



**The Road Inventory
of
Timucuan Ecological & Historical Preserve
TIMU - 5308**



national park service



Road Inventory Program

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



Timucuan Ecological and Historic Preserve in Florida





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

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

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

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

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

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

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Timucuan Ecological & Historical Preserve Summaries

Overall Park Mileage Summary

| PARK TOTAL SUMMARY ITEMS | TOTAL | DATE |
|------------------------------------|--------------|-------------|
| Paved ARAN Driven Route Miles | 0.16 | 7/3/2001 |
| Unpaved Estimated Route Miles | 11.90 | 7/3/2001 |
| Paved ARAN and Unpaved Route Miles | 12.06 | |
| Paved ARAN Driven Lane Miles | 0.16 | 7/3/2001 |
| Paved MRR Lane Miles | 0.00 | |
| Parking Lot Lane Miles | 0.00 | 7/3/2001 |
| Total Paved Lane Miles | 0.16 | |

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)

Timucuan Ecological & Historical Preserve 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 | 0.08 | \$2,400 |
| Good | 0.08 | \$8,800 |
| Fair | 0.00 | \$0 |
| Poor | 0.00 | \$0 |
| Totals | 0.16 | \$11,200 |

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).

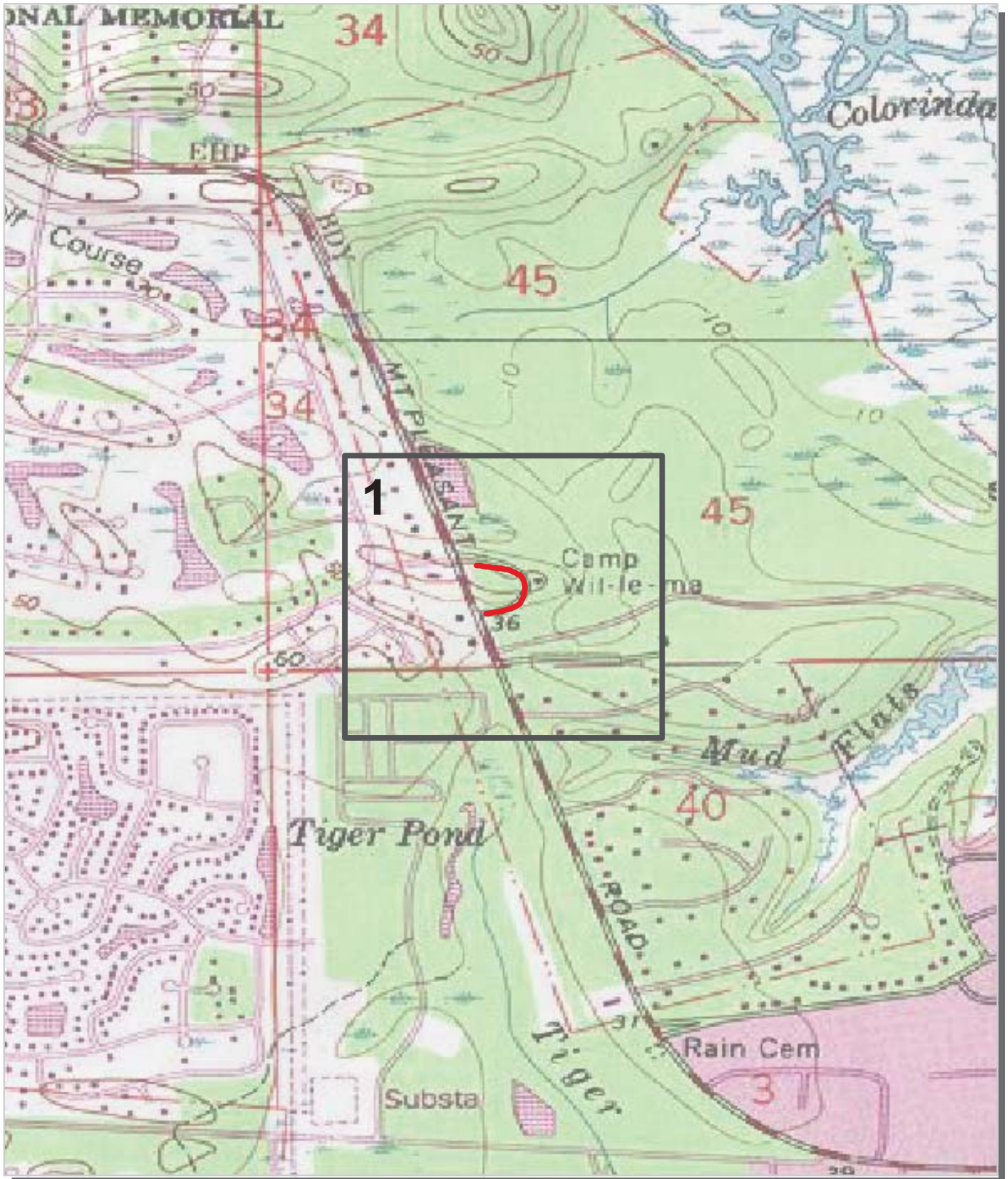
These numbers are for preliminary planning purposes only and should not be used for project level proposals. For park planning level analysis, apply your park multiplier for more accurate regional costs.

Timucuan Ecological & Historical Preserve Summaries

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

| F.C. | Pavement Condition Rating | | | | | | | | TOTAL MILES |
|---------------|---------------------------|---------------|--------------|---------------|--------------|--------------|--------------------|--------------|----------------|
| | Poor (<=60) | | Fair (61-84) | | Good (85-94) | | Excellent (95-100) | | |
| | MILES | % | MILES | % | MILES | % | MILES | % | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | 0.08 | 50.00% | 0.08 | 50.00% | | | | | 0.16 |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| Totals | 0.08 | 50.00% | 0.08 | 50.00% | 0.00 | 0.00% | 0.00 | 0.00% | 0.16 |

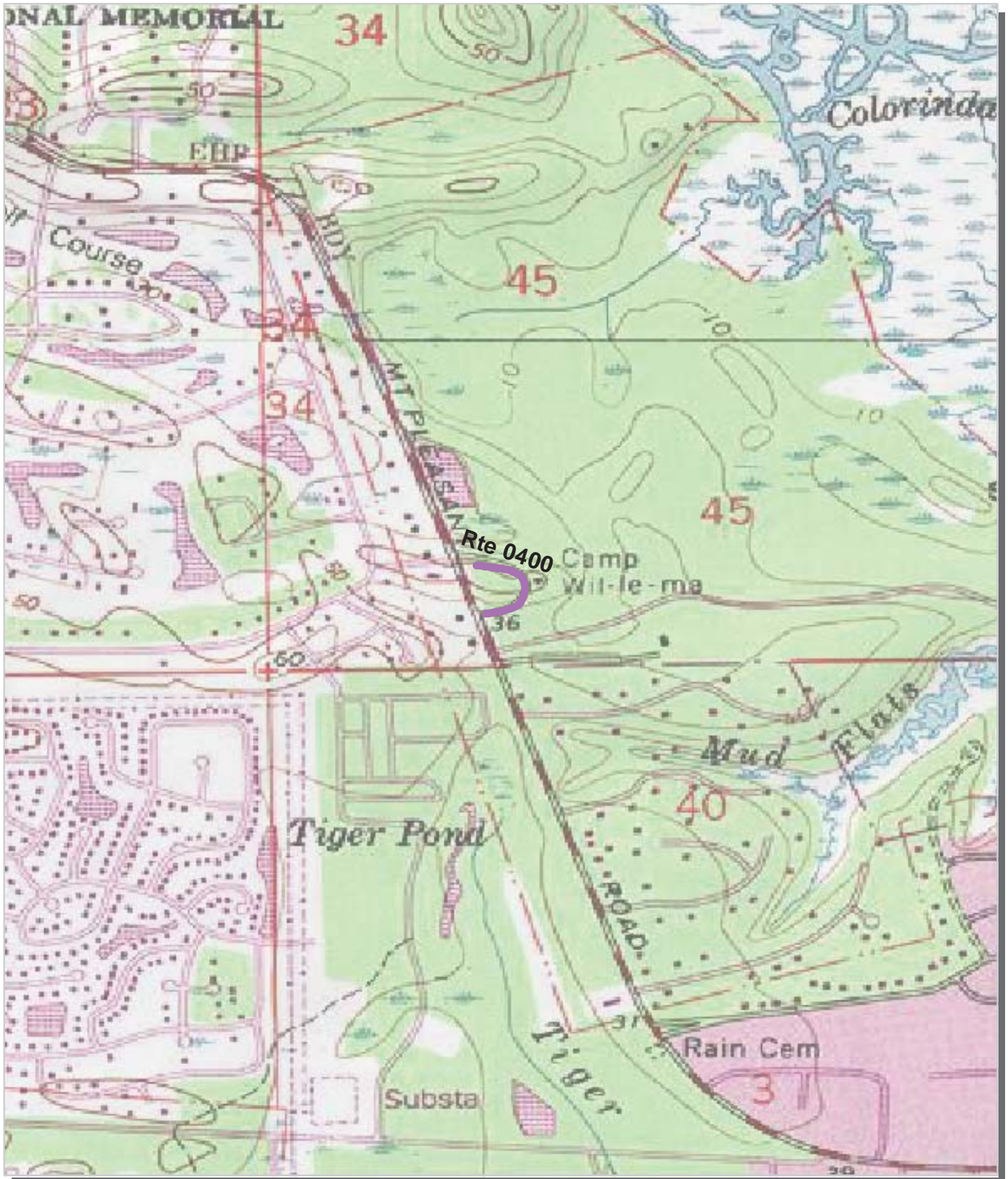
Timucuan Ecological & Historical Preserve Route Location Key Map



 Park Owned Routes



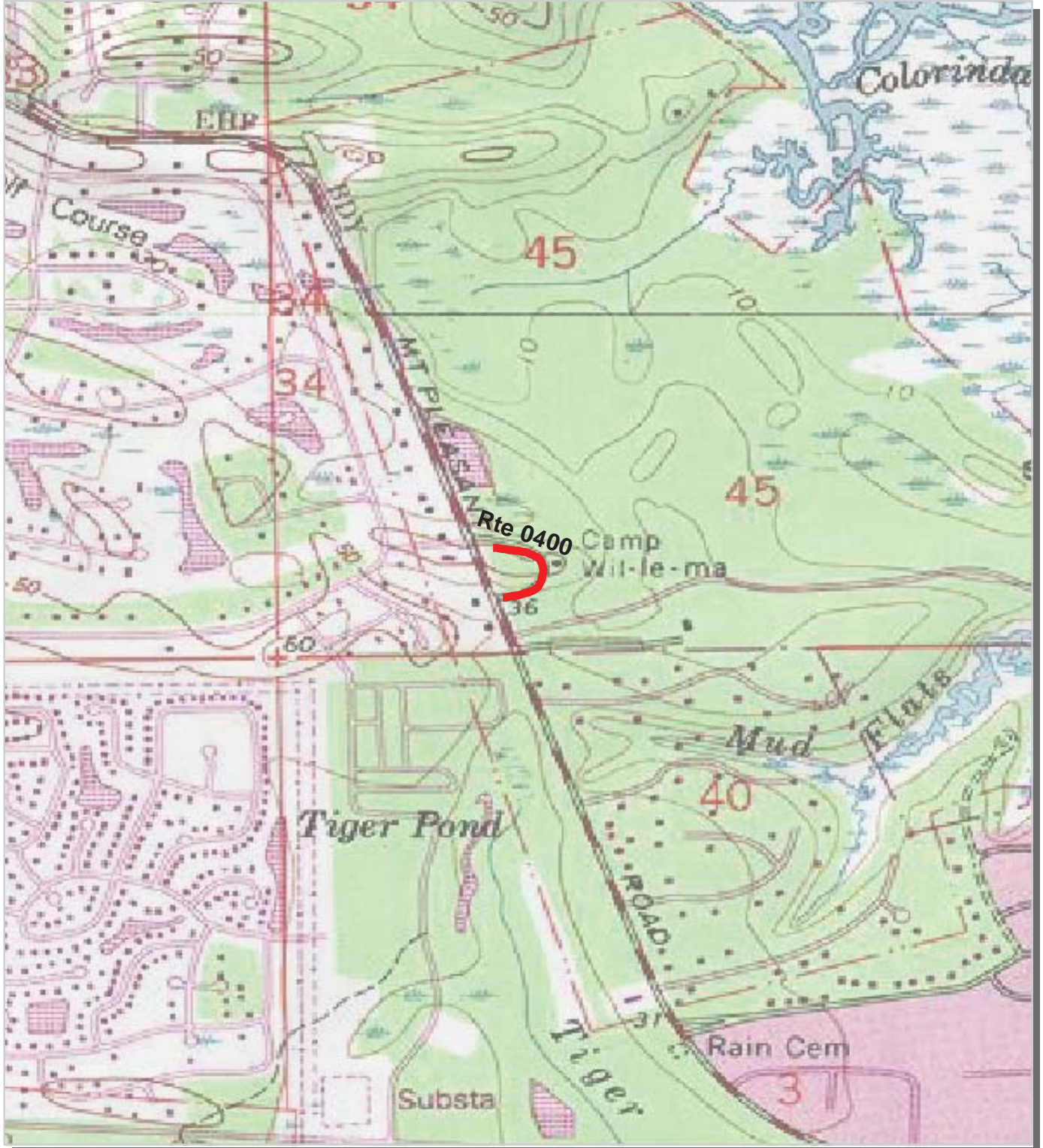
Timucuan Ecological & Historical Preserve Route Location Area Map 1







Unique colors used to differentiate routes



Timucuan Ecological & Historical Preserve 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.



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 =

TIMU

Timucuan Ecological & Historical Preserve

| 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 | | | | | | | |
| 0100 | 13251 | THEODORE ROOSEVELT AREA ACCESS ROAD | From Mount Pleasant Road | To Route 0901 | 0.00 | 0.50 | 0.50 | 2 | 1 | 0 | GR |
| 0101 | 25764 | CEDAR POINT PERIMETER ROAD | From Cedar Point Road | To Route 0905 | 0.00 | 0.60 | 0.60 | 2 | 1 | 0 | GR |
| 0300 | 11916 | KINGSLEY PLANTATION ENTRANCE ROAD | From Palmetto Road | To Route 0900 | 0.00 | 0.50 | 0.50 | 4 | 2 | 0 | GR |
| 0301 | 12939 | CEDAR POINT BOAT ACCESS ROAD | From Cedar Point Road | To End | 0.00 | 0.30 | 0.30 | 4 | 1 | 0 | GR |
| 0400 | 11902 | HEADQUARTERS ENTRANCE ROAD | From Mount Pleasant Road | To Mount Pleasant Road | 0.16 | 0.00 | 0.16 | 5 | 2 | 0 | AS |
| 0401 | 12826 | THOMAS CREEK ROAD | From Park Boundary | To End | 0.00 | 8.00 | 8.00 | 5 | 1 | 0 | GR |
| 0402 | 25756 | SOHN PROPERTY ROAD | From Black Hemmick Road | To End | 0.00 | 2.00 | 2.00 | 5 | 1 | 0 | GR |
| 0900 | | KINGSLEY PLANTATION PARKING LOT | From Route 0300 | To Parking | 0.00 | 0.00 | 0.00 | 9 | | 9,842 | GR |
| 0901 | | THEODORE ROOSEVELT AREA PARKING | From Route 0100 | To Parking | 0.00 | 0.00 | 0.00 | 9 | | 870 | GR |
| 0902 | | KINGSLEY PLANTATION OVERFLOW PARKING | From Route 0900 | To Parking | 0.00 | 0.00 | 0.00 | 9 | | 62,000 | GR |
| 0903 | | FOCA MAINTENANCE AREA PARKING | From Route 0900 | To Parking | 0.00 | 0.00 | 0.00 | 9 | | 600 | GR |
| 0904 | | KINGSLEY PLANTATION LODGE PARKING | From Route 0300 | To Parking | 0.00 | 0.00 | 0.00 | 9 | | 800 | GR |
| 0905 | | CEDAR POINT INFORMAL PARKING | From Route 0101 | To Parking | 0.00 | 0.00 | 0.00 | 9 | | 1,500 | GR |
| 0906 | | KINGSLEY PLANTATION MAINTENANCE PARKING | From Route 0300 | To Parking | 0.00 | 0.00 | 0.00 | 9 | | 600 | GR |
| 0907 | | FOCA VISITOR CENTER PARKING | From Fort Caroline Road | To Parking | 0.00 | 0.00 | 0.00 | 9 | | 13,800 | GR |
| 0908 | | SPANISH POND PARKING | From Fort Caroline Road | To Parking | 0.00 | 0.00 | 0.00 | 9 | | 2,400 | GR |
| 0909 | | COLUMN PARKING | From Fort Caroline Road | To Parking | 0.00 | 0.00 | 0.00 | 9 | | 13,333 | GR |
| Totals: | | | | | 0.16 | 11.90 | 12.06 | | | 105,745 | |

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 = | |

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.

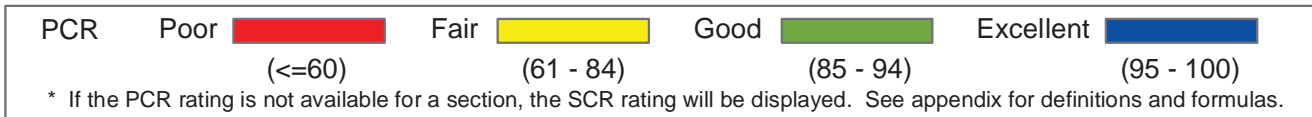
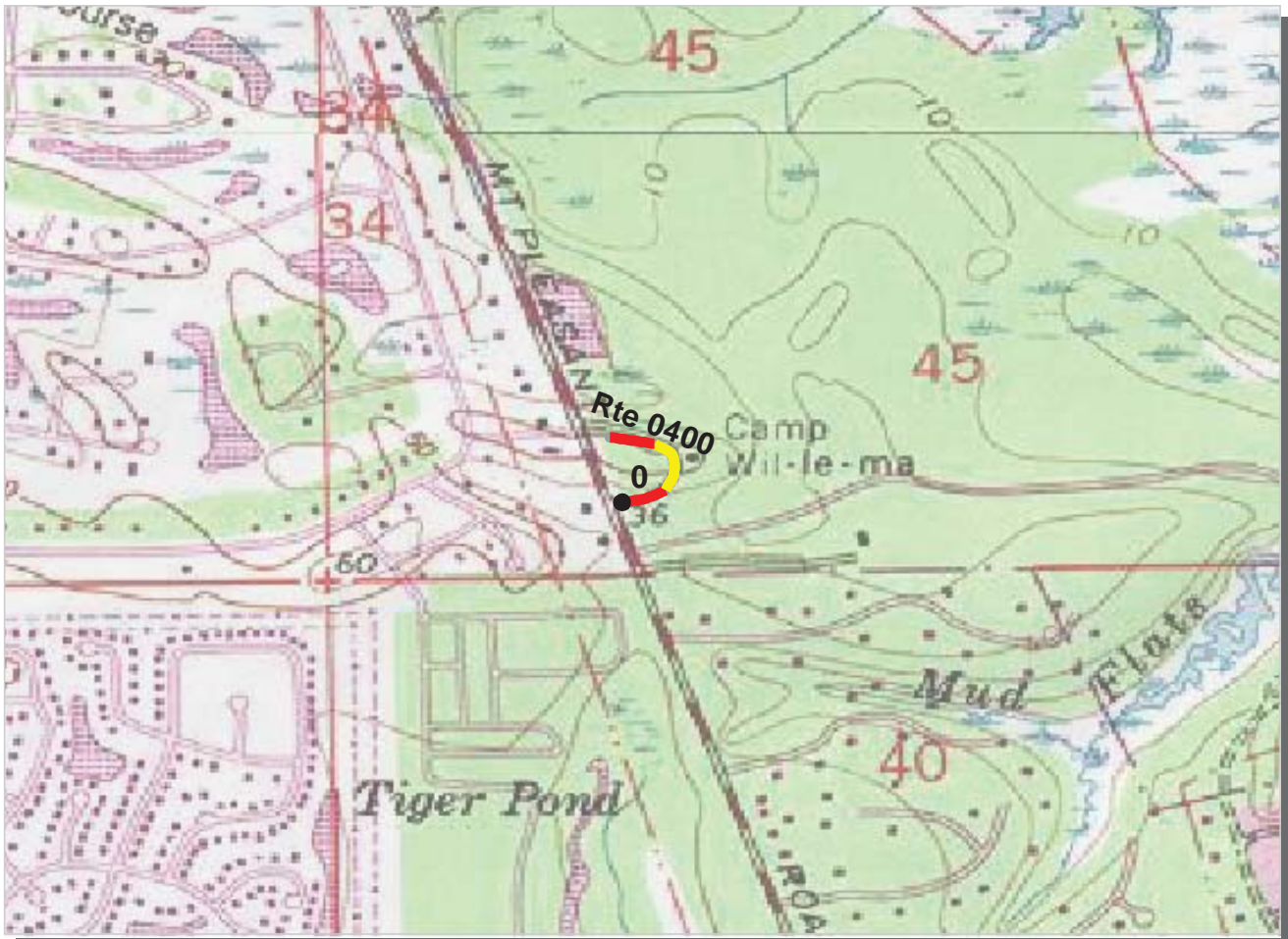
Surface Type Abbreviations:

- 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.



Southeast Region
TIMU : Timucuan Ecological & Historical Preserve

ROUTE: 0400 Headquarters Entrance Road **TOTAL LENGTH: 0.16 Miles**

| | | | | | |
|--------------------------------------|------|--|--|--|--|
| Section Number | 0 | | | | |
| Section Length (mi) | 0.16 | | | | |
| AADT | ** | | | | |
| SADT | ** | | | | |
| ADT Date | ** | | | | |
| Cross Section Information | | | | | |
| Number of Lanes | 1 | | | | |
| Paved Width (ft) | 17 | | | | |
| Lane Width (ft) | 17 | | | | |
| Shoulder Width (ft) | 0 | | | | |
| Roadway Condition Information | | | | | |
| PCR (Pavement Condition Rating) | 47 | | | | |
| RCI (Roughness Condition Index) | 43 | | | | |
| SCR (Surface Condition Rating) | 45 | | | | |
| Alligator Cracking Index | 70 | | | | |
| Rutting Index | 82 | | | | |
| Patching Index | 100 | | | | |
| Transverse Cracking Index | 98 | | | | |
| Longitudinal Cracking Index | 90 | | | | |
| Shoulder Condition Rating | N/A | | | | |
| Drainage Condition Rating | POOR | | | | |

ROUTE: 0400 Headquarters Entrance Road

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

TIMU: Manually Rated Paved Route Condition Rating Sheets

No data available for this section

Parking Lot Condition Rating Sheets

No data available

TIMU: PARKWIDE MAINTENANCE FEATURES SUMMARY

| <i>FEATURE</i> | <i>PARK TOTAL</i> | <i>UNIT</i> |
|-----------------------|--------------------------|--------------------|
| BRIDGE | 0 | EACH |
| CATTLE GUARD | 0 | EACH |
| CULVERT | 0 | EACH |
| CURB | 0 | LINEAR FEET |
| DROP INLET | 0 | EACH |
| GUARD WALL | 0 | LINEAR FEET |
| GUARDRAIL | 0 | LINEAR FEET |
| INTERSECTION | 2 | EACH |
| LOW WATER CROSSING | 0 | EACH |
| OVERHEAD SIGN | 0 | EACH |
| PARK BOUNDARY | 0 | EACH |
| PAVED DITCH | 343 | 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 |

TIMU: ROUTE MAINTENANCE FEATURES SUMMARY

| <i>FEATURE</i> | <i>ROUTE 0400 HEADQUARTERS ENTRANCE ROAD</i> | <i>UNIT</i> |
|-----------------------|---|--------------------|
| BRIDGE | 0 | EACH |
| CATTLE GUARD | 0 | EACH |
| CULVERT | 0 | EACH |
| CURB | 0 | LINEAR FEET |
| DROP INLET | 0 | EACH |
| GUARD WALL | 0 | LINEAR FEET |
| GUARDRAIL | 0 | LINEAR FEET |
| INTERSECTION | 2 | EACH |
| LOW WATER CROSSING | 0 | EACH |
| OVERHEAD SIGN | 0 | EACH |
| PARK BOUNDARY | 0 | EACH |
| PAVED DITCH | 343 | 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 |

TIMU: ROUTE MAINTENANCE FEATURES ROAD LOG

ROUTE 0400 : HEADQUARTERS ENTRANCE ROAD

| <i>FROM MILEPOST</i> | <i>TO MILEPOST</i> | <i>FEATURE</i> | <i>SIDE</i> | <i>COMMENT</i> |
|---------------------------------|-------------------------------|-----------------------|--------------------|-------------------------------------|
| 0.000 | 0.000 | | | ROUTE BEGINS AT MOUNT PLEASANT ROAD |
| 0.061 | 0.061 | INTERSECTION | RIGHT | |
| 0.087 | 0.087 | INTERSECTION | RIGHT | |
| 0.094 | 0.159 | PAVED DITCH | RIGHT | |
| 0.160 | 0.160 | | | ROUTE ENDS AT MOUNT PLEASANT ROAD |

APPENDIX A: GLOSSARY OF TERMS AND ABBREVIATIONS

| TERM OR ABBREVIATION | DESCRIPTION OR DEFINITION |
|---------------------------|---|
| 5308 | Numeric Code for Timucuan Ecological & Historical Preserve |
| 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 |
| 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 |
| TIMU | Alpha Code for Timucuan Ecological & Historical Preserve |

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 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

timu_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: timu_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: -81.486176

East_Bounding_Coordinate: -81.485229

North_Bounding_Coordinate: 30.370825

South_Bounding_Coordinate: 30.369871

Keywords:

Theme:

Theme_Keyword_Thesaurus: TIMU

Theme_Keyword: TIMU

Access_Constraints: None

Use_Constraints: Redistribution needs permission from EFLHD/NPS

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Dan VanGilder

Contact_Organization: EFLHD

Contact_Position: GIS Coordinator

Contact_Address:

Address_Type: mailing and physical address

Address: 21400 Ridgetop Circle

City: Sterling

State_or_Province: Virginia

Postal_Code: 20166

Country: United States

Contact_Voice_Telephone: 703-404-6361

Contact_Electronic_Mail_Address: dvangilder@fhwa.dot.gov

Native_Data_Set_Environment:

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

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: Good

Completeness_Report: Complete for routes

Lineage:

Source_Information:

Type_of_Source_Media: GPS

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: String

Point_and_Vector_Object_Count: 3

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

Attribute:

Attribute_Label: ID

Attribute:

Attribute_Label: RTE_NO

Attribute:

Attribute_Label: BMP

Attribute:

Attribute_Label: EMP

Attribute:

Attribute_Label: PCR

Attribute:

Attribute_Label: PCR_RATE

Attribute:

Attribute_Label: RT_LENGTH

Attribute:

Attribute_Label: PCRMI

Attribute:

Attribute_Label: PCR_RATEMI

Attribute:

Attribute_Label: PCR_RATEAV

Attribute:

Attribute_Label: PCRAV

Attribute:

Attribute_Label: TSR_EDIT

Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:
Digital_Transfer_Information:
Transfer_Size: 0.016

Metadata_Reference_Information:
Metadata_Date: 20060123
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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timu_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: timu_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: -81.486176

East_Bounding_Coordinate: -81.485229

North_Bounding_Coordinate: 30.370825

South_Bounding_Coordinate: 30.369871

Keywords:

Theme:

Theme_Keyword_Thesaurus: TIMU

Theme_Keyword: TIMU

Access_Constraints: None

Use_Constraints: Redistribution needs permission from EFLHD/NPS

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Dan VanGilder

Contact_Organization: EFLHD

Contact_Position: GIS Coordinator

Contact_Address:

Address_Type: mailing and physical address

Address: 21400 Ridgetop Circle

City: Sterling

State_or_Province: Virginia

Postal_Code: 20166

Country: United States

Contact_Voice_Telephone: 703-404-6361

Contact_Electronic_Mail_Address: dvangilder@fhwa.dot.gov

Native_Data_Set_Environment:

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

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: Good

Completeness_Report: Complete for routes

Lineage:

Source_Information:

Type_of_Source_Media: GPS

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: String

Point_and_Vector_Object_Count: 1

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: timu_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: TIMU_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: TIMU_MI_ID

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

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1

Enumerated_Domain_Value_Definition: Edit has been made to feature for graphic purposes

Enumerated_Domain:

Enumerated_Domain_Value: 0

Enumerated_Domain_Value_Definition: No edit made to feature.

Attribute:

Attribute_Label: ID

Attribute:

Attribute_Label: RTE_NO

Attribute:

Attribute_Label: BMP

Attribute:

Attribute_Label: EMP

Attribute:

Attribute_Label: PCR

Attribute:

Attribute_Label: PCR_RATE

Attribute:

Attribute_Label: RT_LENGTH

Attribute:

Attribute_Label: PCRMI

Attribute:

Attribute_Label: PCR_RATEMI

Attribute:

Attribute_Label: PCR_RATEAV

Attribute:

Attribute_Label: PCRAV

Attribute:

Attribute_Label: TSR_EDIT

Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 0.016

Metadata_Reference_Information:

Metadata_Date: 20060123

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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timu_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: timu_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: -81.485992

East_Bounding_Coordinate: -81.485992

North_Bounding_Coordinate: 30.369871

South_Bounding_Coordinate: 30.369871

Keywords:

Theme:

Theme_Keyword_Thesaurus: TIMU

Theme_Keyword: TIMU

Access_Constraints: None

Use_Constraints: Redistribution needs permission from EFLHD/NPS

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Dan VanGilder

Contact_Organization: EFLHD Sterling

Contact_Position: GIS Coordinator

Contact_Address:

Address_Type: mailing and physical address

Address: 21400 Ridgetop Circle

City: Sterling

State_or_Province: Virginia

Postal_Code: 20166

Country: United States

Contact_Voice_Telephone: 703-404-6361

Contact_Electronic_Mail_Address: dvangilder@fhwa.dot.gov

Native_Data_Set_Environment:

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

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: Good

Completeness_Report: Complete for mile points

Lineage:

Source_Information:

Type_of_Source_Media: GPS

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 1

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.000001

Longitude_Resolution: 0.000001

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: timu_mi_pt

Attribute:

Attribute_Label: FID

Attribute_Definition: Internal feature number.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition: Feature geometry.

Attribute_Definition_Source: ESRI

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the features.

Attribute:

Attribute_Label: RIP_CYCLE

Attribute_Definition: 3, for data collection cycle 3

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: STATE

Attribute_Definition: State where route is located

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: PARK_ALPHA

Attribute_Definition: Park alpha code

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: PARK_NO

Attribute_Definition: Park numeric code

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: RTE_NO

Attribute_Definition: Route number

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: FUNCT_CLAS

Attribute_Definition: Route functional class

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: DIRECTION

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

Attribute_Definition_Source: Route ID Meeting

Attribute:

Attribute_Label: BEG_MP

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

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: END_MP

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

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: INT_LENGTH

Attribute_Definition: Length of road interval as aggregated from data table

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: RTE_LENGTH

Attribute_Definition: Collected route length

Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: NO_LANES

Attribute_Definition: Number of lanes in route

Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: LANE_NO

Attribute_Definition: Data collection lane

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: WX_LANE_WI

Attribute_Definition: WiseCrax (crack detection software) analysis width

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: LANE_WIDTH

Attribute_Definition: Width of lane

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: PAVE_WIDTH

Attribute_Definition: Full pavement width

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: SHLD_WIDTH

Attribute_Definition: Left shoulder width

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: SHLD_WID_1

Attribute_Definition: Right shoulder width

Attribute_Definition_Source: Contractor Post-processing

Attribute:

Attribute_Label: SHLD_COND_

Attribute_Definition: Left shoulder condition

Attribute_Definition_Source: ARAN Data Collection

Attribute:

Attribute_Label: SHLD_COND1

Attribute_Definition: Right shoulder condition

Attribute_Definition_Source: ARAN Data Collection

Attribute:

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

Attribute:

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

Attribute:

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

Attribute:

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

Attribute:

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

Attribute:

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

Attribute:

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

Attribute:

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

Attribute:

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

Attribute:

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

Attribute:

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

Attribute:

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

Attribute:

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

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

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

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

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

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

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

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

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

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

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

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

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

Attribute_Definition_Source: Contractor Post-processing

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Attribute:

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

Attribute:

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

Attribute:

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

Attribute:

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

Attribute:

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

Attribute:

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

Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 0.030

Metadata_Reference_Information:

Metadata_Date: 20060123

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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