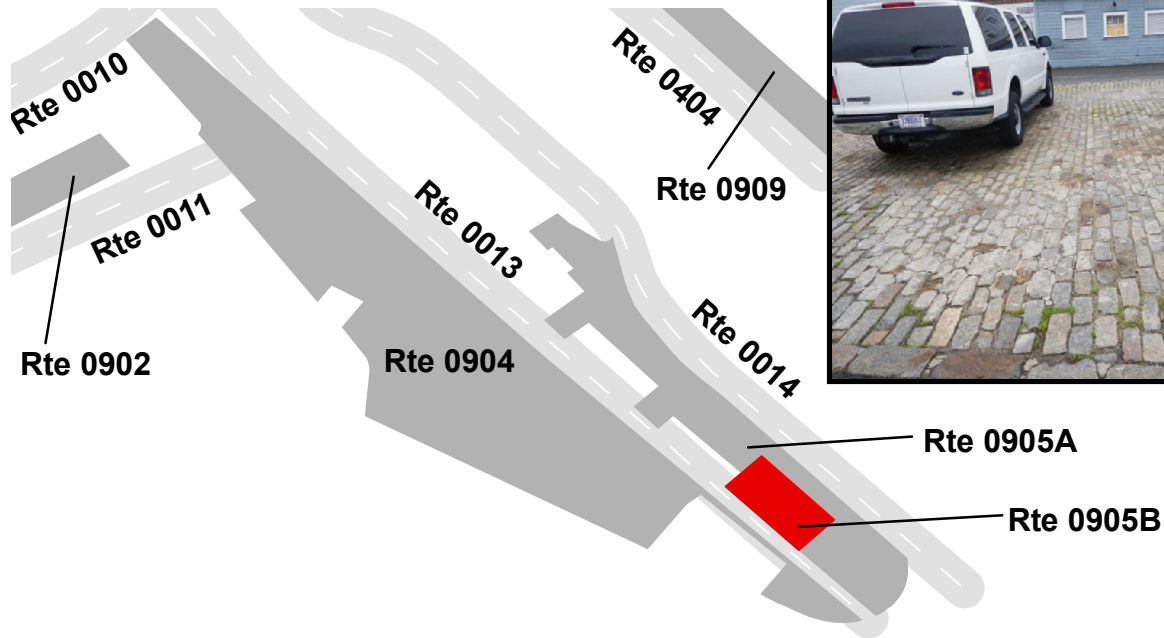
# BOSTON NATIONAL HISTORICAL PARK

## Route 0905B

DRY DOCK 1 WEST PARKING B  
ADJACENT TO ROUTE 0013 (THIRD STREET / PIER 1)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0905B	NONPUBLIC	6/28/2013	3,093	0.05	CB
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	NO CURB	POOR/45

\* Lane miles are based on 11' lane widths





# BOSTON NATIONAL HISTORICAL PARK

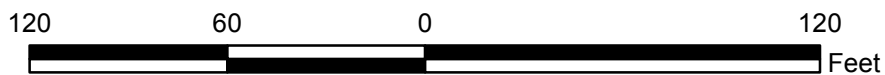
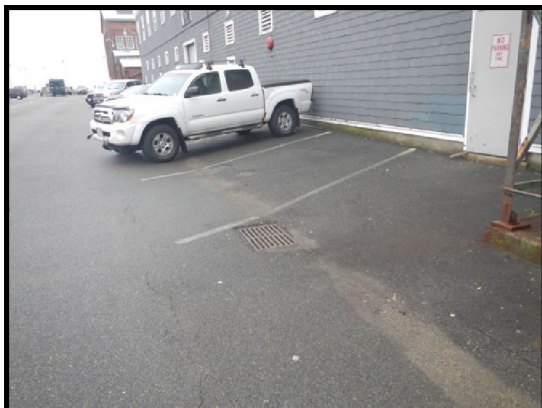
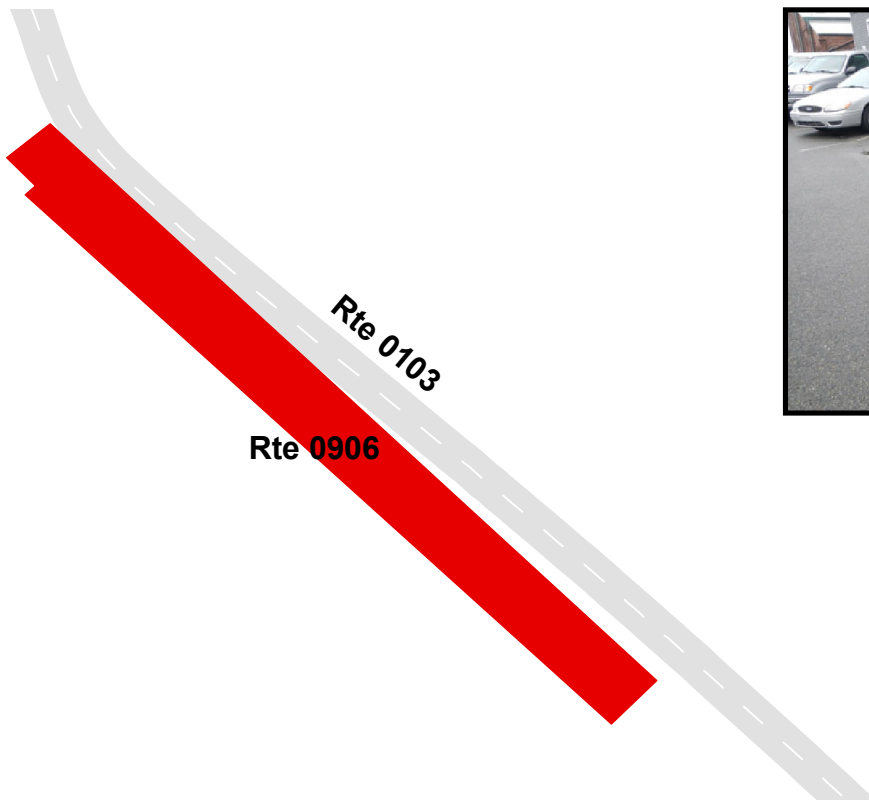
## Route 0906

### BAXTER ROAD PARKING

ADJACENT TO ROUTE 0103 (BAXTER ROAD) ON RIGHT

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0906	NONPUBLIC	6/28/2013	3,710	0.06	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	2	0	NO CURB AND GUTTER	NO CURB	FAIR/73

\* Lane miles are based on 11' lane widths





# BOSTON NATIONAL HISTORICAL PARK

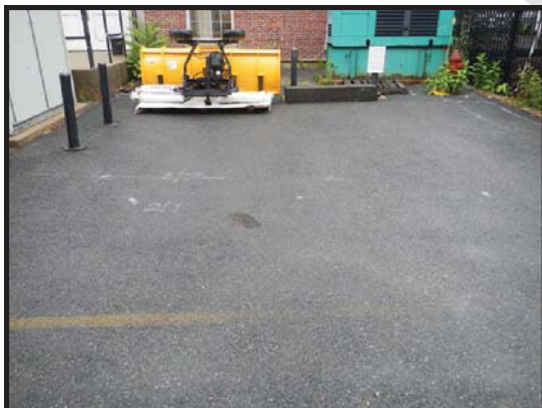
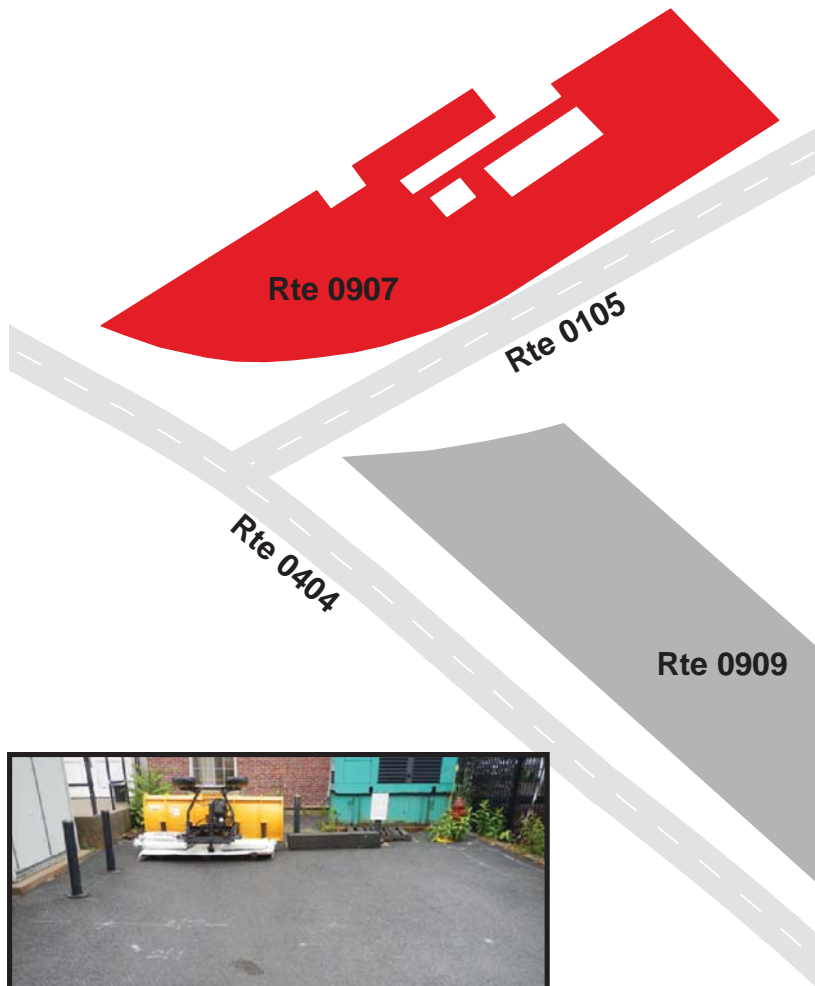
## Route 0907

### DRY DOCK 1 AND 2 CONNECTOR PARKING

ADJACENT TO ROUTE 0105 (DRY DOCK 1 AND 2 CONNECTOR ROAD) ON LEFT

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0907	NONPUBLIC	6/28/2013	3,058	0.05	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	NO CURB	FAIR/73

\* Lane miles are based on 11' lane widths



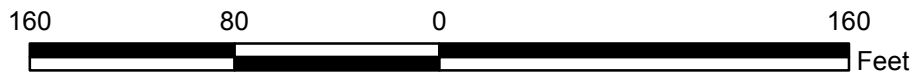
# BOSTON NATIONAL HISTORICAL PARK

## Route 0908

MARINE BARRACKS PARKING  
FROM ROUTE 0012 (SECOND AVENUE)  
TO ROUTE 0012 (SECOND AVENUE)

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0908	NONPUBLIC	6/28/2013	9,237	0.16	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	1	0	NO CURB AND GUTTER	CONCRETE & STONE CURB	POOR/45

\* Lane miles are based on 11' lane widths



# BOSTON NATIONAL HISTORICAL PARK

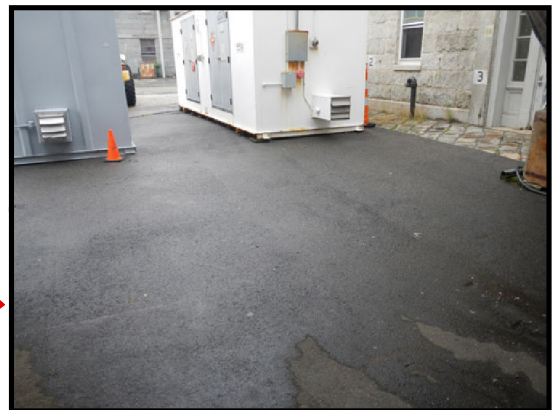
## Route 0909

### DRY DOCK 1 EAST PARKING

ADJACENT TO ROUTE 0404 (DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD) ON LEFT

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0909	NONPUBLIC	6/28/2013	9,053	0.16	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	2	0	NO CURB AND GUTTER	NO CURB	FAIR/73

\* Lane miles are based on 11' lane widths





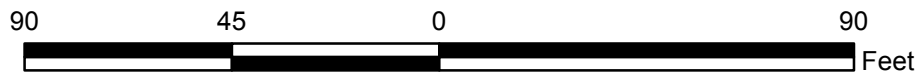
# BOSTON NATIONAL HISTORICAL PARK

## Route 0910

BUILDING 1 AND 269 PARKING  
FROM ROUTE 0012 (SECOND AVENUE)  
TO PARKING

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0910	NONPUBLIC	6/28/2013	4,416	0.08	AS
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	0	0	NO CURB AND GUTTER	CONCRETE & STONE CURB	POOR/45

\* Lane miles are based on 11' lane widths





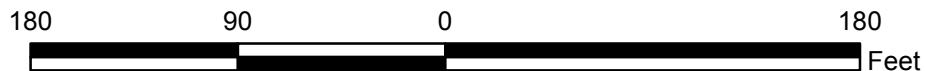
# BOSTON NATIONAL HISTORICAL PARK

## Route 0911

TOUR BUS PARKING  
FROM CONSTITUTION ROAD  
TO CONSTITUTION ROAD

Route Number	Public / NonPublic	Date Visited	Area (sq ft)	Lane Miles *	Surface Type
0911	NONPUBLIC	6/28/2013	7,946	0.14	CB
Culverts	Drop Inlets	Gates	Curb & Gutter	Curb	PCR
0	2	0	NO CURB AND GUTTER	STONE CURB	FAIR/73

\* Lane miles are based on 11' lane widths



**Section 8**  
**Parkwide/Route**  
**Maintenance Features Summaries**



**Boston National Historical Park**



**Federal Lands Highway  
Road Inventory Program**

## **BOST: PARKWIDE MAINTENANCE FEATURES SUMMARY**

### **Includes DCV, MRL, MRP & PKG routes collected in Cycle-5**

Notice: Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all DCV driven routes. Culverts, drop inlets, and gates were also collected on all Manually Rated Routes and Paved Parking areas. Those totals are reflected below.

<b>FEATURE</b>	<b>LINEAR FEET</b>	<b>COUNT</b>
BRIDGE	--	0
CATTLE GUARD	--	0
CULVERT	--	0
CURB	4,969	--
DROP INLET	--	65
GATE	--	7
GUARD/GUIDE RAIL	0	--
CABLE	0	--
NON-CABLE	0	--
GUARD/GUIDE WALL	401	--
BOLLARD	206	--
TEMPORARY BARRIER	0	--
NON TEMP/BOLLARD	195	--
INTERSECTION	--	78
LOW WATER CROSSING	0	0
MILE MARKER	--	0
OVERPASS	--	0
PARK BOUNDARY	--	0
PAVED DITCH	0	--
PULLOUT	0	0
RAILROAD CROSSING	--	7
RETAINING WALL	132	1
SIGN	--	146
STATE BOUNDARY	--	0
TRAFFIC LIGHT	--	4
TUNNEL	0	0

# BOST: DCV ROUTE MAINTENANCE FEATURES SUMMARY

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

FEATURE	ROUTE 0010 FIRST AVENUE	ROUTE 0011 LINCOLN AVENUE	ROUTE 0012 SECOND AVENUE	ROUTE 0013 THIRD STREET / PIER 1	ROUTE 0014 DRY DOCK WEST	ROUTE 0103 BAXTER ROAD	UNIT
BRIDGE	0	0	0	0	0	0	EACH
CATTLE GUARD	0	0	0	0	0	0	EACH
CULVERT	0	0	0	0	0	0	EACH
CURB	1,003	0	0	0	69	85	LINEAR FEET
DROP INLET	10	2	0	2	5	2	EACH
GATE	2	1	0	0	0	0	EACH
GUARD/GUIDE RAIL	0	0	0	0	0	0	LINEAR FEET
CABLE	0	0	0	0	0	0	LINEAR FEET
NON-CABLE	0	0	0	0	0	0	LINEAR FEET
GUARD/GUIDE WALL	0	0	0	0	0	95	LINEAR FEET
BOLLARD	0	0	0	0	0	95	LINEAR FEET
TEMPORARY BARRIER	0	0	0	0	0	0	LINEAR FEET
NON TEMP/BOLLARD	0	0	0	0	0	0	LINEAR FEET
INTERSECTION	9	3	14	8	4	6	EACH
LOW WATER CROSSING	0	0	0	0	0	0	EACH
LOW WATER CROSSING	0	0	0	0	0	0	LINEAR FEET
MILE MARKER	0	0	0	0	0	0	EACH
OVERPASS	0	0	0	0	0	0	EACH
PARK BOUNDARY	0	0	0	0	0	0	EACH
PAVED DITCH	0	0	0	0	0	0	LINEAR FEET
PULLOUT	0	0	0	0	0	0	EACH
PULLOUT	0	0	0	0	0	0	LINEAR FEET
RAILROAD CROSSING	0	1	0	2	1	1	EACH
RETAINING WALL	1	0	0	0	0	0	EACH
RETAINING WALL	132	0	0	0	0	0	LINEAR FEET
SIGN	2	1	2	0	0	11	EACH
STATE BOUNDARY	0	0	0	0	0	0	EACH
TRAFFIC LIGHT	2	0	0	0	0	0	EACH
TUNNEL	0	0	0	0	0	0	EACH
TUNNEL	0	0	0	0	0	0	LINEAR FEET



# BOST: DCV ROUTE MAINTENANCE FEATURES SUMMARY

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

FEATURE	ROUTE 0105	DRY DOCK 1 AND 2 CONNECTOR ROAD	ROUTE 0404	DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD	ROUTE 0600 FIFTH STREET	ROUTE 0601 MONUMENT SQUARE	UNIT
BRIDGE	0	0	0	0	0		EACH
CATTLE GUARD	0	0	0	0	0		EACH
CULVERT	0	0	0	0	0		EACH
CURB	0	53	659	3,100			LINEAR FEET
DROP INLET	2	6	4	0			EACH
GATE	0	0	0	0			EACH
GUARD/GUIDE RAIL	0	0	0	0			LINEAR FEET
CABLE	0	0	0	0			LINEAR FEET
NON-CABLE	0	0	0	0			LINEAR FEET
GUARD/GUIDE WALL	0	0	195	111			LINEAR FEET
BOLLARD	0	0	0	111			LINEAR FEET
TEMPORARY BARRIER	0	0	0	0			LINEAR FEET
NON TEMP/BOLLARD	0	0	195	0			LINEAR FEET
INTERSECTION	6	6	6	16			EACH
LOW WATER CROSSING	0	0	0	0			EACH
LOW WATER CROSSING	0	0	0	0			LINEAR FEET
MILE MARKER	0	0	0	0			EACH
OVERPASS	0	0	0	0			EACH
PARK BOUNDARY	0	0	0	0			EACH
PAVED DITCH	0	0	0	0			LINEAR FEET
PULLOUT	0	0	0	0			EACH
PULLOUT	0	0	0	0			LINEAR FEET
RAILROAD CROSSING	0	2	0	0			EACH
RETAINING WALL	0	0	0	0			EACH
RETAINING WALL	0	0	0	0			LINEAR FEET
SIGN	0	0	16	114			EACH
STATE BOUNDARY	0	0	0	0			EACH
TRAFFIC LIGHT	0	0	2	0			EACH
TUNNEL	0	0	0	0			EACH
TUNNEL	0	0	0	0			LINEAR FEET

## **STRUCTURE LIST**

No data available for this section.

**Section 9**  
**Route Maintenance Features**  
**Road Logs**



**Boston National Historical Park**



**Federal Lands Highway  
Road Inventory Program**

# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0010: FIRST AVENUE

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM GATE 1
0.000	0.041	CURB	LEFT	N/A
0.000	0.000	INTERSECTION	N/A	GATE 1
0.003	0.003	GATE	N/A	N/A
0.003	0.014	CURB	RIGHT	N/A
0.009	0.009	DROP INLET	RIGHT	N/A
0.016	0.016	DROP INLET	LEFT	N/A
0.022	0.022	DROP INLET	RIGHT	N/A
0.037	0.037	DROP INLET	LEFT	N/A
0.049	0.049	INTERSECTION	LEFT	ROUTE 0101 (THIRD STREET)
0.053	0.118	CURB	LEFT	N/A
0.054	0.054	INTERSECTION	RIGHT	ROUTE 0904 (THIRD STREET / PIER 1 PARKING)
0.062	0.062	INTERSECTION	RIGHT	ROUTE 0013 (THIRD STREET / PIER 1)
0.083	0.101	CURB	RIGHT	N/A
0.088	0.088	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.095	0.095	DROP INLET	RIGHT	N/A
0.101	0.101	DROP INLET	LEFT	N/A
0.105	0.105	INTERSECTION	RIGHT	ROUTE 0404 (DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD)
0.106	0.124	CURB	RIGHT	N/A
0.109	0.109	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.118	0.118	DROP INLET	RIGHT	N/A
0.119	0.119	DROP INLET	LEFT	N/A
0.122	0.122	INTERSECTION	LEFT	ROUTE 0100 (FOURTH STREET)
0.122	0.147	RETAINING WALL	LEFT	N/A
0.122	0.150	CURB	LEFT	N/A
0.123	0.123	TRAFFIC LIGHT	RIGHT	X2
0.124	0.124	TRAFFIC LIGHT	LEFT	X2
0.126	0.126	DROP INLET	LEFT	N/A
0.126	0.126	DROP INLET	RIGHT	N/A
0.141	0.150	CURB	RIGHT	N/A



# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0010: FIRST AVENUE

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.149	0.149	GATE	N/A	N/A
0.150	0.150	INTERSECTION	N/A	PAVED ROUTE (FIRST AVENUE / NON NPS)
0.150	0.150	INTERSECTION	RIGHT	ROUTE 0103 (BAXTER ROAD)
0.150	0.150	INTERSECTION	LEFT	ROUTE 0600 (FIFTH STREET)
0.150	0.150	ROUTE END	N/A	TO INTERSECTION OF ROUTES 0103 (BAXTER ROAD) AND 0600 (FIFTH STREET)

# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0011: LINCOLN AVENUE

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

<b>FROM MILEPOST</b>	<b>TO MILEPOST</b>	<b>FEATURE</b>	<b>SIDE</b>	<b>COMMENT</b>
0.000	0.000	ROUTE BEGIN	N/A	FROM PEDESTRIAN ENTRANCE GATE
0.000	0.000	DROP INLET	N/A	N/A
0.000	0.000	INTERSECTION	N/A	PEDESTRIAN ENTRANCE GATE
0.009	0.009	RAILROAD CROSSING	N/A	N/A
0.022	0.022	DROP INLET	RIGHT	N/A
0.024	0.024	INTERSECTION	LEFT	ROUTE 0902 (LINCOLN AVENUE PARKING)
0.060	0.060	GATE	N/A	N/A
0.060	0.060	INTERSECTION	N/A	ROUTE 0904 (THIRD STREET / PIER 1 PARKING)
0.060	0.060	SIGN	N/A	REGULATORY, UNABLE TO READ FROM VIDEO
0.060	0.060	ROUTE END	N/A	TO ROUTE 0904 (THIRD STREET / PIER 1 PARKING)

# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0012: SECOND AVENUE

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM GATE 2
0.000	0.000	INTERSECTION	N/A	GATE 2
0.005	0.005	SIGN	LEFT	REGULATORY, TRUCK CHECK IN STATION
0.007	0.007	INTERSECTION	LEFT	ROUTE 0910 (BUILDING 1 AND 269 PARKING)
0.015	0.015	INTERSECTION	RIGHT	ROUTE 0903A (SECOND AVENUE PARKING A)
0.017	0.017	INTERSECTION	LEFT	ROUTE 0903F (SECOND AVENUE PARKING F)
0.030	0.030	INTERSECTION	LEFT	ROUTE 0402 (COMMANDANT'S HOUSE DRIVEWAY)
0.032	0.032	INTERSECTION	RIGHT	ROUTE 0101 (THIRD STREET)
0.033	0.033	SIGN	LEFT	GUIDE, COMMANDANT FIRST NAVAL DISCTRICK
0.057	0.057	INTERSECTION	LEFT	ROUTE 0903E (SECOND AVENUE PARKING E)
0.073	0.073	INTERSECTION	RIGHT	ROUTE 0903B (SECOND AVENUE PARKING B)
0.082	0.082	INTERSECTION	LEFT	ROUTE 0908 (MARINE BARRACKS PARKING)
0.103	0.103	INTERSECTION	RIGHT	ROUTE 0100 (FOURTH STREET)
0.109	0.109	INTERSECTION	LEFT	ROUTE 0903D (SECOND AVENUE PARKING D)
0.119	0.119	INTERSECTION	RIGHT	ROUTE 0903C (SECOND AVENUE PARKING C)
0.124	0.124	INTERSECTION	LEFT	ROUTE 0908 (MARINE BARRACKS PARKING)
0.126	0.126	INTERSECTION	N/A	GATE TO ROUTE 0600 (FIFTH STREET)
0.126	0.126	ROUTE END	N/A	TO END AT GATE AT ROUTE 0600 (FIFTH STREET)

# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0013: THIRD STREET / PIER 1

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0010 (FIRST AVENUE)
0.000	0.000	INTERSECTION	LEFT	ROUTE 0010 (FIRST AVENUE)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0010 (FIRST AVENUE)
0.011	0.011	RAILROAD CROSSING	N/A	N/A
0.019	0.019	DROP INLET	N/A	N/A
0.025	0.025	RAILROAD CROSSING	N/A	N/A
0.049	0.049	DROP INLET	N/A	N/A
0.078	0.078	INTERSECTION	RIGHT	ROUTE 0904 (THIRD STREET / PIER 1 PARKING)
0.081	0.081	INTERSECTION	LEFT	ROUTE 0905A (DRY DOCK 1 WEST PARKING A)
0.102	0.102	INTERSECTION	LEFT	ROUTE 0905A (DRY DOCK 1 WEST PARKING A)
0.125	0.125	INTERSECTION	LEFT	ROUTE 0905B (DRY DOCK 1 WEST PARKING B)
0.141	0.141	INTERSECTION	LEFT	ROUTE 0905A (DRY DOCK 1 WEST PARKING A)
0.145	0.145	INTERSECTION	N/A	END OF PIER 1
0.145	0.145	ROUTE END	N/A	TO END OF PIER 1



# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0014: DRY DOCK WEST

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0404 (DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD)
0.000	0.000	INTERSECTION	LEFT	ROUTE 0404 (DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0404 (DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD)
0.003	0.003	DROP INLET	N/A	N/A
0.007	0.020	CURB	RIGHT	N/A
0.022	0.022	DROP INLET	N/A	N/A
0.064	0.064	DROP INLET	N/A	N/A
0.083	0.083	DROP INLET	N/A	N/A
0.097	0.097	RAILROAD CROSSING	N/A	N/A
0.110	0.110	DROP INLET	N/A	N/A
0.118	0.118	INTERSECTION	RIGHT	ROUTE 0905A (DRY DOCK 1 WEST PARKING A)
0.141	0.141	INTERSECTION	N/A	ROUTE 0014 (DRY DOCK WEST) UNCOLLECTED SECTION
0.141	0.141	ROUTE END	N/A	TO END OF PIER 1 AT MP 0.17

# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0103: BAXTER ROAD

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM INTERSECTION OF ROUTES 0010 (FIRST AVENUE) AND 0600 (FIFTH STREET)
0.000	0.000	SIGN	LEFT	GUIDE, 1ST AVE
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0010 (FIRST AVENUE)
0.000	0.000	INTERSECTION	LEFT	PAVED ROUTE (FIRST AVENUE / NON NPS)
0.000	0.000	INTERSECTION	N/A	ROUTE 0600 (FIFTH STREET)
0.003	0.009	CURB	RIGHT	N/A
0.004	0.004	SIGN	RIGHT	GUIDE, UNABLE TO READ FROM VIDEO
0.005	0.005	SIGN	RIGHT	GUIDE, COURAGEOUS SAILING CENTER
0.005	0.005	SIGN	RIGHT	REGULATORY, TOW ZONE NO STOPPING ANY TIME
0.007	0.007	SIGN	LEFT	REGULATORY, STOP
0.010	0.028	GUARD/GUIDE WALL	LEFT	N/A
0.026	0.026	SIGN	LEFT	REGULATORY, TOW ZONE
0.029	0.029	SIGN	LEFT	GUIDE, UNABLE TO READ FROM VIDEO
0.030	0.030	SIGN	LEFT	REGULATORY, TOW ZONE
0.031	0.031	RAILROAD CROSSING	N/A	N/A
0.031	0.034	CURB	LEFT	N/A
0.033	0.033	SIGN	RIGHT	REGULATORY, TOW ZONE NO STOPPING FIRE LANE
0.034	0.034	DROP INLET	N/A	N/A
0.036	0.043	CURB	LEFT	N/A
0.038	0.038	INTERSECTION	RIGHT	ROUTE 0105 (DRY DOCK 1 AND 2 CONNECTOR ROAD)
0.044	0.044	SIGN	N/A	GUIDE, RESTRICTED PARKING PERMIT PARKING ONLY
0.044	0.044	SIGN	N/A	REGULATORY, UNABLE TO READ FROM VIDEO
0.061	0.061	INTERSECTION	RIGHT	ROUTE 0906 (BAXTER ROAD PARKING)
0.108	0.108	DROP INLET	N/A	N/A
0.111	0.111	INTERSECTION	N/A	END OF PIER 3
0.111	0.111	ROUTE END	N/A	TO END AT PIER 3

# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0105: DRY DOCK 1 AND 2 CONNECTOR ROAD

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0404 (DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD)
0.000	0.000	INTERSECTION	LEFT	ROUTE 0404 (DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0404 (DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD)
0.003	0.003	DROP INLET	N/A	N/A
0.005	0.005	INTERSECTION	RIGHT	ROUTE 0909 (DRY DOCK 1 EAST PARKING)
0.013	0.013	INTERSECTION	LEFT	ROUTE 0907 (DRY DOCK 1 AND 2 CONNECTOR PARKING)
0.021	0.021	DROP INLET	N/A	N/A
0.030	0.030	INTERSECTION	LEFT	ROUTE 0103 (BAXTER ROAD)
0.030	0.030	INTERSECTION	RIGHT	ROUTE 0103 (BAXTER ROAD)
0.030	0.030	ROUTE END	N/A	TO ROUTE 0103 (BAXTER ROAD)

# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0404: DRY DOCK 1 EAST / BUILDING 24 ACCESS ROAD

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM ROUTE 0010 (FIRST AVENUE)
0.000	0.000	INTERSECTION	LEFT	ROUTE 0010 (FIRST AVENUE)
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0010 (FIRST AVENUE)
0.008	0.018	CURB	LEFT	N/A
0.009	0.009	DROP INLET	N/A	N/A
0.014	0.014	RAILROAD CROSSING	N/A	N/A
0.018	0.018	INTERSECTION	RIGHT	ROUTE 0014 (DRY DOCK WEST)
0.027	0.027	DROP INLET	N/A	N/A
0.033	0.033	INTERSECTION	LEFT	ROUTE 0105 (DRY DOCK 1 AND 2 CONNECTOR ROAD)
0.041	0.041	DROP INLET	N/A	N/A
0.057	0.057	DROP INLET	N/A	N/A
0.063	0.063	INTERSECTION	LEFT	ROUTE 0909 (DRY DOCK 1 EAST PARKING)
0.069	0.069	DROP INLET	N/A	N/A
0.081	0.081	DROP INLET	N/A	N/A
0.086	0.086	RAILROAD CROSSING	N/A	N/A
0.091	0.091	INTERSECTION	N/A	END OF PIER 2
0.091	0.091	ROUTE END	N/A	TO END AT DRY DOCK 1 / PIER 2



# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0600: FIFTH STREET

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM CHELSEA STREET
0.000	0.000	TRAFFIC LIGHT	N/A	X3
0.000	0.000	INTERSECTION	LEFT	PAVED ROUTE (CHELSEA STREET / NON NPS)
0.000	0.000	INTERSECTION	RIGHT	PAVED ROUTE (CHELSEA STREET / NON NPS)
0.000	0.000	SIGN	N/A	GUIDE, UNABLE TO READ FROM VIDEO
0.000	0.000	SIGN	N/A	REGULATORY, UNABLE TO READ FROM VIDEO
0.000	0.000	TRAFFIC LIGHT	N/A	X3
0.003	0.044	CURB	LEFT	N/A
0.003	0.044	CURB	RIGHT	N/A
0.004	0.041	GUARD/GUIDE WALL	RIGHT	N/A
0.010	0.010	SIGN	RIGHT	REGULATORY, 93 NO STANDING TOW ZONE
0.018	0.018	SIGN	LEFT	REGULATORY, TOW ZONE NO STOPPING ANY TIME
0.026	0.026	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
0.026	0.026	SIGN	RIGHT	REGULATORY, TOW ZONE NO STOPPING ANY TIME
0.037	0.037	DROP INLET	LEFT	N/A
0.037	0.037	DROP INLET	RIGHT	N/A
0.040	0.040	SIGN	LEFT	GUIDE, 2ND AVE
0.046	0.046	INTERSECTION	RIGHT	ROUTE 0012 (SECOND AVENUE)
0.047	0.068	CURB	LEFT	N/A
0.048	0.070	CURB	RIGHT	N/A
0.053	0.053	SIGN	LEFT	REGULATORY, TOW ZONE NO STOPPING ANY TIME
0.059	0.059	SIGN	RIGHT	REGULATORY, TOW ZONE NO STOPPING ANY TIME
0.063	0.063	SIGN	RIGHT	REGULATORY, VETERANS MEMORIAL
0.063	0.063	SIGN	RIGHT	GUIDE, UNABLE TO READ FROM VIDEO
0.066	0.066	SIGN	RIGHT	REGULATORY, STOP
0.067	0.067	DROP INLET	LEFT	N/A
0.067	0.067	DROP INLET	RIGHT	N/A
0.075	0.075	INTERSECTION	LEFT	PAVED ROUTE (FIRST AVENUE / NON NPS)
0.075	0.075	SIGN	RIGHT	GUIDE, CHARLESTOWN NAVY YARD BOSTON NATIONAL HISTORICAL PARK

# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0600: FIFTH STREET

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

<b>FROM MILEPOST</b>	<b>TO MILEPOST</b>	<b>FEATURE</b>	<b>SIDE</b>	<b>COMMENT</b>
0.075	0.075	SIGN	LEFT	GUIDE, UNABLE TO READ FROM VIDEO
0.075	0.075	SIGN	LEFT	GUIDE, UNABLE TO READ FROM VIDEO
0.075	0.075	SIGN	LEFT	GUIDE, UNABLE TO READ FROM VIDEO
0.075	0.075	INTERSECTION	N/A	ROUTE 0103 (BAXTER ROAD)
0.075	0.075	INTERSECTION	RIGHT	ROUTE 0010 (FIRST AVENUE)
0.075	0.075	ROUTE END	N/A	TO INTERSECTION OF ROUTES 0010 (FIRST AVENUE) AND 0103 (BAXTER ROAD)

# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0601: MONUMENT SQUARE

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.000	0.000	ROUTE BEGIN	N/A	FROM END OF LEXINGTON STREET
0.000	0.000	INTERSECTION	RIGHT	ROUTE 0601 (MONUMENT SQUARE)
0.000	0.000	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING
0.000	0.000	INTERSECTION	N/A	PAVED ROUTE (LEXINGTON STREET / NON NPS)
0.000	0.000	INTERSECTION	LEFT	PAVED ROUTE (TREMONT STREET / NON NPS)
0.000	0.000	SIGN	LEFT	REGULATORY, STREET CLEANING
0.004	0.038	CURB	LEFT	N/A
0.004	0.336	CURB	RIGHT	N/A
0.006	0.006	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.006	0.006	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.013	0.013	SIGN	RIGHT	REGULATORY, CHARLESTOWN PARKING 2 HOUR LIMIT
0.019	0.019	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.021	0.021	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.029	0.029	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.031	0.031	SIGN	RIGHT	WARNING, DRIVE SLOW
0.034	0.034	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.036	0.036	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.036	0.036	SIGN	RIGHT	GUIDE, BUNKER HILL MONUMENT BOSTON NATIONAL HISTORICAL PARK
0.037	0.037	SIGN	LEFT	GUIDE, CHESTNUT ST.
0.040	0.040	INTERSECTION	LEFT	PAVED ROUTE (CHESTNUT STREET / NON NPS)
0.040	0.040	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.040	0.043	GUARD/GUIDE WALL	RIGHT	N/A
0.041	0.087	CURB	LEFT	N/A
0.045	0.045	SIGN	RIGHT	GUIDE, PARK REGULATIONS
0.046	0.046	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.049	0.049	SIGN	RIGHT	REGULATORY, CHARLESTOWN PARKING 2 HOUR LIMIT
0.060	0.060	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.061	0.061	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.066	0.066	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO

# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0601: MONUMENT SQUARE

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.071	0.071	SIGN	RIGHT	REGULATORY, CHARLESTOWN PARKING 2 HOUR LIMIT
0.078	0.078	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING ONLY
0.080	0.080	SIGN	RIGHT	REGULATORY, UNABLE TO READ FROM VIDEO
0.080	0.080	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
0.088	0.088	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.088	0.088	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.089	0.089	INTERSECTION	LEFT	PAVED ROUTE (WINTHROP STREET / NON NPS)
0.090	0.097	CURB	LEFT	N/A
0.091	0.091	SIGN	LEFT	GUIDE, MONUMENT
0.091	0.091	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.091	0.091	SIGN	LEFT	WARNING, OR BUSES
0.091	0.091	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.092	0.092	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.092	0.092	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.094	0.094	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.098	0.098	SIGN	RIGHT	REGULATORY, CHARLESTOWN PARKING 2 HOUR LIMIT
0.100	0.100	INTERSECTION	LEFT	PAVED ROUTE (SOLEY STREET / NON NPS)
0.100	0.100	SIGN	LEFT	GUIDE, UNABLE TO READ FROM VIDEO
0.100	0.100	SIGN	LEFT	REGULATORY, CHARLESTOWN
0.102	0.125	CURB	LEFT	N/A
0.105	0.105	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING
0.105	0.105	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.114	0.114	SIGN	RIGHT	REGULATORY, CHARLESTOWN PARKING 2 HOUR LIMIT
0.125	0.125	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.125	0.125	SIGN	RIGHT	REGULATORY, UNABLE TO READ FROM VIDEO
0.125	0.125	SIGN	LEFT	REGULATORY, STREET CLEANING
0.125	0.125	SIGN	RIGHT	GUIDE, BUNKER HILL MONUMENT BOSTON NATIONAL HISTORICAL PARK
0.126	0.126	SIGN	LEFT	GUIDE, MONUMENT SQ



# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0601: MONUMENT SQUARE

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.126	0.126	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING ONLY
0.126	0.126	SIGN	LEFT	GUIDE, MONUMENT AVE
0.127	0.127	INTERSECTION	LEFT	PAVED ROUTE (MONUMENT AVENUE / NON NPS)
0.127	0.127	SIGN	LEFT	REGULATORY, ONE WAY
0.128	0.136	GUARD/GUIDE WALL	RIGHT	N/A
0.130	0.165	CURB	LEFT	N/A
0.132	0.132	SIGN	RIGHT	REGULATORY, UNABLE TO READ FROM VIDEO
0.134	0.134	SIGN	LEFT	REGULATORY, STOP
0.134	0.134	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING
0.138	0.138	SIGN	RIGHT	GUIDE, PARK REGULATIONS
0.141	0.141	SIGN	LEFT	REGULATORY, STREET CLEANING
0.144	0.144	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.151	0.151	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING
0.152	0.152	SIGN	RIGHT	REGULATORY, CHARLESTOWN PARKING 2 HOUR LIMIT
0.164	0.164	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
0.164	0.164	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING
0.164	0.164	SIGN	LEFT	REGULATORY, CHARLESTOWN
0.165	0.165	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.172	0.172	INTERSECTION	LEFT	PAVED ROUTE (HIGH STREET / NON NPS)
0.172	0.172	SIGN	LEFT	REGULATORY, STREET CLEANING
0.172	0.172	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.172	0.172	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING
0.172	0.172	INTERSECTION	LEFT	PAVED ROUTE (PLEASANT STREET / NON NPS)
0.174	0.174	SIGN	LEFT	GUIDE, MONUMENT SQ
0.175	0.175	SIGN	LEFT	REGULATORY, STOP
0.186	0.186	SIGN	LEFT	REGULATORY, STREET CLEANING
0.186	0.186	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING
0.187	0.187	SIGN	RIGHT	REGULATORY, CHARLESTOWN PARKING 2 HOUR LIMIT
0.193	0.193	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING ONLY 8:00AM-8:00PM MON-FRI

# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0601: MONUMENT SQUARE

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.196	0.196	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.204	0.204	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.206	0.206	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.210	0.210	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING ONLY 8:00AM-8:00PM MON-FRI
0.211	0.211	SIGN	RIGHT	GUIDE, BUNKER HILL MONUMENT BOSTON NATIONAL HISTORICAL PARK
0.212	0.212	SIGN	LEFT	REGULATORY, DO NOT ENTER
0.213	0.213	SIGN	RIGHT	REGULATORY, CHARLESTOWN PARKING 2 HOUR LIMIT
0.214	0.214	INTERSECTION	LEFT	PAVED ROUTE (LAUREL STREET / NON NPS)
0.214	0.220	GUARD/GUIDE WALL	RIGHT	N/A
0.216	0.216	SIGN	LEFT	REGULATORY, DO NOT ENTER
0.216	0.216	SIGN	LEFT	GUIDE, LAUREL ST
0.216	0.216	SIGN	LEFT	GUIDE, MONUMENT
0.216	0.253	CURB	LEFT	N/A
0.216	0.216	SIGN	LEFT	REGULATORY, ONE WAY
0.220	0.220	SIGN	LEFT	REGULATORY, STREET CLEANING
0.221	0.221	SIGN	RIGHT	GUIDE, PARK REGULATIONS
0.224	0.224	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.231	0.231	SIGN	LEFT	REGULATORY, STREET CLEANING
0.232	0.232	SIGN	RIGHT	REGULATORY, CHARLESTOWN PARKING 2 HOUR LIMIT
0.242	0.242	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.243	0.243	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.246	0.246	SIGN	RIGHT	REGULATORY, CHARLESTOWN PARKING 2 HOUR LIMIT
0.250	0.250	SIGN	LEFT	REGULATORY, STREET CLEANING
0.251	0.251	SIGN	RIGHT	REGULATORY, TOW ZONE NO STOPPING ANY TIME
0.256	0.256	SIGN	RIGHT	GUIDE, MONUMENT SQ
0.258	0.296	CURB	LEFT	N/A
0.258	0.258	INTERSECTION	LEFT	PAVED ROUTE (BARTLETT STREET / NON NPS)
0.258	0.258	INTERSECTION	LEFT	PAVED ROUTE (CONCORD STREET / NON NPS)
0.259	0.259	SIGN	LEFT	REGULATORY, STREET CLEANING

# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0601: MONUMENT SQUARE

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

FROM MILEPOST	TO MILEPOST	FEATURE	SIDE	COMMENT
0.261	0.261	SIGN	LEFT	GUIDE, CONCORD ST
0.264	0.264	SIGN	LEFT	REGULATORY, STOP
0.267	0.267	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING ONLY 8:00AM-8:00PM MON-FRI
0.275	0.275	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.277	0.277	SIGN	LEFT	REGULATORY, STREET CLEANING
0.284	0.284	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.286	0.286	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING ONLY
0.286	0.286	SIGN	LEFT	REGULATORY, STREET CLEANING
0.294	0.294	SIGN	RIGHT	WARNING, GRAPHIC SIGN NO TEXT
0.295	0.295	SIGN	LEFT	GUIDE, MONUMENT ST
0.295	0.295	SIGN	LEFT	WARNING, DRIVE SLOW
0.295	0.295	SIGN	LEFT	GUIDE, MONUMENT ST
0.296	0.296	SIGN	RIGHT	GUIDE, BUNKER HILL MONUMENT BOSTON NATIONAL HISTORICAL PARK
0.297	0.301	GUARD/GUIDE WALL	RIGHT	N/A
0.299	0.299	INTERSECTION	LEFT	PAVED ROUTE (MONUMENT STREET / NON NPS)
0.301	0.301	SIGN	RIGHT	REGULATORY, CHARLESTOWN PARKING 2 HOUR LIMIT
0.301	0.336	CURB	LEFT	N/A
0.304	0.304	SIGN	RIGHT	GUIDE, PARK REGULATIONS
0.307	0.307	SIGN	LEFT	REGULATORY, CHARLESTOWN RESIDENT PERMIT PARKING ONLY 8:00AM-8:00PM MON-FRI
0.307	0.307	SIGN	LEFT	WARNING, GRAPHIC SIGN NO TEXT
0.314	0.314	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.316	0.316	SIGN	LEFT	REGULATORY, UNABLE TO READ FROM VIDEO
0.324	0.324	SIGN	RIGHT	REGULATORY, CHARLESTOWN PARKING 2 HOUR LIMIT
0.331	0.331	SIGN	LEFT	REGULATORY, CHARLESTOWN
0.331	0.331	SIGN	RIGHT	REGULATORY, STREET CLEANING
0.334	0.334	SIGN	RIGHT	REGULATORY, STOP
0.339	0.339	INTERSECTION	LEFT	PAVED ROUTE (LEXINGTON STREET / NON NPS)

# BOST: ROUTE MAINTENANCE FEATURES ROAD LOG

## ROUTE 0601: MONUMENT SQUARE

**Notice:** Culverts and drop inlets were marked by NPS and inventoried by RIP in Cycle 5 on all paved routes.

<b>FROM MILEPOST</b>	<b>TO MILEPOST</b>	<b>FEATURE</b>	<b>SIDE</b>	<b>COMMENT</b>
0.339	0.339	INTERSECTION	N/A	PAVED ROUTE (TREMONT STREET / NON NPS)
0.339	0.339	INTERSECTION	RIGHT	ROUTE 0601 (MONUMENT SQUARE)
0.339	0.339	ROUTE END	N/A	TO END OF TREMONT STREET



# Section 10 Appendix



## Boston National Historical Park



Federal Lands Highway  
Road Inventory Program

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

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

In an effort to improve the accuracy of treatment recommendations and pavement condition descriptions in relation to the distresses and indexes that comprise the Pavement Condition Rating (PCR), an extensive study was completed throughout 2010 that resulted in changes to the Road Inventory Program condition reporting method and specifically, the calculation of PCR. It was determined that a better representation of PCR could be achieved by modifying the relative impact certain distresses would have on the overall rating.

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

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

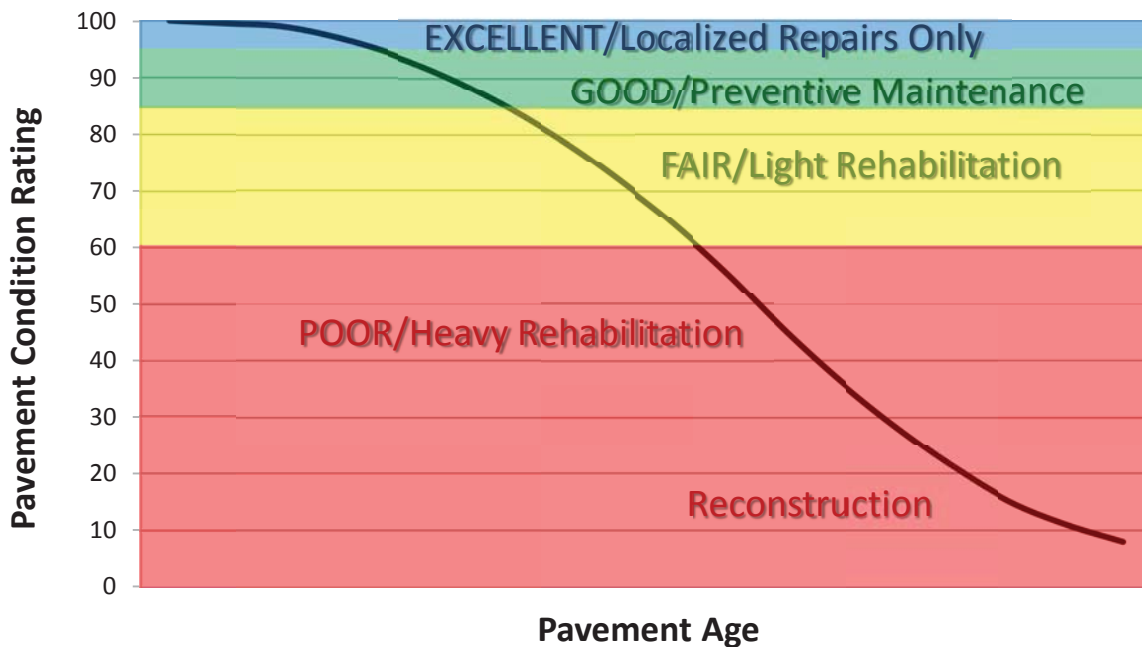
# Explanation of the Excellent, Good, Fair and Poor Condition Descriptions

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

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

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

## Condition Categories and Treatments



## DESCRIPTION OF RATING SYSTEM

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The Federal Highway Administration (FHWA), National Park Service Road Inventory Program (NPS-RIP), collects condition data on paved roads, parkways, and parking areas in park units nationwide. Road surface condition data is collected using an automated Data Collection Vehicle (DCV). Roads having brick, cobblestone, or wood surfaces are not normally surveyed with the DCV, but are manually rated for the purpose of assigning a condition rating. Unpaved roads, parkways, and parking areas are not currently being evaluated for condition. Paved campground pads and driveways are also not currently being evaluated for condition.

The FHWA RIP is implemented based on the premise that an accurate pavement surface condition assessment can be accomplished using automated crack detection technology as applied to digital images. Various methods of pavement condition assessment have been developed over the years with varying degrees of accuracy and acceptance. The use of digital photography to record pavement images and subsequent crack detection and classification has undergone continuous improvements over the past decade. Digital cameras with increasingly superior resolution and high definition have become more affordable, and the proprietary programming code and algorithms have been improved in crack detection software.

With the use of high quality digital photography and automated crack detection software, FHWA RIP is tasked with executing a pavement condition assessment on about 5000 miles of National Park Service roads and parkways. Foremost in setting up the basis of pavement distress identification is employing the distress identification protocols used by FHWA. There is no single distress identification system that is universal among entities conducting a program of distress identification. For the purpose of the NPS-RIP, FHWA employs distress identification protocols that are specific to this program.

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

In 2010, FHWA RIP began the fifth cycle of data collection in national parks. For Cycle 5, data will be collected in approximately 81 large parks (10 or more paved route miles) on Functional Class 1, 2, and 7 routes plus any new routes or parking areas previously not collected, totaling an estimated 4,459 paved route miles. Additionally, 231 small parks will be collected comprising approximately 529 paved route miles and associated paved parking areas. The data is used to support the National Park Service road maintenance program and Pavement Management System (PMS) developed and maintained by FHWA.



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

# **SURFACE DISTRESSES**

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## **Surface Condition Rating - SCR**

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

### **Surface distresses determined from digital images**

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

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

- Rutting

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

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

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

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

## **Roughness Condition Index - RCI**

### **Additional condition data measured by DCV (lasers and accelerometers)**

- Roughness (IRI)

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

## **Pavement Condition Rating - PCR**

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

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

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

A detailed description of each distress index formula, roughness index formula, SCR and PCR is provided in this document beginning on page 8.

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

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

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

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

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

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

**TABLE 1: Distress Summary**

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

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

# **ALLIGATOR CRACKING**

## **Description**

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

## **Severity Levels**

### **LOW**

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

### **MEDIUM**

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

### **HIGH**

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

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

**TABLE 2: Alligator Crack Severity Levels**

<b>ALLIGATOR CRACKING SEVERITY LEVELS</b>		<b>Crack Pattern</b>		
		<b>LOW</b>	<b>MED</b>	<b>HIGH</b>
<b>Crack Width</b>	<b>LOW</b>	L	M	H
	<b>MED</b>	M	M	H
	<b>HI</b>	H	H	H



## **LONGITUDINAL CRACKING**

### **Description**

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

### **Severity Levels**

#### **LOW**

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

#### **MED**

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

#### **HIGH**

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

## **TRANSVERSE CRACKING**

### **Description**

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

### **Severity Levels**

#### **LOW**

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

#### **MED**

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

#### **HIGH**

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

## **PATCHING AND POTHOLES**

### **Description**

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

Potholes are bowl-shaped holes of various sizes occurring in the pavement surface.

### **Severity Levels**

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

## **RUTTING**

### **Description**

Rutting is a longitudinal surface depression in the wheelpath.

### **Severity Levels**

#### **LOW**

Ruts with a measured depth  $\geq 0.20''$  and  $\leq 0.49''$

#### **MED**

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

#### **HIGH**

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

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

## **ROUGHNESS**

### **Description**

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

### **Severity Levels**

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

**TABLE 3: IRI**

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

## INDEX FORMULAS

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

### Alligator Crack Index

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

Where:

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

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

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

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

Percent of total area is computed as:

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

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

### Longitudinal Crack Index

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

Where:

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

These values are  $\geq 0$  and can exceed 100.

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

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

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

Percent of interval length is computed as:

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

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

### **Structural Crack Index**

$$SC\_INDEX = [100 - ((100 - AC\_INDEX) + (100 - LC\_INDEX))]$$

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

### **Transverse Crack Index**

$$TC\_INDEX = 100 - 40 * [(LOW / 21.1) + (MED / 4.4) + (HI / 2.6)]$$

Where:

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

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

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

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

Number of cracks is computed as:

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

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



## **Patching Index**

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

Where:

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

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

Percent of total area is computed as:

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

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

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

## **Rutting Index**

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

Where:

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

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

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

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

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

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

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

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

### **Roughness Condition Index (Asphalt)**

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

Where:

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

Average IRI is computed as:

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

There is no applicable threshold for failure for this index.

### **Roughness Condition Index (Concrete)**

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

For concrete, PCR = RCI

### **Surface Condition Rating Index**

**SCR** = *Lowest* Index Value Of: [SC\_INDEX, TC\_INDEX, PATCH\_INDEX, RUT\_INDEX]

*Note: The modified SCR equation above combines AC\_INDEX and LC\_INDEX, and considers that a single AC/LC index value of the Structural Crack Index (SC\_INDEX). The lowest of the four computed index values (SC\_INDEX, TC\_INDEX, PATCH\_INDEX, or RUT\_INDEX) becomes the SCR.*

Where:

See above for determinations of SC\_INDEX, TC\_INDEX, PATCH\_INDEX and RUT\_INDEX.

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

## Data Collection Vehicle Subsystems

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

### CAMERAS

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

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

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

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

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

### **DMI (Distance Measuring Instrument)**

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

### **ROUGHNESS (IRI)**

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

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

### **RUTTING**

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

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

## **GPS & INERTIAL SYSTEMS**

GPS is collected by an onboard system employing OmniSTAR real-time correction and a gyroscope (spin-type) to provide accurate positioning data (pitch/roll/heading) in instances of satellite obstruction. All GPS coordinates are tied to image and linear distance measurements.

<b>GPS SPECIFICATIONS</b>	
Static accuracy	Sub-meter
Dynamic accuracy	2-3 meters
Receiver	12 satellite tracking
Coordinate system	Lat Lon WGS 84
Environment	Day or night
Cross-slope	+ - 0.5 degrees
Grade	+ - 0.5 degrees

### **GPS on Manually Rated Roads (MRR)**

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



## Geodatabase – Background and Metadata

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

## **GLOSSARY OF TERMS AND ABBREVIATIONS**

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