



# The Road Inventory of Richmond National Battlefield Park RICH - 4800



**national park service**

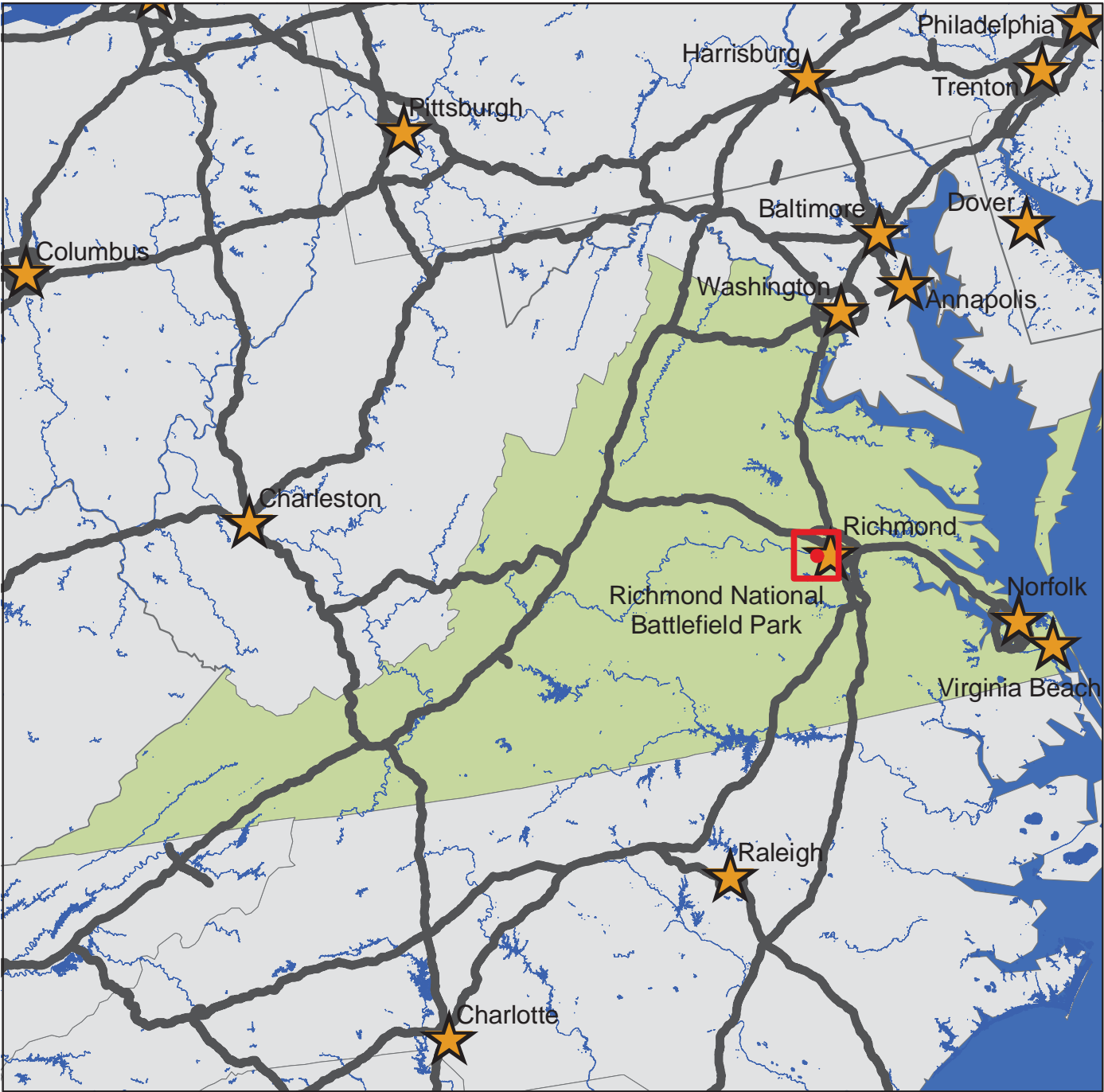


## Road Inventory Program

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



# Richmond National Battlefield Park in Virginia





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## INTRODUCTION

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

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

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

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

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

In 1998, the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) amended Title 23 U.S.C., and inserted Section 204(a)(6) which requires the Federal Highway Administration and the National Park Service, to develop, by rule, a Pavement Management System (PMS) for the park roads and parkways serving the National Park System. As a result of the requirements in TEA-21, the NPS and the FHWA are in the process of developing a PMS. The PMS will assist the decision-makers in effectively spending limited PRP Program funds. The PMS will provide information for planning and programming road maintenance, rehabilitation, and reconstruction activities. RIP data will provide the basic information for this system.

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

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

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

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

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

FHWA RIP Coordinator:

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# Richmond National Battlefield Park Summaries

## Overall Park Mileage Summary

| <b>PARK TOTAL SUMMARY ITEMS</b>    | <b>TOTAL</b> | <b>DATE</b> |
|------------------------------------|--------------|-------------|
| Paved ARAN Driven Route Miles      | 8.69         | 4/11/2002   |
| Unpaved Estimated Route Miles      | 0.64         | 4/11/2002   |
| Paved ARAN and Unpaved Route Miles | 9.33         |             |
| Paved ARAN Driven Lane Miles       | 15.57        | 4/11/2002   |
| Paved MRR Lane Miles               | 0.00         |             |
| Parking Lot Lane Miles             | 3.81         | 4/11/2002   |
| Total Paved Lane Miles             | 19.38        |             |

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

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

## Richmond National Battlefield Park Summaries

### Cost to Improve to "Excellent" Condition

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

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

| Existing Condition | Existing Miles | Estimated Cost to Improve |
|--------------------|----------------|---------------------------|
| Excellent          | 0.14           | \$4,200                   |
| Good               | 0.42           | \$46,200                  |
| Fair               | 3.26           | \$1,825,600               |
| Poor               | 4.87           | \$7,499,800               |
| <b>Totals</b>      | <b>8.69</b>    | <b>\$9,375,800</b>        |

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

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

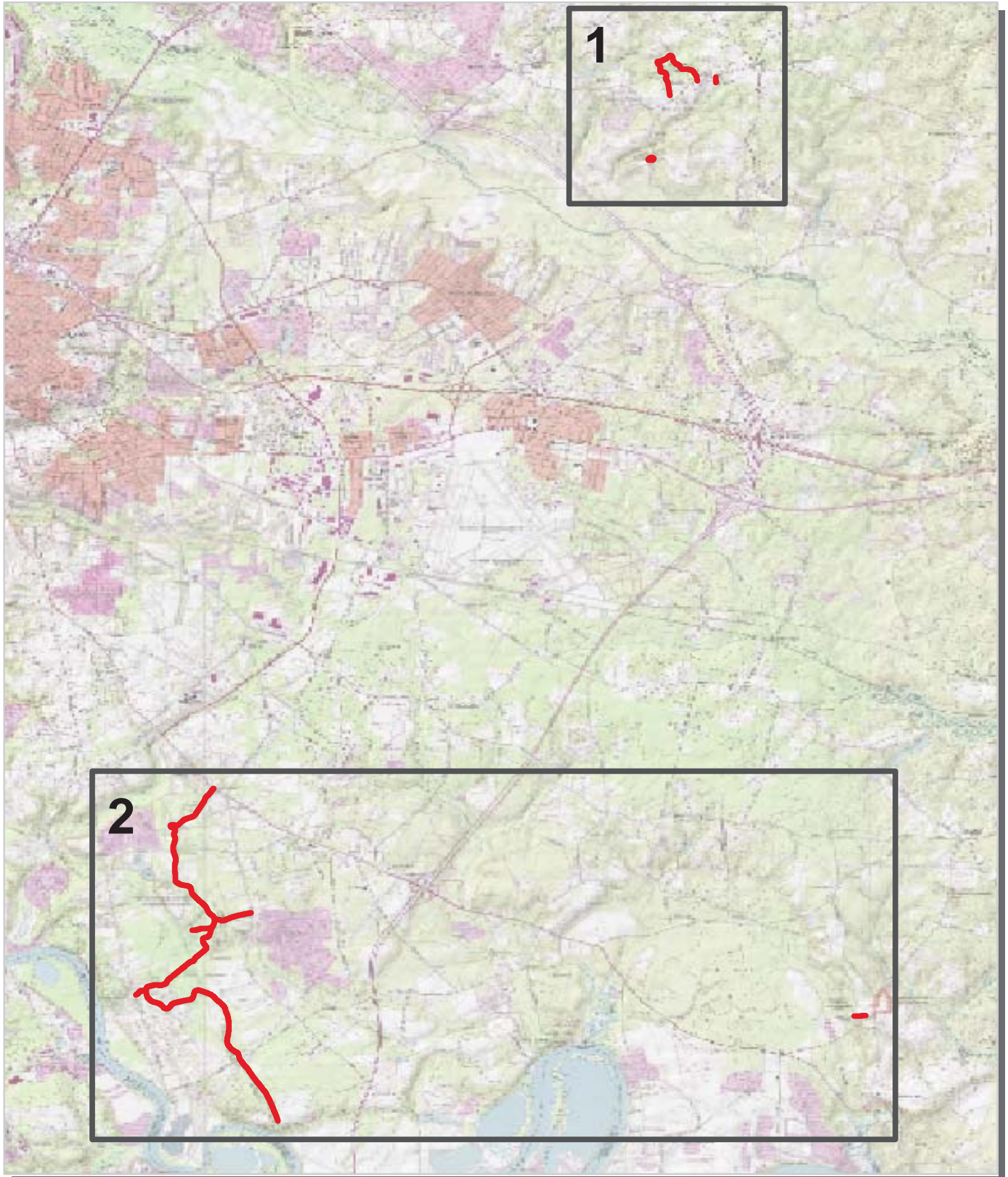
## Richmond National Battlefield Park Summaries

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

| F.C.          | Pavement Condition Rating |               |              |               |              |              |                    |              | TOTAL<br>MILES |
|---------------|---------------------------|---------------|--------------|---------------|--------------|--------------|--------------------|--------------|----------------|
|               | Poor (<=60)               |               | Fair (61-84) |               | Good (85-94) |              | Excellent (95-100) |              |                |
|               | MILES                     | %             | MILES        | %             | MILES        | %            | MILES              | %            |                |
| 1             |                           |               |              |               |              |              |                    |              |                |
| 2             |                           |               |              |               |              |              |                    |              |                |
| 3             | 4.36                      | 50.17%        | 3.26         | 37.51%        | 0.42         | 4.83%        | 0.14               | 1.61%        | 8.18           |
| 4             |                           |               |              |               |              |              |                    |              |                |
| 5             | 0.22                      | 2.53%         |              |               |              |              |                    |              | 0.22           |
| 6             | 0.29                      | 3.34%         |              |               |              |              |                    |              | 0.29           |
| 7             |                           |               |              |               |              |              |                    |              |                |
| 8             |                           |               |              |               |              |              |                    |              |                |
| <b>Totals</b> | <b>4.87</b>               | <b>56.04%</b> | <b>3.26</b>  | <b>37.51%</b> | <b>0.42</b>  | <b>4.83%</b> | <b>0.14</b>        | <b>1.61%</b> | <b>8.69</b>    |



# Richmond National Battlefield Park Route Location Key Map



— Park Owned Routes



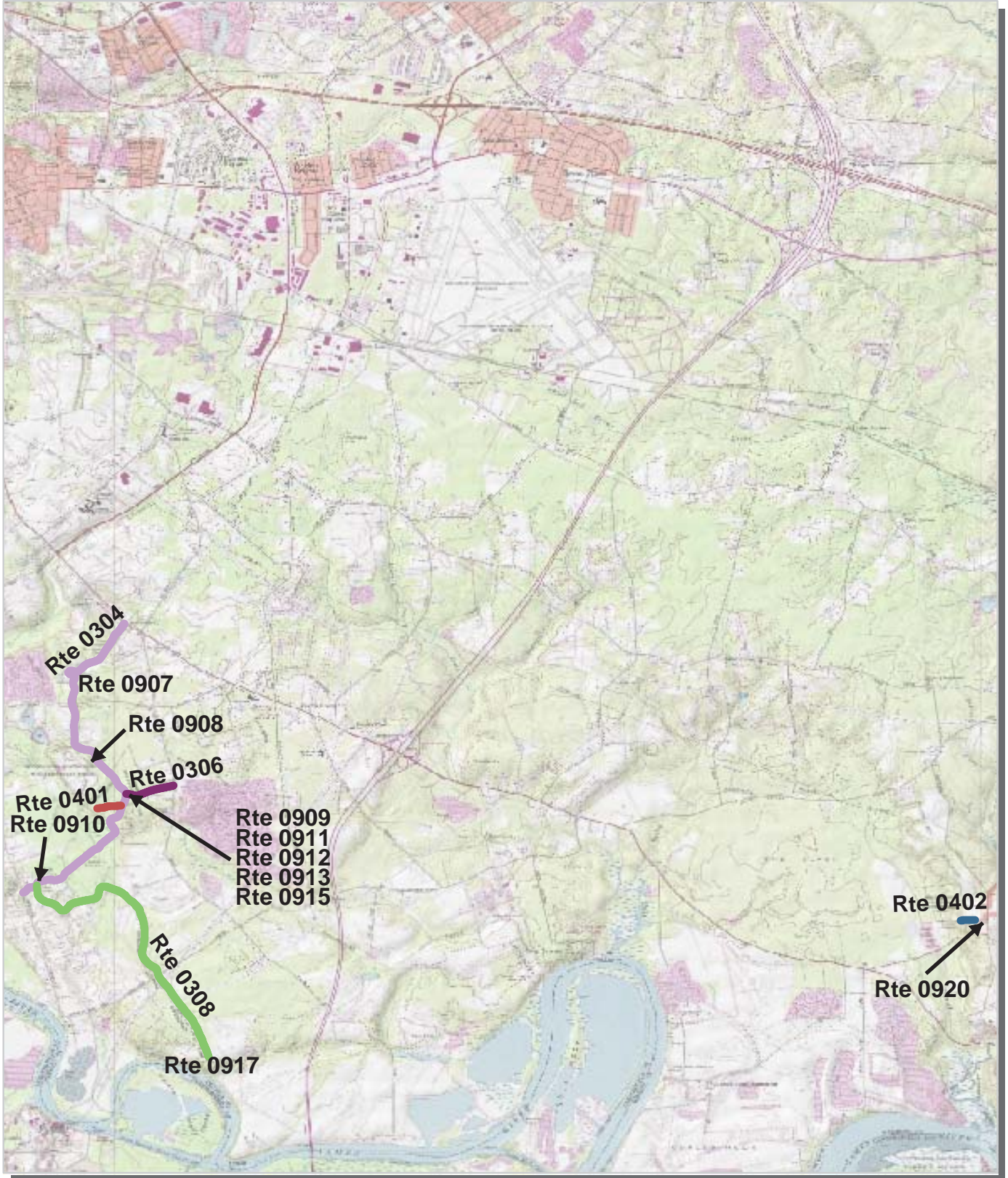
# Richmond National Battlefield Park Route Location Area Map 1



Unique colors used to differentiate routes



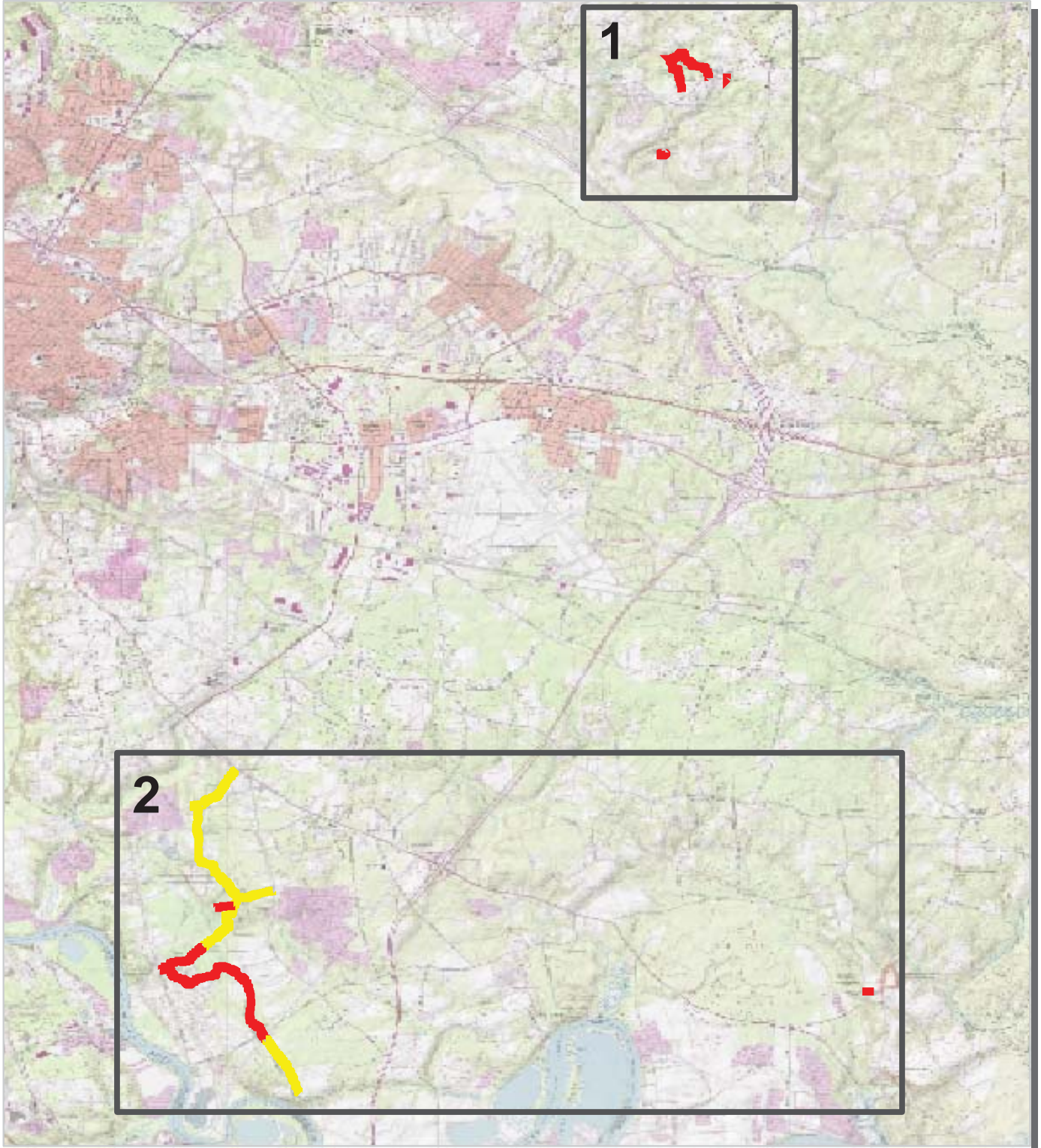
# Richmond National Battlefield Park Route Location Area Map 2







Unique colors used to differentiate routes



# Richmond National Battlefield Park Route Condition Key Map PCR - Mile by Mile

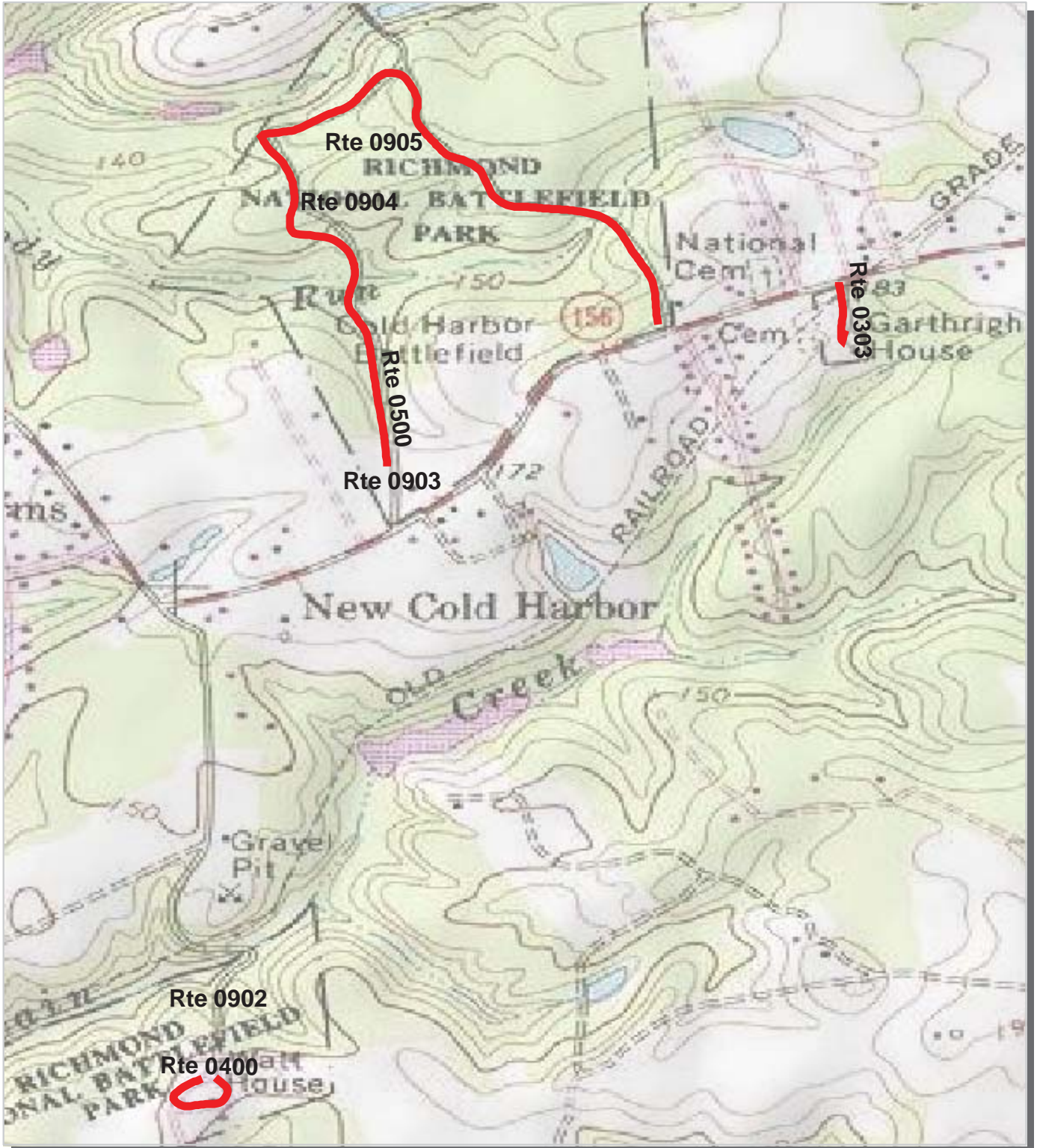


|     |      |   |      |   |      |  |           |   |
|-----|------|---|------|---|------|--|-----------|---|
| PCR | Poor |  | Fair |  | Good |  | Excellent |  |
|     |      | (<=60)  |      | (61 - 84)   |      | (85 - 94)  |           | (95 - 100)  |

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

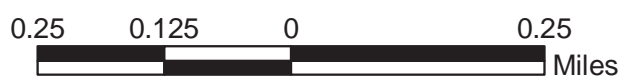


# Richmond National Battlefield Park Route Condition Area Map 1 PCR - Mile by Mile



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

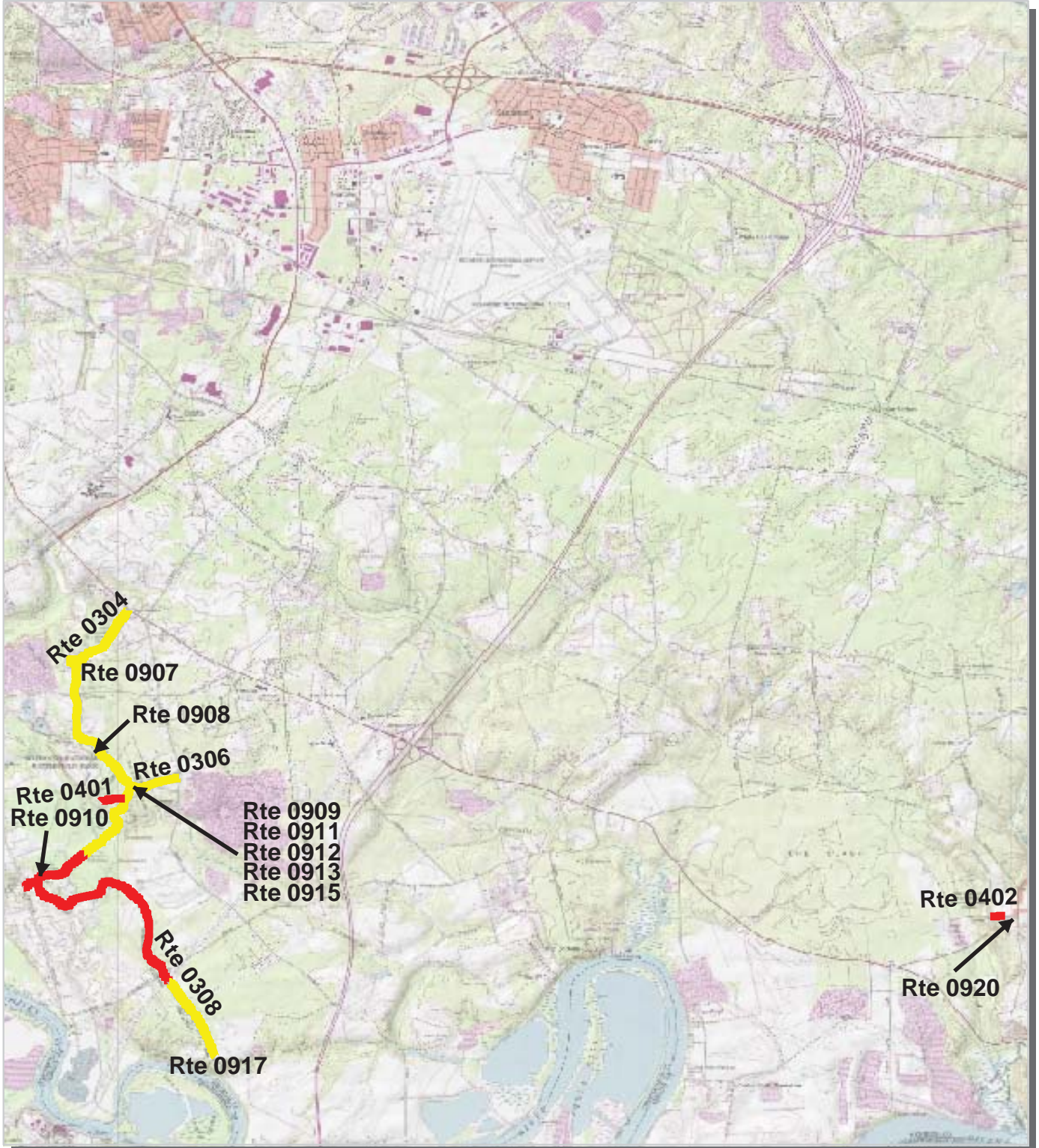
\* If the PCR rating is not available for a section, the SCR rating will be displayed. See appendix for definitions and formulas.



# Richmond National Battlefield Park

## Route Condition Area Map 2

### PCR - Mile by Mile



|     |      |                                    |      |                                       |      |                                      |           |                                     |
|-----|------|------------------------------------|------|---------------------------------------|------|--------------------------------------|-----------|-------------------------------------|
| 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> |
|     |      | (<=60)                             |      | (61 - 84)                             |      | (85 - 94)                            |           | (95 - 100)                          |

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



# NPS/RIP Route ID Report

(Numerical By Route #)

Shading Color Key:  
Red text denotes approx. mileage

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

## RICH

Richmond National Battlefield Park

| Rte. # | FMSS Asset # | Route Name                                 | Route Description             |                     | Paved Miles | Un-Paved Miles | Rte. Lgth | Func. Class | Rte. Lanes | Manual Rated SQ/FT | Surf. Type |
|--------|--------------|--|-------------------------------|---------------------|-------------|----------------|-----------|-------------|------------|--------------------|------------|
|        |              |  | From                          | To                  |             |                |           |             |            |                    |            |
| 0303   | 15917        | GARTHRIGHT HOUSE ROAD                      | From State Route 156          | To End of Loop      | 0.12        | 0.00           | 0.12      | 3           | 1          | 0                  | OC         |
| 0304   | 15925        | BATTLEFIELD PARK ROAD                      | From New Market Road          | To Osborne Turnpike | 3.64        | 0.00           | 3.64      | 3           | 2          | 0                  | AS         |
| 0306   | 21551        | PICNIC ROAD                                | From Route 0304               | To Varina Road      | 0.41        | 0.00           | 0.41      | 3           | 2          | 0                  | AS         |
| 0308   | 21135        | HOKE BRADY ROAD                            | From Route 0304               | To Route 0917       | 2.83        | 0.00           | 2.83      | 3           | 2          | 0                  | OC         |
| 0400   |              | WATT HOUSE LOOP ROAD                       | From Route 0902               | To Route 0902       | 0.15        | 0.00           | 0.15      | 6           | 1          | 0                  | OC         |
| 0401   | 21694        | MAINTENANCE WAY                            | From Route 0304               | To End              | 0.22        | 0.00           | 0.22      | 5           | 1          | 0                  | OC         |
| 0402   | 21710        | MALVERN HILL RESIDENCE ROAD                | From Route 0920               | To Park Boundary    | 0.14        | 0.00           | 0.14      | 6           | 1          | 0                  | OC         |
| 0404   |              | COLD HARBOR RESIDENCE ROAD                 | From Route 0500               | To Park Boundary    | 0.00        | 0.01           | 0.01      | 3           | 1          | 0                  | GR         |
| 0405   | 21553        | FORT HARRISON SERVICE ROAD                 | From Route 0306               | To End              | 0.00        | 0.25           | 0.25      | 6           | 1          | 0                  | GR         |
| 0407   | 21702        | WATER TOWER ROAD                           | From Route 0401               | To Route 0401       | 0.00        | 0.25           | 0.25      | 6           | 1          | 0                  | GR         |
| 0500   | 15098        | COLD HARBOR ROAD                           | From Route 0903               | To State Route 156  | 1.18        | 0.00           | 1.18      | 3           | 1          | 0                  | OC         |
| 0700   | 15505        | CH - RESIDENCE ROAD                        | From                          | To                  | 0.00        | 0.13           | 0.13      | ZZ          |            | 0                  | GR         |
| 0900   |              | CHICKAHOMINY BLUFFS PARKING                | From US Highway 360           | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 24,752             | OC         |
| 0901A  |              | BEAVER DAM CREEK PARKING AREA A            | From State Route 156          | To End of Pavement  | 0.00        | 0.00           | 0.00      | 9           | 0          | 23,305             | AS         |
| 0901B  |              | BEAVER DAM CREEK PARKING AREA B            | From Route 0901A              | To Route 0901A      | 0.00        | 0.00           | 0.00      | 9           | 0          | 4,792              | OC         |
| 0902   |              | WATT HOUSE PARKING                         | From Park Boundary            | To End of Loop      | 0.00        | 0.00           | 0.00      | 9           | 0          | 19,016             | OC         |
| 0903   | 15465        | COLD HARBOR VISITOR CENTER PARKING         | From State Route 156          | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 10,550             | OC         |
| 0904   |              | CONFEDERATE TURNOUT                        | From Route 0500               | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 1,553              | OC         |
| 0905   |              | UNION TURNOUT                              | From Route 0500               | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 4,435              | OC         |
| 0906   | 21726        | CHIMBORAZO VISITOR CENTER EMPLOYEE PARKING | From 33rd Street Parking Area | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 4,673              | AS         |
| 0907   | 22728        | FORT GILMER PARKING                        | From Route 0304               | To Route 0304       | 0.00        | 0.00           | 0.00      | 9           | 0          | 5,904              | OC         |
| 0908   | 22729        | FORT JOHNSON PARKING                       | From Route 0304               | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 4,232              | OC         |
| 0909   | 21552        | FORT HARRISON PARKING                      | From Route 0304               | To Route 0304       | 0.00        | 0.00           | 0.00      | 9           | 0          | 24,612             | OC         |
| 0910   | 22731        | FORT HOKE PARKING                          | From Route 0304               | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 3,788              | OC         |
| 0911   |              | PICNIC AREA PARKING                        | From Route 0306               | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 5,646              | OC         |
| 0912   |              | PICNIC AREA BUS AND RV PARKING             | From Route 0306               | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 2,019              | OC         |
| 0913   |              | MAINTENANCE AREA                           | From Route 0401               | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 9,616              | OC         |
| 0914   |              | MAINTENANCE AREA PARKING                   | From Route 0401               | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 800                | GR         |
| 0915   |              | FORT HARRISON RANGER PARKING               | From Route 0401               | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 1,604              | AS         |
| 0916   | 21557        | FORT HARRISON RANGER VISITOR PARKING       | From Route 0401               | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 400                | OT         |
| 0917   | 21757        | FORT BRADY PARKING                         | From Route 0308               | To Parking          | 0.00        | 0.00           | 0.00      | 9           | 0          | 6,002              | OC         |

# NPS/RIP Route ID Report

(Numerical By Route #)

Shading Color Key:  
Red text denotes approx. mileage

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

## RICH

### Richmond National Battlefield Park

| Rte. #        | FMSS Asset # | Route Name              | Route Description            |               | Paved Miles | Un-Paved Miles | Rte. Lgth   | Func. Class | Rte. Lanes | Manual Rated SQ/FT | Surf. Type |
|---------------|--------------|-------------------------|------------------------------|---------------|-------------|----------------|-------------|-------------|------------|--------------------|------------|
|               |              |                         | From                         | To            |             |                |             |             |            |                    |            |
| 0918          |              | DREWRY'S BLUFF PARKING  | From Frontal Road            | To Parking    | 0.00        | 0.00           | 0.00        | 9           | 0          | 42,968             | OC         |
| 0919          | 15688        | PARKERS BATTERY PARKING | From Ware Bottom Spring Road | To Parking    | 0.00        | 0.00           | 0.00        | 9           | 0          | 7,538              | AS         |
| 0920          | 21712        | MALVERN HILL PARKING    | From State Route 156         | To Route 0402 | 0.00        | 0.00           | 0.00        | 9           | 0          | 14,247             | OC         |
| 0921          |              | PARSONAGE PARKING       | From State Route 156         | To Parking    | 0.00        | 0.00           | 0.00        | 9           | 0          | 5,910              | GR         |
| <b>Totals</b> |              |                         |                              |               | <b>8.69</b> | <b>0.64</b>    | <b>9.33</b> |             |            | <b>228,363</b>     |            |

#### General Park Road Functional Classification Table

- Class 1 Principal Park Road/Rural Parkway (Public Roads) - Roads which constitute the main access route, circulatory tour, or thoroughfare for park visitors. Route Numbers 1 - 99. Note: Rural parkways (e.g. Natchez Trace) are numbered 1 - 9. State Routes Inventoried for Park. Route Numbers 5000-5999
- Class 2 Connector Park Road (Public Roads) - Roads which provide access within a park to areas of scenic, scientific, recreational or cultural interest, such as overlooks, campgrounds, etc. Route Numbers 100-199.
- Class 3 Special Purpose Park Road (Public Roads) - Roads which provide circulation within public areas, such as campgrounds, picnic areas, visitor center complexes, concessionaire facilities, etc. These roads generally serve low-speed traffic and are often designed for one-way circulation. Route Numbers 200-299.
- Class 4 Primitive Park Roads (Public Roads) - Roads which provide circulation through remote areas and/or access to primitive campgrounds and undeveloped areas. These roads frequently have no minimum design standards and their use may be limited to specially equipped vehicles. Route Numbers 200-299.  
Note: Functional Classes 3 and 4 have the same route numbers because, historically, they were numbered similarly.
- Class 5 Administrative Access Road (Administrative Roads) - All public roads intended for access to administrative developments or structures such as park offices, employee quarters, or utility areas. Route Numbers 400-499.
- Class 6 Restricted Road (Administrative Roads) - All roads normally closed to the public, including patrol roads, truck trails, and other similar roads. Route Numbers 400-499.  
Note: Functional Classes 5 and 6 have the same route numbers because historically they were numbered similarly and often there is little distinction between these routes. For example, because utility areas and employee housing are often closed to the public, this restriction would result in classification of FC 6 rather than FC 5.
- Class 7 Urban Parkway (Urban Parkways and City Streets) - These facilities serve high volumes of park and non-park related traffic and are restricted, limited-access facilities in an urban area. This category of roads primarily encompasses the major parkways which serve as gateways to our nation's capital. Other major park roads or portions thereof, however, may be included in this category. Route Numbers 1-9.
- Class 8 City Streets (Urban Parkways and City Streets) - City streets are usually extensions of the adjoining street system that are owned and maintained by the National Park Service. The construction and/or reconstruction should conform with accepted local engineering practice and local conditions. Route Numbers 600-699.
- Class 9 Boat Ramp - (Public and Administrative) Route Numbers 800-899.  
Parking Area - (Public and Administrative) Route Numbers 900-1999.

#### Surface Type Abbreviations:

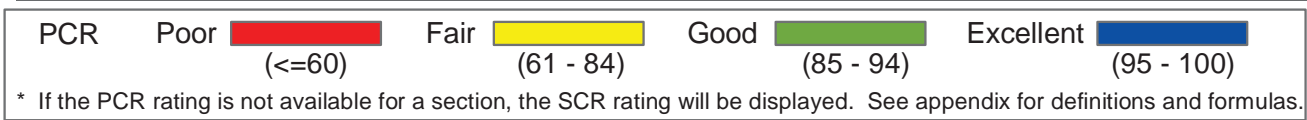
- AS - Asphaltic Concrete Pavement
- CO - Portland Cement Concrete Pavement
- NC - New Chip Seal Pavement (Under 5 Years)
- OC - Old Chip Seal Pavement (5 Years and Greater)
- SS - Slurry Seal Pavement
- GR - Gravel Road Bed
- BR - Brick or Pavers Road Bed
- CB - Cobble Stone Road Bed
- SA - Sand Road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

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

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

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





**Northeast Region**

**RICH : Richmond National Battlefield Park**

**ROUTE: 0303 Garthright House Road**

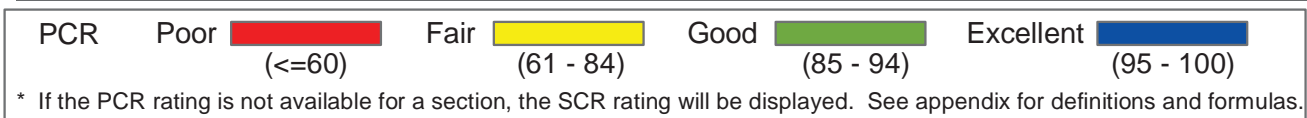
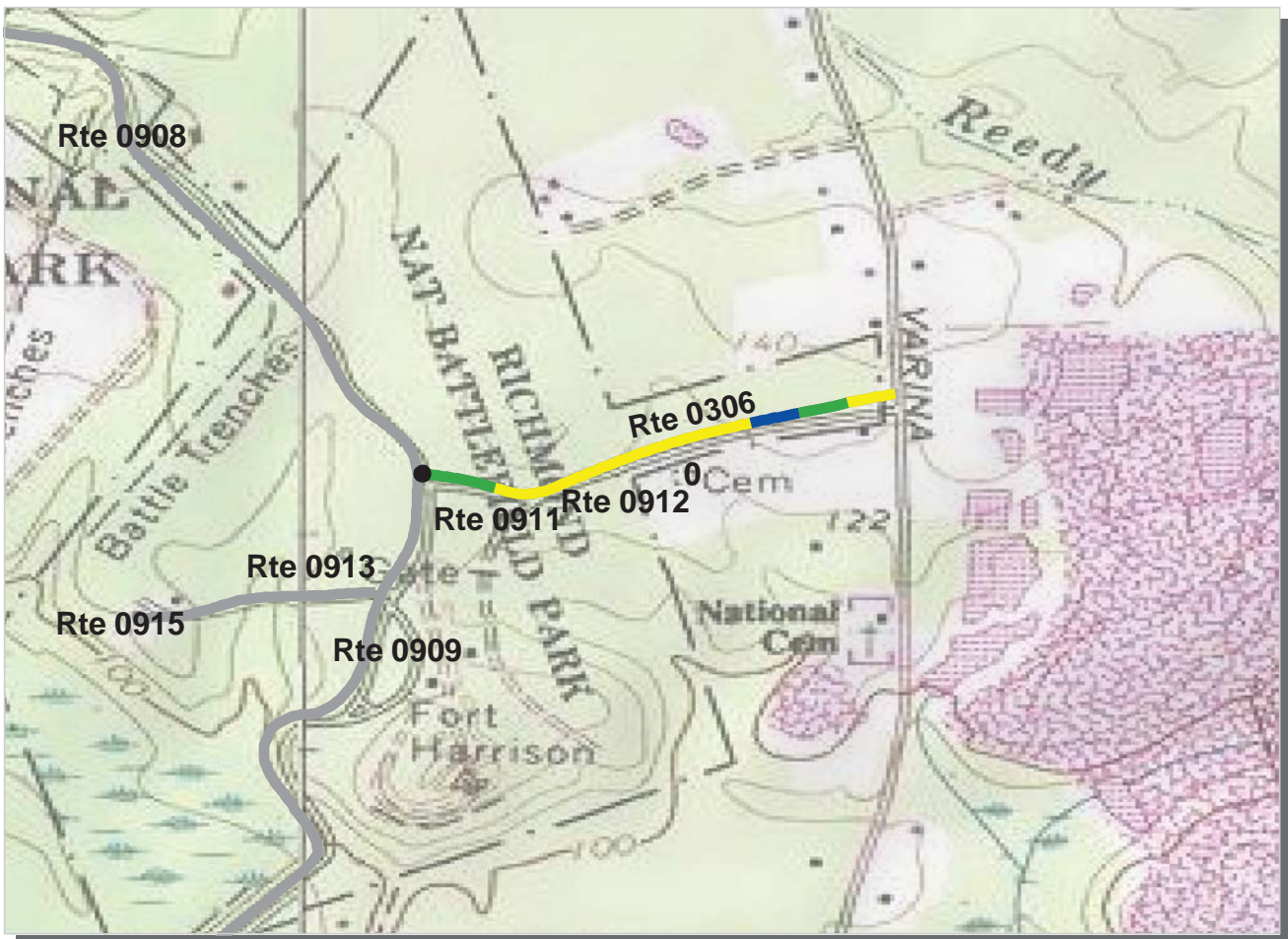
**TOTAL LENGTH: 0.12 Miles**

|                                      |      |  |  |  |  |
|--------------------------------------|------|--|--|--|--|
| Section Number                       | 0    |  |  |  |  |
| Section Length (mi)                  | 0.12 |  |  |  |  |
| AADT                                 | **   |  |  |  |  |
| SADT                                 | **   |  |  |  |  |
| ADT Date                             | **   |  |  |  |  |
| <b>Cross Section Information</b>     |      |  |  |  |  |
| Number of Lanes                      | 1    |  |  |  |  |
| Paved Width (ft)                     | 8    |  |  |  |  |
| Lane Width (ft)                      | 8    |  |  |  |  |
| Shoulder Width (ft)                  | 6    |  |  |  |  |
| <b>Roadway Condition Information</b> |      |  |  |  |  |
| PCR (Pavement Condition Rating)      | 14   |  |  |  |  |
| RCI (Roughness Condition Index)      | NC   |  |  |  |  |
| SCR (Surface Condition Rating)       | 14   |  |  |  |  |
| Alligator Cracking Index             | 100  |  |  |  |  |
| Rutting Index                        | 14   |  |  |  |  |
| Patching Index                       | 100  |  |  |  |  |
| Transverse Cracking Index            | 100  |  |  |  |  |
| Longitudinal Cracking Index          | 100  |  |  |  |  |
| Shoulder Condition Rating            | GOOD |  |  |  |  |
| Drainage Condition Rating            | GOOD |  |  |  |  |

ROUTE: 0303 Garthright House Road

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





**Northeast Region**  
**RICH : Richmond National Battlefield Park**

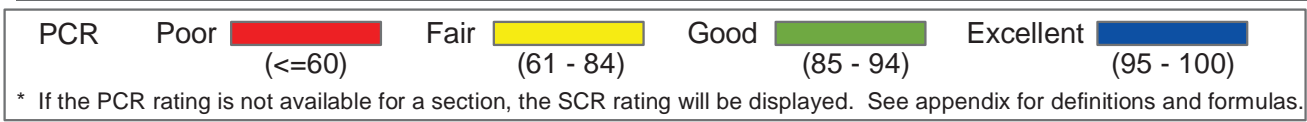
**ROUTE: 0306 Picnic Road** **TOTAL LENGTH: 0.41 Miles**

|                                      |      |  |  |  |
|--------------------------------------|------|--|--|--|
| Section Number                       | 0    |  |  |  |
| Section Length (mi)                  | 0.41 |  |  |  |
| AADT                                 | **   |  |  |  |
| SADT                                 | **   |  |  |  |
| ADT Date                             | **   |  |  |  |
| <b>Cross Section Information</b>     |      |  |  |  |
| Number of Lanes                      | 2    |  |  |  |
| Paved Width (ft)                     | 17   |  |  |  |
| Lane Width (ft)                      | 9    |  |  |  |
| Shoulder Width (ft)                  | 4    |  |  |  |
| <b>Roadway Condition Information</b> |      |  |  |  |
| PCR (Pavement Condition Rating)      | 75   |  |  |  |
| RCI (Roughness Condition Index)      | 80   |  |  |  |
| SCR (Surface Condition Rating)       | 73   |  |  |  |
| Alligator Cracking Index             | 100  |  |  |  |
| Rutting Index                        | 74   |  |  |  |
| Patching Index                       | 100  |  |  |  |
| Transverse Cracking Index            | 100  |  |  |  |
| Longitudinal Cracking Index          | 99   |  |  |  |
| Shoulder Condition Rating            | GOOD |  |  |  |
| Drainage Condition Rating            | GOOD |  |  |  |

ROUTE: 0306 Picnic Road

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





**Northeast Region**

**RICH : Richmond National Battlefield Park**

**ROUTE: 0400 Watt House Loop Road**

**TOTAL LENGTH: 0.15 Miles**

|                                      |      |  |  |  |  |
|--------------------------------------|------|--|--|--|--|
| Section Number                       | 0    |  |  |  |  |
| Section Length (mi)                  | 0.15 |  |  |  |  |
| AADT                                 | **   |  |  |  |  |
| SADT                                 | **   |  |  |  |  |
| ADT Date                             | **   |  |  |  |  |
| <b>Cross Section Information</b>     |      |  |  |  |  |
| Number of Lanes                      | 1    |  |  |  |  |
| Paved Width (ft)                     | 10   |  |  |  |  |
| Lane Width (ft)                      | 10   |  |  |  |  |
| Shoulder Width (ft)                  | 7    |  |  |  |  |
| <b>Roadway Condition Information</b> |      |  |  |  |  |
| PCR (Pavement Condition Rating)      | 10   |  |  |  |  |
| RCI (Roughness Condition Index)      | NC   |  |  |  |  |
| SCR (Surface Condition Rating)       | 10   |  |  |  |  |
| Alligator Cracking Index             | 100  |  |  |  |  |
| Rutting Index                        | 11   |  |  |  |  |
| Patching Index                       | 98   |  |  |  |  |
| Transverse Cracking Index            | 100  |  |  |  |  |
| Longitudinal Cracking Index          | 100  |  |  |  |  |
| Shoulder Condition Rating            | GOOD |  |  |  |  |
| Drainage Condition Rating            | GOOD |  |  |  |  |

**ROUTE: 0400 Watt House Loop Road**

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



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

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

**Northeast Region**

**RICH : Richmond National Battlefield Park**

**ROUTE: 0401 Maintenance Way**

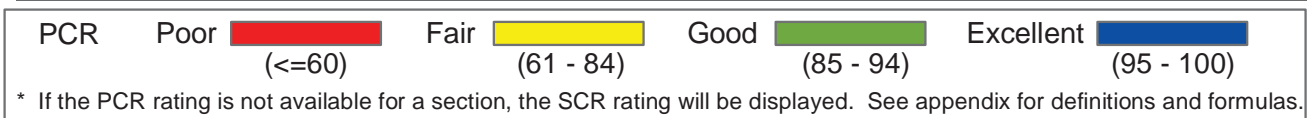
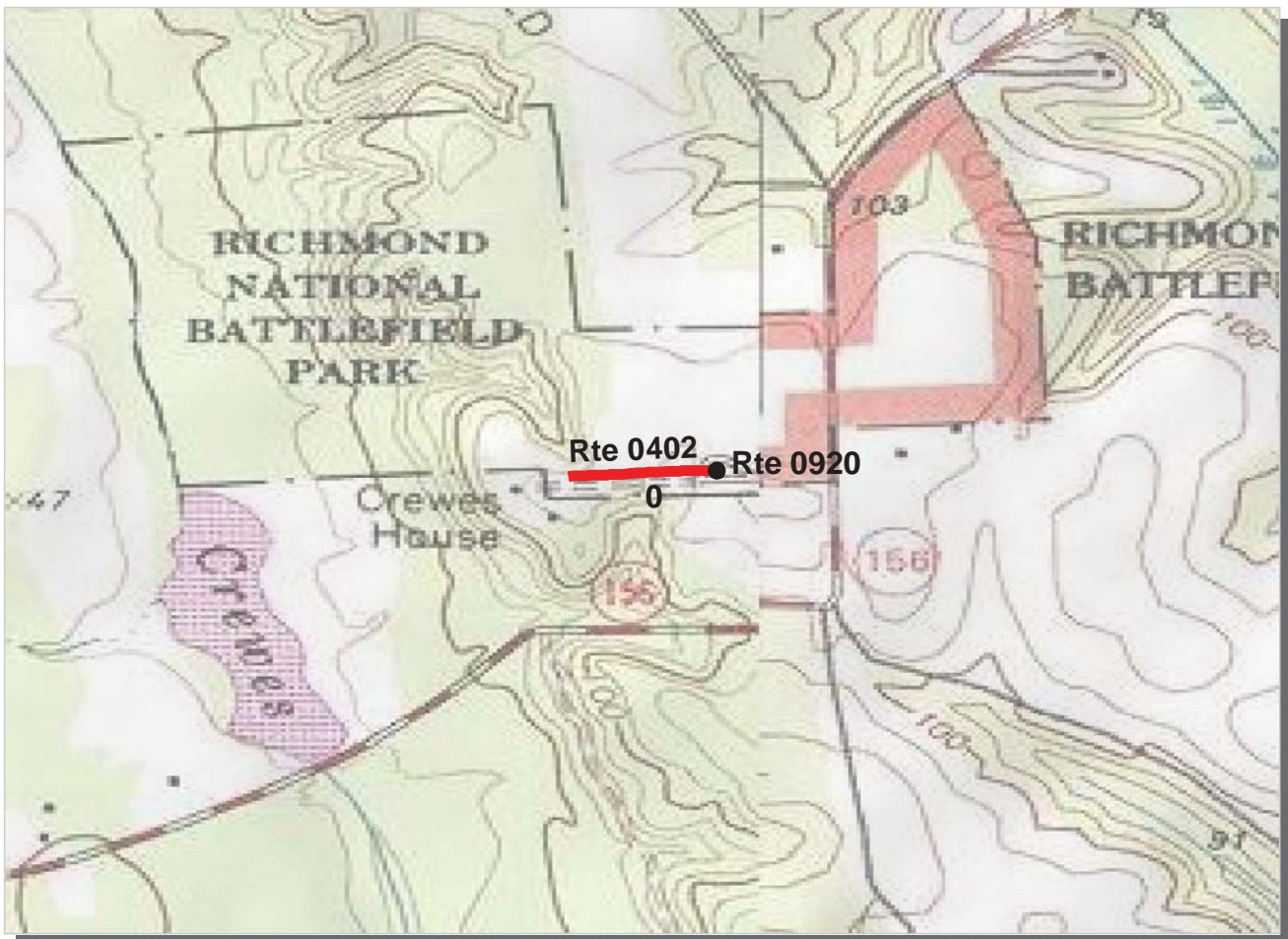
**TOTAL LENGTH: 0.22 Miles**

|                                      |      |  |  |  |  |
|--------------------------------------|------|--|--|--|--|
| Section Number                       | 0    |  |  |  |  |
| Section Length (mi)                  | 0.22 |  |  |  |  |
| AADT                                 | **   |  |  |  |  |
| SADT                                 | **   |  |  |  |  |
| ADT Date                             | **   |  |  |  |  |
| <b>Cross Section Information</b>     |      |  |  |  |  |
| Number of Lanes                      | 1    |  |  |  |  |
| Paved Width (ft)                     | 14   |  |  |  |  |
| Lane Width (ft)                      | 14   |  |  |  |  |
| Shoulder Width (ft)                  | 7    |  |  |  |  |
| <b>Roadway Condition Information</b> |      |  |  |  |  |
| PCR (Pavement Condition Rating)      | 24   |  |  |  |  |
| RCI (Roughness Condition Index)      | 29   |  |  |  |  |
| SCR (Surface Condition Rating)       | 22   |  |  |  |  |
| Alligator Cracking Index             | 96   |  |  |  |  |
| Rutting Index                        | 25   |  |  |  |  |
| Patching Index                       | 99   |  |  |  |  |
| Transverse Cracking Index            | 100  |  |  |  |  |
| Longitudinal Cracking Index          | 99   |  |  |  |  |
| Shoulder Condition Rating            | GOOD |  |  |  |  |
| Drainage Condition Rating            | POOR |  |  |  |  |

ROUTE: 0401 Maintenance Way

\* NC designates data not collected    NA designates not applicable

\*\* See website for traffic data: <http://www.epl.fhwa.dot.gov/nps/index.htm>



**Northeast Region**

**RICH : Richmond National Battlefield Park**

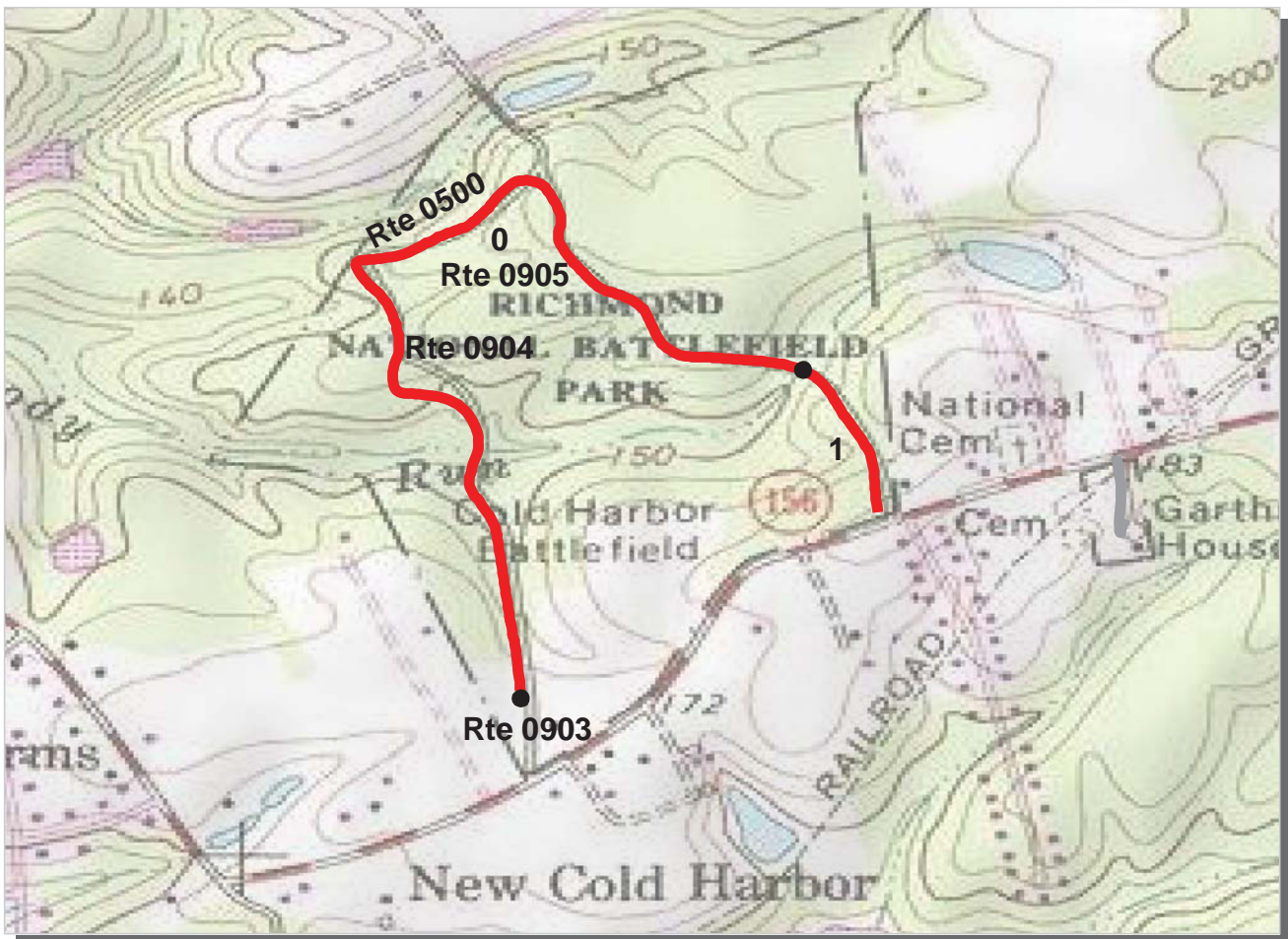
**ROUTE: 0402 Malvern Hill Residence Road**

**TOTAL LENGTH: 0.14 Miles**

|                                      |      |  |  |  |  |
|--------------------------------------|------|--|--|--|--|
| Section Number                       | 0    |  |  |  |  |
| Section Length (mi)                  | 0.14 |  |  |  |  |
| AADT                                 | **   |  |  |  |  |
| SADT                                 | **   |  |  |  |  |
| ADT Date                             | **   |  |  |  |  |
| <b>Cross Section Information</b>     |      |  |  |  |  |
| Number of Lanes                      | 1    |  |  |  |  |
| Paved Width (ft)                     | 9    |  |  |  |  |
| Lane Width (ft)                      | 9    |  |  |  |  |
| Shoulder Width (ft)                  | 7    |  |  |  |  |
| <b>Roadway Condition Information</b> |      |  |  |  |  |
| PCR (Pavement Condition Rating)      | 6    |  |  |  |  |
| RCI (Roughness Condition Index)      | 25   |  |  |  |  |
| SCR (Surface Condition Rating)       | 3    |  |  |  |  |
| Alligator Cracking Index             | 100  |  |  |  |  |
| Rutting Index                        | 3    |  |  |  |  |
| Patching Index                       | 99   |  |  |  |  |
| Transverse Cracking Index            | 100  |  |  |  |  |
| Longitudinal Cracking Index          | 99   |  |  |  |  |
| Shoulder Condition Rating            | GOOD |  |  |  |  |
| Drainage Condition Rating            | GOOD |  |  |  |  |

ROUTE: 0402 Malvern Hill Residence Road

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



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

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

**Northeast Region**  
**RICH : Richmond National Battlefield Park**

**ROUTE: 0500 Cold Harbor Road** **TOTAL LENGTH: 1.18 Miles**

| Section Number                       | 0    | 1    |  |  |  |
|--------------------------------------|------|------|--|--|--|
| Section Length (mi)                  | 1.00 | 0.18 |  |  |  |
| AADT                                 | **   |      |  |  |  |
| SADT                                 | **   |      |  |  |  |
| ADT Date                             | **   |      |  |  |  |
| <b>Cross Section Information</b>     |      |      |  |  |  |
| Number of Lanes                      | 1    | 1    |  |  |  |
| Paved Width (ft)                     | 12   | 12   |  |  |  |
| Lane Width (ft)                      | 12   | 12   |  |  |  |
| Shoulder Width (ft)                  | 5    | 5    |  |  |  |
| <b>Roadway Condition Information</b> |      |      |  |  |  |
| PCR (Pavement Condition Rating)      | 36   | 33   |  |  |  |
| RCI (Roughness Condition Index)      | 43   | 44   |  |  |  |
| SCR (Surface Condition Rating)       | 34   | 31   |  |  |  |
| Alligator Cracking Index             | 99   | 98   |  |  |  |
| Rutting Index                        | 34   | 32   |  |  |  |
| Patching Index                       | 100  | 100  |  |  |  |
| Transverse Cracking Index            | 100  | 99   |  |  |  |
| Longitudinal Cracking Index          | 99   | 99   |  |  |  |
| Shoulder Condition Rating            | GOOD | GOOD |  |  |  |
| Drainage Condition Rating            | GOOD | GOOD |  |  |  |

**ROUTE: 0500 Cold Harbor Road**

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



## **RICH: Manually Rated Paved Route Condition Rating Sheets**

No data available for this section

# Richmond National Battlefield Park

## Route 0900

CHICKAHOMINY BLUFFS PARKING

From US Highway 360

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0900  | Public             | 4/11/2002    | 24752        | 0.43         | OC           | FAIR / 73       |

\* Lane miles are based on 11' lane widths



# Richmond National Battlefield Park

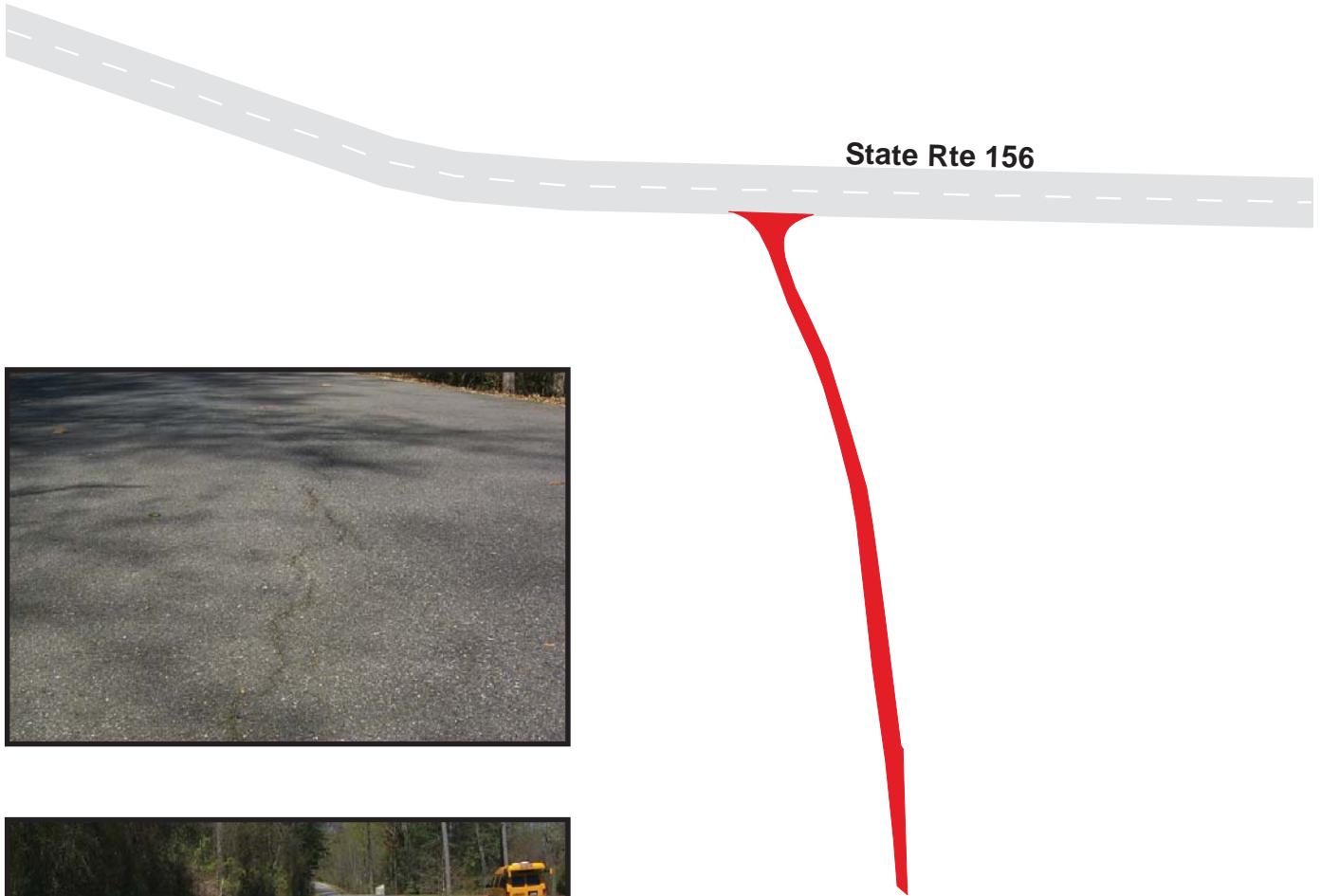
## Route 0901A

### BEAVER DAM CREEK PARKING

From State Route 156

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0901A | Public             | 4/11/2002    | 23305        | 0.40         | AS           | GOOD / 90       |

\* Lane miles are based on 11' lane widths



# Richmond National Battlefield Park

## Route 0901B

### BEAVER DAM CREEK PARKING

From State Route 156

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0901B | Public             | 4/11/2002    | 4792         | 0.08         | OC           | FAIR / 73       |

\* Lane miles are based on 11' lane widths



# Richmond National Battlefield Park

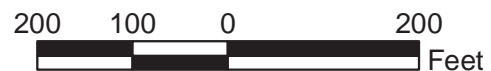
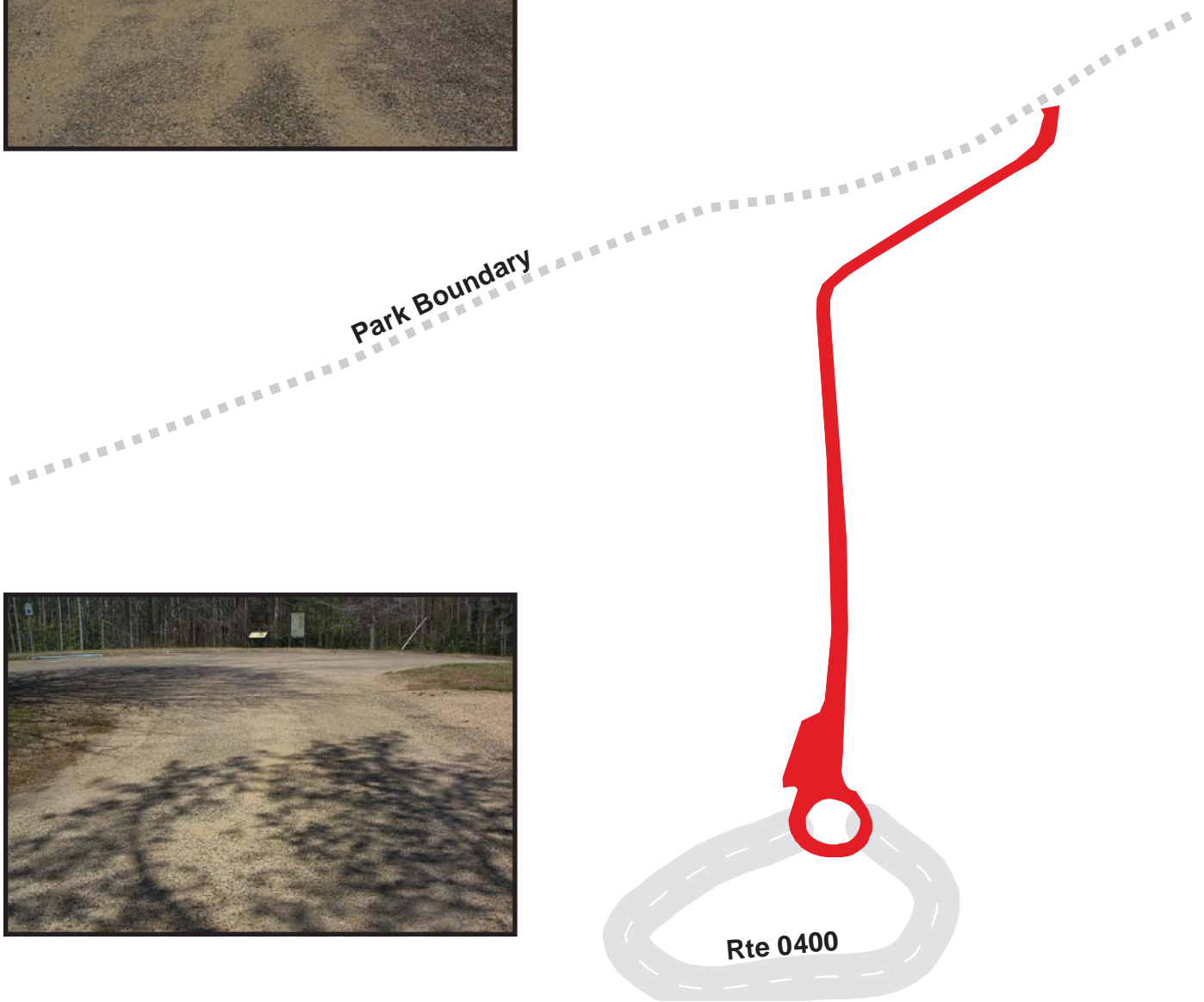
## Route 0902

WATT HOUSE PARKING

From Park Boundary

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0902  | Public             | 4/11/2002    | 19016        | 0.33         | OC           | GOOD / 90       |

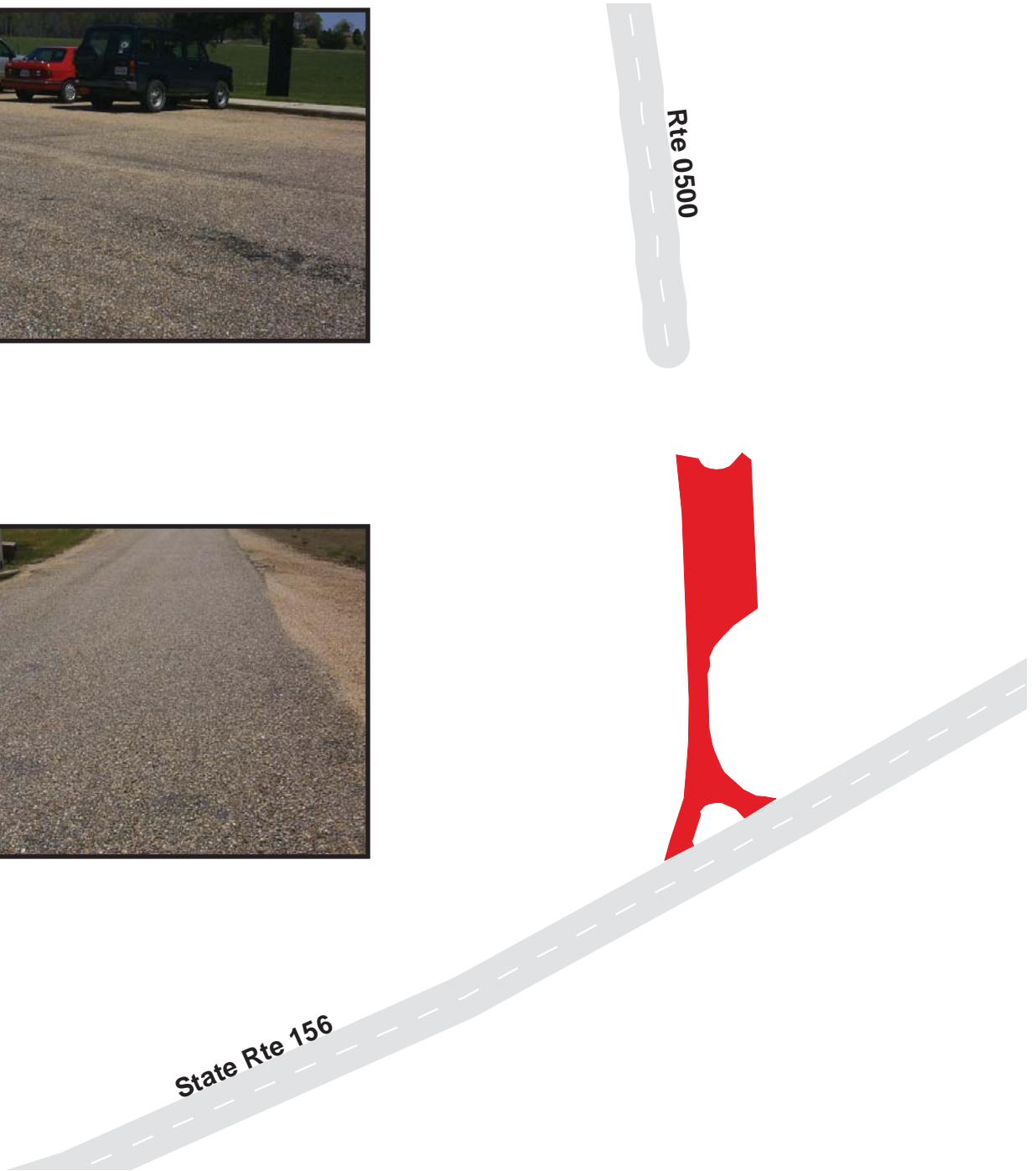
\* Lane miles are based on 11' lane widths



**Richmond National Battlefield Park**  
**Route 0903**  
 COLD HARBOR VISITOR CENTER PARKING  
 From State Route 156

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0903  | Public             | 4/11/2002    | 10550        | 0.18         | OC           | GOOD / 90       |

\* Lane miles are based on 11' lane widths



# Richmond National Battlefield Park

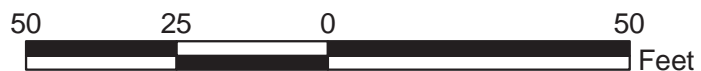
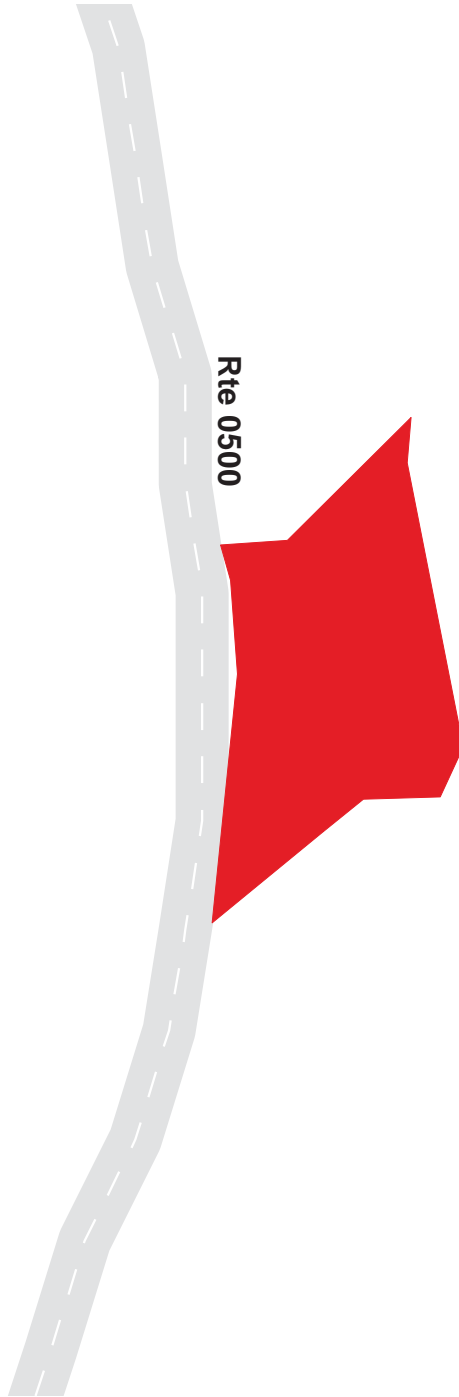
## Route 0904

### CONFEDERATE TURNOUT

From Route 0500

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0904  | Public             | 4/11/2002    | 1553         | 0.03         | OC           | GOOD / 90       |

\* Lane miles are based on 11' lane widths



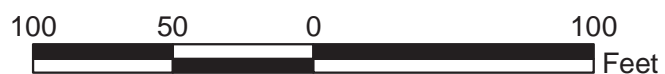
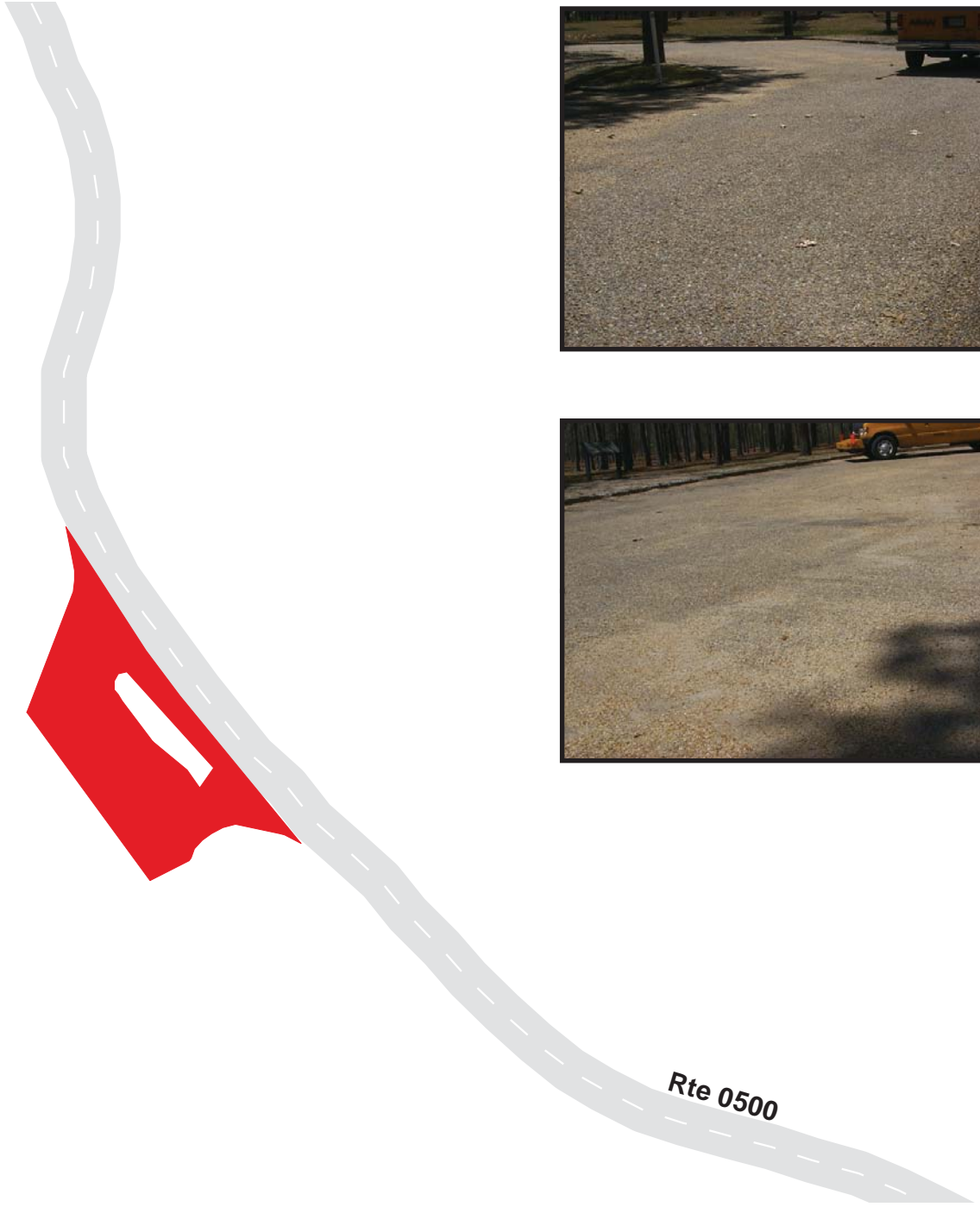
# Richmond National Battlefield Park

## Route 0905

UNION TURNOUT  
From Route 0500

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0905  | Public             | 4/11/2002    | 4435         | 0.08         | OC           | GOOD / 90       |

\* Lane miles are based on 11' lane widths





# Richmond National Battlefield Park

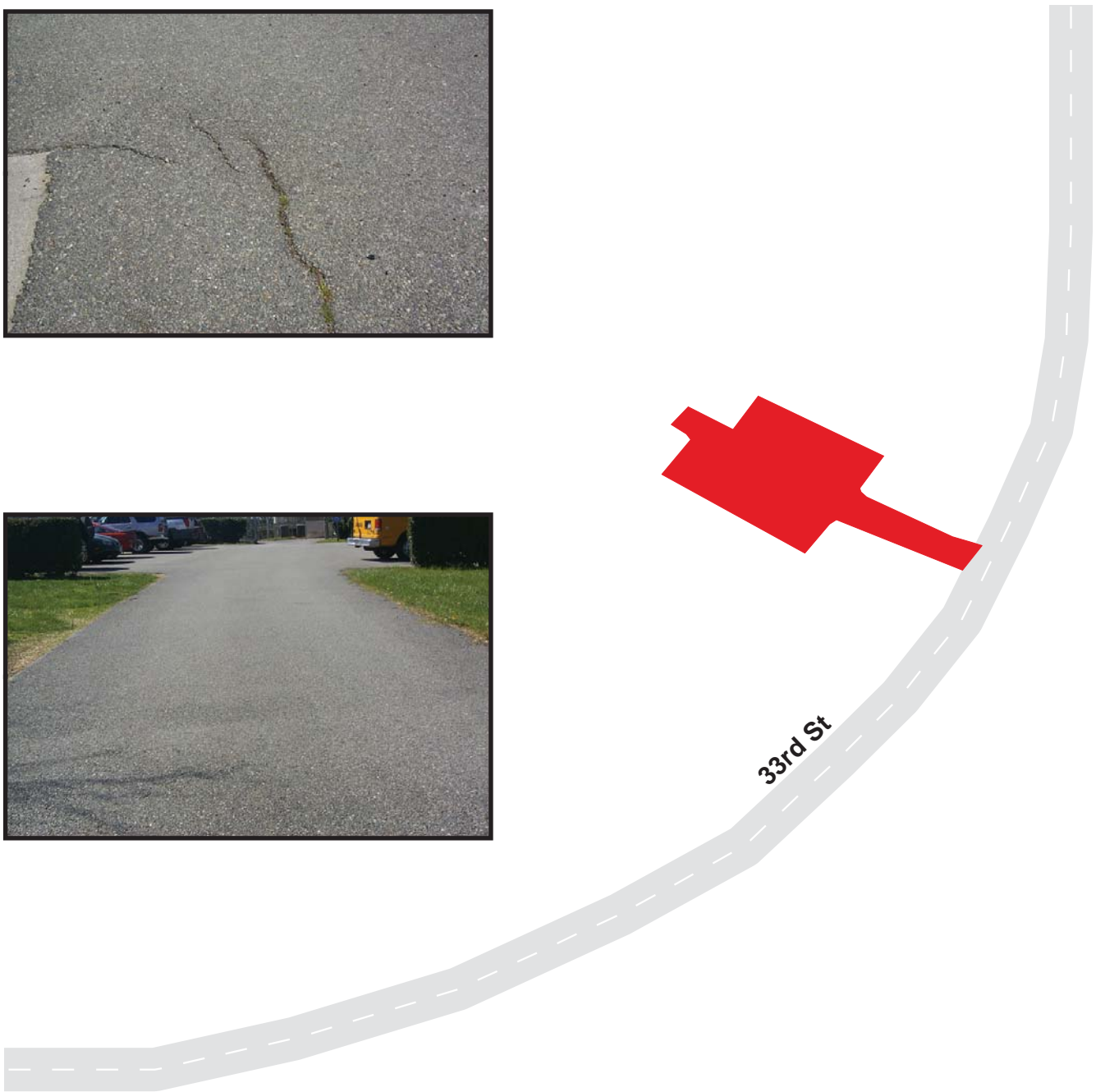
## Route 0906

CHIMBORAZO VISITOR CENTER EMPLOYEE PARKING

From 33rd Street Parking Area

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0906  | NonPublic          | 4/11/2002    | 4673         | 0.08         | AS           | GOOD / 90       |

\* Lane miles are based on 11' lane widths



# Richmond National Battlefield Park

## Route 0907

FORT GILMER PARKING

From Route 0304

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0907  | Public             | 4/11/2002    | 5904         | 0.10         | OC           | FAIR / 73       |

\* Lane miles are based on 11' lane widths



# Richmond National Battlefield Park

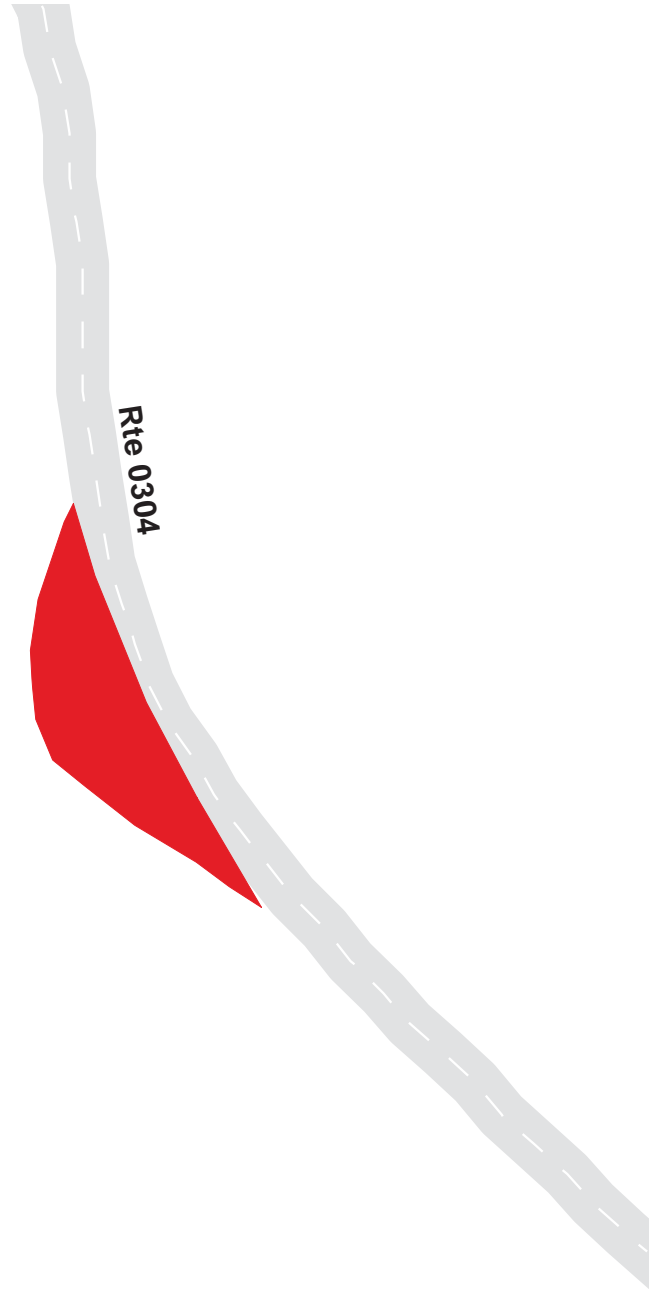
## Route 0908

FORT JOHNSON PARKING

From Route 0304

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0908  | Public             | 4/11/2002    | 4232         | 0.07         | OC           | FAIR / 73       |

\* Lane miles are based on 11' lane widths



# Richmond National Battlefield Park

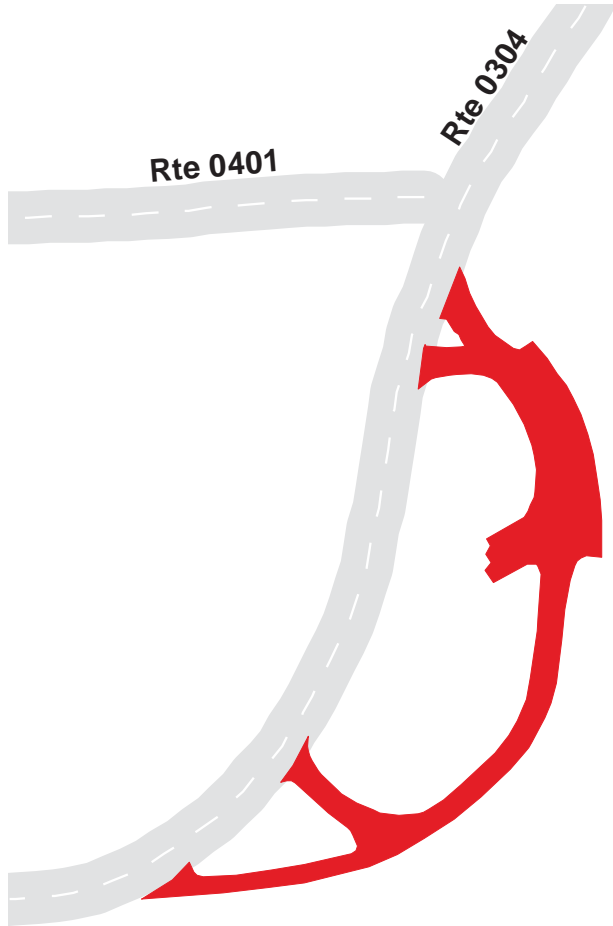
## Route 0909

FORT HARRISON PARKING

From Route 0304

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0909  | Public             | 4/11/2002    | 24612        | 0.42         | OC           | FAIR / 73       |

\* Lane miles are based on 11' lane widths



# Richmond National Battlefield Park

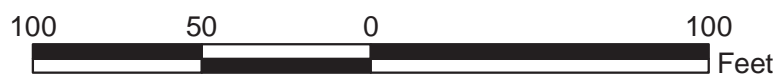
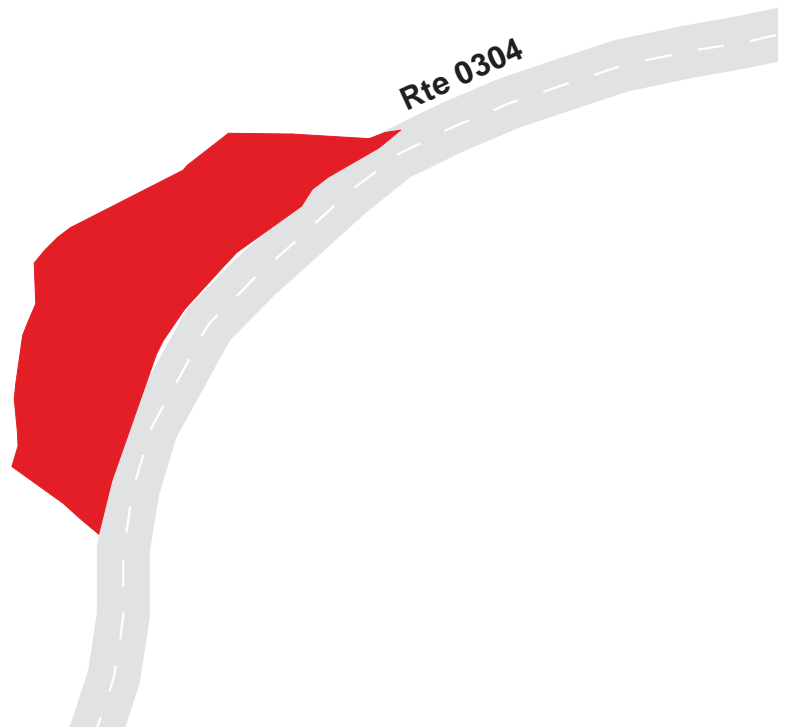
## Route 0910

FORT HOKE PARKING

From Route 0304

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0910  | Public             | 4/11/2002    | 3788         | 0.07         | OC           | FAIR / 73       |

\* Lane miles are based on 11' lane widths



# Richmond National Battlefield Park

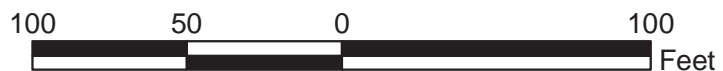
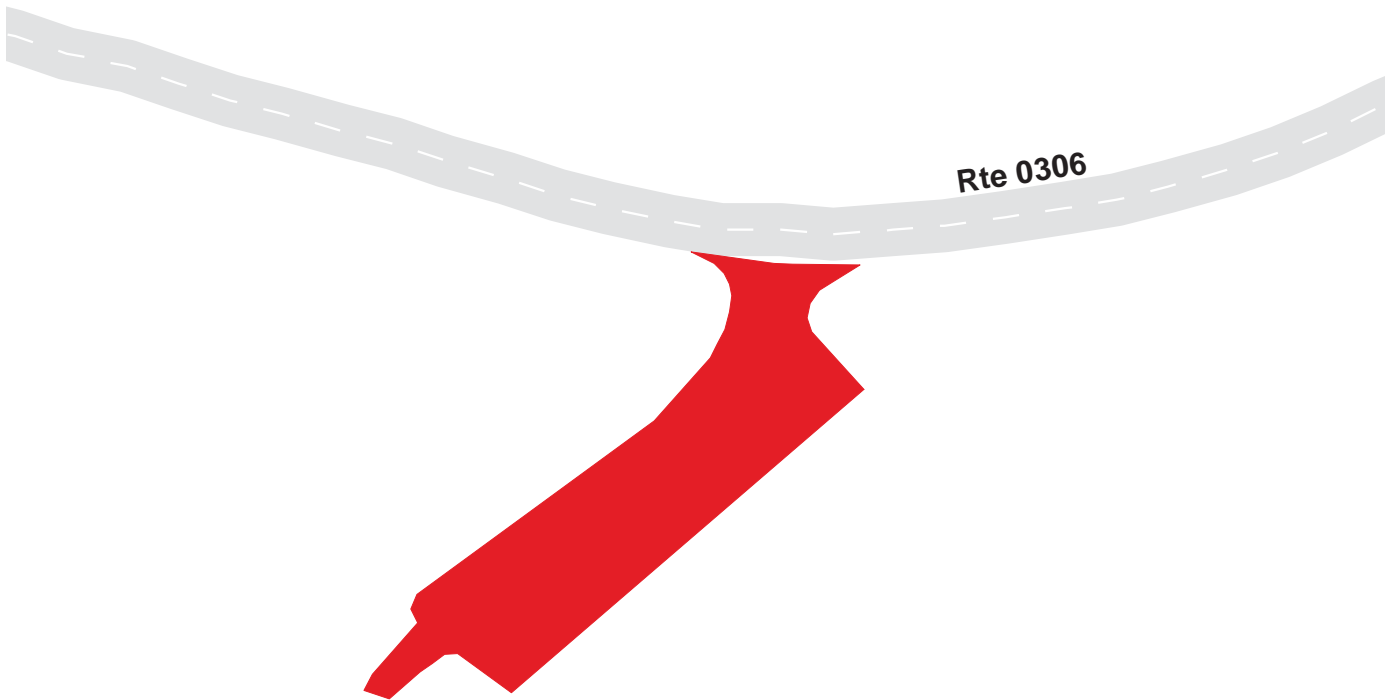
## Route 0911

### PICNIC AREA PARKING

From Route 0306

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0911  | Public             | 4/11/2002    | 5646         | 0.10         | OC           | GOOD / 90       |

\* Lane miles are based on 11' lane widths



# Richmond National Battlefield Park

## Route 0912

PICNIC AREA BUS AND RV PARKING

From Route 0306

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0912  | Public             | 4/11/2002    | 2019         | 0.03         | OC           | GOOD / 90       |

\* Lane miles are based on 11' lane widths



# Richmond National Battlefield Park

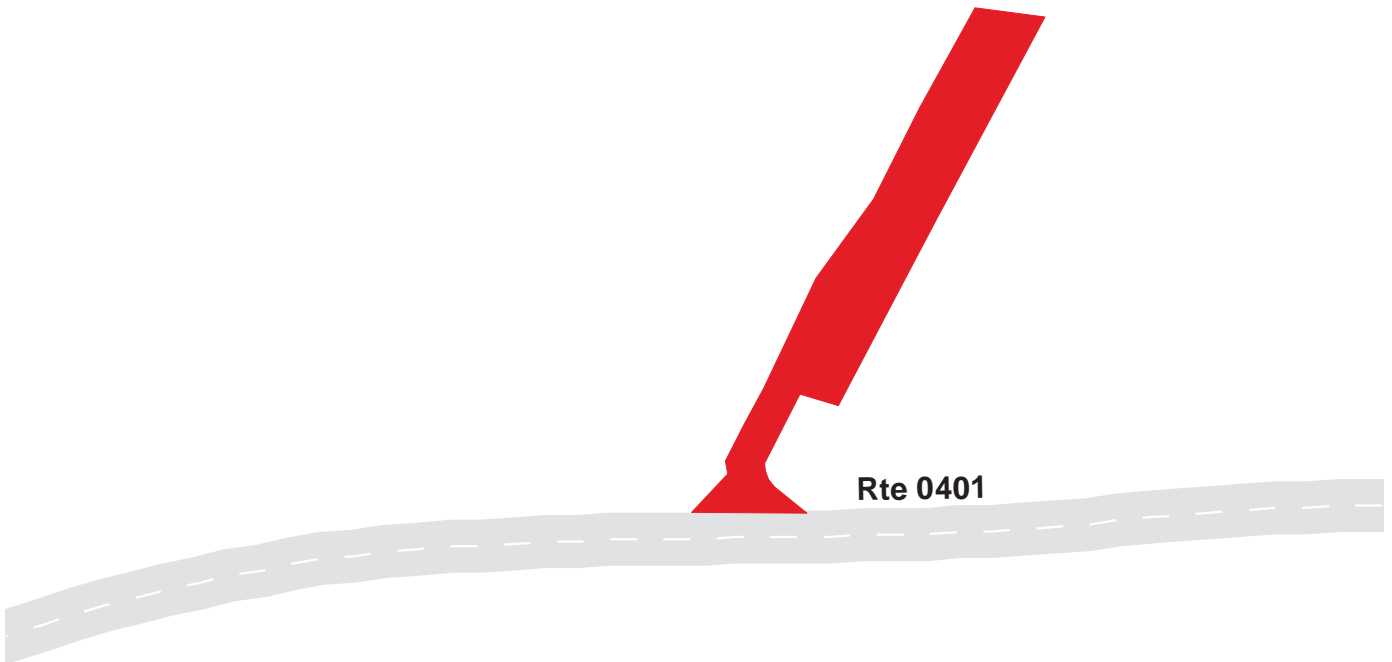
## Route 0913

MAINTENANCE AREA

From Route 0401

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0913  | NonPublic          | 4/11/2002    | 9616         | 0.17         | OC           | FAIR / 73       |

\* Lane miles are based on 11' lane widths





# Richmond National Battlefield Park

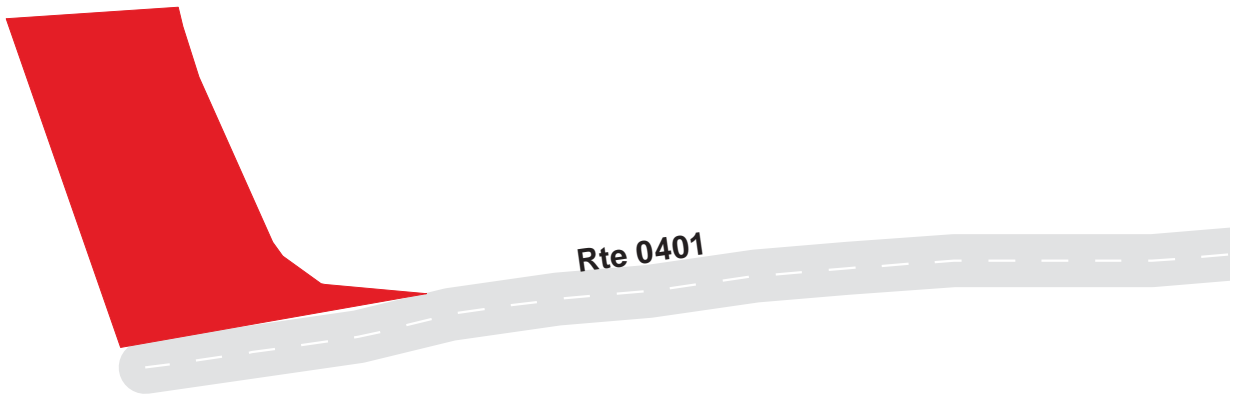
## Route 0915

FORT HARRISON RANGER PARKING

From Route 0401

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0915  | NonPublic          | 4/11/2002    | 1604         | 0.03         | AS           | GOOD / 90       |

\* Lane miles are based on 11' lane widths



# Richmond National Battlefield Park

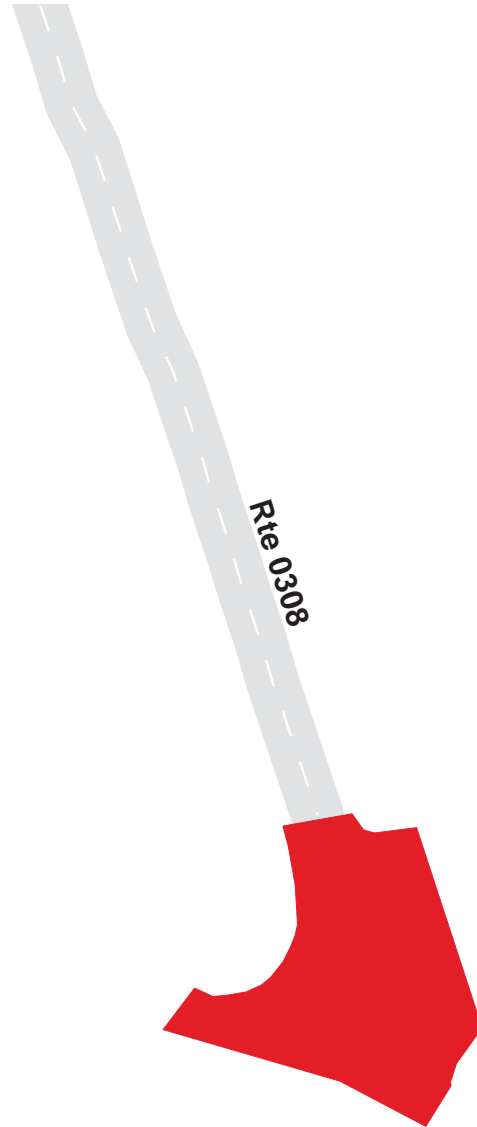
## Route 0917

FORT BRADY PARKING

From Route 0308

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0917  | Public             | 4/11/2002    | 6002         | 0.10         | OC           | POOR / 45       |

\* Lane miles are based on 11' lane widths



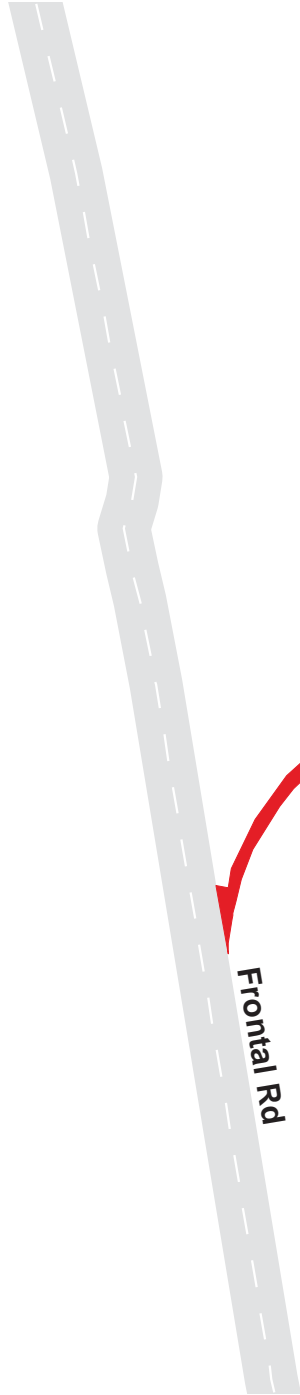
# Richmond National Battlefield Park

## Route 0918

DREWRY'S BLUFF PARKING  
From Frontal Road

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0918  | Public             | 4/11/2002    | 42968        | 0.74         | OC           | GOOD / 90       |

\* Lane miles are based on 11' lane widths



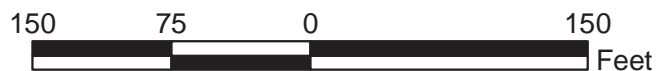
# Richmond National Battlefield Park

## Route 0919

PARKERS BATTERY PARKING  
From Ware Bottom Spring Road

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0919  | Public             | 4/11/2002    | 7538         | 0.13         | AS           | GOOD / 90       |

\* Lane miles are based on 11' lane widths



# Richmond National Battlefield Park

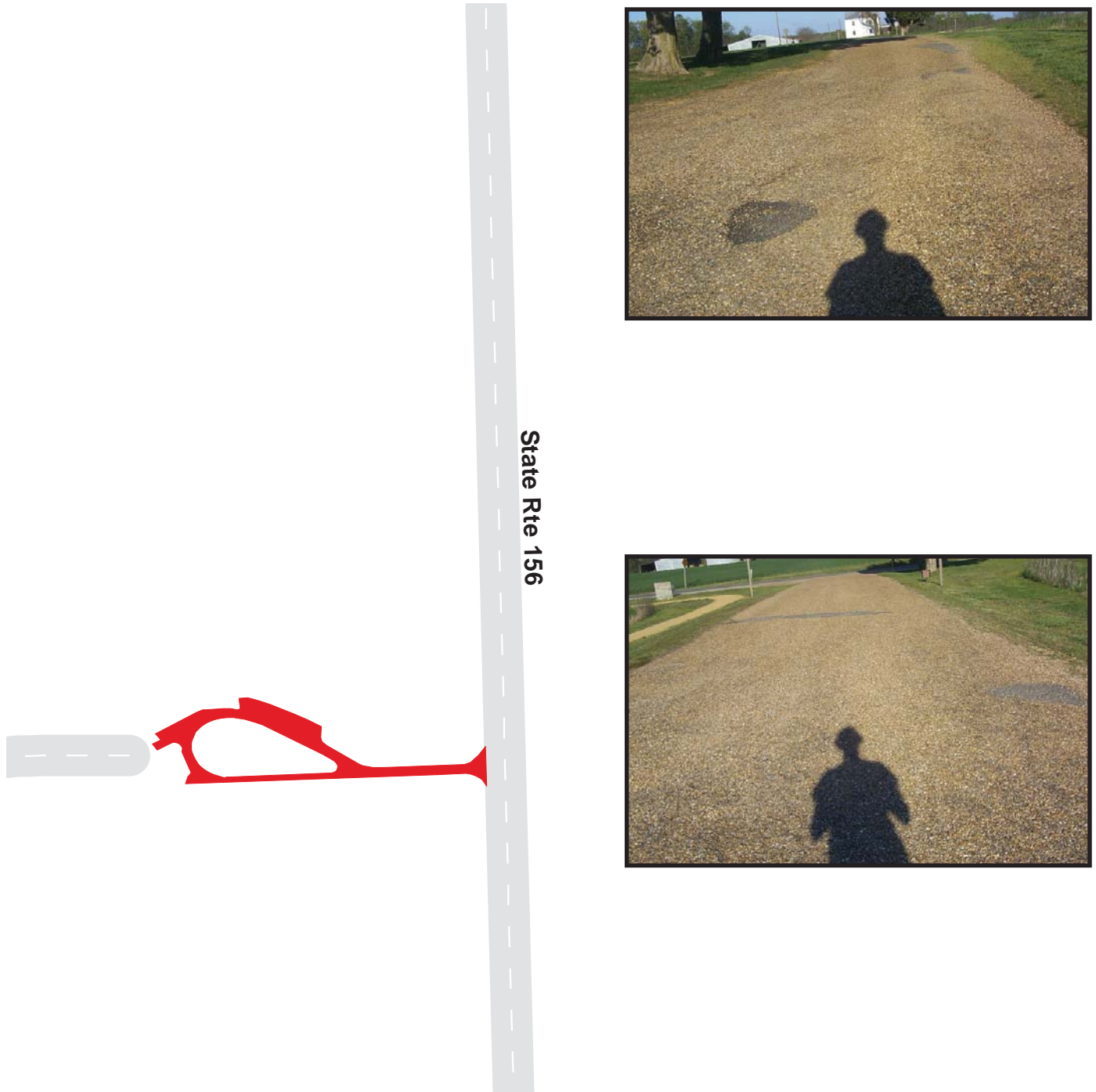
## Route 0920

MALVERN HILL PARKING

From State Route 156

| Route | Public / NonPublic | Date Visited | Area (sq ft) | Lane Miles * | Surface Type | Condition / PCR |
|-------|--------------------|--------------|--------------|--------------|--------------|-----------------|
| 0920  | Public             | 4/11/2002    | 14247        | 0.25         | OC           | FAIR / 73       |

\* Lane miles are based on 11' lane widths



# ***RICH: PARKWIDE MAINTENANCE FEATURES SUMMARY***

| <b><i>FEATURE</i></b> | <b><i>PARK TOTAL</i></b> | <b><i>UNIT</i></b> |
|-----------------------|--------------------------|--------------------|
| BRIDGE                | 2                        | EACH               |
| CATTLE GUARD          | 0                        | EACH               |
| CULVERT               | 50                       | EACH               |
| CURB                  | 639                      | LINEAR FEET        |
| DROP INLET            | 1                        | EACH               |
| GUARD WALL            | 0                        | LINEAR FEET        |
| GUARDRAIL             | 417                      | LINEAR FEET        |
| INTERSECTION          | 61                       | EACH               |
| LOW WATER CROSSING    | 0                        | EACH               |
| OVERHEAD SIGN         | 0                        | EACH               |
| PARK BOUNDARY         | 0                        | EACH               |
| PAVED DITCH           | 227                      | LINEAR FEET        |
| PULLOUT               | 0                        | EACH               |
| RAILROAD CROSSING     | 0                        | EACH               |
| RETAINING WALL        | 0                        | EACH               |
| STATE BOUNDARY        | 0                        | EACH               |
| TRAFFIC LIGHT         | 0                        | EACH               |
| TUNNEL                | 0                        | EACH               |
| TURNOUT               | 0                        | LINEAR FEET        |

# ***RICH: ROUTE MAINTENANCE FEATURES SUMMARY***

| <b><i>FEATURE</i></b> | <b><i>ROUTE 0303 GARTHRIGHT HOUSE ROAD</i></b> | <b><i>ROUTE 0304 BATTLEFIELD PARK ROAD</i></b> | <b><i>ROUTE 0306 PICNIC ROAD</i></b> | <b><i>ROUTE 0308 HOKE BRADY ROAD</i></b> | <b><i>ROUTE 0400 WATT HOUSE LOOP ROAD</i></b> | <b><i>ROUTE 0401 MAINTENANCE WAY</i></b> | <b><i>UNIT</i></b> |
|-----------------------|--|--|--------------------------------------|--|---|--|--------------------|
| BRIDGE                | 0  | 0  | 0                                    | 2  | 0   | 0  | EACH               |
| CATTLE GUARD          | 0  | 0  | 0                                    | 0  | 0   | 0  | EACH               |
| CULVERT               | 2  | 19   | 4                                    | 11                                       | 0   | 2  | EACH               |
| CURB                  | 0  | 317  | 0                                    | 0  | 0   | 0  | LINEAR FEET        |
| DROP INLET            | 0  | 0  | 0                                    | 0  | 0   | 0  | EACH               |
| GUARD WALL            | 0  | 0  | 0                                    | 0  | 0   | 0  | LINEAR FEET        |
| GUARDRAIL             | 0  | 0  | 0                                    | 417                                      | 0   | 0  | LINEAR FEET        |
| INTERSECTION          | 6  | 20   | 6                                    | 9  | 4   | 7  | EACH               |
| LOW WATER CROSSING    | 0  | 0  | 0                                    | 0  | 0   | 0  | EACH               |
| OVERHEAD SIGN         | 0  | 0  | 0                                    | 0  | 0   | 0  | EACH               |
| PARK BOUNDARY         | 0  | 0  | 0                                    | 0  | 0   | 0  | EACH               |
| PAVED DITCH           | 0  | 0  | 227                                  | 0  | 0   | 0  | LINEAR FEET        |
| PULLOUT               | 0  | 0  | 0                                    | 0  | 0   | 0  | EACH               |
| RAILROAD CROSSING     | 0  | 0  | 0                                    | 0  | 0   | 0  | EACH               |
| RETAINING WALL        | 0  | 0  | 0                                    | 0  | 0   | 0  | EACH               |
| STATE BOUNDARY        | 0  | 0  | 0                                    | 0  | 0   | 0  | EACH               |
| TRAFFIC LIGHT         | 0  | 0  | 0                                    | 0  | 0   | 0  | EACH               |
| TUNNEL                | 0  | 0  | 0                                    | 0  | 0   | 0  | EACH               |
| TURNOUT               | 0  | 0  | 0                                    | 0  | 0   | 0  | LINEAR FEET        |

# ***RICH: ROUTE MAINTENANCE FEATURES SUMMARY***

| <b><i>FEATURE</i></b> | <b><i>ROUTE 0402 MALVERN HILL<br/>RESIDENCE ROAD</i></b> | <b><i>ROUTE 0500 COLD HARBOR<br/>ROAD</i></b> | <b><i>UNIT</i></b> |
|-----------------------|--|---|--------------------|
| BRIDGE                | 0  | 0   | EACH               |
| CATTLE GUARD          | 0  | 0   | EACH               |
| CULVERT               | 0  | 12  | EACH               |
| CURB                  | 0  | 322   | LINEAR FEET        |
| DROP INLET            | 0  | 1   | EACH               |
| GUARD WALL            | 0  | 0   | LINEAR FEET        |
| GUARDRAIL             | 0  | 0   | LINEAR FEET        |
| INTERSECTION          | 1  | 8   | EACH               |
| LOW WATER CROSSING    | 0  | 0   | EACH               |
| OVERHEAD SIGN         | 0  | 0   | EACH               |
| PARK BOUNDARY         | 0  | 0   | EACH               |
| PAVED DITCH           | 0  | 0   | LINEAR FEET        |
| PULLOUT               | 0  | 0   | EACH               |
| RAILROAD CROSSING     | 0  | 0   | EACH               |
| RETAINING WALL        | 0  | 0   | EACH               |
| STATE BOUNDARY        | 0  | 0   | EACH               |
| TRAFFIC LIGHT         | 0  | 0   | EACH               |
| TUNNEL                | 0  | 0   | EACH               |
| TURNOUT               | 0  | 0   | LINEAR FEET        |



# ***RICH: ROUTE MAINTENANCE FEATURES ROAD LOG***

## ***ROUTE 0303 : GARTHRIGHT HOUSE ROAD***

| <b><i>FROM<br/>MILEPOST</i></b> | <b><i>TO<br/>MILEPOST</i></b> | <b><i>FEATURE</i></b> | <b><i>SIDE</i></b> | <b><i>COMMENT</i></b>              |
|---------------------------------|-------------------------------|-----------------------|--------------------|------------------------------------|
| 0.000                           | 0.000                         |                       |                    | ROUTE BEGINS AT STATE<br>ROUTE 156 |
| 0.003                           | 0.003                         | CULVERT               | N/A                |                                    |
| 0.007                           | 0.007                         | INTERSECTION          | LEFT               | STATE HWY 156                      |
| 0.007                           | 0.007                         | INTERSECTION          | RIGHT              | STATE HWY 156                      |
| 0.018                           | 0.018                         | INTERSECTION          | LEFT               | UNPAVED PARKING                    |
| 0.063                           | 0.063                         | INTERSECTION          | LEFT               | RTE 303                            |
| 0.082                           | 0.082                         | INTERSECTION          | RIGHT              |                                    |
| 0.097                           | 0.097                         | CULVERT               | N/A                |                                    |
| 0.113                           | 0.113                         | INTERSECTION          | LEFT               | END OF LOOP                        |
| 0.120                           | 0.120                         |                       |                    | ROUTE ENDS AT END OF LOOP          |

# ***RICH: ROUTE MAINTENANCE FEATURES ROAD LOG***

## ***ROUTE 0304 : BATTLEFIELD PARK ROAD***

| <b><i>FROM<br/>MILEPOST</i></b> | <b><i>TO<br/>MILEPOST</i></b> | <b><i>FEATURE</i></b> | <b><i>SIDE</i></b> | <b><i>COMMENT</i></b>           |
|---------------------------------|-------------------------------|-----------------------|--------------------|---------------------------------|
| 0.000                           | 0.000                         |                       |                    | ROUTE BEGINS AT NEW MARKET ROAD |
| 0.005                           | 0.005                         | INTERSECTION          | RIGHT              | NEW MARKET ROAD                 |
| 0.007                           | 0.007                         | INTERSECTION          | LEFT               | NEW MARKET ROAD                 |
| 0.123                           | 0.123                         | CULVERT               | N/A                |                                 |
| 0.134                           | 0.134                         | CULVERT               | N/A                |                                 |
| 0.289                           | 0.289                         | CULVERT               | N/A                |                                 |
| 0.561                           | 0.561                         | CULVERT               | N/A                |                                 |
| 0.642                           | 0.642                         | INTERSECTION          | LEFT               |                                 |
| 0.718                           | 0.718                         | CULVERT               | N/A                |                                 |
| 0.809                           | 0.809                         | CULVERT               | N/A                |                                 |
| 0.825                           | 0.851                         | CURB                  | LEFT               |                                 |
| 0.828                           | 0.828                         | INTERSECTION          | LEFT               | RTE 907                         |
| 0.851                           | 0.851                         | INTERSECTION          | LEFT               | RTE 907                         |
| 0.931                           | 0.931                         | CULVERT               | N/A                |                                 |
| 1.019                           | 1.019                         | CULVERT               | N/A                |                                 |
| 1.071                           | 1.071                         | INTERSECTION          | LEFT               | MILL ROAD                       |
| 1.074                           | 1.074                         | INTERSECTION          | RIGHT              | MILL ROAD                       |
| 1.244                           | 1.244                         | INTERSECTION          | LEFT               |                                 |
| 1.274                           | 1.274                         | CULVERT               | N/A                |                                 |
| 1.312                           | 1.312                         | CULVERT               | N/A                |                                 |
| 1.468                           | 1.468                         | CULVERT               | N/A                |                                 |
| 1.531                           | 1.531                         | CULVERT               | N/A                |                                 |
| 1.739                           | 1.756                         | CURB                  | RIGHT              |                                 |
| 1.744                           | 1.744                         | INTERSECTION          | RIGHT              | RTE 908                         |
| 2.057                           | 2.057                         | CULVERT               | N/A                |                                 |
| 2.164                           | 2.164                         | INTERSECTION          | LEFT               | RTE 306                         |
| 2.221                           | 2.221                         | CULVERT               | N/A                |                                 |

# ***RICH: ROUTE MAINTENANCE FEATURES ROAD LOG***

## ***ROUTE 0304 : BATTLEFIELD PARK ROAD***

| <b><i>FROM<br/>MILEPOST</i></b> | <b><i>TO<br/>MILEPOST</i></b> | <b><i>FEATURE</i></b> | <b><i>SIDE</i></b> | <b><i>COMMENT</i></b>             |
|---------------------------------|-------------------------------|-----------------------|--------------------|-----------------------------------|
| 2.288                           | 2.288                         | INTERSECTION          | RIGHT              | RTE 401                           |
| 2.307                           | 2.307                         | INTERSECTION          | LEFT               | RTE 909                           |
| 2.319                           | 2.319                         | INTERSECTION          | LEFT               | RTE 909                           |
| 2.393                           | 2.393                         | INTERSECTION          | LEFT               | RTE 909                           |
| 2.418                           | 2.418                         | INTERSECTION          | LEFT               | RTE 909                           |
| 2.606                           | 2.606                         | CULVERT               | N/A                |                                   |
| 3.234                           | 3.234                         | INTERSECTION          | LEFT               | COUNTRY ROAD                      |
| 3.243                           | 3.243                         | CULVERT               | N/A                |                                   |
| 3.307                           | 3.307                         | CULVERT               | N/A                |                                   |
| 3.455                           | 3.472                         | CURB                  | RIGHT              |                                   |
| 3.458                           | 3.458                         | INTERSECTION          | RIGHT              | RTE 910                           |
| 3.479                           | 3.479                         | CULVERT               | N/A                |                                   |
| 3.491                           | 3.491                         | INTERSECTION          | LEFT               | RTE 308                           |
| 3.533                           | 3.533                         | CULVERT               | N/A                |                                   |
| 3.630                           | 3.630                         | INTERSECTION          | LEFT               | OSBORNE TURNPIKE                  |
| 3.634                           | 3.634                         | INTERSECTION          | RIGHT              | OSBORNE TURNPIKE                  |
| 3.640                           | 3.640                         |                       |                    | ROUTE ENDS AT OSBORNE<br>TURNPIKE |

# ***RICH: ROUTE MAINTENANCE FEATURES ROAD LOG***

## ***ROUTE 0306 : PICNIC ROAD***

| <b><i>FROM<br/>MILEPOST</i></b> | <b><i>TO<br/>MILEPOST</i></b> | <b><i>FEATURE</i></b> | <b><i>SIDE</i></b> | <b><i>COMMENT</i></b>        |
|---------------------------------|-------------------------------|-----------------------|--------------------|------------------------------|
| 0.000                           | 0.000                         |                       |                    | ROUTE BEGINS AT ROUTE 304    |
| 0.004                           | 0.004                         | INTERSECTION          | RIGHT              | RTE 304                      |
| 0.006                           | 0.006                         | INTERSECTION          | LEFT               | RTE 304                      |
| 0.018                           | 0.061                         | PAVED DITCH           | LEFT               |                              |
| 0.064                           | 0.064                         | CULVERT               | N/A                |                              |
| 0.078                           | 0.078                         | CULVERT               | N/A                |                              |
| 0.093                           | 0.093                         | INTERSECTION          | RIGHT              | RTE 911                      |
| 0.121                           | 0.121                         | INTERSECTION          | RIGHT              | RTE 912                      |
| 0.227                           | 0.227                         | CULVERT               | N/A                |                              |
| 0.397                           | 0.397                         | CULVERT               | N/A                |                              |
| 0.405                           | 0.405                         | INTERSECTION          | LEFT               | VARINA ROAD                  |
| 0.405                           | 0.405                         | INTERSECTION          | RIGHT              | VARINA ROAD                  |
| 0.410                           | 0.410                         |                       |                    | ROUTE ENDS AT VARINA<br>ROAD |

# ***RICH: ROUTE MAINTENANCE FEATURES ROAD LOG***

## ***ROUTE 0308 : HOKE BRADY ROAD***

| <b><i>FROM<br/>MILEPOST</i></b> | <b><i>TO<br/>MILEPOST</i></b> | <b><i>FEATURE</i></b> | <b><i>SIDE</i></b> | <b><i>COMMENT</i></b>     |
|---------------------------------|-------------------------------|-----------------------|--------------------|---------------------------|
| 0.000                           | 0.000                         |                       |                    | ROUTE BEGINS AT ROUTE 304 |
| 0.005                           | 0.005                         | INTERSECTION          | RIGHT              | RTE 304                   |
| 0.008                           | 0.008                         | INTERSECTION          | LEFT               | RTE 304                   |
| 0.017                           | 0.017                         | INTERSECTION          | RIGHT              | RTE 304                   |
| 0.107                           | 0.107                         | CULVERT               | N/A                |                           |
| 0.236                           | 0.236                         | CULVERT               | N/A                |                           |
| 0.257                           | 0.257                         | CULVERT               | N/A                |                           |
| 0.267                           | 0.267                         | INTERSECTION          | LEFT               | WEST CHAFFIN ROAD         |
| 0.368                           | 0.408                         | BRIDGE                | N/A                |                           |
| 0.372                           | 0.413                         | GUARDRAIL             | RIGHT              |                           |
| 0.388                           | 0.388                         | CULVERT               | N/A                |                           |
| 0.467                           | 0.467                         | INTERSECTION          | LEFT               | EAST CHAFFIN ROAD         |
| 1.170                           | 1.170                         | CULVERT               | N/A                |                           |
| 1.243                           | 1.243                         | CULVERT               | N/A                |                           |
| 1.292                           | 1.292                         | INTERSECTION          | RIGHT              |                           |
| 1.893                           | 1.893                         | INTERSECTION          | RIGHT              | KINGSLAND ROAD            |
| 1.910                           | 1.910                         | INTERSECTION          | RIGHT              | KINGSLAND ROAD            |
| 2.114                           | 2.114                         | CULVERT               | N/A                |                           |
| 2.154                           | 2.154                         | CULVERT               | N/A                |                           |
| 2.329                           | 2.329                         | CULVERT               | N/A                |                           |
| 2.455                           | 2.455                         | CULVERT               | N/A                |                           |
| 2.626                           | 2.645                         | BRIDGE                | N/A                |                           |
| 2.630                           | 2.650                         | GUARDRAIL             | RIGHT              |                           |
| 2.632                           | 2.650                         | GUARDRAIL             | LEFT               |                           |
| 2.824                           | 2.824                         | CULVERT               | N/A                |                           |
| 2.830                           | 2.830                         |                       |                    | ROUTE ENDS AT ROUTE 917   |
| 2.845                           | 2.845                         | INTERSECTION          | RIGHT              | RTE 917                   |

# ***RICH: ROUTE MAINTENANCE FEATURES ROAD LOG***

***ROUTE 0400 : WATT HOUSE LOOP ROAD***

| <b><i>FROM<br/>MILEPOST</i></b> | <b><i>TO<br/>MILEPOST</i></b> | <b><i>FEATURE</i></b> | <b><i>SIDE</i></b> | <b><i>COMMENT</i></b>     |
|---------------------------------|-------------------------------|-----------------------|--------------------|---------------------------|
| 0.000                           | 0.000                         |                       |                    | ROUTE BEGINS AT ROUTE 902 |
| 0.007                           | 0.007                         | INTERSECTION          | LEFT               | RTE 902                   |
| 0.007                           | 0.007                         | INTERSECTION          | RIGHT              | RTE 902                   |
| 0.053                           | 0.053                         | INTERSECTION          | RIGHT              |                           |
| 0.146                           | 0.146                         | INTERSECTION          | LEFT               | RTE 902                   |
| 0.150                           | 0.150                         |                       |                    | ROUTE ENDS AT ROUTE 902   |

# ***RICH: ROUTE MAINTENANCE FEATURES ROAD LOG***

## ***ROUTE 0401 : MAINTENANCE WAY***

| <b><i>FROM<br/>MILEPOST</i></b> | <b><i>TO<br/>MILEPOST</i></b> | <b><i>FEATURE</i></b> | <b><i>SIDE</i></b> | <b><i>COMMENT</i></b>     |
|---------------------------------|-------------------------------|-----------------------|--------------------|---------------------------|
| 0.000                           | 0.000                         |                       |                    | ROUTE BEGINS AT ROUTE 304 |
| 0.005                           | 0.005                         | CULVERT               | N/A                |                           |
| 0.005                           | 0.005                         | INTERSECTION          | LEFT               | RTE 304                   |
| 0.006                           | 0.006                         | CULVERT               | N/A                |                           |
| 0.006                           | 0.006                         | INTERSECTION          | RIGHT              | RTE 304                   |
| 0.057                           | 0.057                         | INTERSECTION          | LEFT               | RTE 914                   |
| 0.071                           | 0.071                         | INTERSECTION          | RIGHT              | RTE 913                   |
| 0.164                           | 0.164                         | INTERSECTION          | LEFT               | RTE 407                   |
| 0.198                           | 0.198                         | INTERSECTION          | RIGHT              | RTE 916                   |
| 0.214                           | 0.214                         | INTERSECTION          | RIGHT              | RTE 915 (END)             |
| 0.220                           | 0.220                         |                       |                    | ROUTE ENDS AT END         |

# ***RICH: ROUTE MAINTENANCE FEATURES ROAD LOG***

***ROUTE 0402 : MALVERN HILL RESIDENCE ROAD***

| <b><i>FROM<br/>MILEPOST</i></b> | <b><i>TO<br/>MILEPOST</i></b> | <b><i>FEATURE</i></b> | <b><i>SIDE</i></b> | <b><i>COMMENT</i></b>          |
|---------------------------------|-------------------------------|-----------------------|--------------------|--------------------------------|
| 0.000                           | 0.000                         |                       |                    | ROUTE BEGINS AT ROUTE 920      |
| 0.007                           | 0.007                         | INTERSECTION          | RIGHT              | RTE 920                        |
| 0.140                           | 0.140                         |                       |                    | ROUTE ENDS AT PARK<br>BOUNDARY |



# ***RICH: ROUTE MAINTENANCE FEATURES ROAD LOG***

## ***ROUTE 0500 : COLD HARBOR ROAD***

| <b><i>FROM<br/>MILEPOST</i></b> | <b><i>TO<br/>MILEPOST</i></b> | <b><i>FEATURE</i></b> | <b><i>SIDE</i></b> | <b><i>COMMENT</i></b>            |
|---------------------------------|-------------------------------|-----------------------|--------------------|----------------------------------|
| 0.000                           | 0.000                         |                       |                    | ROUTE BEGINS AT ROUTE 903        |
| 0.002                           | 0.002                         | CULVERT               | N/A                |                                  |
| 0.004                           | 0.004                         | INTERSECTION          | RIGHT              | RTE 903                          |
| 0.111                           | 0.111                         | CULVERT               | N/A                |                                  |
| 0.239                           | 0.239                         | CULVERT               | N/A                |                                  |
| 0.397                           | 0.397                         | CULVERT               | N/A                |                                  |
| 0.401                           | 0.423                         | CURB                  | RIGHT              |                                  |
| 0.413                           | 0.413                         | INTERSECTION          | RIGHT              | RTE 904                          |
| 0.458                           | 0.458                         | CULVERT               | N/A                |                                  |
| 0.511                           | 0.511                         | CULVERT               | N/A                |                                  |
| 0.577                           | 0.577                         | CULVERT               | N/A                |                                  |
| 0.666                           | 0.666                         | CULVERT               | N/A                |                                  |
| 0.672                           | 0.672                         | INTERSECTION          | LEFT               |                                  |
| 0.682                           | 0.682                         | INTERSECTION          | LEFT               | RTE 404                          |
| 0.717                           | 0.717                         | CULVERT               | N/A                |                                  |
| 0.719                           | 0.719                         | DROP INLET            | RIGHT              |                                  |
| 0.755                           | 0.785                         | CURB                  | RIGHT              |                                  |
| 0.763                           | 0.763                         | INTERSECTION          | RIGHT              | RTE 905                          |
| 0.766                           | 0.775                         | CURB                  | RIGHT              |                                  |
| 0.778                           | 0.778                         | INTERSECTION          | RIGHT              | RTE 905                          |
| 0.794                           | 0.794                         | CULVERT               | N/A                |                                  |
| 0.868                           | 0.868                         | CULVERT               | N/A                |                                  |
| 1.004                           | 1.004                         | CULVERT               | N/A                |                                  |
| 1.177                           | 1.177                         | INTERSECTION          | RIGHT              | STATE RTE 156                    |
| 1.179                           | 1.179                         | INTERSECTION          | LEFT               | STATE RTE 156                    |
| 1.180                           | 1.180                         |                       |                    | ROUTE ENDS AT STATE<br>ROUTE 156 |

## APPENDIX A: GLOSSARY OF TERMS AND ABBREVIATIONS

| TERM OR ABBREVIATION      | DESCRIPTION OR DEFINITION   |
|---------------------------|---|
| 4800                      | Numeric Code for Richmond National Battlefield Park   |
| AADT                      | Annually Adjusted Daily Traffic. Average daily traffic adjusted for the term period comprising 80% of annual visitation |
| CRS                       | Condition Rating Sheets. (Section 5)  |
| Drainage Condition Rating | A visual rating (Good, Poor) of the drainage condition. (see Section 10)  |
| Excellent                 | Excellent rating with an index value of 95 or greater   |
| Fair                      | Fair rating with an index value between 61 and 84   |
| Func. Class               | Functional Classification (see Route ID, Section 4)   |
| Good                      | Good rating with an index value between 85 and 94   |
| IRI                       | International Roughness Index   |
| Lane Width                | Distance from road centerline to fogline, or from centerline to edge-of-pavement when no fogline exists                 |
| MRR                       | Manually Rated Route  |
| NA                        | Not Applicable  |
| NC                        | Not Collected   |
| Paved Width               | Distance from edge-of-pavement to edge-of-pavement  |
| PCR                       | Pavement Condition Rating (see Section 10)  |
| Poor                      | Poor Rating with an index value of 60 or less   |

|                           |  |
|---------------------------|--|
| RCI                       | Roughness Condition Index  |
| RICH                      | Alpha Code for Richmond National Battlefield Park  |
| SADT                      | Seasonal Annual Daily Traffic. Average daily traffic for the total defined "season"          |
| SCR                       | Surface Condition Rating (see Section 10)  |
| Shoulder Condition Rating | Visual rating (Good, Poor) of the condition of shoulder. (see Section 10)                    |
| Shoulder Width            | Distance from fogline to hinge point, or if no fogline, from edge-of-pavement to hinge point |

## APPENDIX B: DESCRIPTION OF RATING SYSTEM

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

Data is collected on the following distresses and conditions:

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

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

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

### Rating Index Formulas

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

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

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

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

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

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

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

**Surface Condition Rating (SCR)** =  $100 - [(100 - AC\_INDEX) + (100 - LC\_INDEX) + (100 - TC\_INDEX) + (100 - PATCH\_INDEX) + (100 - RUT\_INDEX)]$

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

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

## **Parking Lot and Manually Rated Road Condition Rating**

### **Surface Condition Distresses- Chip Seal:**

Raveling – loss of surface rock chips revealing previous surface

Bleeding – asphalt or tar is bleeding through to the surface where surface looks slick with asphalt

Rutting

Potholes/Patching

### **Ratings - Chip Seal:**

Excellent – None of the surface affected by the above (recently constructed)

Good – Less than 10% of surface affected by the above

Fair – Between 10% and 40% of surface affected by the above

Poor – More than 40% of surface affected by the above

### **Surface Condition - Asphalt:**

Cracking of any type

Rutting

Potholes/Patching

### **Ratings - Asphalt:**

Excellent – None of the surface affected by the above (recently constructed)

Good – Less than 10% of surface affected by the above

Fair – Between 10% and 40% of surface affected by the above

Poor – More than 40% of surface affected by the above

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

|           |    |
|-----------|----|
| Excellent | 97 |
| Good      | 90 |
| Fair      | 73 |
| Poor      | 45 |

### Drainage Condition Rating Definitions

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

### Drainage Condition Rating Criteria

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

#### **Good Drainage**

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

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

#### **Poor Drainage**

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

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

### Shoulder Condition Rating Definitions

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

### **Shoulder Rating Criteria**

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

#### **Good Shoulders**

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

#### **Poor Shoulder**

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

## **APPENDIX C: DIGITAL IMAGE INFORMATION**

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

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



## APPENDIX D: METADATA

### ARAN ROUTE GPS DATA

Background information of route spatial data.

**GPS Records:** GPS data for NPS routes is stored in the MS Access database for the park. The coordinates of the road traces are stored in the 'PMS\_20' table in the 'GPS\_LAT' and 'GPS\_LON' fields.

**Data Collection Device:**

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

**Accuracy:** Expected ground accuracy is 1 meter \*

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

**Geographic Datum:** WGS 1984

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

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

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

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

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

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

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

### Specific Caveats

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

space and to reduce data analysis efforts, the assumption was made that the paved surface condition of a route's primary lane adequately represents the surface condition of the full roadway. Therefore, in the database, opposite-direction records in the PMS\_Visidata table do not include assessed values for roadway surface distresses. Values such as 0, N/A, -1, or a repeat of the primary-direction assessed value indicate that no assessment was performed. The PMS\_20 and PMS\_Mile tables simply exclude all opposite routes.

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

### **Key to Notes in Tables**

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

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

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

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

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

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

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

## Access Database Metadata

### Master Table Metadata:

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

**PMS\_Feature Table Metadata:**

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

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

**PMS 20, PMS Mile & PMS Visidata Tables Metadata:**

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

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

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



### **Cycle 3 Shapefile Metadata**

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

All shapefiles have the following spatial characteristics:

*Geographic\_Coordinate\_Units*: Decimal degrees  
*Spheroid*: WGS 1984





# rich\_mi

Metadata also available as

## Metadata:

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

### *Identification\_Information:*

#### *Citation:*

##### *Citation\_Information:*

*Originator:* The TSR Group

*Publication\_Date:* 2005

*Title:* rich\_mi

*Geospatial\_Data\_Presentation\_Form:* vector digital data

*Online\_Linkage:* Not Available

#### *Description:*

*Abstract:* Routes

*Purpose:* Road Inventory Program

##### *Supplemental\_Information:*

Data created by The TSR Group from GPS coordinates provided in the PMS\_20 table. The shapefile is processed to aggregate adjacent segments with the same PCR rating provided in the PMS\_mile table.

#### *Time\_Period\_of\_Content:*

##### *Time\_Period\_Information:*

##### *Single\_Date/Time:*

*Calendar\_Date:* 2005

*Currentness\_Reference:* ground condition

#### *Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* As per RIP cycle

#### *Spatial\_Domain:*

##### *Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -77.387756

*East\_Bounding\_Coordinate:* -77.250298

*North\_Bounding\_Coordinate:* 37.593246

*South\_Bounding\_Coordinate:* 37.392788

#### *Keywords:*

##### *Theme:*

*Theme\_Keyword\_Thesaurus:* RICH

*Theme\_Keyword:* RICH

*Access\_Constraints:* None

*Use\_Constraints:* Redistribution needs permission from EFLHD/NPS

*Point\_of\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Dan VanGilder

*Contact\_Organization:* EFLHD

*Contact\_Position:* GIS Coordinator

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 21400 Ridgetop Circle

*City:* Sterling

*State\_or\_Province:* Virginia

*Postal\_Code:* 20166

*Country:* United States

*Contact\_Voice\_Telephone:* 703-404-6361

*Contact\_Electronic\_Mail\_Address:* dvangilder@fhwa.dot.gov

*Native\_Data\_Set\_Environment:*

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

---

*Data\_Quality\_Information:*

*Attribute\_Accuracy:*

*Attribute\_Accuracy\_Report:* Good

*Completeness\_Report:* Complete for routes

*Lineage:*

*Source\_Information:*

*Type\_of\_Source\_Media:* GPS

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*Spatial\_Data\_Organization\_Information:*

*Direct\_Spatial\_Reference\_Method:* Vector

*Point\_and\_Vector\_Object\_Information:*

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* String

*Point\_and\_Vector\_Object\_Count:* 12

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*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

*Geographic:*

*Latitude\_Resolution:* 0.000000

*Longitude\_Resolution:* 0.000000

*Geographic\_Coordinate\_Units:* Decimal degrees

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1927

*Ellipsoid\_Name:* Clarke 1866

*Semi-major\_Axis*: 6378206.400000  
*Denominator\_of\_Flattening\_Ratio*: 294.978698

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*Entity\_and\_Attribute\_Information*:

*Detailed\_Description*:

*Entity\_Type*:

*Entity\_Type\_Label*: rich\_mi

*Attribute*:

*Attribute\_Label*: FID

*Attribute\_Definition*: Internal feature number.

*Attribute\_Definition\_Source*: ESRI

*Attribute\_Domain\_Values*:

*Unrepresentable\_Domain*:

Sequential unique whole numbers that are automatically generated.

*Attribute*:

*Attribute\_Label*: Shape

*Attribute\_Definition*: Feature geometry.

*Attribute\_Definition\_Source*: ESRI

*Attribute\_Domain\_Values*:

*Unrepresentable\_Domain*: Coordinates defining the features.

*Attribute*:

*Attribute\_Label*: FNODE\_

*Attribute\_Definition*: Length of feature

*Attribute\_Definition\_Source*: ESRI

*Attribute*:

*Attribute\_Label*: TNODE\_

*Attribute*:

*Attribute\_Label*: LPOLY\_

*Attribute\_Definition*: Route number

*Attribute\_Definition\_Source*: Route ID Meeting

*Attribute*:

*Attribute\_Label*: RPOLY\_

*Attribute\_Definition*: Collected route length

*Attribute\_Definition\_Source*: ARAN Data Collection

*Attribute*:

*Attribute\_Label*: LENGTH

*Attribute\_Definition*: Numeric PCR definition

*Attribute\_Domain\_Values*:

*Range\_Domain*:

*Range\_Domain\_Minimum*: 0

*Range\_Domain\_Maximum*: 100

*Attribute*:

*Attribute\_Label*: RICH\_MI\_

*Attribute\_Definition*: Verbal PCR definition

*Attribute\_Domain\_Values*:

*Enumerated\_Domain*:

*Enumerated\_Domain\_Value*: POOR

*Enumerated\_Domain\_Value\_Definition*: PCR value <= 60

*Enumerated\_Domain*:

*Enumerated\_Domain\_Value:* FAIR

*Enumerated\_Domain\_Value\_Definition:* PCR value 61-84

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* GOOD

*Enumerated\_Domain\_Value\_Definition:* PCR value 85-94

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* EXCELLENT

*Enumerated\_Domain\_Value\_Definition:* PCR value 95-100

*Attribute:*

*Attribute\_Label:* RICH\_MI\_ID

*Attribute\_Definition:* Indicates whether feature has been edited for graphic purposes.

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 1

*Enumerated\_Domain\_Value\_Definition:* Edit has been made to feature for graphic purposes

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 0

*Enumerated\_Domain\_Value\_Definition:* No edit made to feature.

*Attribute:*

*Attribute\_Label:* ID

*Attribute:*

*Attribute\_Label:* RTE\_NO

*Attribute:*

*Attribute\_Label:* BMP

*Attribute:*

*Attribute\_Label:* EMP

*Attribute:*

*Attribute\_Label:* PCR

*Attribute:*

*Attribute\_Label:* PCR\_RATE

*Attribute:*

*Attribute\_Label:* RT\_LENGTH

*Attribute:*

*Attribute\_Label:* PCRMI

*Attribute:*

*Attribute\_Label:* PCR\_RATEMI

*Attribute:*

*Attribute\_Label:* PCR\_RATEAV

*Attribute:*

*Attribute\_Label:* PCRAV

*Attribute:*

*Attribute\_Label:* TSR\_EDIT

*Distribution\_Information:*

*Resource\_Description:* Downloadable Data

*Standard\_Order\_Process:*

*Digital\_Form:*

*Digital\_Transfer\_Information:*

*Transfer\_Size*: 0.016

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*Metadata\_Reference\_Information*:

*Metadata\_Date*: 20060119

*Metadata\_Contact*:

*Contact\_Information*:

*Contact\_Organization\_Primary*:

*Contact\_Organization*: EFLHD Sterling

*Contact\_Person*: Dan VanGilder

*Contact\_Position*: GIS Coordinator

*Contact\_Address*:

*Address\_Type*: mailing and physical address

*City*: Sterling

*State\_or\_Province*: Virginia

*Postal\_Code*: 20166

*Country*: United States

*Contact\_Voice\_Telephone*: 703-404-6361

*Contact\_Electronic\_Mail\_Address*: dvangilder@fhwa.dot.gov

*Metadata\_Standard\_Name*: FGDC Content Standards for Digital Geospatial Metadata

*Metadata\_Standard\_Version*: FGDC-STD-001-1998

*Metadata\_Time\_Convention*: local time

*Metadata\_Extensions*:

*Online\_Linkage*: <<http://www.esri.com/metadata/esriprof80.html>>

*Profile\_Name*: ESRI Metadata Profile

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Generated by [mp](#) version 2.7.33 on Thu Jan 19 12:44:12 2006



# rich\_mi\_pt

Metadata also available as

## Metadata:

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

### *Identification\_Information:*

#### *Citation:*

##### *Citation\_Information:*

*Originator:* The TSR Group

*Publication\_Date:* 2005

*Title:* rich\_mi\_pt

*Geospatial\_Data\_Presentation\_Form:* vector digital data

*Online\_Linkage:* Not Available

#### *Description:*

*Abstract:* Mile Points

*Purpose:* Road Inventory Program

##### *Supplemental\_Information:*

Data created by The TSR Group from GPS coordinates provided in the PMS\_20 table. All attributes found in the PMS\_20 table are found on the miles points.

#### *Time\_Period\_of\_Content:*

##### *Time\_Period\_Information:*

##### *Single\_Date/Time:*

*Calendar\_Date:* 2005

*Currentness\_Reference:* ground condition

#### *Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* Not Available

#### *Spatial\_Domain:*

##### *Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -77.385757

*East\_Bounding\_Coordinate:* -77.250298

*North\_Bounding\_Coordinate:* 37.590492

*South\_Bounding\_Coordinate:* 37.403332

#### *Keywords:*

##### *Theme:*

*Theme\_Keyword\_Thesaurus:* RICH

*Theme\_Keyword:* RICH

*Access\_Constraints:* None

*Use\_Constraints:* Redistribution needs permission from EFLHD/NPS

*Point\_of\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Dan VanGilder

*Contact\_Organization:* EFLHD Sterling

*Contact\_Position:* GIS Coordinator

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 21400 Ridgetop Circle

*City:* Sterling

*State\_or\_Province:* Virginia

*Postal\_Code:* 20166

*Country:* United States

*Contact\_Voice\_Telephone:* 703-404-6361

*Contact\_Electronic\_Mail\_Address:* dvangilder@fhwa.dot.gov

*Native\_Data\_Set\_Environment:*

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

---

*Data\_Quality\_Information:*

*Attribute\_Accuracy:*

*Attribute\_Accuracy\_Report:* Good

*Completeness\_Report:* Complete for mile points

*Lineage:*

*Source\_Information:*

*Type\_of\_Source\_Media:* GPS

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*Spatial\_Data\_Organization\_Information:*

*Direct\_Spatial\_Reference\_Method:* Vector

*Point\_and\_Vector\_Object\_Information:*

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Entity point

*Point\_and\_Vector\_Object\_Count:* 14

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*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

*Geographic:*

*Latitude\_Resolution:* 0.000000

*Longitude\_Resolution:* 0.000000

*Geographic\_Coordinate\_Units:* Decimal degrees

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1927

*Ellipsoid\_Name:* Clarke 1866

*Semi-major\_Axis:* 6378206.400000

*Denominator\_of\_Flattening\_Ratio:* 294.978698

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*Entity\_and\_Attribute\_Information:*

*Detailed\_Description:*

*Entity\_Type:*

*Entity\_Type\_Label:* rich\_mi\_pt

*Attribute:*

*Attribute\_Label:* FID

*Attribute\_Definition:* Internal feature number.

*Attribute\_Definition\_Source:* ESRI

*Attribute\_Domain\_Values:*

*Unrepresentable\_Domain:*

Sequential unique whole numbers that are automatically generated.

*Attribute:*

*Attribute\_Label:* Shape

*Attribute\_Definition:* Feature geometry.

*Attribute\_Definition\_Source:* ESRI

*Attribute\_Domain\_Values:*

*Unrepresentable\_Domain:* Coordinates defining the features.

*Attribute:*

*Attribute\_Label:* RIP\_CYCLE

*Attribute\_Definition:* 3, for data collection cycle 3

*Attribute\_Definition\_Source:* Route ID Meeting

*Attribute:*

*Attribute\_Label:* STATE

*Attribute\_Definition:* State where route is located

*Attribute\_Definition\_Source:* Route ID Meeting

*Attribute:*

*Attribute\_Label:* PARK\_ALPHA

*Attribute\_Definition:* Park alpha code

*Attribute\_Definition\_Source:* Route ID Meeting

*Attribute:*

*Attribute\_Label:* PARK\_NO

*Attribute\_Definition:* Park numeric code

*Attribute\_Definition\_Source:* Route ID Meeting

*Attribute:*

*Attribute\_Label:* RTE\_NO

*Attribute\_Definition:* Route number

*Attribute\_Definition\_Source:* Route ID Meeting

*Attribute:*

*Attribute\_Label:* FUNCT\_CLAS

*Attribute\_Definition:* Route functional class

*Attribute\_Definition\_Source:* Route ID Meeting

*Attribute:*

*Attribute\_Label:* DIRECTION

*Attribute\_Definition:* Survey lane: PRI (primary) or OPP (opposite)

*Attribute\_Definition\_Source:* Route ID Meeting

*Attribute:*

*Attribute\_Label:* BEG\_MP

*Attribute\_Definition:* MP at end of road interval described by database record

*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* END\_MP

*Attribute\_Definition:* MP at end of road interval described by database record

*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* INT\_LENGTH

*Attribute\_Definition:* Length of road interval as aggregated from data table

*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* RTE\_LENGTH

*Attribute\_Definition:* Collected route length

*Attribute\_Definition\_Source:* ARAN Data Collection

*Attribute:*

*Attribute\_Label:* NO\_LANES

*Attribute\_Definition:* Number of lanes in route

*Attribute\_Definition\_Source:* ARAN Data Collection

*Attribute:*

*Attribute\_Label:* LANE\_NO

*Attribute\_Definition:* Data collection lane

*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* WX\_LANE\_WI

*Attribute\_Definition:* WiseCrax (crack detection software) analysis width

*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* LANE\_WIDTH

*Attribute\_Definition:* Width of lane

*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* PAVE\_WIDTH

*Attribute\_Definition:* Full pavement width

*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* SHLD\_WIDTH

*Attribute\_Definition:* Left shoulder width

*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* SHLD\_WID\_1

*Attribute\_Definition:* Right shoulder width

*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* SHLD\_COND\_

*Attribute\_Definition:* Left shoulder condition

*Attribute\_Definition\_Source:* ARAN Data Collection

*Attribute:*

*Attribute\_Label:* SHLD\_COND1

*Attribute\_Definition:* Right shoulder condition

*Attribute\_Definition\_Source:* ARAN Data Collection

*Attribute:*

*Attribute\_Label:* DRAIN\_COND  
*Attribute\_Definition:* Left drainage condition  
*Attribute\_Definition\_Source:* ARAN Data Collection

*Attribute:*

*Attribute\_Label:* DRAIN\_CO\_1  
*Attribute\_Definition:* Right drainage condition  
*Attribute\_Definition\_Source:* ARAN Data Collection

*Attribute:*

*Attribute\_Label:* SURF\_TYPE  
*Attribute\_Definition:* Surface type of route  
*Attribute\_Definition\_Source:* ARAN Data Collection

*Attribute:*

*Attribute\_Label:* PCR  
*Attribute\_Definition:* Pavement Condition Rating  
*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* RCI  
*Attribute\_Definition:* Roughness Condition Index; -1 if invalid IRI  
*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* SCR  
*Attribute\_Definition:* Surface Condition Rating  
*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* IRI\_AVG  
*Attribute\_Definition:* Average IRI  
*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* IRI\_SD  
*Attribute\_Definition:* IRI Standard Deviation  
*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* IRI\_L  
*Attribute\_Definition:* Left wheel path IRI  
*Attribute\_Definition\_Source:* ARAN Data Collection

*Attribute:*

*Attribute\_Label:* IRI\_R  
*Attribute\_Definition:* Right wheel path IRI  
*Attribute\_Definition\_Source:* ARAN Data Collection

*Attribute:*

*Attribute\_Label:* IRI\_FLAG  
*Attribute\_Definition:* -1 if invalid IRI data  
*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* RUT\_INDEX  
*Attribute\_Definition:* Rut index  
*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* RUT\_AVG  
*Attribute\_Definition:* Average rut depth of both wheelpaths  
*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:**Attribute\_Label:* RUT\_MAX*Attribute\_Definition:* Maximum rut depth of both wheelpaths*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* RUT\_SD*Attribute\_Definition:* Rut depth standard deviation*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* RUT\_LOW*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* RUT\_MED*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* RUT\_HI*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* XFALL*Attribute\_Definition:* Cross fall at start of road interval*Attribute\_Definition\_Source:* ARAN Data Collection*Attribute:**Attribute\_Label:* GRADE*Attribute\_Definition:* Grade at start of road interval*Attribute\_Definition\_Source:* ARAN Data Collection*Attribute:**Attribute\_Label:* AC\_INDEX*Attribute\_Definition:* Alligator cracking index*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* AC\_LOW*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* AC\_MED*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* AC\_HI*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:**Attribute\_Label:* LC\_INDEX*Attribute\_Definition:* Longitudinal cracking index*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* LC\_LOW*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* LC\_MED*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* LC\_HI*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* TC\_INDEX*Attribute\_Definition:* Transverse cracking index*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* TC\_LOW*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* TC\_MED*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* TC\_HI*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* PATCH\_INDE*Attribute\_Definition:* Patching index*Attribute\_Definition\_Source:* Contractor Post-processing*Attribute:**Attribute\_Label:* PATCHING*Attribute\_Definition:* Percent of WiseCrax measured lane area affected by patching

*Attribute\_Definition\_Source*: Contractor Post-processing  
*Attribute*:  
*Attribute\_Label*: GPS\_LAT  
*Attribute\_Definition*: Latitude coordinate  
*Attribute\_Definition\_Source*: ARAN Data Collection  
*Attribute*:  
*Attribute\_Label*: GPS\_LON  
*Attribute\_Definition*: Longitude coordinate  
*Attribute\_Definition\_Source*: ARAN Data Collection  
*Attribute*:  
*Attribute\_Label*: GPS\_ELEV  
*Attribute\_Definition*: Elevation  
*Attribute\_Definition\_Source*: ARAN Data Collection  
*Attribute*:  
*Attribute\_Label*: GPS\_MODE  
*Attribute\_Definition*: GPS mode during collection  
*Attribute\_Definition\_Source*: ARAN Data Collection  
*Attribute*:  
*Attribute\_Label*: VIDEO  
*Attribute\_Definition*: Removable USB video hard drive number  
*Attribute\_Definition\_Source*: Contractor Post-processing  
*Attribute*:  
*Attribute\_Label*: IMAGE  
*Attribute\_Definition*: Filename of .jpg image showing road interval  
*Attribute\_Definition\_Source*: Contractor Post-processing  
*Attribute*:  
*Attribute\_Label*: SPEED  
*Attribute\_Definition*: Average ARAN speed during data collection  
*Attribute\_Definition\_Source*: ARAN Data Collection  
*Attribute*:  
*Attribute\_Label*: BRIDGE\_FL  
*Attribute\_Definition*: Flag indicating presence of bridge in interval  
*Attribute\_Definition\_Source*: ARAN Data Collection  
*Attribute*:  
*Attribute\_Label*: CONSTR\_FL  
*Attribute\_Definition*: Flag indicating construction in interval  
*Attribute\_Definition\_Source*: ARAN Data Collection  
*Attribute*:  
*Attribute\_Label*: LANEDEV\_FL  
*Attribute\_Definition*: Flag indicating lane deviation in interval  
*Attribute\_Definition\_Source*: ARAN Data Collection  
*Attribute*:  
*Attribute\_Label*: DATE  
*Attribute\_Definition*: Data collection date  
*Attribute\_Definition\_Source*: ARAN Data Collection  
*Attribute*:  
*Attribute\_Label*: NODISTRESS  
*Attribute\_Definition*: Flag indicating absence of pavement distress  
*Attribute\_Definition\_Source*: Contractor Post-processing  
*Attribute*:  
*Attribute\_Label*: FILENAME



*Attribute\_Definition:* Filename of raw data files  
*Attribute\_Definition\_Source:* ARAN Data Collection

*Attribute:*

*Attribute\_Label:* SECTION  
*Attribute\_Definition:* route section ID  
*Attribute\_Definition\_Source:* Route ID Meeting / ARAN Data Collection

*Attribute:*

*Attribute\_Label:* FKEY  
*Attribute\_Definition:* Unique record ID  
*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* VISI\_FROM  
*Attribute\_Definition:* Raw MP of first video frame in section  
*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* VISI\_TO  
*Attribute\_Definition:* Raw MP of last video frame in section  
*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* IDKEY  
*Attribute\_Definition:* Unique record ID used by VisiData  
*Attribute\_Definition\_Source:* Contractor Post-processing

*Attribute:*

*Attribute\_Label:* MP\_REF  
*Attribute\_Definition:* Range of mileage to play in VisiData  
*Attribute\_Definition\_Source:* Contractor Post-processing

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*Distribution\_Information:*

*Resource\_Description:* Downloadable Data

*Standard\_Order\_Process:*

*Digital\_Form:*

*Digital\_Transfer\_Information:*

*Transfer\_Size:* 0.030

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*Metadata\_Reference\_Information:*

*Metadata\_Date:* 20060119

*Metadata\_Contact:*

*Contact\_Information:*

*Contact\_Organization\_Primary:*

*Contact\_Organization:* EFLHD Sterling

*Contact\_Person:* Dan VanGilder

*Contact\_Position:* GIS Coordinator

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 21400 Ridgetop Circle

*City:* Sterling

*State\_or\_Province:* Virginia

*Postal\_Code:* 20166

*Country:* United States

*Contact\_Voice\_Telephone:* 703-404-6361

*Contact\_Electronic\_Mail\_Address:* dvangilder@fhwa.dot.gov

*Metadata\_Standard\_Name:* FGDC Content Standards for Digital Geospatial Metadata

*Metadata\_Standard\_Version:* FGDC-STD-001-1998

*Metadata\_Time\_Convention:* local time

*Metadata\_Extensions:*

*Online\_Linkage:* <<http://www.esri.com/metadata/esriprof80.html>>

*Profile\_Name:* ESRI Metadata Profile

---

Generated by [mp](#) version 2.7.33 on Thu Jan 19 12:23:16 2006

# rich\_pkg\_03\_map

Metadata also available as

## Metadata:

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

### *Identification\_Information:*

#### *Citation:*

##### *Citation\_Information:*

*Originator:* Eastern Federal Lands Highway Division

*Publication\_Date:* Unknown

*Title:* rich\_pkg\_03\_map

*Geospatial\_Data\_Presentation\_Form:* vector digital data

*Online\_Linkage:* Not Available

#### *Description:*

*Abstract:* Copy of Parking Areas

*Purpose:* Road Inventory Program

##### *Supplemental\_Information:*

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

#### *Time\_Period\_of\_Content:*

##### *Time\_Period\_Information:*

##### *Single\_Date/Time:*

*Calendar\_Date:* 4/11/2002

*Currentness\_Reference:* ground condition

#### *Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* As per RIP cycle

#### *Spatial\_Domain:*

##### *Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -77.427345

*East\_Bounding\_Coordinate:* -77.248955

*North\_Bounding\_Coordinate:* 37.598557

*South\_Bounding\_Coordinate:* 37.349856

#### *Keywords:*

##### *Theme:*

*Theme\_Keyword\_Thesaurus:* RICH

*Theme\_Keyword:* RICH

*Access\_Constraints:* None

*Use\_Constraints:* Redistribution needs permission from EFLHD/NPS

*Point\_of\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Dan VanGilder

*Contact\_Organization:* EFLHD

*Contact\_Position:* GIS Coordinator

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 21400 Ridgetop Circle

*City:* Sterling

*State\_or\_Province:* Virginia

*Postal\_Code:* 20166

*Country:* United States

*Contact\_Voice\_Telephone:* 703-404-6361

*Contact\_Electronic\_Mail\_Address:* dvangilder@fhwa.dot.gov

*Native\_Data\_Set\_Environment:*

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

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*Data\_Quality\_Information:*

*Attribute\_Accuracy:*

*Attribute\_Accuracy\_Report:* Good

*Completeness\_Report:* Complete for parking areas

*Lineage:*

*Source\_Information:*

*Type\_of\_Source\_Media:* GPS

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*Spatial\_Data\_Organization\_Information:*

*Direct\_Spatial\_Reference\_Method:* Vector

*Point\_and\_Vector\_Object\_Information:*

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* G-polygon

*Point\_and\_Vector\_Object\_Count:* 20

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*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

*Geographic:*

*Latitude\_Resolution:* 0.000000

*Longitude\_Resolution:* 0.000000

*Geographic\_Coordinate\_Units:* Decimal degrees

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1927

*Ellipsoid\_Name:* Clarke 1866

*Semi-major\_Axis:* 6378206.400000

*Denominator\_of\_Flattening\_Ratio:* 294.978698

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*Entity\_and\_Attribute\_Information:*

*Detailed\_Description:*

*Entity\_Type:*

*Entity\_Type\_Label:* rich\_pkg\_03\_map

*Attribute:*

*Attribute\_Label:* FID

*Attribute\_Definition:* Internal feature number.

*Attribute\_Definition\_Source:* ESRI

*Attribute\_Domain\_Values:*

*Unrepresentable\_Domain:*

Sequential unique whole numbers that are automatically generated.

*Attribute:*

*Attribute\_Label:* Shape

*Attribute\_Definition:* Feature geometry.

*Attribute\_Definition\_Source:* ESRI

*Attribute\_Domain\_Values:*

*Unrepresentable\_Domain:* Coordinates defining the features.

*Attribute:*

*Attribute\_Label:* PARK\_ALPHA

*Attribute\_Definition:* Park alpha code

*Attribute\_Definition\_Source:* Route ID Meeting

*Attribute:*

*Attribute\_Label:* RTE\_NO

*Attribute\_Definition:* Route number

*Attribute\_Definition\_Source:* Route ID Meeting

*Attribute:*

*Attribute\_Label:* RTE\_NAME

*Attribute\_Definition:* Route name

*Attribute\_Definition\_Source:* Route ID Meeting

*Attribute:*

*Attribute\_Label:* FEATURE

*Attribute:*

*Attribute\_Label:* SURF\_TYPE

*Attribute\_Definition:* Surface type of route

*Attribute\_Domain\_Values:*

*Attribute:*

*Attribute\_Label:* CONDITION

*Attribute\_Definition:* Condition rating for route

*Attribute:*

*Attribute\_Label:* PHOTOS

*Attribute\_Definition:* Photo filename associated with feature

*Attribute:*

*Attribute\_Label:* COMMENT

*Attribute\_Definition:* Field comment

*Attribute:*

*Attribute\_Label:* GPS\_DATE

*Attribute\_Definition:* Date of GPS collection

*Attribute:**Attribute\_Label:* DATAFILE*Attribute:**Attribute\_Label:* SQ\_FT*Attribute\_Definition:* Feature area in square feet

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*Distribution\_Information:**Resource\_Description:* Downloadable Data*Standard\_Order\_Process:**Digital\_Form:**Digital\_Transfer\_Information:**Transfer\_Size:* 0.018

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*Metadata\_Reference\_Information:**Metadata\_Date:* 20060119*Metadata\_Contact:**Contact\_Information:**Contact\_Organization\_Primary:**Contact\_Organization:* EFLHD Sterling*Contact\_Person:* Dan VanGilder*Contact\_Position:* GIS Coordinator*Contact\_Address:**Address\_Type:* mailing and physical address*Address:* 21400 Ridgetop Circle*City:* Sterling*State\_or\_Province:* Virginia*Postal\_Code:* 20166*Country:* United States*Contact\_Voice\_Telephone:* 703-404-6361*Contact\_Electronic\_Mail\_Address:* dvangilder@fhwa.dot.gov*Metadata\_Standard\_Name:* FGDC Content Standards for Digital Geospatial Metadata*Metadata\_Standard\_Version:* FGDC-STD-001-1998*Metadata\_Time\_Convention:* local time*Metadata\_Extensions:**Online\_Linkage:* <<http://www.esri.com/metadata/esriprof80.html>>*Profile\_Name:* ESRI Metadata Profile

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# rich\_pkg\_03

Metadata also available as

## Metadata:

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

### *Identification\_Information:*

#### *Citation:*

##### *Citation\_Information:*

*Originator:* Eastern Federal Lands Highway Division

*Publication\_Date:* Unknown

*Title:* rich\_pkg\_03

*Geospatial\_Data\_Presentation\_Form:* vector digital data

*Online\_Linkage:* Not Available

#### *Description:*

*Abstract:* Parking Areas

*Purpose:* Road Inventory Program

#### *Time\_Period\_of\_Content:*

##### *Time\_Period\_Information:*

##### *Single\_Date/Time:*

*Calendar\_Date:* 4/11/2002

*Currentness\_Reference:* ground condition

#### *Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* As per RIP cycle

#### *Spatial\_Domain:*

##### *Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -77.427345

*East\_Bounding\_Coordinate:* -77.248955

*North\_Bounding\_Coordinate:* 37.598557

*South\_Bounding\_Coordinate:* 37.349856

#### *Keywords:*

##### *Theme:*

*Theme\_Keyword\_Thesaurus:* RICH

*Theme\_Keyword:* RICH

*Access\_Constraints:* None

*Use\_Constraints:* Redistribution needs permission from EFLHD/NPS

#### *Point\_of\_Contact:*

##### *Contact\_Information:*

*Contact\_Person\_Primary:**Contact\_Person:* Dan VanGilder*Contact\_Organization:* EFLHD*Contact\_Position:* GIS Coordinator*Contact\_Address:**Address\_Type:* mailing and physical address*Address:* 21400 Ridgetop Circle*City:* Sterling*State\_or\_Province:* Virginia*Postal\_Code:* 20166*Country:* United States*Contact\_Voice\_Telephone:* 703-404-6361*Contact\_Electronic\_Mail\_Address:* dvangilder@fhwa.dot.gov*Native\_Data\_Set\_Environment:*

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

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*Data\_Quality\_Information:**Attribute\_Accuracy:**Attribute\_Accuracy\_Report:* Good*Completeness\_Report:* Complete for parking areas*Lineage:**Source\_Information:**Type\_of\_Source\_Media:* GPS*Spatial\_Data\_Organization\_Information:**Direct\_Spatial\_Reference\_Method:* Vector*Point\_and\_Vector\_Object\_Information:**SDTS\_Terms\_Description:**SDTS\_Point\_and\_Vector\_Object\_Type:* G-polygon*Point\_and\_Vector\_Object\_Count:* 20*Spatial\_Reference\_Information:**Horizontal\_Coordinate\_System\_Definition:**Geographic:**Latitude\_Resolution:* 0.000000*Longitude\_Resolution:* 0.000000*Geographic\_Coordinate\_Units:* Decimal degrees*Geodetic\_Model:**Horizontal\_Datum\_Name:* North American Datum of 1927*Ellipsoid\_Name:* Clarke 1866*Semi-major\_Axis:* 6378206.400000*Denominator\_of\_Flattening\_Ratio:* 294.978698



*Entity\_and\_Attribute\_Information:**Detailed\_Description:**Entity\_Type:**Entity\_Type\_Label:* rich\_pkg\_03*Attribute:**Attribute\_Label:* FID*Attribute\_Definition:* Internal feature number.*Attribute\_Definition\_Source:* ESRI*Attribute\_Domain\_Values:**Unrepresentable\_Domain:*

Sequential unique whole numbers that are automatically generated.

*Attribute:**Attribute\_Label:* Shape*Attribute\_Definition:* Feature geometry.*Attribute\_Definition\_Source:* ESRI*Attribute\_Domain\_Values:**Unrepresentable\_Domain:* Coordinates defining the features.*Attribute:**Attribute\_Label:* PARK\_ALPHA*Attribute\_Definition:* Park alpha code*Attribute\_Definition\_Source:* Route ID Meeting*Attribute:**Attribute\_Label:* RTE\_NO*Attribute\_Definition:* Route number*Attribute\_Definition\_Source:* Route ID Meeting*Attribute:**Attribute\_Label:* RTE\_NAME*Attribute\_Definition:* Route name*Attribute\_Definition\_Source:* Route ID Meeting*Attribute:**Attribute\_Label:* FEATURE*Attribute:**Attribute\_Label:* SURF\_TYPE*Attribute\_Definition:* Surface type of route*Attribute\_Domain\_Values:**Attribute:**Attribute\_Label:* CONDITION*Attribute\_Definition:* Condition rating for route*Attribute:**Attribute\_Label:* PHOTOS*Attribute\_Definition:* Photo filename associated with feature*Attribute:**Attribute\_Label:* COMMENT*Attribute\_Definition:* Field comment*Attribute:**Attribute\_Label:* GPS\_DATE*Attribute\_Definition:* Date of GPS collection*Attribute:**Attribute\_Label:* DATAFILE*Attribute:**Attribute\_Label:* SQ\_FT

*Attribute\_Definition:* Feature area in square feet

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*Distribution\_Information:*

*Resource\_Description:* Downloadable Data

*Standard\_Order\_Process:*

*Digital\_Form:*

*Digital\_Transfer\_Information:*

*Transfer\_Size:* 0.018

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*Metadata\_Reference\_Information:*

*Metadata\_Date:* 20060119

*Metadata\_Contact:*

*Contact\_Information:*

*Contact\_Organization\_Primary:*

*Contact\_Organization:* EFLHD Sterling

*Contact\_Person:* Dan VanGilder

*Contact\_Position:* GIS Coordinator

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 21400 Ridgetop Circle

*City:* Sterling

*State\_or\_Province:* Virginia

*Postal\_Code:* 20166

*Country:* United States

*Contact\_Voice\_Telephone:* 703-404-6361

*Contact\_Electronic\_Mail\_Address:* dvangilder@fhwa.dot.gov

*Metadata\_Standard\_Name:* FGDC Content Standards for Digital Geospatial Metadata

*Metadata\_Standard\_Version:* FGDC-STD-001-1998

*Metadata\_Time\_Convention:* local time

*Metadata\_Extensions:*

*Online\_Linkage:* <<http://www.esri.com/metadata/esriprof80.html>>

*Profile\_Name:* ESRI Metadata Profile

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# rich\_seg

Metadata also available as

## Metadata:

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

### *Identification\_Information:*

#### *Citation:*

##### *Citation\_Information:*

*Originator:* The TSR Group

*Publication\_Date:* 2005

*Title:* rich\_seg

*Geospatial\_Data\_Presentation\_Form:* vector digital data

*Online\_Linkage:* Not Available

#### *Description:*

*Abstract:* Routes

*Purpose:* Road Inventory Program

##### *Supplemental\_Information:*

Data created by The TSR Group from GPS coordinates provided in the PMS\_20 table. The shapefile is processed to aggregate adjacent segments with the same PCR rating.

#### *Time\_Period\_of\_Content:*

##### *Time\_Period\_Information:*

##### *Single\_Date/Time:*

*Calendar\_Date:* 2005

*Currentness\_Reference:* ground condition

#### *Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* As per RIP cycle

#### *Spatial\_Domain:*

##### *Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -77.387756

*East\_Bounding\_Coordinate:* -77.250298

*North\_Bounding\_Coordinate:* 37.593246

*South\_Bounding\_Coordinate:* 37.392788

#### *Keywords:*

##### *Theme:*

*Theme\_Keyword\_Thesaurus:* RICH

*Theme\_Keyword:* RICH

*Access\_Constraints:* None

*Use\_Constraints:* Redistribution needs permission from EFLHD/NPS

*Point\_of\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Dan VanGilder

*Contact\_Organization:* EFLHD

*Contact\_Position:* GIS Coordinator

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:* 21400 Ridgetop Circle

*City:* Sterling

*State\_or\_Province:* Virginia

*Postal\_Code:* 20166

*Country:* United States

*Contact\_Voice\_Telephone:* 703-404-6361

*Contact\_Electronic\_Mail\_Address:* dvangilder@fhwa.dot.gov

*Native\_Data\_Set\_Environment:*

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

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*Data\_Quality\_Information:*

*Attribute\_Accuracy:*

*Attribute\_Accuracy\_Report:* Good

*Completeness\_Report:* Complete for routes

*Lineage:*

*Source\_Information:*

*Type\_of\_Source\_Media:* GPS

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*Spatial\_Data\_Organization\_Information:*

*Direct\_Spatial\_Reference\_Method:* Vector

*Point\_and\_Vector\_Object\_Information:*

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* String

*Point\_and\_Vector\_Object\_Count:* 64

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*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

*Geographic:*

*Latitude\_Resolution:* 0.000000

*Longitude\_Resolution:* 0.000000

*Geographic\_Coordinate\_Units:* Decimal degrees

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1927

*Ellipsoid\_Name:* Clarke 1866

*Semi-major\_Axis:* 6378206.400000  
*Denominator\_of\_Flattening\_Ratio:* 294.978698

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*Entity\_and\_Attribute\_Information:*

*Detailed\_Description:*

*Entity\_Type:*

*Entity\_Type\_Label:* rich\_seg

*Attribute:*

*Attribute\_Label:* FID

*Attribute\_Definition:* Internal feature number.

*Attribute\_Definition\_Source:* ESRI

*Attribute\_Domain\_Values:*

*Unrepresentable\_Domain:*

Sequential unique whole numbers that are automatically generated.

*Attribute:*

*Attribute\_Label:* Shape

*Attribute\_Definition:* Feature geometry.

*Attribute\_Definition\_Source:* ESRI

*Attribute\_Domain\_Values:*

*Unrepresentable\_Domain:* Coordinates defining the features.

*Attribute:*

*Attribute\_Label:* FNODE\_

*Attribute\_Definition:* Length of feature

*Attribute\_Definition\_Source:* ESRI

*Attribute:*

*Attribute\_Label:* TNODE\_

*Attribute:*

*Attribute\_Label:* LPOLY\_

*Attribute\_Definition:* Route number

*Attribute\_Definition\_Source:* Route ID Meeting

*Attribute:*

*Attribute\_Label:* RPOLY\_

*Attribute\_Definition:* Collected route length

*Attribute\_Definition\_Source:* ARAN Data Collection

*Attribute:*

*Attribute\_Label:* LENGTH

*Attribute\_Definition:*

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

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 0

*Range\_Domain\_Maximum:* 100

*Attribute:*

*Attribute\_Label:* RICH\_SEG\_

*Attribute\_Definition:* Verbal PCR definition based on value in PCRAV field

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* POOR

*Enumerated\_Domain\_Value\_Definition:* PCR value <= 60  
*Enumerated\_Domain:*  
*Enumerated\_Domain\_Value:* FAIR  
*Enumerated\_Domain\_Value\_Definition:* PCR value 61-84  
*Enumerated\_Domain:*  
*Enumerated\_Domain\_Value:* GOOD  
*Enumerated\_Domain\_Value\_Definition:* PCR value 85-94  
*Enumerated\_Domain:*  
*Enumerated\_Domain\_Value:* EXCELLENT  
*Enumerated\_Domain\_Value\_Definition:* PCR value 95-100

*Attribute:*

*Attribute\_Label:* RICH\_SEG\_I  
*Attribute\_Definition:* Indicates whether feature has been edited for graphic purposes.  
*Attribute\_Domain\_Values:*  
*Enumerated\_Domain:*  
*Enumerated\_Domain\_Value:* 1  
*Enumerated\_Domain\_Value\_Definition:* Edit has been made to feature for graphic purposes  
*Enumerated\_Domain:*  
*Enumerated\_Domain\_Value:* 0  
*Enumerated\_Domain\_Value\_Definition:* No edit made to feature.

*Attribute:*

*Attribute\_Label:* ID

*Attribute:*

*Attribute\_Label:* RTE\_NO

*Attribute:*

*Attribute\_Label:* BMP

*Attribute:*

*Attribute\_Label:* EMP

*Attribute:*

*Attribute\_Label:* PCR

*Attribute:*

*Attribute\_Label:* PCR\_RATE

*Attribute:*

*Attribute\_Label:* RT\_LENGTH

*Attribute:*

*Attribute\_Label:* PCRMI

*Attribute:*

*Attribute\_Label:* PCR\_RATEMI

*Attribute:*

*Attribute\_Label:* PCR\_RATEAV

*Attribute:*

*Attribute\_Label:* PCRAV

*Attribute:*

*Attribute\_Label:* TSR\_EDIT

*Distribution\_Information:*

*Resource\_Description:* Downloadable Data

*Standard\_Order\_Process:*

*Digital\_Form:*  
*Digital\_Transfer\_Information:*  
*Transfer\_Size:* 0.016

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*Metadata\_Reference\_Information:*  
*Metadata\_Date:* 20060119  
*Metadata\_Contact:*  
*Contact\_Information:*  
*Contact\_Organization\_Primary:*  
*Contact\_Organization:* EFLHD Sterling  
*Contact\_Person:* Dan VanGilder  
*Contact\_Position:* GIS Coordinator  
*Contact\_Address:*  
*Address\_Type:* mailing and physical address  
*City:* Sterling  
*State\_or\_Province:* Virginia  
*Postal\_Code:* 20166  
*Country:* United States  
*Contact\_Voice\_Telephone:* 703-404-6361  
*Contact\_Electronic\_Mail\_Address:* dvangilder@fhwa.dot.gov  
*Metadata\_Standard\_Name:* FGDC Content Standards for Digital Geospatial Metadata  
*Metadata\_Standard\_Version:* FGDC-STD-001-1998  
*Metadata\_Time\_Convention:* local time  
*Metadata\_Extensions:*  
*Online\_Linkage:* <<http://www.esri.com/metadata/esriprof80.html>>  
*Profile\_Name:* ESRI Metadata Profile

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