

# **The Road Inventory of San Marcos National Fish Hatchery San Marcos, TX**



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December 2009



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## INTRODUCTION

The Transportation Equity Act for the 21<sup>st</sup> Century (Public Law 105-178) created the Refuge Roads Program. Refuge roads are those public roads that provide access to or within a unit of the National Wildlife Refuge System and for which title and maintenance responsibility is vested in the United States Government. Funds from the Highway Trust Fund are available for refuge roads and can be used by the station to pay the cost of:

- (a) Maintenance and improvements of refuge roads.
- (b) Maintenance and improvements of:
  - (1) Adjacent vehicle parking areas
  - (2) Provision for pedestrians and bicycles and
  - (3) Construction and reconstruction of roadside rest areas that are located in or adjacent to wildlife refuges
- (c) Administrative costs associated with such maintenance and improvements.

The funds available for refuge roads are to be disbursed based on the relative needs of the various refuges in the National Wildlife Refuge System, and taking into consideration:

- (a) The comprehensive conservation plan for each refuge;
- (b) The need for access as identified through land use planning; and
- (c) The impact of land use planning on existing transportation facilities.

To determine the relative needs of the U.S. Fish and Wildlife Service, the Federal Highway Administration (FHWA) was asked to inventory all public access roads and parking lots and provide a condition assessment of each. In 2008 the inventory was expanded to include administrative (service use only) roads and parking lots. An FHWA representative meets with refuge personnel to identify route segments and assign route numbers and functional classifications (See Appendix) for each route. All roads and parking lots are mapped using Trimble GPS units and visually assessed for condition using the RSL method of evaluation developed at Utah State University (See Appendix). Culverts, Gates, Guardrails and Low Water Crossings are also mapped and inspected for any obvious defects.

An estimate is provided, in year 2008 dollars, based on the condition determined by the rating system. Estimates are based upon data and location factors from the 2008 RS Means Heavy Construction Cost Data 22<sup>nd</sup> Annual Edition. Cost estimates should be evaluated on a case-by-case basis when being used for programming purposes.

Native Surfaced roads and parking lots already inventoried will not be re-inventoried and will not appear individually in report chapters 5, 6 and 8. Mileages and areas of native surfaced roads and parking lots will still appear in all summaries in the report and will remain in the road inventory database. In addition to this report, the FHWA will furnish the condition ratings of each route and segment to the Fish and Wildlife Service in a Microsoft Access database so the data can be included in their Real Property Inventory.

## San Marcos

### Summaries

#### Route Miles and Percentages by Functional Class and Condition Condition Rating (Based on RSL)\*

F.C.	Excellent		Good		Fair		Poor		Failed		Total
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles
I	0.00	0.0%	0.00	0.0%	0.21	100.0%	0.00	0.0%	0.00	0.0%	0.21
II	0.00	0.0%	0.00	0.0%	0.12	100.0%	0.00	0.0%	0.00	0.0%	0.12
III	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00
IV	0.06	2.7%	2.00	94.8%	0.05	2.5%	0.00	0.0%	0.00	0.0%	2.10
V	0.11	12.9%	0.56	63.0%	0.21	24.1%	0.00	0.0%	0.00	0.0%	0.89
<b>Total</b>	<b>0.17</b>	<b>5.1%</b>	<b>2.56</b>	<b>76.9%</b>	<b>0.60</b>	<b>18.0%</b>	<b>0.00</b>	<b>0.0%</b>	<b>0.00</b>	<b>0.0%</b>	<b>3.32</b>

\*For a description of condition ratings for the various surface types see the Appendix.

#### Route Miles and Percentages by Surface Type and Condition Paved Condition Rating [Condition(RSL)]

Surface Type	Excellent		Good		Fair		Poor		Failed		Total
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles
AS	0.03	100.0%	0.00	0.0%	0.38	100.0%	0.00	0.0%	0.00	0.0%	0.42
CO	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00
<b>Total</b>	<b>0.03</b>	<b>100.0%</b>	<b>0.00</b>	<b>0.0%</b>	<b>0.38</b>	<b>100.0%</b>	<b>0.00</b>	<b>0.0%</b>	<b>0.00</b>	<b>0.0%</b>	<b>0.42</b>

#### Unpaved Condition Rating [Condition(RSL)]

Surface Type	Excellent		Good		Fair		Poor		Failed		Total
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles
GR	0.14	7.4%	1.71	92.6%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.85
NA	0.00	0.0%	0.40	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.40
PR	0.00	0.0%	0.45	67.5%	0.21	32.5%	0.00	0.0%	0.00	0.0%	0.66
<b>Total</b>	<b>0.14</b>	<b>4.7%</b>	<b>2.56</b>	<b>87.9%</b>	<b>0.21</b>	<b>7.4%</b>	<b>0.00</b>	<b>0.0%</b>	<b>0.00</b>	<b>0.0%</b>	<b>2.91</b>

#### Square Footage (Parking Areas) Condition Rating

Surface Type	Excellent		Good		Fair		Poor		Failed		Total
	Sq Ft	%	Sq Ft	%	Sq Ft	%	Sq Ft	%	Sq Ft	%	Sq Ft
AS	0	0.0%	7,260	100.0%	0	0.0%	0	0.0%	0	0.0%	7,260
CO	0	0.0%	2,035	100.0%	0	0.0%	0	0.0%	0	0.0%	2,035
GR	0	0.0%	0	0.0%	3,206	100.0%	0	0.0%	0	0.0%	3,206
NA	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
PR	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
<b>Total</b>	<b>0</b>	<b>0.0%</b>	<b>9,295</b>	<b>74.0%</b>	<b>3,206</b>	<b>26.0%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>12,501</b>



## San Marcos Summaries

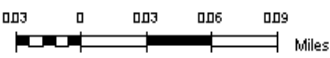
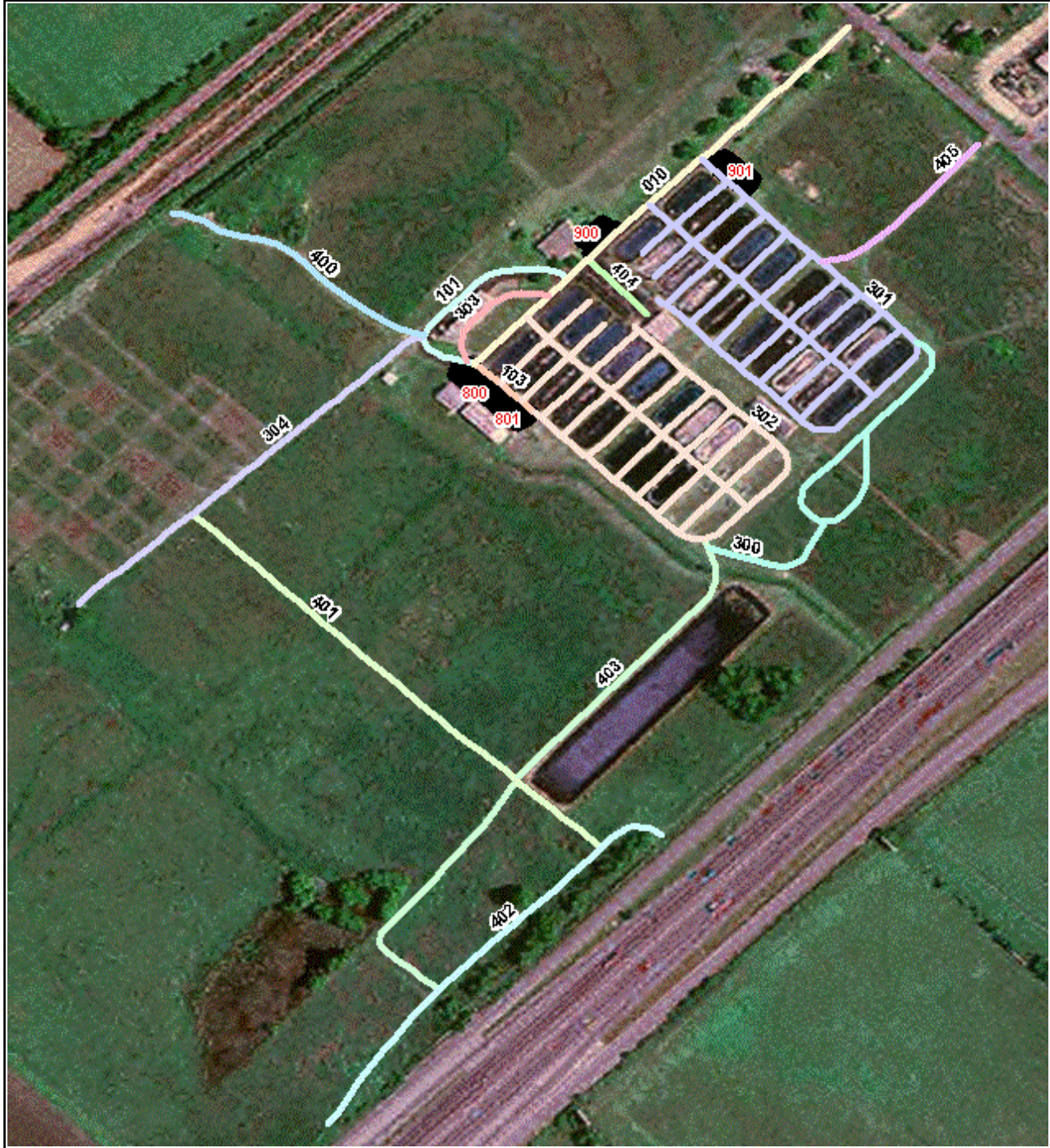
**Route Miles and Percentages by Use Type and Condition**  
Road Condition Rating: Public/Administrative Use

Use Type	Excellent		Good		Fair		Poor		Failed		Total
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles
Admin	0.17	5.7%	2.56	85.4%	0.27	8.9%	0.00	0.0%	0.00	0.0%	2.99
Public	0.00	0.0%	0.00	0.0%	0.33	100.0%	0.00	0.0%	0.00	0.0%	0.33
<b>Total</b>	<b>0.17</b>	<b>5.1%</b>	<b>2.56</b>	<b>76.9%</b>	<b>0.60</b>	<b>18.0%</b>	<b>0.00</b>	<b>0.0%</b>	<b>0.00</b>	<b>0.0%</b>	<b>3.32</b>

Parking Condition Rating: Public/Administrative Use

Use Type	Excellent		Good		Fair		Poor		Failed		Total
	Sq Ft	%	Sq Ft	%	Sq Ft	%	Sq Ft	%	Sq Ft	%	Sq Ft
Admin	0	0.0%	7,260	100.0%	0	0.0%	0	0.0%	0	0.0%	7,260
Public	0	0.0%	2,035	38.8%	3,206	61.2%	0	0.0%	0	0.0%	5,241
<b>Total</b>	<b>0</b>	<b>0.0%</b>	<b>9,295</b>	<b>74.4%</b>	<b>3,206</b>	<b>25.6%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>12,501</b>

# San Marcos ROUTE LOCATION MAP



## San Marcos - 21230 - ROUTE IDENTIFICATION LIST (NUMERIC)

**Shading Color Key:**

White = Paved Routes

Yellow = Unpaved Routes

RTE #	Asset Number	ROUTE NAME	RTE MI	ROUTE DESCRIPTION	PAVED MI	UN-PAVED MI	LANES	FC
010	10048759	Entrance Road	0.21	From McCarty Lane to Pond Road (Route 103)	0.21	0.00	2	1
101	10048764	Holding House Road	0.09	From Entrance Road (Route 010) to Pond Road (Route 103)	0.09	0.00	1	2
103	10048764	Pond Road	0.03	From Entrance Road (Route 010) to A & B Ponds Road (Rte 302)	0.03	0.00	2	2
300	10006335	Reuse Building Road	0.21	From C & D Ponds Road (Route 301) to Wetland Road 3 (Route 404)	0.00	0.21	1	4
301	10006335	C & D Ponds Road	0.86	From Entrance Road (Route 010) to end of route at raceway ponds	0.00	0.86	2	4
302	10006335	A & B Ponds Road	0.81	From Pond Road (Route 103) to end of route at raceway ponds	0.00	0.81	2	4
303	10048764	Holding House Loop	0.05	From Entrance Road (Route 010) to end of loop at Holding House Road (Route 101)	0.05	0.00	1	4
304	10048767	Mule House Road	0.18	From Holding House Road (Route 101) to end of route at mule house	0.00	0.18	1	4
400	10048767	Pipeline Road	0.11	From Holding House Road (Route 101) to refuge boundary fenceline	0.00	0.11	1	5
401	10048767	Wetland Road 1	0.21	From Mule House Road (Route 304) to Wetland Road 2 (Route 403)	0.00	0.21	1	5
402	10048767	Wetland Road 2	0.19	From refuge boundary fenceline to end of route at refuge boundary fenceline	0.00	0.19	1	5
403	10048767	Wetland Road 3	0.26	From A & B Ponds Road (Route 302) to Wetland Road 2 (Route 403)	0.00	0.26	1	5
404	10006335	Pond Access Road	0.03	From Entrance Road (Route 010) to end of route at raceway ponds	0.03	0.00	2	5
405	10006335	Construction Road	0.08	From McCarty Lane to C & D Ponds Road (Route 301)	0.00	0.08	1	5

## San Marcos - 21230 - ROUTE IDENTIFICATION LIST (PARKING)

Shading Color Key:

White = Paved Parking Lots

Green = Unpaved Parking Lots

RTE #	Asset Number	ROUTE NAME	RTE SQFT	ROUTE DESCRIPTION	PAVED SQFT	UNPAVED SQFT
800	10048735	Shop Parking	4,752		4,752.00	0
801	10048735	Shop Overflow Parking	2,508		2,508.00	0
900	10006336	Headquarters Parking	2,035		2,035.00	0
901	10006337	Employee Parking	3,206		0.00	3,206

# CHANGES TO THE FISH AND WILDLIFE SERVICE ROAD INVENTORY REPORT

## San Marcos

Routes added to previous inventory*:		
Rte #	Rte Name	Reason for Addition
400	Pipeline Road	Administrative Route
401	Wetland Road 1	Administrative Route
402	Wetland Road 2	Administrative Route
403	Wetland Road 3	Administrative Route
404	Pond Access Road	Administrative Route
405	Construction Road	Administrative Route
800	Shop Parking	Administrative Route
801	Shop Overflow Parking	Administrative Route

Routes removed from previous inventory:		
Rte #	Rte Name	Reason for Removal

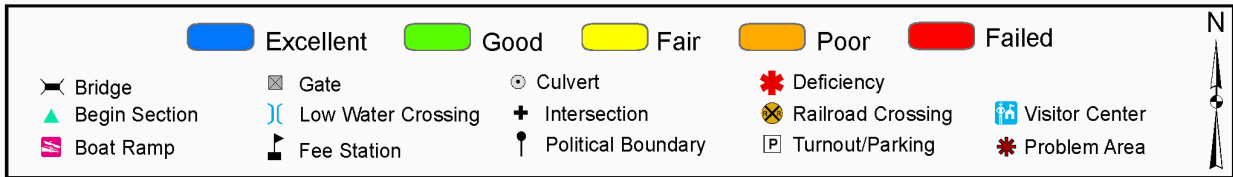
Routes modified from previous inventory:			
Rte #	Rte Name	Type of Modification	Description of Modification
010	Entrance Road	Geometry/Length change	
100	Construction Road	Functional Class change	
101	Holding House Road	Geometry/Length change	
102	Wetland Road	Functional Class change	
103	Pond Road	Geometry/Functional Class change	
104	Shed Road	Functional Class change	

### Comments:

Route 104 changed to Route 403  
Routes 010, and 101 have new GPS trace for Cycle 4  
Route 100 changed to Route 406  
Route 104 changed to admin Route 304  
Route 103 has a new GPS trace; Section 002 is now administrative Route 302

\* All Administrative Routes (FC IV & V) are new to the inventory and are not included in this list.

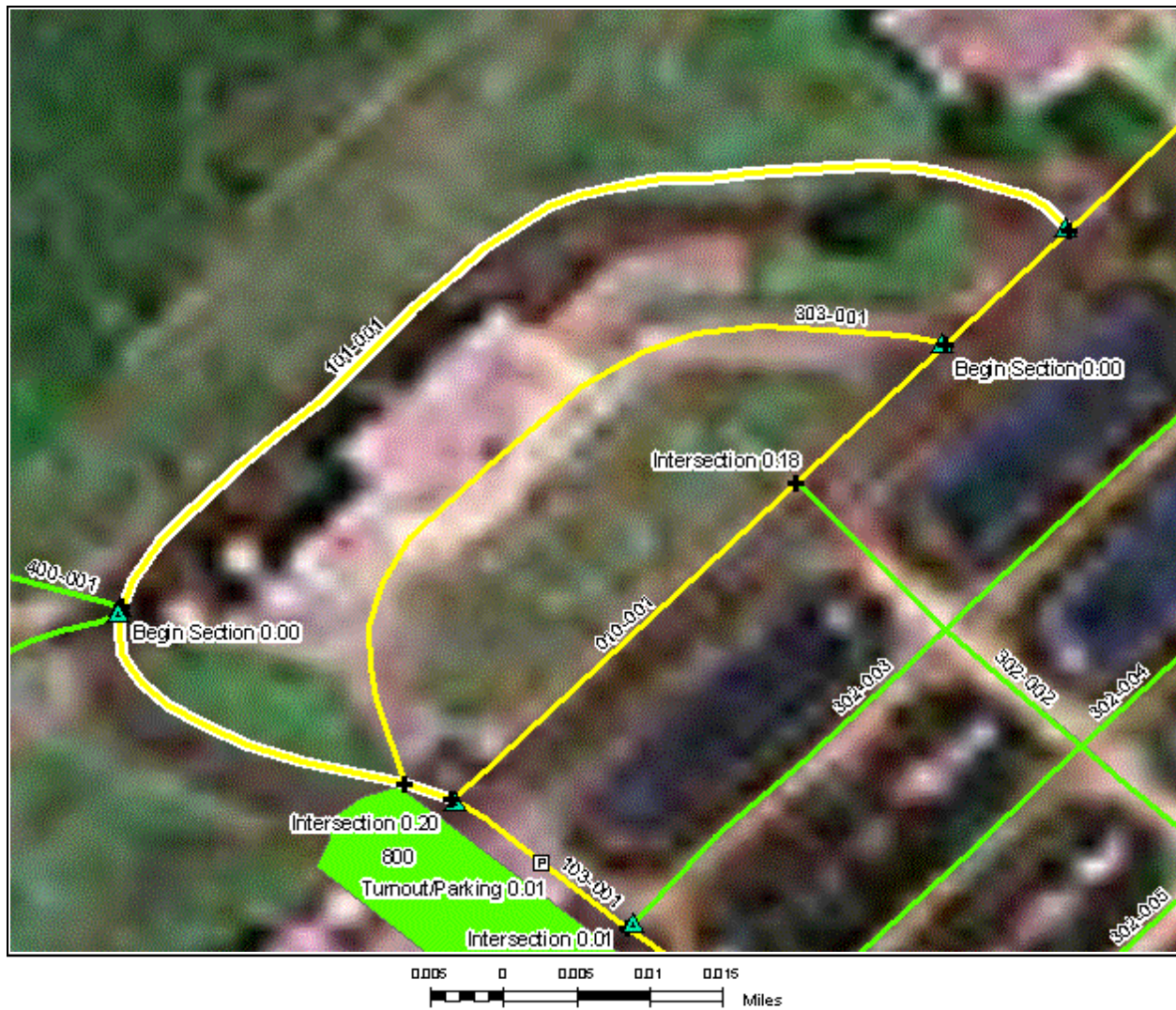




**Total Route Length: 0.21 Miles**

Asset Number	10048759
Section Number	001
Section Length (miles)	0.21
Inspection Date	04/06/2009
<b>Section Information</b>	
Surface Type	Asphalt
Number of Lanes	2
Roadway Width (feet)	18.00
<b>Roadway Condition Information</b>	
Condition	Fair
Remaining Service Life (years)	10
Cost Estimate	20,300
CRV	224,500.00





Route: 101 Holding House Road

Total Route Length: 0.09 Miles

Route Description: From Entrance Road (Route 010) to Pond Road (Route 103)

Asset Number	10048764
Section Number	001
Section Length (miles)	0.09
Inspection Date	04/06/2009
<b>Section Information</b>	
Surface Type	Asphalt
Number of Lanes	1
Roadway Width (feet)	12.00
<b>Roadway Condition Information</b>	
Condition	Fair
Remaining Service Life (years)	8
Cost Estimate	9,100
CRV	100,700.00





Route: 103 Pond Road

Total Route Length: **0.03 Miles**

Route Description: From Entrance Road (Route 010) to A & B Ponds Road (Rte 302)

Asset Number	10048764
Section Number	001
Section Length (miles)	0.03
Inspection Date	04/06/2009
<b>Section Information</b>	
Surface Type	Asphalt
Number of Lanes	2
Roadway Width (feet)	28.00
<b>Roadway Condition Information</b>	
Condition	Fair
Remaining Service Life (years)	10
Cost Estimate	3,000
CRV	33,200.00





Route: 300 Reuse Building Road

Total Route Length: **0.21 Miles**

Route Description: From C & D Ponds Road (Route 301) to Wetland Road 3 (Route 404)

Asset Number	10006335	10006335
Section Number	001	002
Section Length (miles)	0.15	0.06
Inspection Date	04/06/2009	04/06/2009
<b>Section Information</b>		
Surface Type	Gravel	Gravel
Number of Lanes	1	1
Roadway Width (feet)	12.00	8.00
<b>Roadway Condition Information</b>		
Condition	Good	Excellent
Remaining Service Life (years)	7	9
Cost Estimate	200	0
CRV	95,100.00	35,000.00





Route: 301 C & D Ponds Road

Total Route Length: **0.86 Miles**

Route Description: From Entrance Road (Route 010) to end of route at raceway ponds

Asset Number	10006335	10006335	10006335	10006335	10006335
Section Number	001	002	003	004	005
Section Length (miles)	0.26	0.12	0.05	0.05	0.05
Inspection Date	04/06/2009	04/06/2009	04/06/2009	04/06/2009	04/06/2009
<b>Section Information</b>					
Surface Type	Gravel	Gravel	Gravel	Gravel	Gravel
Number of Lanes	1	1	1	1	1
Roadway Width (feet)	12.00	12.00	8.00	8.00	8.00
<b>Roadway Condition Information</b>					
Condition	Good	Good	Good	Good	Good
Remaining Service Life (years)	5	5	7	7	5
Cost Estimate	400	200	100	100	100
CRV	161,200.00	75,200.00	28,200.00	31,000.00	34,300.00





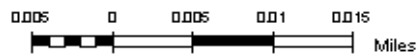
Route: 301 C & D Ponds Road

Total Route Length: **0.86 Miles**

Route Description: From Entrance Road (Route 010) to end of route at raceway ponds

Asset Number	10006335	10006335	10006335	10006335	10006335
Section Number	006	007	008	009	010
Section Length (miles)	0.05	0.05	0.06	0.06	0.06
Inspection Date	04/06/2009	04/06/2009	04/06/2009	04/06/2009	04/06/2009
<b>Section Information</b>					
Surface Type	Gravel	Gravel	Gravel	Gravel	Gravel
Number of Lanes	1	2	1	1	1
Roadway Width (feet)	8.00	16.00	8.00	8.00	8.00
<b>Roadway Condition Information</b>					
Condition	Good	Good	Good	Good	Good
Remaining Service Life (years)	5	5	5	5	7
Cost Estimate	100	100	100	100	100
CRV	33,600.00	34,100.00	34,500.00	34,400.00	34,400.00





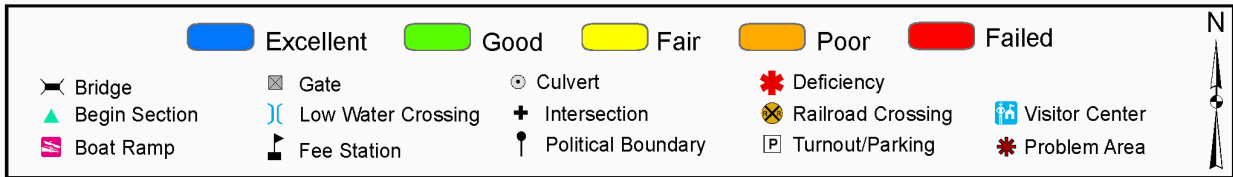
Route: 301 C & D Ponds Road

Total Route Length: **0.86 Miles**

Route Description: From Entrance Road (Route 010) to end of route at raceway ponds

Asset Number	10006335
Section Number	011
Section Length (miles)	0.06
Inspection Date	04/06/2009
<b>Section Information</b>	
Surface Type	Gravel
Number of Lanes	1
Roadway Width (feet)	8.00
<b>Roadway Condition Information</b>	
Condition	Good
Remaining Service Life (years)	5
Cost Estimate	100
CRV	34,400.00





**Total Route Length: 0.81 Miles**

Asset Number	10006335	10006335	10006335	10006335	10006335
Section Number	001	002	003	004	005
Section Length (miles)	0.22	0.12	0.05	0.05	0.05
Inspection Date	04/06/2009	04/06/2009	04/06/2009	04/06/2009	04/06/2009
<b>Section Information</b>					
Surface Type	Gravel	Gravel	Gravel	Gravel	Gravel
Number of Lanes	1	1	1	1	1
Roadway Width (feet)	10.00	10.00	10.00	10.00	10.00
<b>Roadway Condition Information</b>					
Condition	Good	Good	Good	Good	Good
Remaining Service Life (years)	5	5	5	5	7
Cost Estimate	300	200	100	100	100
CRV	137,900.00	74,600.00	31,100.00	28,500.00	33,200.00





Route: 302 A & B Ponds Road

Total Route Length: **0.81 Miles**

Route Description: From Pond Road (Route 103) to end of route at raceway ponds

Asset Number	10006335	10006335	10006335	10006335	10006335
Section Number	006	007	008	009	010
Section Length (miles)	0.05	0.05	0.05	0.05	0.05
Inspection Date	04/06/2009	04/06/2009	04/06/2009	04/06/2009	04/06/2009
<b>Section Information</b>					
Surface Type	Gravel	Gravel	Gravel	Gravel	Native
Number of Lanes	1	2	1	1	1
Roadway Width (feet)	10.00	16.00	8.00	8.00	8.00
<b>Roadway Condition Information</b>					
Condition	Good	Good	Good	Good	Good
Remaining Service Life (years)	7	7	7	5	5
Cost Estimate	100	100	100	100	100
CRV	33,300.00	33,000.00	33,500.00	33,500.00	17,300.00





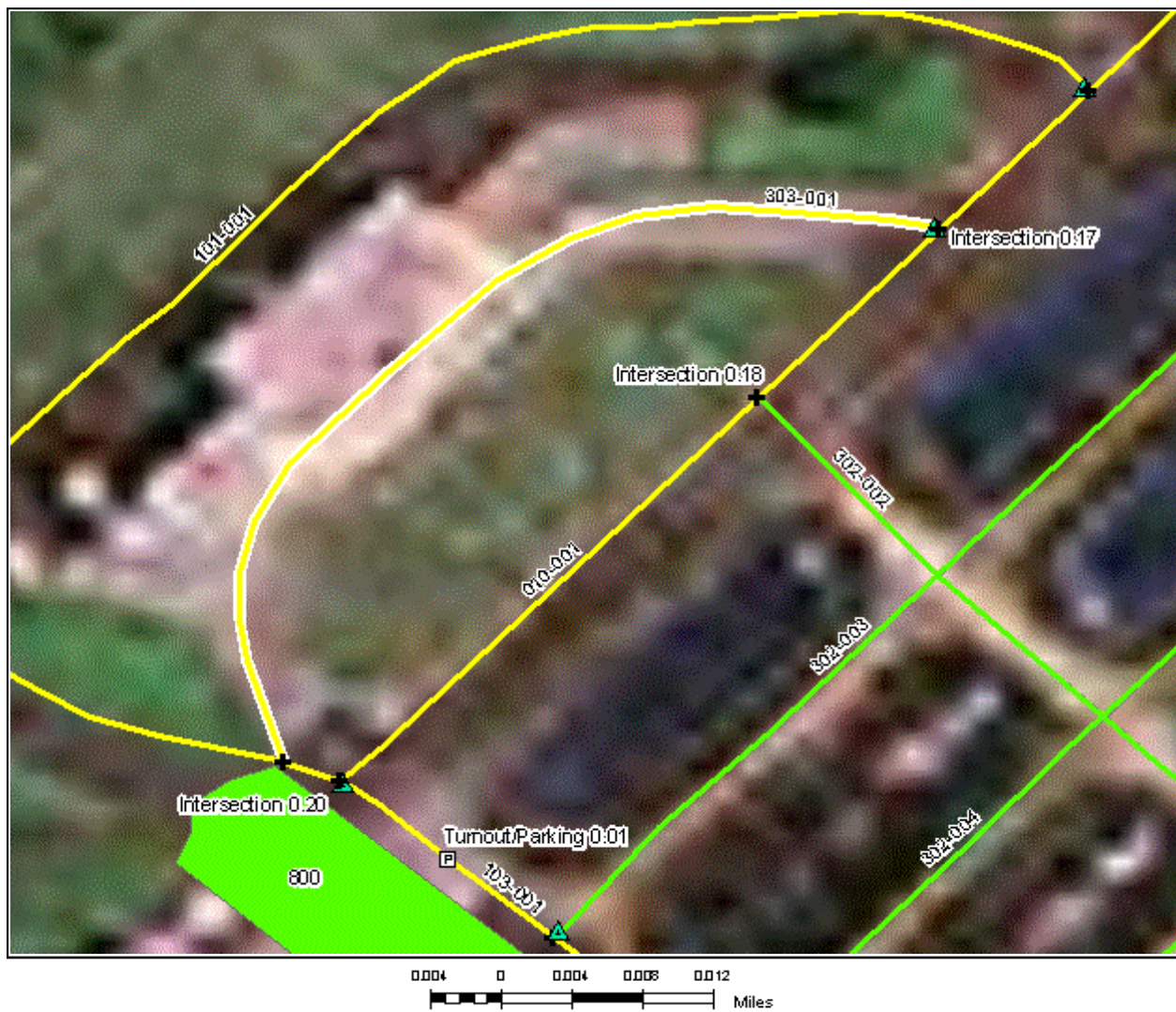
Route: 302 A & B Ponds Road

Total Route Length: **0.81 Miles**

Route Description: From Pond Road (Route 103) to end of route at raceway ponds

Asset Number	10006335
Section Number	011
Section Length (miles)	0.05
Inspection Date	04/06/2009
<b>Section Information</b>	
Surface Type	Native
Number of Lanes	1
Roadway Width (feet)	8.00
<b>Roadway Condition Information</b>	
Condition	Good
Remaining Service Life (years)	5
Cost Estimate	100
CRV	17,400.00





Route: 303 Holding House Loop

Total Route Length: **0.05 Miles**

Route Description: From Entrance Road (Route 010) to end of loop at Holding House Road (Route 101)

Asset Number	10048764
Section Number	001
Section Length (miles)	0.05
Inspection Date	04/06/2009
<b>Section Information</b>	
Surface Type	Asphalt
Number of Lanes	1
Roadway Width (feet)	14.00
<b>Roadway Condition Information</b>	
Condition	Fair
Remaining Service Life (years)	8
Cost Estimate	5,200
CRV	57,400.00





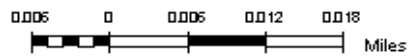
Route: 304 Mule House Road

Total Route Length: **0.18 Miles**

Route Description: From Holding House Road (Route 101) to end of route at mule house

Asset Number	10048767
Section Number	001
Section Length (miles)	0.18
Inspection Date	04/06/2009
<b>Section Information</b>	
Surface Type	Native
Number of Lanes	1
Roadway Width (feet)	10.00
<b>Roadway Condition Information</b>	
Condition	Good
Remaining Service Life (years)	7
Cost Estimate	300
CRV	57,700.00





Route: 400 Pipeline Road

Total Route Length: **0.11 Miles**

Route Description: From Holding House Road (Route 101) to refuge boundary fenceline

Asset Number	10048767
Section Number	001
Section Length (miles)	0.11
Inspection Date	04/06/2009
<b>Section Information</b>	
Surface Type	Native
Number of Lanes	1
Roadway Width (feet)	10.00
<b>Roadway Condition Information</b>	
Condition	Good
Remaining Service Life (years)	5
Cost Estimate	200
CRV	36,800.00





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Miles



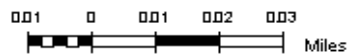
Route: 401 Wetland Road 1

Total Route Length: **0.21 Miles**

Route Description: From Mule House Road (Route 304) to Wetland Road 2 (Route 403)

Asset Number	10048767
Section Number	001
Section Length (miles)	0.21
Inspection Date	04/06/2009
<b>Section Information</b>	
Surface Type	Primitive
Number of Lanes	1
Roadway Width (feet)	8.00
<b>Roadway Condition Information</b>	
Condition	Fair
Remaining Service Life (years)	4
Cost Estimate	100
CRV	0.00





Route: 402 Wetland Road 2

Total Route Length: **0.19 Miles**

Route Description: From refuge boundary fenceline to end of route at refuge boundary fenceline

Asset Number	10048767
Section Number	001
Section Length (miles)	0.19
Inspection Date	04/06/2009
<b>Section Information</b>	
Surface Type	Primitive
Number of Lanes	1
Roadway Width (feet)	8.00
<b>Roadway Condition Information</b>	
Condition	Good
Remaining Service Life (years)	7
Cost Estimate	100
CRV	0.00





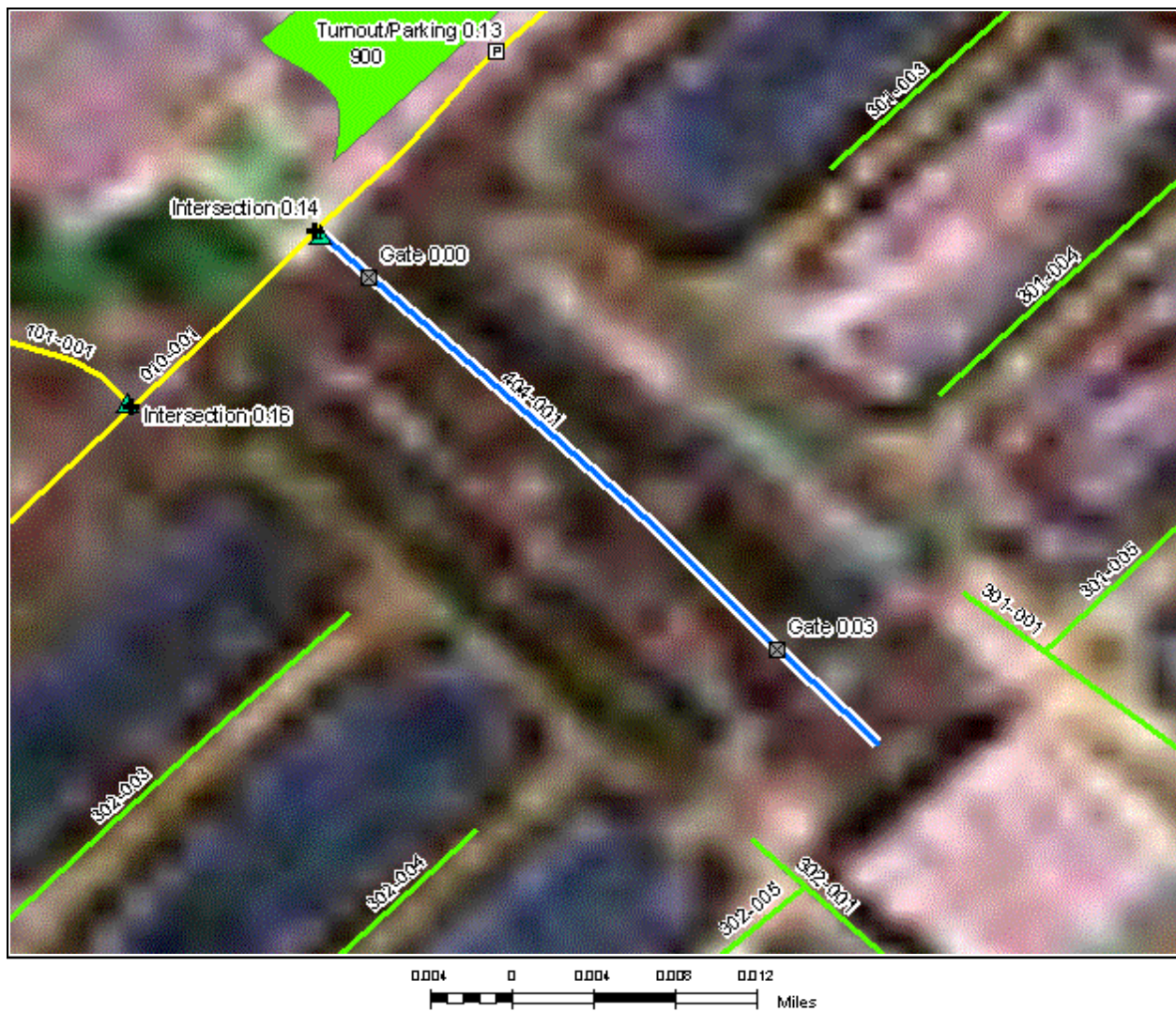
Route: 403 Wetland Road 3

Total Route Length: **0.26 Miles**

Route Description: From A & B Ponds Road (Route 302) to Wetland Road 2 (Route 403)

Asset Number	10048767
Section Number	001
Section Length (miles)	0.26
Inspection Date	04/06/2009
<b>Section Information</b>	
Surface Type	Primitive
Number of Lanes	1
Roadway Width (feet)	8.00
<b>Roadway Condition Information</b>	
Condition	Good
Remaining Service Life (years)	7
Cost Estimate	100
CRV	0.00





Route: 404 Pond Access Road

Total Route Length: **0.03 Miles**

Route Description: From Entrance Road (Route 010) to end of route at raceway ponds

Asset Number	10006335
Section Number	001
Section Length (miles)	0.03
Inspection Date	04/06/2009
<b>Section Information</b>	
Surface Type	Asphalt
Number of Lanes	2
Roadway Width (feet)	20.00
<b>Roadway Condition Information</b>	
Condition	Excellent
Remaining Service Life (years)	20
Cost Estimate	0
CRV	36,100.00





Route: 405 Construction Road

Total Route Length: **0.08 Miles**

Route Description: From McCarty Lane to C & D Ponds Road (Route 301)

Asset Number	10006335
Section Number	001
Section Length (miles)	0.08
Inspection Date	04/06/2009
<b>Section Information</b>	
Surface Type	Gravel
Number of Lanes	1
Roadway Width (feet)	10.00
<b>Roadway Condition Information</b>	
Condition	Excellent
Remaining Service Life (years)	9
Cost Estimate	0
CRV	50,700.00

## 800: Shop Parking

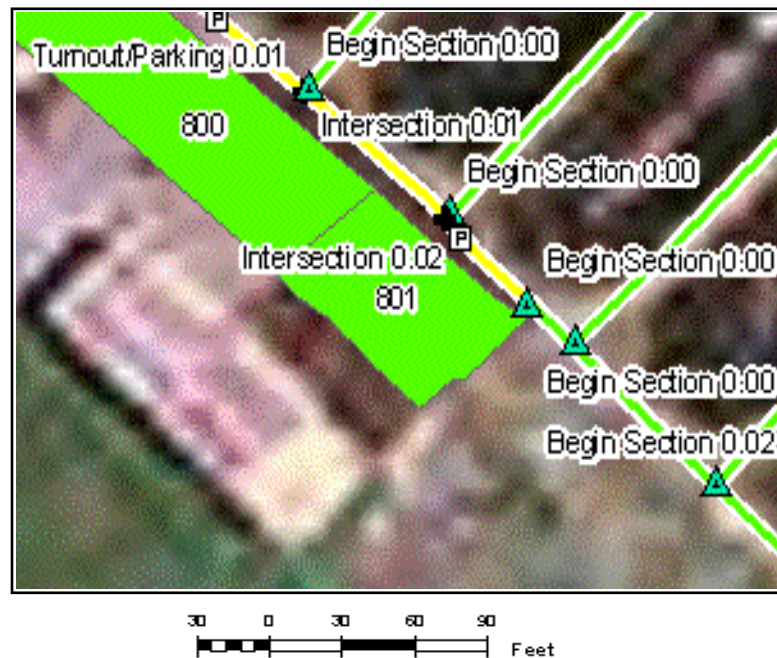
Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
10048735	04/06/2009	Asphalt	4,752	Good	800





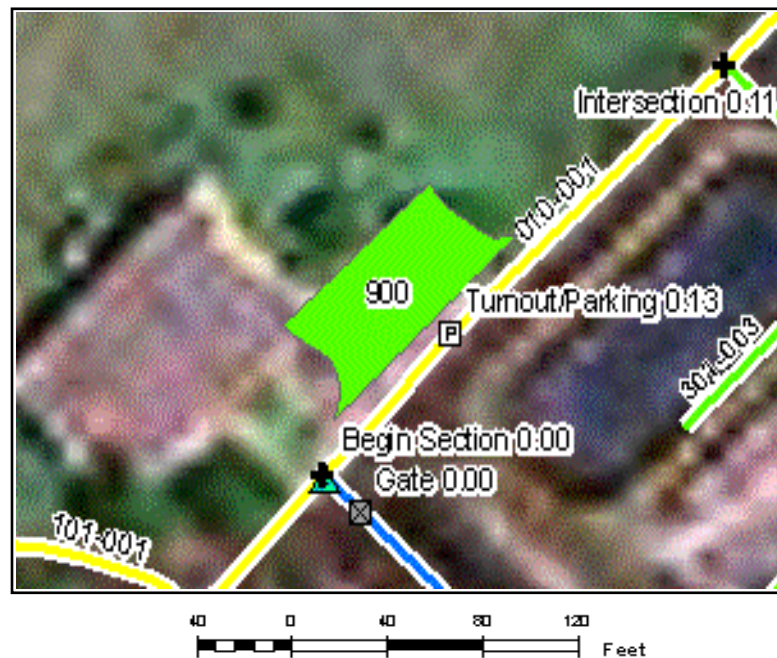
## 801: Shop Overflow Parking

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
10048735	04/06/2009	Asphalt	2,508	Good	400



### 900: Headquarters Parking

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
10006336	04/06/2009	Concrete	2,035	Good	300





## 901: Employee Parking

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
10006337	04/06/2009	Gravel	3,206	Fair	800



San Marcos Bridge Inventory					
Route #	Milepost	NBIS #	Sufficiency Rating	Functionally Obsolete	Structurally Deficient



## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 010 ROUTE NAME: Entrance Road



Photo # SAMA\_C4\_0148 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 010 ROUTE NAME: Entrance Road



Photo # SAMA\_C4\_0146 - MP 0.00 - R 001

ROUTE NUMBER: 101 ROUTE NAME: Holding House Road



Photo # SAMA\_C4\_0151 - MP 0.00 - Begin Section 001



## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 103 ROUTE NAME: Pond Road



Photo # SAMA\_C4\_0153 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 300 ROUTE NAME: Reuse Building Road



Photo # SAMA\_C4\_0189 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 300 ROUTE NAME: Reuse Building Road



Photo # SAMA\_C4\_0190 - MP 0.10 - R 001



## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 300 ROUTE NAME: Reuse Building Road



Photo # SAMA\_C4\_0192 - MP 0.11 - Begin Section 002

ROUTE NUMBER: 300 ROUTE NAME: Reuse Building Road



Photo # SAMA\_C4\_0193 - MP 0.13 - R 002

ROUTE NUMBER: 301 ROUTE NAME: C & D Ponds Road



Photo # SAMA\_C4\_0173 - MP 0.00 - Begin Section 001



## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 301 ROUTE NAME: C & D Ponds Road



Photo # SAMA\_C4\_0204 - MP 0.05 - Problem Area 001

ROUTE NUMBER: 301 ROUTE NAME: C & D Ponds Road



Photo # SAMA\_C4\_0183 - MP 0.01 - Begin Section 003

ROUTE NUMBER: 301 ROUTE NAME: C & D Ponds Road



Photo # SAMA\_C4\_0182 - MP 0.03 - Begin Section 004



## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 301 ROUTE NAME: C & D Ponds Road



Photo # SAMA\_C4\_0181 - MP 0.04 - Begin Section 005

ROUTE NUMBER: 301 ROUTE NAME: C & D Ponds Road



Photo # SAMA\_C4\_0180 - MP 0.05 - Begin Section 006

ROUTE NUMBER: 301 ROUTE NAME: C & D Ponds Road



Photo # SAMA\_C4\_0179 - MP 0.06 - Begin Section 007



## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 301 ROUTE NAME: C & D Ponds Road



Photo # SAMA\_C4\_0178 - MP 0.07 - Begin Section 008

ROUTE NUMBER: 301 ROUTE NAME: C & D Ponds Road



Photo # SAMA\_C4\_0177 - MP 0.09 - Begin Section 009

ROUTE NUMBER: 301 ROUTE NAME: C & D Ponds Road



Photo # SAMA\_C4\_0176 - MP 0.10 - Begin Section 010



## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 301 ROUTE NAME: C & D Ponds Road



Photo # SAMA\_C4\_0175 - MP 0.11 - Begin Section 011

ROUTE NUMBER: 302 ROUTE NAME: A & B Ponds Road



Photo # SAMA\_C4\_0162 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 302 ROUTE NAME: A & B Ponds Road



Photo # SAMA\_C4\_0163 - MP 0.11 - Begin Section 002



## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 302 ROUTE NAME: A & B Ponds Road



Photo # SAMA\_C4\_0172 - MP 0.00 - Begin Section 003

ROUTE NUMBER: 302 ROUTE NAME: A & B Ponds Road



Photo # SAMA\_C4\_0171 - MP 0.00 - Begin Section 004

ROUTE NUMBER: 302 ROUTE NAME: A & B Ponds Road



Photo # SAMA\_C4\_0170 - MP 0.00 - Begin Section 005



## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 302 ROUTE NAME: A & B Ponds Road



Photo # SAMA\_C4\_0169 - MP 0.02 - Begin Section 006

ROUTE NUMBER: 302 ROUTE NAME: A & B Ponds Road



Photo # SAMA\_C4\_0168 - MP 0.03 - Begin Section 007

ROUTE NUMBER: 302 ROUTE NAME: A & B Ponds Road



Photo # SAMA\_C4\_0167 - MP 0.04 - Begin Section 008



## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 302 ROUTE NAME: A & B Ponds Road



Photo # SAMA\_C4\_0166 - MP 0.05 - Begin Section 009

ROUTE NUMBER: 302 ROUTE NAME: A & B Ponds Road



Photo # SAMA\_C4\_0165 - MP 0.07 - Begin Section 010

ROUTE NUMBER: 302 ROUTE NAME: A & B Ponds Road



Photo # SAMA\_C4\_0164 - MP 0.08 - Begin Section 011



## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 303 ROUTE NAME: Holding House Loop



Photo # SAMA\_C4\_0152 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 304 ROUTE NAME: Mule House Road



Photo # SAMA\_C4\_0156 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 400 ROUTE NAME: Pipeline Road



Photo # SAMA\_C4\_0195 - MP 0.00 - Begin Section 001



## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 401 ROUTE NAME: Wetland Road 1



Photo # SAMA\_C4\_0157 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 402 ROUTE NAME: Wetland Road 2



Photo # SAMA\_C4\_0158 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 403 ROUTE NAME: Wetland Road 3



Photo # SAMA\_C4\_0162 - MP 0.00 - Begin Section 001



## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 403 ROUTE NAME: Wetland Road 3



Photo # SAMA\_C4\_0159 - MP 0.01 - R 001

ROUTE NUMBER: 404 ROUTE NAME: Pond Access Road



Photo # SAMA\_C4\_0184 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 405 ROUTE NAME: Construction Road



Photo # SAMA\_C4\_0199 - MP 0.00 - Problem Area 001

## FEATURES PHOTOGRAPHS

ROUTE NUMBER: 405 ROUTE NAME: Construction Road



Photo # SAMA\_C4\_0202 - MP 0.00 - R 001

ROUTE NUMBER: 405 ROUTE NAME: Construction Road



Photo # SAMA\_C4\_0187 - MP 0.00 - Begin Section 001



### Accident Summary

Number of Accidents Reported	Timespan of Accidents	Injuries	Fatalities
0	No Accidents to Report	0	0

## APPENDIX

<b>TABLE 1 - GENERAL FWS ROAD FUNCTIONAL CLASSIFICATION</b>	
<b>Class I</b>	Principal Refuge Road (Public Roads) - Routes that constitute the main access route, main auto tour route, or thoroughfare for refuge visitors. These routes are accessible by 2WD vehicles. Routes are numbered from 10 to 99.
<b>Class II</b>	Connector Refuge Road (Public Roads) - Routes that provide circulation within the refuge. These routes can also provide access to areas of scenic, scientific, recreational or cultural interest, such as overlooks, campgrounds, education centers, etc. These routes are accessible by 2WD vehicles. Routes are numbered from 100 to 199.
<b>Class III</b>	Special Purpose Refuge Road (Public Roads) - Roads that provide circulation within special use areas such as campgrounds or public concessionaire facilities or access to remote areas of the refuge. These routes may not be 2WD accessible. Routes are numbered from 200 to 299
<b>Class IV</b>	Administrative Access Road (Administrative Roads) - Routes intended for access to administrative developments or structures such as maintenance offices, employee quarters, or utility areas. These routes are accessible by 2WD vehicles. These routes may restrict access to the general public. Routes are numbered from 300 to 399.
<b>Class V</b>	Restricted Road (Administrative Roads) - Routes normally closed to the public, such as maintenance roads, service roads, patrol roads, and fire breaks. These routes may be open to the public for a short period of time for a special use, such as hunting access. These routes may not be 2WD accessible. Routes are numbered from 400 to 499.

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



## DESCRIPTION OF RATING SYSTEM

Rating Data is collected on four different surface types: Asphalt, Concrete, Gravel, and Native. The Utah LTAP Center's Remaining Service Life (RSL) system is used for all surface types. The RSL system is based on the Strategic Highway Research Program's (SHRP) Distress Identification Manual.

### Asphalt Rating System

Data is collected on the following distresses and conditions:

- **Fatigue Cracking** - Interconnected cracks forming small irregular shapes.
- **Longitudinal Cracking** - Cracks running parallel with the roadway, in the direction of traffic.
- **Transverse Cracking** - Cracks perpendicular to the roadway, going across the lane or lanes.
- **Block Cracking** - Interconnected cracks forming large blocks.
- **Edge Cracking** - Cracks running along the edge of the pavement surface.
- **Patches** - Original surface repaired with new asphalt patch material.
- **Potholes** - Holes or depressions in the pavement.
- **Rutting** - surface depressions in the wheel paths.
- **Roughness** - Evenness of pavement for serviceability.
- **Drainage** - Ability of the road surface to drain water based on proper slope.

A Condition Rating value is calculated for each homogenous pavement section, and can be up to 1 mile in length.

### Rating Index Formula

Fatigue, longitudinal, transverse, block, and edge cracking, along with patching and potholes are rated on a 0 - 9 scale (0 = no distress, 9 = maximum distress). The rating given is based on the extent and the severity of the distress. Rutting, roughness, and drainage are rated on a 0 - 3 scale (0 = excellent, 3 = poor). Each distress type has given Remaining Service Life (RSL) values (in years) based on the rating for that particular distress. The distress with the rating resulting in the lowest RSL value is considered to be the governing distress. That value is then assigned as the RSL of the road segment.

### Concrete Rating System

Data is collected on the following distresses and conditions:

- **Spalling of Joints** - Chipping, breaking, or cracking of slab edges
- **Joint Seal Damage** - Any damage or condition that enables materials or water to infiltrate into the joint from the surface.
- **Corner Breaks** - A portion of the slab separated by a crack that intersects the adjacent transverse and longitudinal joints, forming approximately a 45° angle to the direction.
- **Broken Slabs** - Faulting and/or cracking localized to individual slabs.

- **Faulting** – Difference in elevation across a crack or joint.
- **Longitudinal Cracking** – Cracks in the pavement running parallel to road.
- **Transverse Cracking** - Cracks in the pavement running perpendicular to the direction of traffic.
- **Patch Deterioration** – Faulting, settling, or cracking of previously placed patch
- **Map Cracking** – A series of cracks that extend only into the upper surface of the Slab

A Condition Rating value is calculated for each homogenous pavement section, and can be up to 1 mile in length.

### **Rating Index Formula**

The rating procedure for concrete pavement is the same as that for asphalt pavement described previously. Each of the distresses described above are rated on the same 0 – 9 scale. The governing distress is then determined and the RSL associated with that distress is assigned to the road segment.

### **Gravel and Native Rating System**

Data is collected on the following distresses and conditions:

- **Cross Section (Crown)** - Roadway built so that the center is higher than the shoulder, to prevent water from pooling on roadway.
- **Roadside Drainage** - Roadside ditches and culverts to handle water flow and prevent pooling on the roadside.
- **Corrugations (Washboarding)** - Small trenches or holes developing perpendicular to the roadway.
- **Potholes** - Holes or depressions in the roadway.
- **Rutting** - Depressions running parallel with the roadway, in the wheelpaths.
- **Dust** - Amount of dust caused by traffic.
- **Loose Aggregate (Gravel Only)** - Loose gravel, typically piled up on the roadway edges or centerline.

A Condition Rating value is calculated for each homogenous pavement section, and can be up to 1 mile in length.

### **Rating Index Formula**

The rating procedure for unpaved roads is the same as that for asphalt and concrete pavements described previously. Of the distresses described above, corrugations, potholes, rutting, and loose aggregate are rated on the same 0 – 9 scale previously mentioned. Cross section, roadside drainage, and dust are rated on the same 0 – 3 scale described for asphalt pavement. The governing distress is then determined and the RSL associated with that distress is assigned to the road segment.



## Condition Descriptions by Surface Type

The following definitions are used to describe pavement condition for the various surface types. These are general guidelines for condition indications.

### Asphalt

**Excellent** – Recently constructed or overlaid road where construction or overlay was performed correctly- No maintenance required. RSL = 19-20 years.

**Good** – Low extent longitudinal and transverse cracks. All cracks are 1/4" or less with little or no crack erosion. Patches are in good condition and applied correctly. Routine Maintenance recommended. RSL = 13-18 years.

**Fair** - Roads are in good structural condition with little or no fatigue cracking. Longitudinal, transverse, and edge cracking is at medium extent and severity. Block cracking is not extensive. Any patches are in good condition. Preventative maintenance recommended. RSL = 7-12 years.

**Poor** - Road beginning to show signs of structural distress. Fatigue cracking is medium to high extent and medium severity. Cracking will be severe. Surface may have severe block cracking and show. Patches are in fair to poor condition. There is moderate distortion or rutting and occasional potholes. Rehabilitation recommended. RSL = 1-6 years.

**Failed** - Road is severely deteriorated. Signs of structural failure appear along with severe and extensive fatigue cracking, distortion, potholes, or extensive patches in poor condition. Reconstruction recommended. RSL = 0 years.

### Concrete

**Excellent** - New pavement. No maintenance required. RSL = 19-20 years

**Good** - First signs of transverse cracking, patch or repair, more extensive pop-outs, or scaling. Sealing or routine maintenance recommended. RSL = 13-18 years.

**Fair** – Pavement has joint or crack spalling, and/or faulting, along with cracking at corners with broken pieces. Any Patches are in fair condition and faulting is at a minimum. Preventative maintenance recommended. RSL = 7-12 years.

**Poor** - Joints and cracks are open 1 inch, spalled, or patched. Faulting is more severe. Rehabilitation recommended. RSL = 1-6 years.

**Failed** - Most slabs have failed structurally, and faulting is severe. Reconstruction recommended. RSL = 0 years.11-9

The following table shows the relationship between RSL and condition.

SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE (Asphalt and Concrete Pavements)								
	FAILED	POOR		FAIR		GOOD		EXCELLENT
RSL Years	0	1-3	4-6	7-9	10-12	13-15	16-18	19-20

### Gravel and Native

**Note** - Native surfaces do not have a gravel layer.

**Excellent** - Newly constructed road that has been constructed properly with proper crown, drainage and gravel layer. Little or no distress. No maintenance recommended. RSL = 8-10 years.

**Good** - Crown, drainage provisions, and gravel layer are in good condition. Distress limited to traffic effects such as dust, loose aggregate, and low severity corrugations (wash boarding). RSL = 5-7 years.

**Fair** - Adequate drainage and crown through majority of roadway. Crown repair, ditch improvement may be necessary. Road has more severe corrugations and potholes. Preventative maintenance recommended. RSL = 3-4 years.

**Poor** - Travel at slow speeds is necessary. Additional gravel layer needed to carry traffic. Poor crown. Ditching is inadequate and rutting is extensive and severe. Rehabilitation recommended. RSL = 1-2 years.

**Failed** - Travel is difficult, and road may be closed at times. Rutting and Corrugations are very severe. Total Reconstruction of road is recommended. RSL = 0 years.

The following table shows the RSL values for gravel and native roads in terms of excellent, good, fair, poor, and failed condition.

SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE (Gravel and Native Surfaces)					
	FAILED	POOR	FAIR	GOOD	EXCELLENT
RSL Years	0	1-2	3-4	5-7	8-10



## NATIVE PRIMITIVE/IMPROVED RATING SHEET

### Cross Section (Crown)\*

Severity	Condition		Description
	No Defects	0	Crown 4-6" with no restriction of water flow from centerline to ditch.
	Minor Defects	1	Inadequate or inconsistent crown. Drainage to ditch may be restricted.
	Moderate Defects	2	Flat crown, drainage to ditch restricted.
	Major Defects	3	Reverse crown, bowl-shaped road, drainage on roadway

### Rutting

Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 6"	1	2	3
	Med 6-12"	4	5	6
	High > 12"	7	8	9

### Roadside Drainage\*

Severity	Condition		Description
	No Defects	0	Wide, deep ditches (>4') with no restriction to water flow.
	Minor Defects	1	Adequate ditches (>2' deep), minor obstructions restrict water flow.
	Moderate Defects	2	Shallow, narrow and obstructed ditches. Minor erosion of road.
	Major Defects	3	No ditch, drainage on roadway with moderate to severe erosion.

### Potholes

Severity	Extent (Area)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 6"	1	2	3
	Med 6-12"	4	5	6
	High > 12"	7	8	9

### Dust

Severity	Condition		Description
	No Defects	0	No obstruction to sight distance.
	Minor Defects	1	Sight distance > 550'
	Moderate Defects	2	Sight distance 225'-550'
	Major Defects	3	Sight distance < 225'

### Corrugations

Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 3"	1	2	3
	Med 3-6"	4	5	6
	High > 6"	7	8	9

\* Crown and Drainage are not rated for roads that have no constructed crown or drainage. This applies to Native and Gravel roads.

# GRAVEL RATING SHEET

## Cross Section (Crown)

Severity	Condition		Description
	No Defects	0	Crown 4-6" with no restriction of water flow from centerline to ditch.
	Minor Defects	1	Inadequate or inconsistent crown. Drainage to ditch may be restricted.
	Moderate Defects	2	Flat crown, drainage to ditch restricted.
	Major Defects	3	Reverse crown, bowl-shaped road, drainage on roadway

## Rutting

Severity	No Defects	Extent (Length)		
		Low <10%	Med 10-30%	High >30%
	Low < 1"	1	2	3
	Med 1-3"	4	5	6
	High > 3"	7	8	9

## Roadside Drainage

Severity	Condition		Description
	No Defects	0	Wide, deep ditches (>4') with no restriction to water flow.
	Minor Defects	1	Adequate ditches (>2' deep), minor obstructions restrict water flow.
	Moderate Defects	2	Shallow, narrow and obstructed ditches. Minor erosion of road.
	Major Defects	3	No ditch, drainage on roadway with moderate to severe erosion.

## Potholes

Severity	No Defects	Extent (Area)		
		Low <10%	Med 10-30%	High >30%
	Low < 1"	1	2	3
	Med 1-3"	4	5	6
	High > 3"	7	8	9

## Dust

Severity	Condition		Description
	No Defects	0	No obstruction to sight distance.
	Minor Defects	1	Sight distance > 550'
	Moderate Defects	2	Sight distance 225'-550'
	Major Defects	3	Sight distance < 225'

## Corrugations

Severity	No Defects	Extent (Length)		
		Low <10%	Med 10-30%	High >30%
	Low < 2"	1	2	3
	Med 2-4"	4	5	6
	High > 4"	7	8	9

\* Crown and Drainage are not rated for roads that have no constructed crown or drainage. This applies to Native and Gravel roads.

## Loose Aggregate

Severity	No Defects	Extent (Area)		
		Low <10%	Med 10-30%	High >30%
	Low < 1"	1	2	3
	Med 1-3"	4	5	6
	High > 3"	7	8	9



# ASPHALT RATING SHEET

## Fatigue Cracking

Severity	Extent			
	No Defects	Low 1 crack WP	Med 2 cracks WP	High >30% length
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

## Edge Cracking

Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	0-6" from curb	1	2	3
	6-18" from curb	4	5	6
	> 18" from curb	7	8	9

## Longitudinal Cracking

Severity	Extent			
	No Defects	Low 1 crack full length	Med 2 cracks full length	High >2 cracks full length
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

## Block Cracking

Severity	Extent (Length)			
	No Defects	Low > 15x15' squares	Med 15-10' squares	High <10x10' squares
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

## Transverse Cracking

Severity	Extent (ft between cracks)			
	No Defects	Low > 200'	Med 200-50'	High < 50'
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

## Utility Cuts

Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

## Drainage/Roughness/Rutting

Severity	Condition		Description
	No Defects	0	Wide, deep ditches with no obstructions, smooth ride, no rutting, no potholes.
	Minor Defects	1	Drainage may be obstructed, < 1" rutting, minor roughness.
	Moderate Defects	2	Poor drainage, 1-2" rutting, noticeable roughness, potholes < 6" wide.
	Major Defects	3	No drainage; > 2" rutting; potholes 6-12" wide create roughness requiring reduced speeds.

# CONCRETE RATING SHEET

## Spalling of Joints

Extent (% joints)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low Spalls < 3"	1	2	3
	Med Spalls 3-6"	4	5	6
	High Spalls > 6"	7	8	9

## Broken Slabs

Extent (% slabs)				
No Defects	Low <5%	Med 5-15%	High >15%	
Severity	Low-no more than 3 pieces, no spalling/faulting	1	2	3
	Med-broken into >3 pieces, spalling/faulting <1/4"	4	5	6
	High-4 or more pieces, spalling/faulting >1/4"	7	8	9

## Transverse Cracks

Extent (% slabs)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low-Cracks < 1/8"; no spalling/faulting	1	2	3
	Med-Cracks 1/8-1/2"; spall <3", fault >1/4"	4	5	6
	High-Cracks > 1/2"; spall >3", fault >1/4"	7	8	9

## Joint Seal Damage

Extent (%joints)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low <10% joint length	1	2	3
	Med 10-50% joint length	4	5	6
	High >50% joint length	7	8	9

## Faulting

Extent (Length)				
No Defects	Low <10%	Med 10-30%	High >30%	
Severity	Low < 1/2"	1	2	3
	Med 1/2-1"	4	5	6
	High > 1"	7	8	9

## Patch Deterioration

Extent (Area)				
No Defects	Low <10%	Med 10-30%	High >30%	
Severity	Low-no fault, no settle at perimeter	1	2	3
	Med-fault & settle <1/4" at perimeter	4	5	6
	High-fault & settle >1/4" at perimeter, cracked patch	7	8	9

## Corner Breaks

Extent (% of slabs)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low-corner cracks, no spalling or faulting	1	2	3
	Med-crack slightly spalled & faulted <1/4"	4	5	6
	High-crack highly spalled & faulted >1/4"	7	8	9

## Longitudinal Cracks

Extent (% slabs)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low-Cracks < 1/8"; no spalling/faulting	1	2	3
	Med-Cracks 1/8-1/2"; spall <3", fault >1/2"	4	5	6
	High-Cracks > 1/2"; spall >3", fault >1/2"	7	8	9

## Map Cracks

Extent (Area)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low-small connected cracks, no spalling	1	2	3
	Med-connected cracks, no spalling	4	5	6
	High-large connected cracks with surface spalling	7	8	9



# Deficiency Ratings With Associated Remaining Service Life

## Asphalt Rating Sheet

Fatigue Cracking		Edge Cracking		Transverse Cracking		Utility Cuts	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	20	0	20	0	20	0	20
1	10	1	12	1	14	1	14
2	8	2	10	2	12	2	12
3	6	3	8	3	10	3	10
4	8	4	10	4	12	4	12
5	6	5	8	5	10	5	10
6	4	6	6	6	8	6	8
7	6	7	8	7	10	7	10
8	2	8	6	8	6	8	6
9	0	9	4	9	2	9	2

Longitudinal Cracking		Block Cracking		Drainage/Roughness/Rutting	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	20	0	20	0	20
1	14	1	12	1	16
2	12	2	10	2	10
3	10	3	8	3	4
4	12	4	10		
5	10	5	8		
6	8	6	6		
7	10	7	12		
8	8	8	6		
9	6	9	2		

## Concrete Rating Sheet

Spalling		Broken Slabs		Transverse Cracks	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	20	0	20	0	20
1	15	1	15	1	18
2	12	2	12	2	15
3	10	3	10	3	12
4	12	4	12	4	15
5	10	5	10	5	10
6	8	6	8	6	6
7	10	7	10	7	10
8	6	8	6	8	4
9	0	9	0	9	0

Joint Seal Damage		Faulting		Patch Deterioration	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	20	0	20	0	18
1	16	1	15	1	16
2	14	2	12	2	14
3	12	3	10	3	12
4	14	4	12	4	12
5	10	5	8	5	10
6	8	6	6	6	8
7	12	7	10	7	10
8	8	8	4	8	6
9	6	9	0	9	0

Corner Breaks		Longitudinal Cracks		Map Cracks	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	18	0	20	0	20
1	16	1	18	1	18
2	14	2	15	2	15
3	12	3	12	3	12
4	12	4	15	4	12
5	10	5	10	5	10
6	8	6	6	6	6
7	10	7	10	7	10
8	6	8	4	8	4
9	0	9	0	9	0

SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE IN YEARS (Asphalt & Concrete Roads)

RSL	FAILED 0	POOR 1 - 6	FAIR 7 - 12	GOOD 13 - 18	EXCELLENT 19 - 20
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# Deficiency Ratings With Associated Remaining Service Life

## Native Primitive Improved Rating Sheet

Cross Section		Rutting		Roadside Drainage	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	10	0	10	0	10
1	7	1	9	1	8
2	5	2	7	2	4
3	0	3	5	3	0
		4	7		
		5	4		
		6	3		
		7	4		
		8	2		
		9	0		

Potholes		Dust		Corrugations	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	10	0	10	0	10
1	9	1	8	1	9
2	7	2	6	2	7
3	5	3	2	3	7
4	7			4	6
5	4			5	5
6	3			6	5
7	4			7	4
8	2			8	3
9	0			9	0

## Gravel Rating Sheet

Cross Section		Rutting		Roadside Drainage	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	10	0	10	0	10
1	7	1	9	1	8
2	5	2	7	2	4
3	0	3	5	3	0
		4	7		
		5	4		
		6	3		
		7	4		
		8	2		
		9	0		

Potholes		Dust		Corrugations	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	10	0	10	0	10
1	9	1	8	1	9
2	7	2	6	2	7
3	5	3	2	3	7
4	7			4	6
5	4			5	5
6	3			6	5
7	4			7	4
8	2			8	3
9	0			9	0

Loose Aggregate	
Distress Rating	Remaining Service Life
0	10
1	9
2	8
3	7
4	8
5	7
6	6
7	5
8	3
9	0

SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE IN YEARS (Gravel & Native Roads)

RSL	FAILED	POOR	FAIR	GOOD	EXCELLENT
	0	1 - 2	3 - 4	5 - 7	8 - 10