The Road Inventory of Rydell National Wildlife Refuge

Erskine, MN

Prepared By:
Federal Highway Administration
Central Federal Lands Highway Division
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INTRODUCTION

The Transportation Equity Act for the 21st 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 22nd 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.

Rydell NWR

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	2.16	0.0%	2.17	0.0%	0.12	0.0%	0.00	0.0%	0.00	0.0%	**4.44**
II	2.32	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	**2.32**
III	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	**0.00**
IV	0.26	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	**0.26**
V	0.49	20.2%	1.71	70.7%	0.22	9.1%	0.00	0.0%	0.00	0.0%	**2.42**
Total	**5.23**	**55.3%**	**3.88**	**41.0%**	**0.34**	**3.6%**	**0.00**	**0.0%**	**0.00**	**0.0%**	**9.46**

*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		
	MILES	%	MILES	%	MILES	%	MILES	%	MILES	%	Total Miles
AS	0.02	14.3%	0.00	0.0%	0.12	85.7%	0.00	0.0%	0.00	0.0%	**0.14**
CO	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	**0.00**
Total	**0.02**	**14.3%**	**0.00**	**0.0%**	**0.12**	**85.7%**	**0.00**	**0.0%**	**0.00**	**0.0%**	**0.14**

Unpaved Condition Rating [Condition(RSL)]

S. T.	Excellent		Good		Fair		Poor		Failed		TOTAL
	MILES	%	MILES	%	MILES	%	MILES	%	MILES	%	MILES
GR	5.17	69.7%	2.17	29.2%	0.08	0.0%	0.00	0.0%	0.00	0.0%	**7.42**
NA	0.00	0.0%	0.70	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	**0.70**
PR	0.04	3.3%	1.02	0.0%	0.14	0.0%	0.00	0.0%	0.00	0.0%	**1.20**
Totals	**5.21**	**55.9%**	**3.89**	**41.7%**	**0.22**	**2.4%**	**0.00**	**0.0%**	**0.00**	**0.0%**	**9.32**

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	3,801	19.5%	15,732	80.5%	0	0.0%	0	0.0%	0	0.0%	**19,533**
CO	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**
GR	0	0.0%	42,427	51.9%	33,313	40.7%	6,023	7.4%	0	0.0%	**81,763**
NA	0	0.0%	0	0.0%	17,367	100.0%	0	0.0%	0	0.0%	**17,367**
PR	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**
Total	**3,801**	3.2%	**58,159**	49.0%	**50,680**	42.7%	**6,023**	5.1%	**0**	0.0%	**118,663**

Rydell NWR

Summaries

Route Miles and Percentages by Use Type and Condition

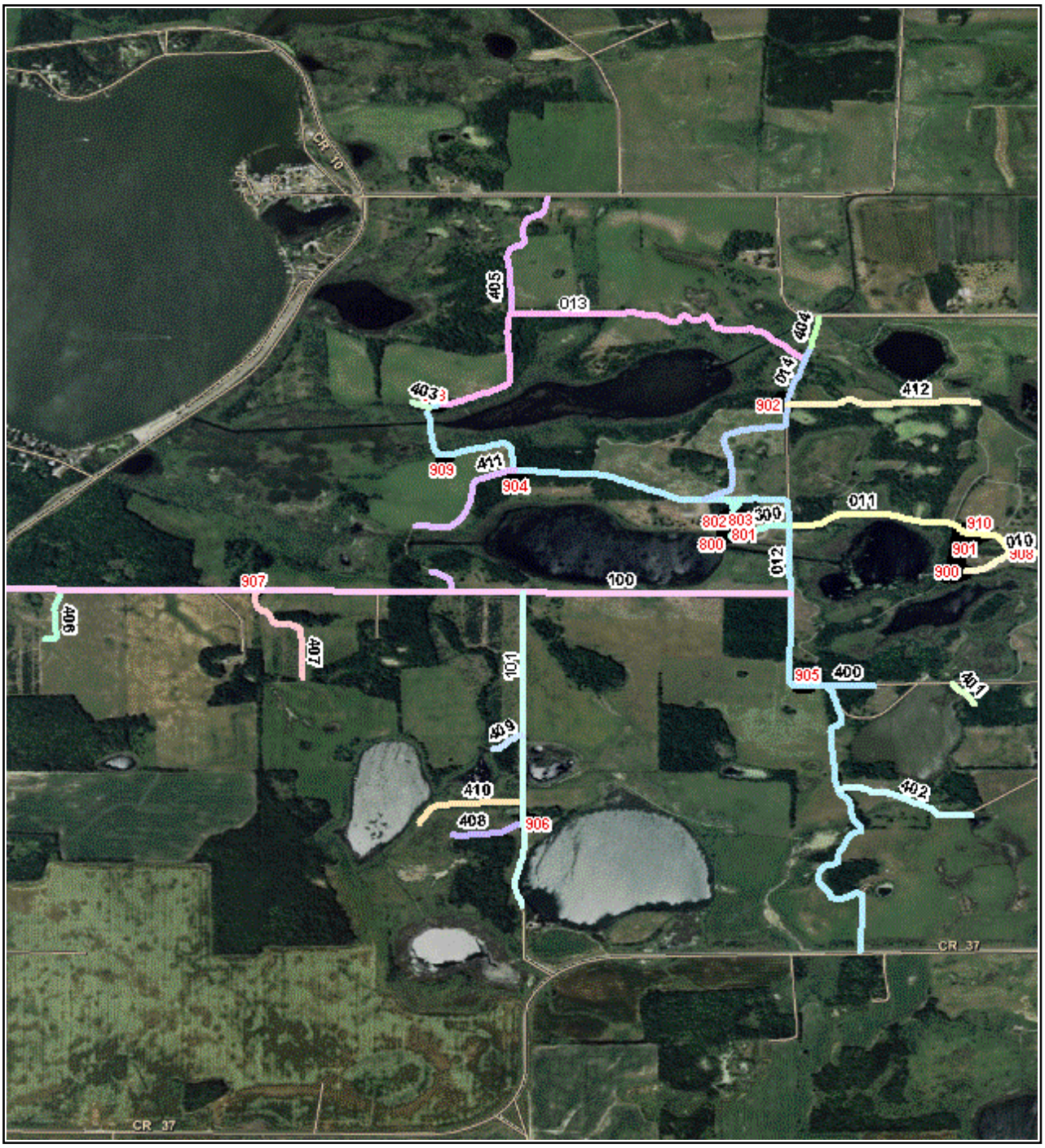
Road Condition Rating: Public/Administrative Use

USE TYPE	Excellent		Good		Fair		Poor		Failed		TOTAL
	MILES	%	MILES	%	MILES	%	MILES	%	MILES	%	MILES
Admin	0.75	27.9%	1.71	63.6%	0.22	8.7%	0.00	0.0%	0.00	0.0%	2.69
Public	4.48	66.2%	2.17	32.0%	0.12	1.8%	0.00	0.0%	0.00	0.0%	6.77
Total	**5.23**	**55.3%**	**3.88**	**67.2%**	**0.34**	3.6%	0.00	0.0%	0.00	0.0%	**9.46**

Parking Condition Rating

Use Type	Excellent		Good		Fair		Poor		Failed		Square
	Sq Ft	%	Sq Ft	%	Sq Ft	%	Sq Ft	%	Sq Ft	%	Feet
Admin	0	0.0%	21,295	100.0%	0	0.0%	0	0.0%	0	0.0%	21,295
Public	3,801	3.9%	36,864	37.9%	50,680	52.0%	6,023	6.2%	0	0.0%	97,368
Total	**3,801**	3.2%	**58,159**	49.0%	**50,680**	42.7%	**6,023**	5.1%	**0**	**0.0%**	**118,663**

Rydell
ROUTE LOCATION MAP



Rydell - 32583 - 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	10012040	Refuge Entrance Road	0.17	From County Road 210 to Headquarters Parking (Route 900)	0.02	0.15	2	1
011	10043693	Golden Pond Road	0.47	From Refuge Entrance Road (Route 010) to Church Lake Road (Route 012)	0.00	0.47	2	1
012	10043694	Church Lake Road	2.30	From County Road 37 to Auto Tour Road (Route 013)	0.00	2.30	2	1
013	10043695	Auto Tour Road	0.95	From Church Lake Road (Route 012) to Tamarac Trail Road (Route 014)	0.04	0.91	1	1
014	10043695	Tamarac Trail Road	0.55	From Ditch 73 Access Road (Route 404) to Church Lake Road (Route 012)	0.08	0.47	1	1
100	10043696	Old County 10 Road	1.46	From Church Lake Road (Route 012) to County Road 10	0.00	1.46	2	2
101	10043697	Clifford Lake Road	0.86	From Old County Road 10 (Route 100) to County Road 37	0.00	0.86	2	2
300		Shop Access Road	0.26	From Golden Pond Road (Route 011) to shop area	0.00	0.26	1	4
400	10053164	Church Lake Access Road	0.10	From Church Lake Road (Route 012) to Church Lake Trail	0.00	0.10	1	5
401	10053164	Rodres Field Road	0.07	From Church Lake Acess Road (Rte 400) to end of drivable route	0.00	0.07	1	5
402	10053164	Aasnes Field Road	0.27	From Church Lake Road (Route 012) to end of route	0.00	0.27	1	5
403	10053164	Bluebird Field Road	0.04	From Church Lake Road (Route 012) to end of route	0.00	0.04	1	5
404	10043695	Ditch 73 Access Road	0.08	From Tamarac Trail Road (Route 14) to refuge boundary	0.00	0.08	1	5
405	10053164	Partridge Field Road	0.35	From Auto Tour Route (Route 13) to refuge boundary	0.00	0.35	1	5
406	10053164	Solie Field Access Road	0.15	From Old County Road 10 (Route 100) to end of route at tree line	0.00	0.15	1	5
407	10053164	Buness Field Access Road	0.29	From Old County Road 10 (Route 100) to end of route	0.00	0.29	1	5
408	10053164	High Lake Field Access Road	0.14	From Old County 10 Road (Route 100) to end of route	0.00	0.14	1	5
409	10053164	Fern Gully Field Access Road	0.07	From Clifford Lake Road (Route 101) to end of route	0.00	0.07	1	5
410	10053164	Little Otter Field Access Road	0.22	From Clifford Lake Road (Route 101) to end of route	0.00	0.22	1	5
411	10053164	Sunset Lake Outlet Road	0.36	From Old County Road 10 (Route 100) to Church Lake Road (Route 012)	0.00	0.36	1	5

Rydell - 32583 - 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
412		Rance Lake Field Road	0.36	From Tamarac Trail Road (Route 14) to end of route at hiking trail	0.00	0.36	1	5

Rydell - 32583 - 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		Shop Parking	4,350		0.00	4,350
801		Shop Parking #2	5,191		0.00	5,191
802		Shop Parking #3	8,643		0.00	8,643
803		Shop Parking #4	3,111		0.00	3,111
900	10012049	Headquarters Parking	15,732		15,732.00	0
901	10043698	Overflow Parking	22,089		0.00	22,089
902	10043699	Auto Tour Parking #1	8,393		0.00	8,393
903	10043699	Auto Tour Parking #2	4,839		0.00	4,839
904	10043699	Auto Tour Parking #3	6,023		0.00	6,023
905	10043700	Church Lake Parking	5,136		0.00	5,136
906	10043701	Clifford Lake Parking	7,718		0.00	7,718
907	10043702	Route 100 Parking	5,021		0.00	5,021
908		Front Gate Parking	3,801		3,801.00	0
909	10053163	Auto Tour Parking #4	1,249		0.00	1,249
910		Overflow RV/Bus Parking	17,367		0.00	17,367

CHANGES TO THE FISH AND WILDLIFE SERVICE ROAD INVENTORY REPORT

Rydell

Routes added to previous inventory*:

Rte #	Rte Name	Reason for Addition
300	Shop Access Road	Administrative
400	Church Lake Access Road	Administrative
401	Rodres Field Road	Administrative
402	Aasnes Field Road	Administrative
403	Bluebird Field Road	Administrative
404	Ditch 73 Access Road	Administrative
405	Partridge Field Road	Administrative
406	Solie Field Access Road	Administrative
407	Buness Field Access Road	Administrative
408	High Lake Field Access Road	Administrative
409	Fern Gully Field Access Road	Administrative
410	Little Otter Field Access Road	Administrative
411	Sunset Lake Outlet Road	Administrative
411	Sunset Lake OutletRoad	Administrative
412	Rance Lake Field Road	Administrative
800	Shop Parking	Administrative
801	Shop Parking #2	Administrative
802	Shop Parking #3	Administrative
803	Shop Parking #4	Administrative

Routes removed from previous inventory:

Rte #	Rte Name	Reason for Removal

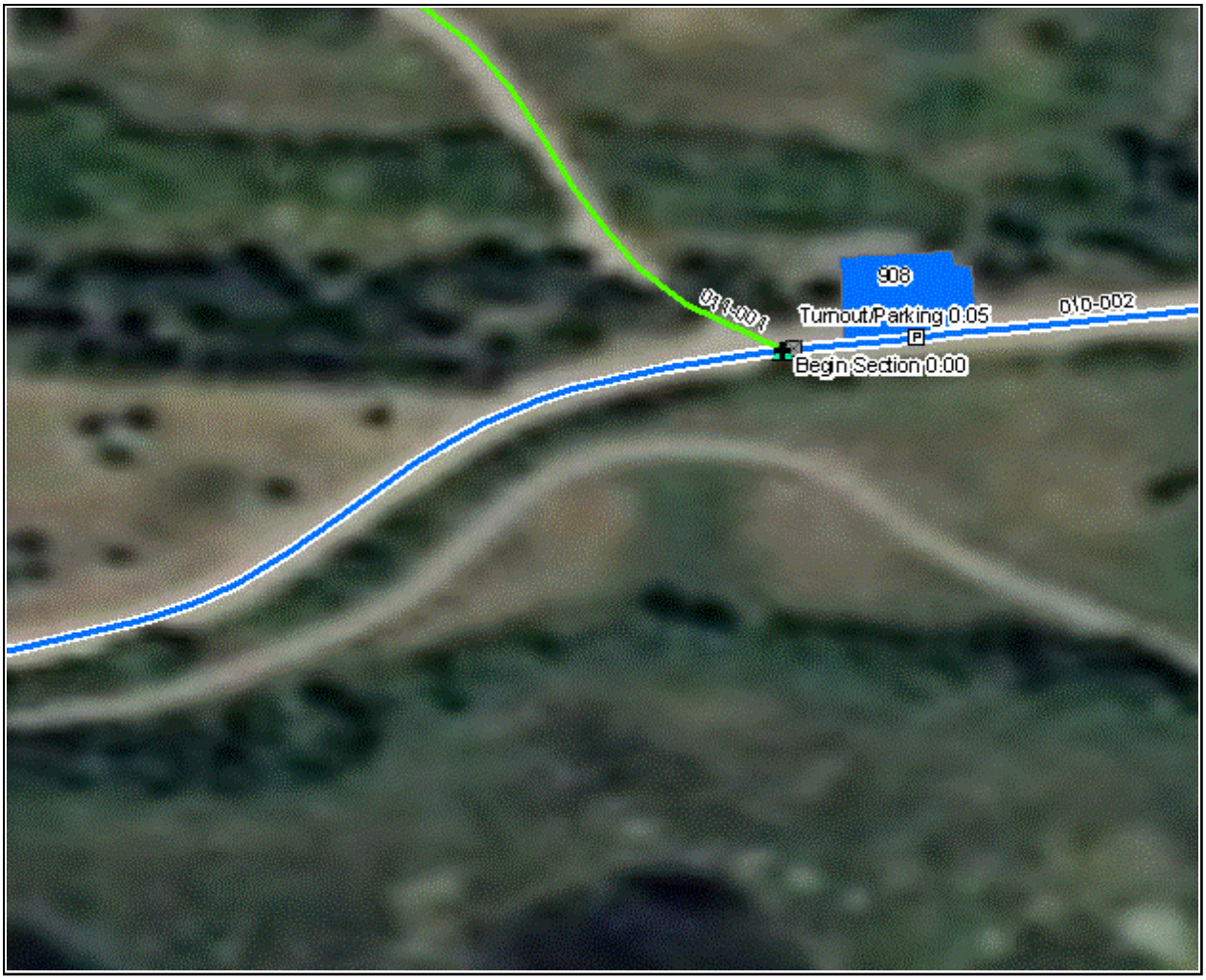
Routes modified from previous inventory:

Rte #	Rte Name	Type of Modification	Description of Modification
011	Golden Pond Road	Geometry change	
012	Church Lake Road	Geometry change	
013	Auto Tour Road	Geometry change	
901	Overflow Parking	Geometry change	
908	Front Gate Parking	Surface type change	

Comments:

013 - Route shortened

012 - Added section 003
908 - Surface changed to asphalt
011 - Added length at the beginning of the route
901 - Changed in size

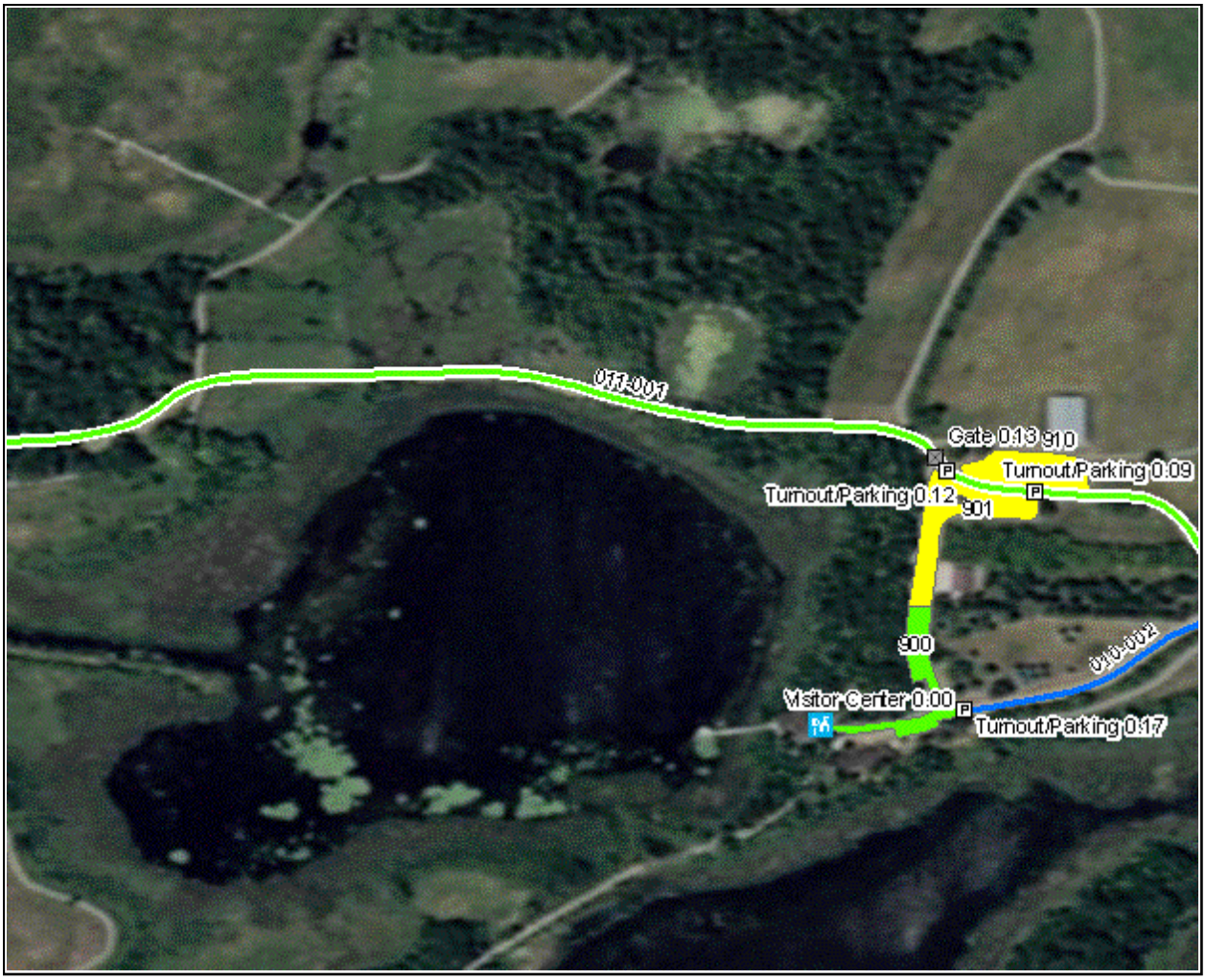


Route: 010 Refuge Entrance Road

Total Route Length: **0.17 Miles**

Route Description: From County Road 210 to Headquarters Parking (Route 900)

Asset Number	10012040	10012040
Section Number	001	002
Section Length (miles)	0.02	0.15
Inspection Date	07/28/2009	07/28/2009
Section Information		
Surface Type	Asphalt	Gravel
Number of Lanes	2	2
Roadway Width (feet)	18.00	18.00
Roadway Condition Information		
Condition	Excellent	Excellent
Remaining Service Life (years)	20	9
Cost Estimate	0	0
CRV	18,900.00	99,100.00



0.04 0 0.04 0.08 0.12 Miles

Excellent Good Fair Poor Failed

Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

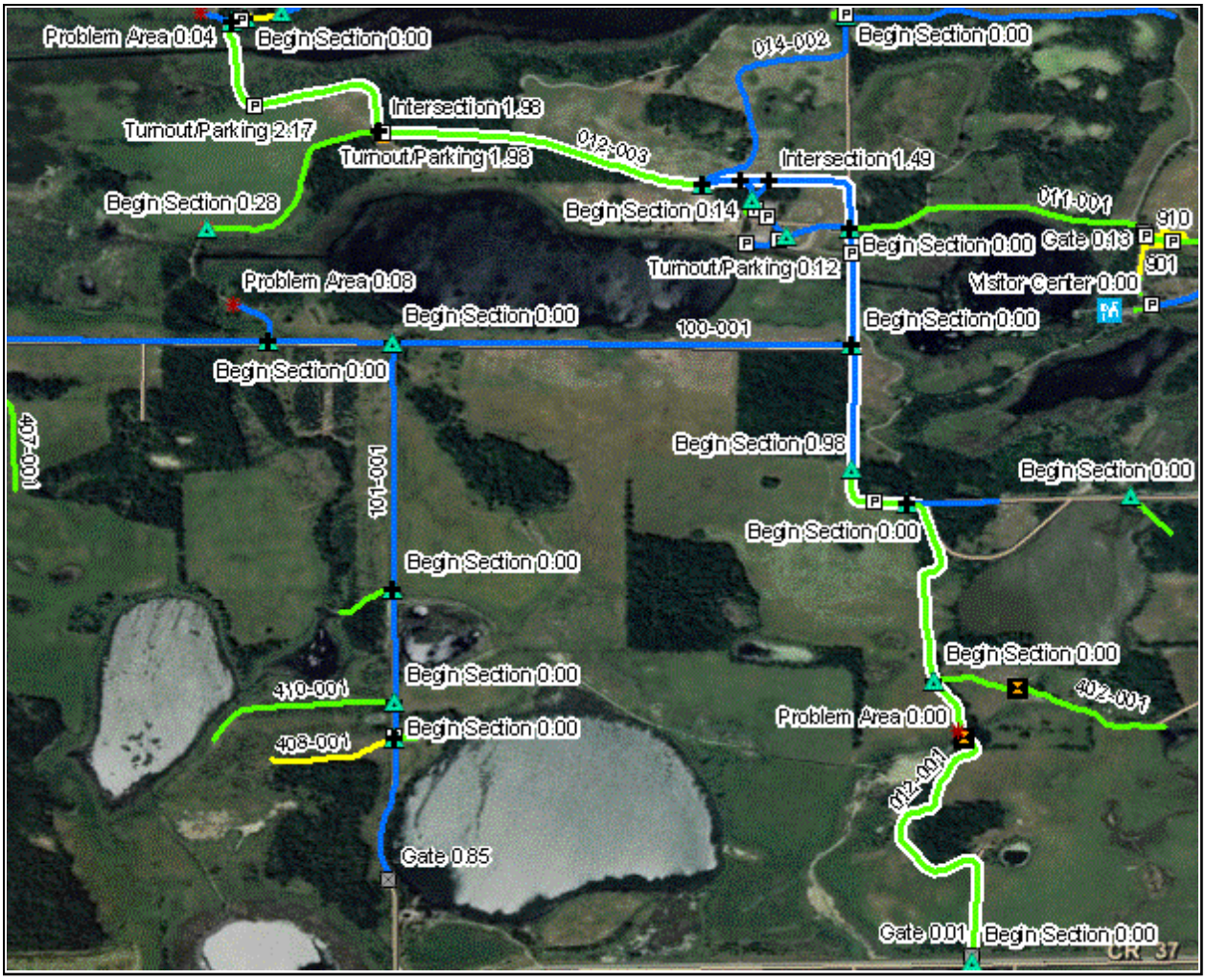
N

Route: 011 Golden Pond Road

Total Route Length: **0.47 Miles**

Route Description: From Refuge Entrance Road (Route 010) to Church Lake Road (Route 012)

Asset Number	10043693
Section Number	001
Section Length (miles)	0.47
Inspection Date	07/28/2009
Section Information	
Surface Type	Gravel
Number of Lanes	2
Roadway Width (feet)	16.00
Roadway Condition Information	
Condition	Good
Remaining Service Life (years)	7
Cost Estimate	700
CRV	301,300.00

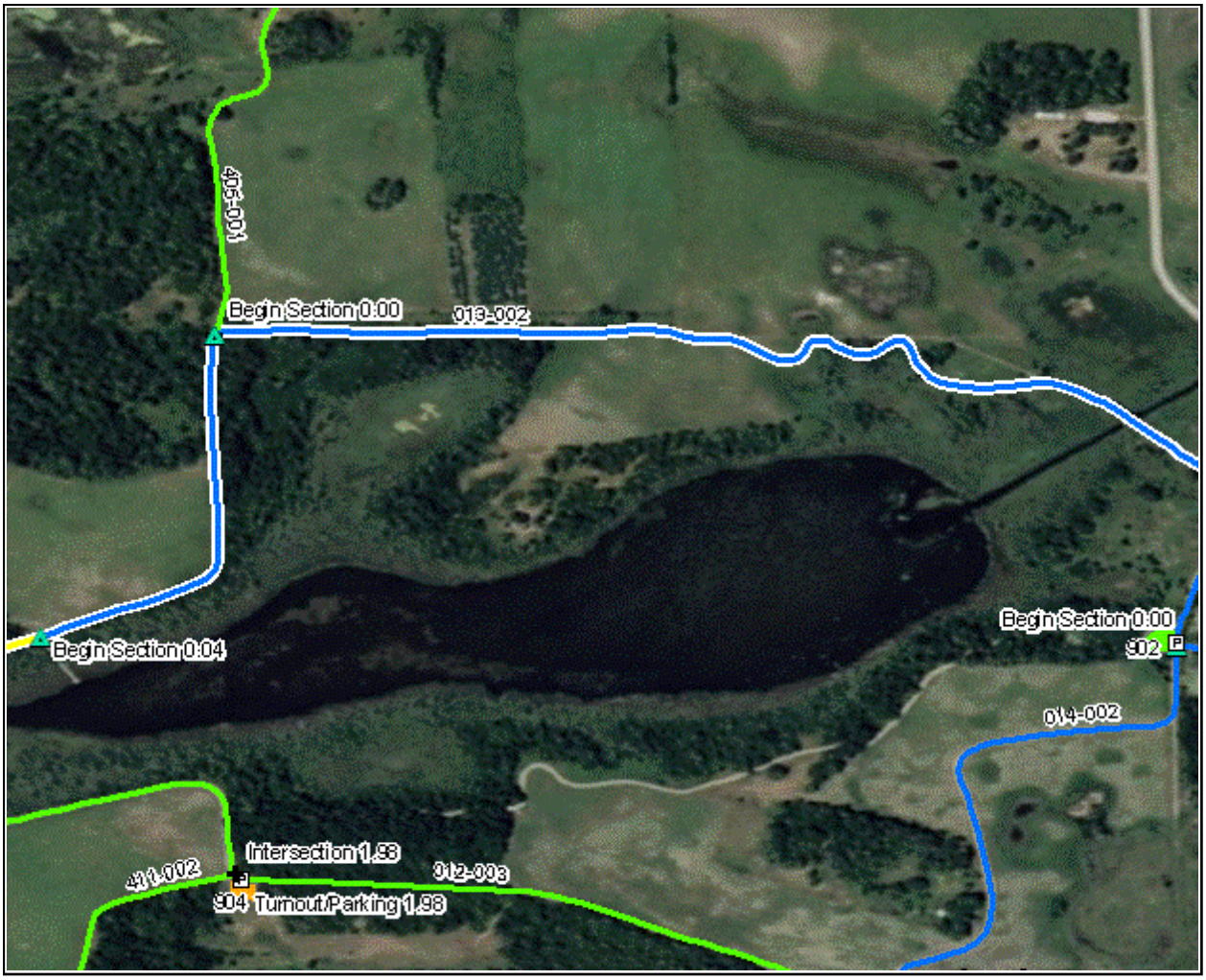


Route: 012 Church Lake Road

Total Route Length: **2.30 Miles**

Route Description: From County Road 37 to Auto Tour Road (Route 013)

Asset Number	10043694	10043694	10043694
Section Number	001	002	003
Section Length (miles)	0.98	0.61	0.72
Inspection Date	07/28/2009	07/28/2009	07/28/2009
Section Information			
Surface Type	Gravel	Gravel	Gravel
Number of Lanes	2	2	1
Roadway Width (feet)	16.00	16.00	12.00
Roadway Condition Information			
Condition	Good	Excellent	Good
Remaining Service Life (years)	5	8	7
Cost Estimate	1,500	0	1,100
CRV	626,400.00	389,000.00	460,300.00



0.06 0 0.06 0.12 0.18 Miles

Excellent Good Fair Poor Failed

N

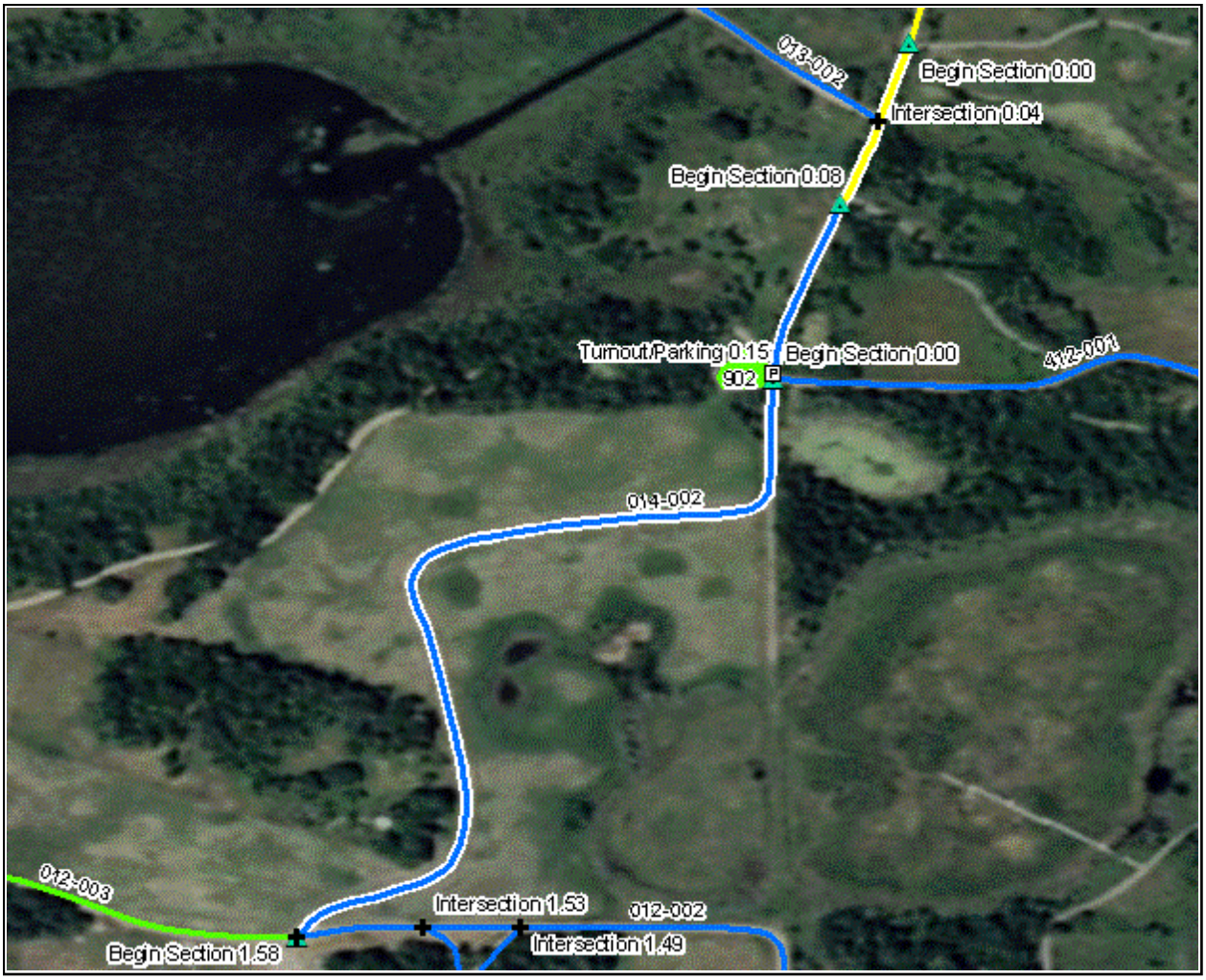
Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

Route: 013 Auto Tour Road

Total Route Length: **0.95 Miles**

Route Description: From Church Lake Road (Route 012) to Tamarac Trail Road (Route 014)

Asset Number	10043695	10043695
Section Number	001	002
Section Length (miles)	0.04	0.91
Inspection Date	08/03/2009	08/03/2009
Section Information		
Surface Type	Asphalt	Gravel
Number of Lanes	1	1
Roadway Width (feet)	10.00	10.00
Roadway Condition Information		
Condition	Fair	Excellent
Remaining Service Life (years)	10	8
Cost Estimate	4,300	0
CRV	47,200.00	583,300.00

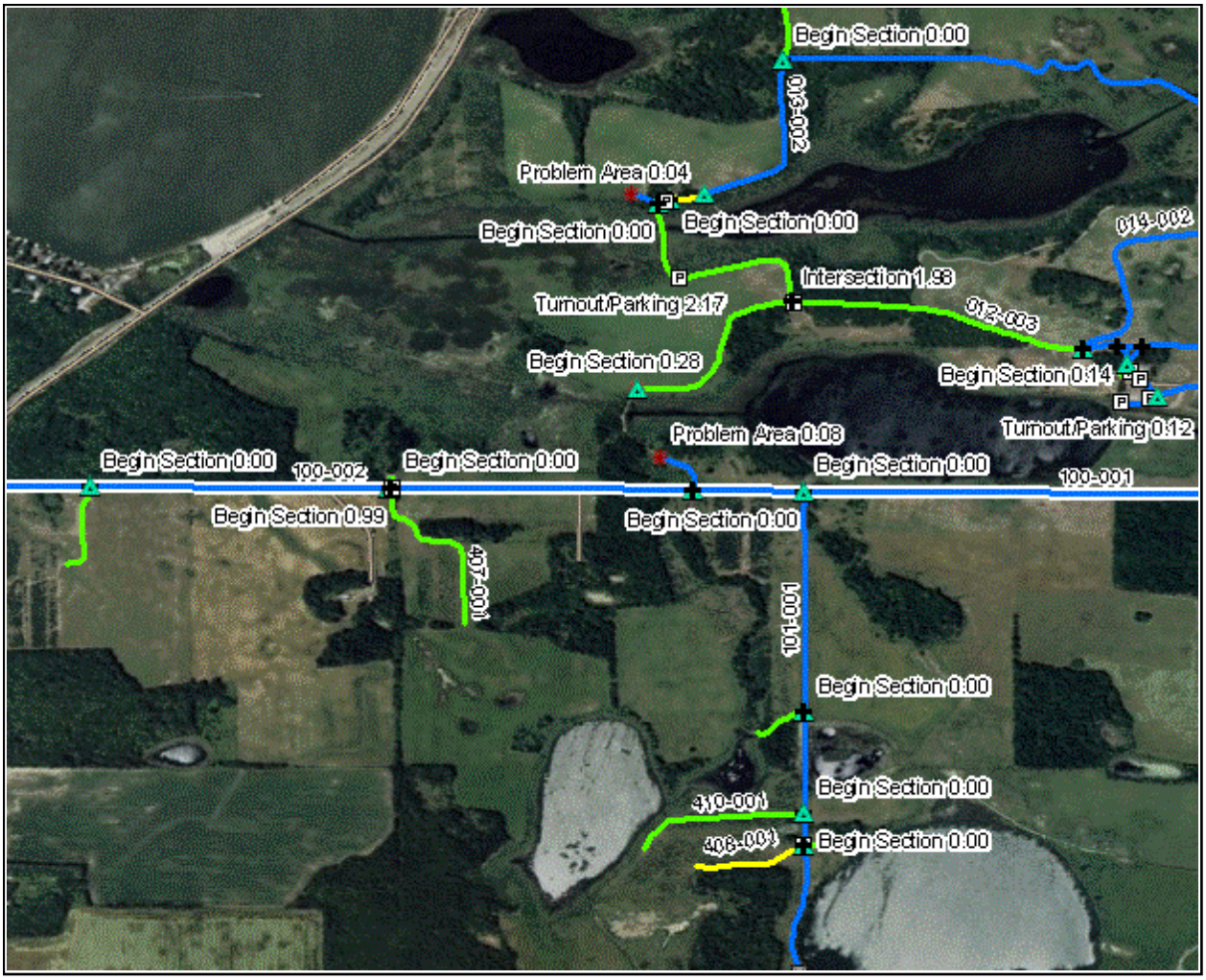


Route: 014 Tamarac Trail Road

Total Route Length: **0.55 Miles**

Route Description: From Ditch 73 Access Road (Route 404) to Church Lake Road (Route 012)

Asset Number	10043695	10043695
Section Number	001	002
Section Length (miles)	0.08	0.47
Inspection Date	08/03/2009	08/03/2009
Section Information		
Surface Type	Asphalt	Gravel
Number of Lanes	1	1
Roadway Width (feet)	10.00	14.00
Roadway Condition Information		
Condition	Fair	Excellent
Remaining Service Life (years)	12	8
Cost Estimate	7,900	0
CRV	87,700.00	300,500.00

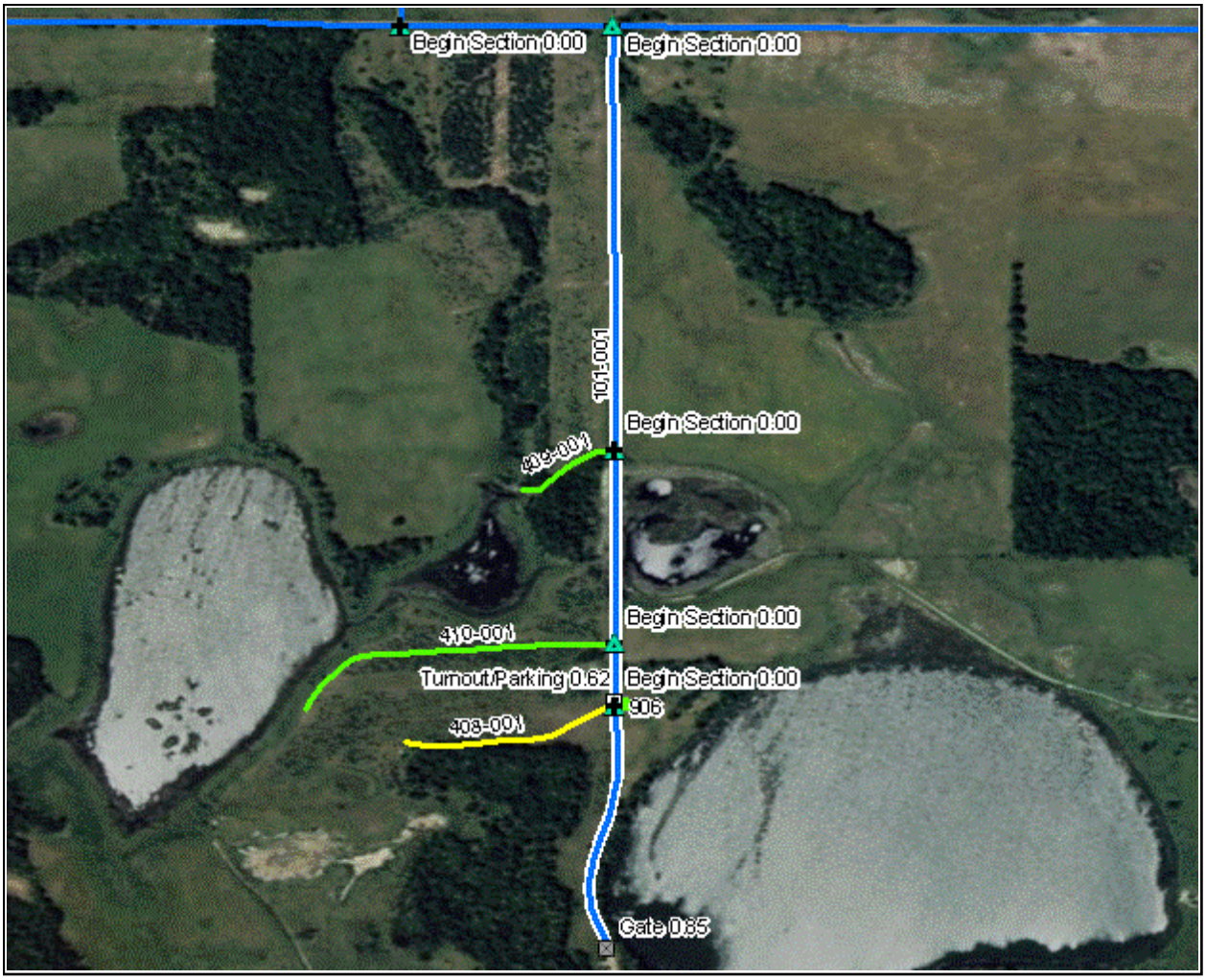


Route: 100 Old County 10 Road

Total Route Length: **1.46 Miles**

Route Description: From Church Lake Road (Route 012) to County Road 10

Asset Number	10043696	10043696
Section Number	001	002
Section Length (miles)	0.99	0.48
Inspection Date	08/03/2009	08/03/2009
Section Information		
Surface Type	Gravel	Gravel
Number of Lanes	2	2
Roadway Width (feet)	18.00	18.00
Roadway Condition Information		
Condition	Excellent	Excellent
Remaining Service Life (years)	9	9
Cost Estimate	0	0
CRV	632,400.00	306,100.00



Route: 101 Clifford Lake Road

Total Route Length: **0.86 Miles**

Route Description: From Old County Road 10 (Route 100) to County Road 37

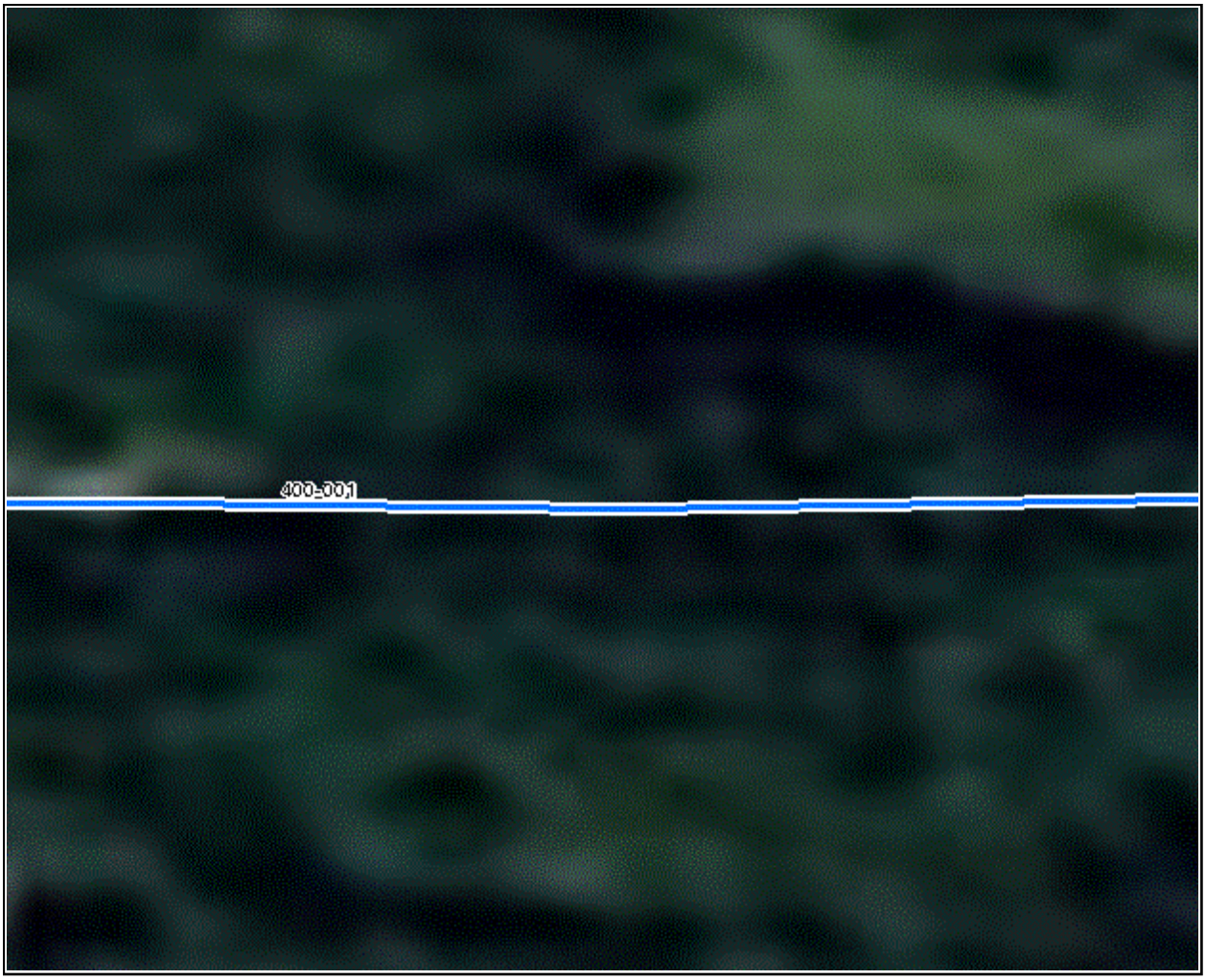
Asset Number	10043697
Section Number	001
Section Length (miles)	0.86
Inspection Date	08/03/2009
Section Information	
Surface Type	Gravel
Number of Lanes	2
Roadway Width (feet)	18.00
Roadway Condition Information	
Condition	Excellent
Remaining Service Life (years)	8
Cost Estimate	0
CRV	550,900.00

Route: 300 Shop Access Road

Total Route Length: **0.26 Miles**

Route Description: From Golden Pond Road (Route 011) to shop area

Asset Number			
Section Number	001	002	003
Section Length (miles)	0.12	0.11	0.04
Inspection Date	07/28/2009	07/28/2009	07/28/2009
Section Information			
Surface Type	Gravel	Gravel	Gravel
Number of Lanes	1	1	1
Roadway Width (feet)	12.00	12.00	12.00
Roadway Condition Information			
Condition	Excellent	Excellent	Excellent
Remaining Service Life (years)	9	10	10
Cost Estimate	0	0	0
CRV	75,900.00	68,200.00	22,600.00

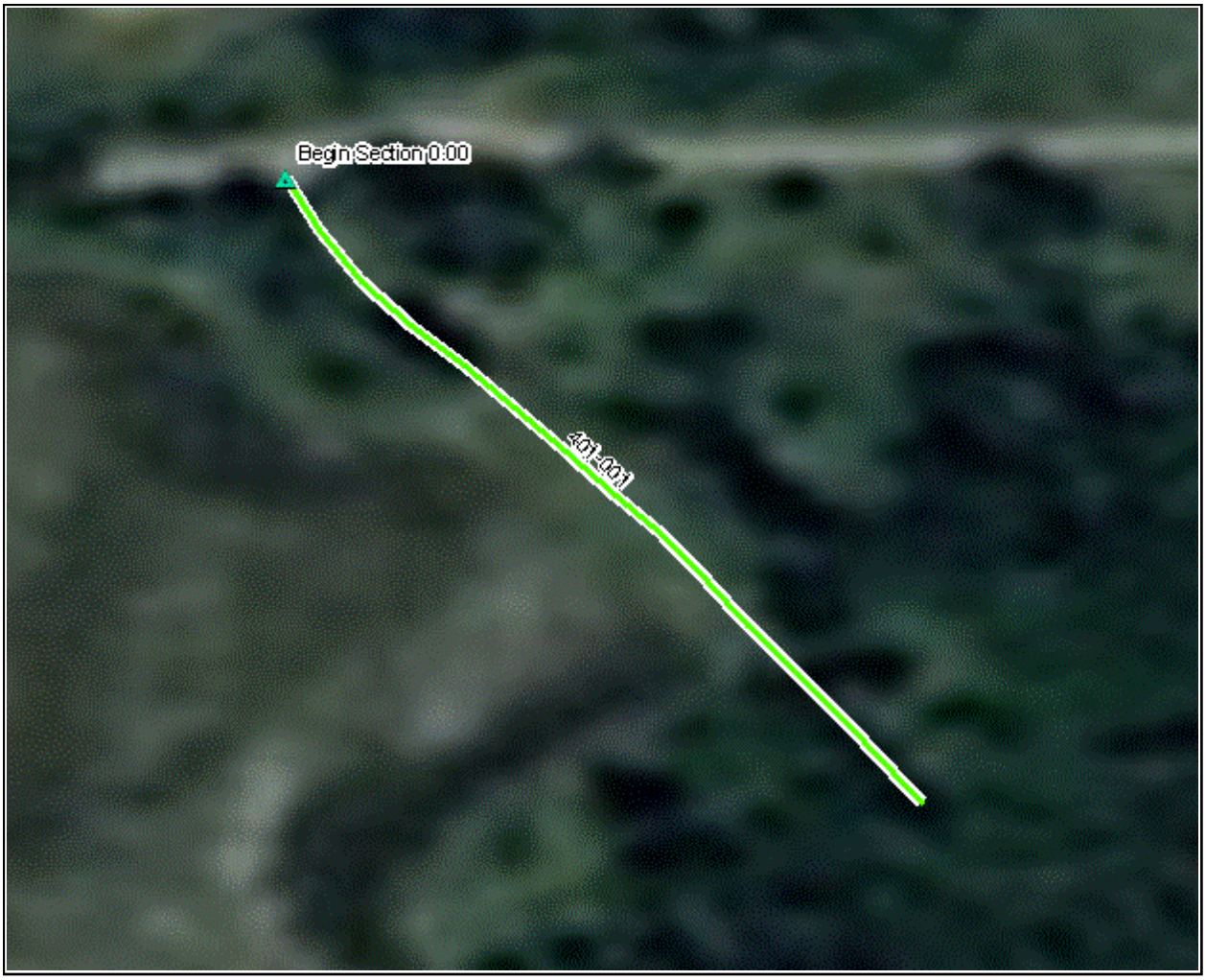


Route: 400 Church Lake Access Road

Total Route Length: **0.10 Miles**

Route Description: From Church Lake Road (Route 012) to Church Lake Trail

Asset Number	10053164
Section Number	001
Section Length (miles)	0.10
Inspection Date	07/28/2009
Section Information	
Surface Type	Gravel
Number of Lanes	1
Roadway Width (feet)	12.00
Roadway Condition Information	
Condition	Excellent
Remaining Service Life (years)	10
Cost Estimate	0
CRV	61,000.00



0.0075 0 0.0075 0.015 0.0225
Miles

Excellent Good Fair Poor Failed

Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

N

Route: 401 Rodres Field Road

Total Route Length: **0.07 Miles**

Route Description: From Church Lake Acess Road (Rte 400) to end of drivable route

Asset Number	10053164
Section Number	001
Section Length (miles)	0.07
Inspection Date	07/28/2009
Section Information	
Surface Type	Native
Number of Lanes	1
Roadway Width (feet)	8.00
Roadway Condition Information	
Condition	Good
Remaining Service Life (years)	7
Cost Estimate	100
CRV	24,500.00

0.02 0 0.02 0.04 0.06 Miles

Excellent Good Fair Poor Failed

Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

N

Route: 402 Aasnes Field Road

Total Route Length: **0.27 Miles**

Route Description: From Church Lake Road (Route 012) to end of route

Asset Number	10053164
Section Number	001
Section Length (miles)	0.27
Inspection Date	07/28/2009
Section Information	
Surface Type	Native
Number of Lanes	1
Roadway Width (feet)	8.00
Roadway Condition Information	
Condition	Good
Remaining Service Life (years)	7
Cost Estimate	400
CRV	88,500.00

0.004 0 0.004 0.008 0.012
Miles

Excellent Good Fair Poor Failed

Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

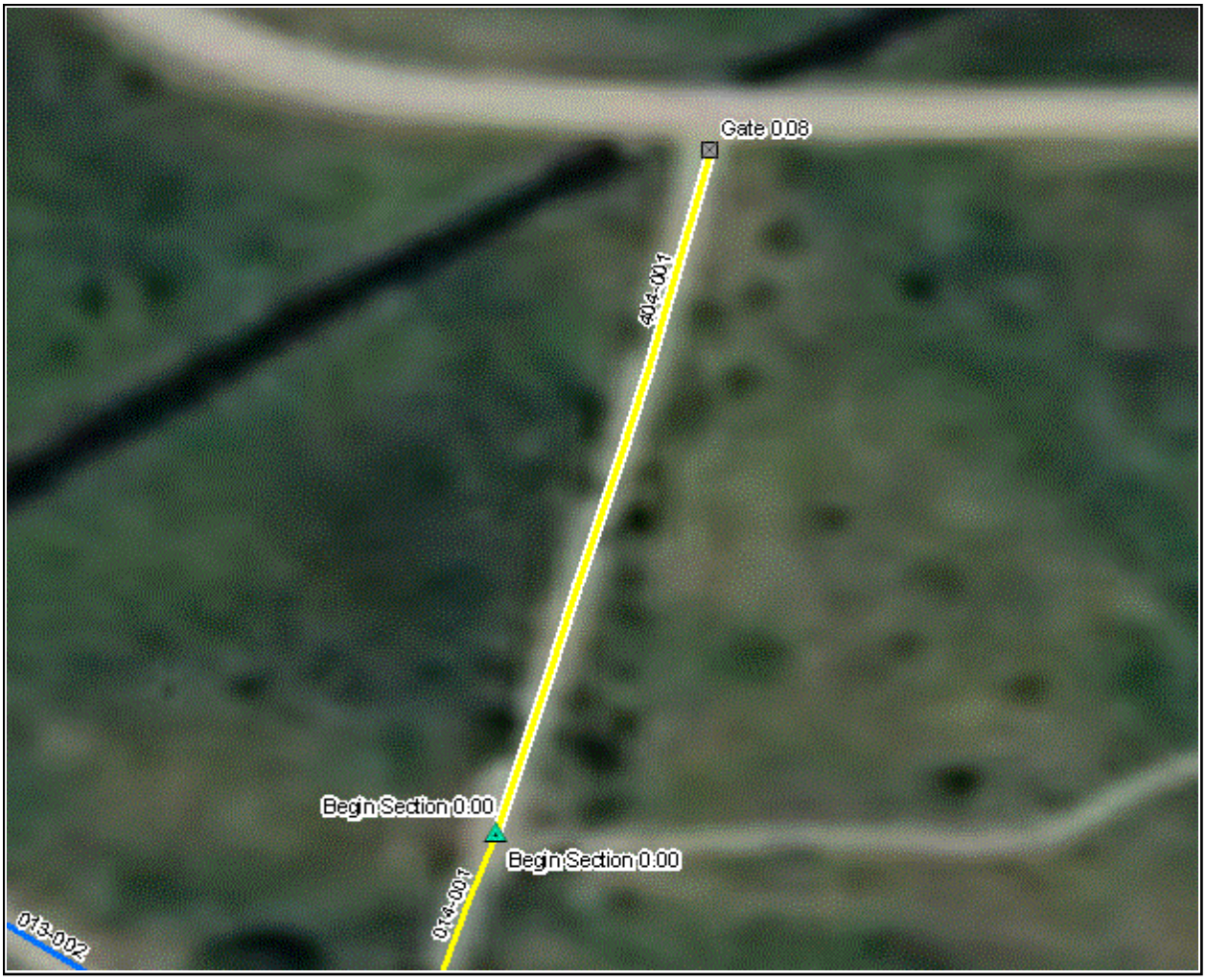
N

Route: 403 Bluebird Field Road

Total Route Length: **0.04 Miles**

Route Description: From Church Lake Road (Route 012) to end of route

Asset Number	10053164
Section Number	001
Section Length (miles)	0.04
Inspection Date	07/28/2009
Section Information	
Surface Type	Primitive
Number of Lanes	1
Roadway Width (feet)	8.00
Roadway Condition Information	
Condition	Excellent
Remaining Service Life (years)	9
Cost Estimate	0
CRV	0.00



0.009 0 0.009 0.018 0.027 Miles

Excellent Good Fair Poor Failed

Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

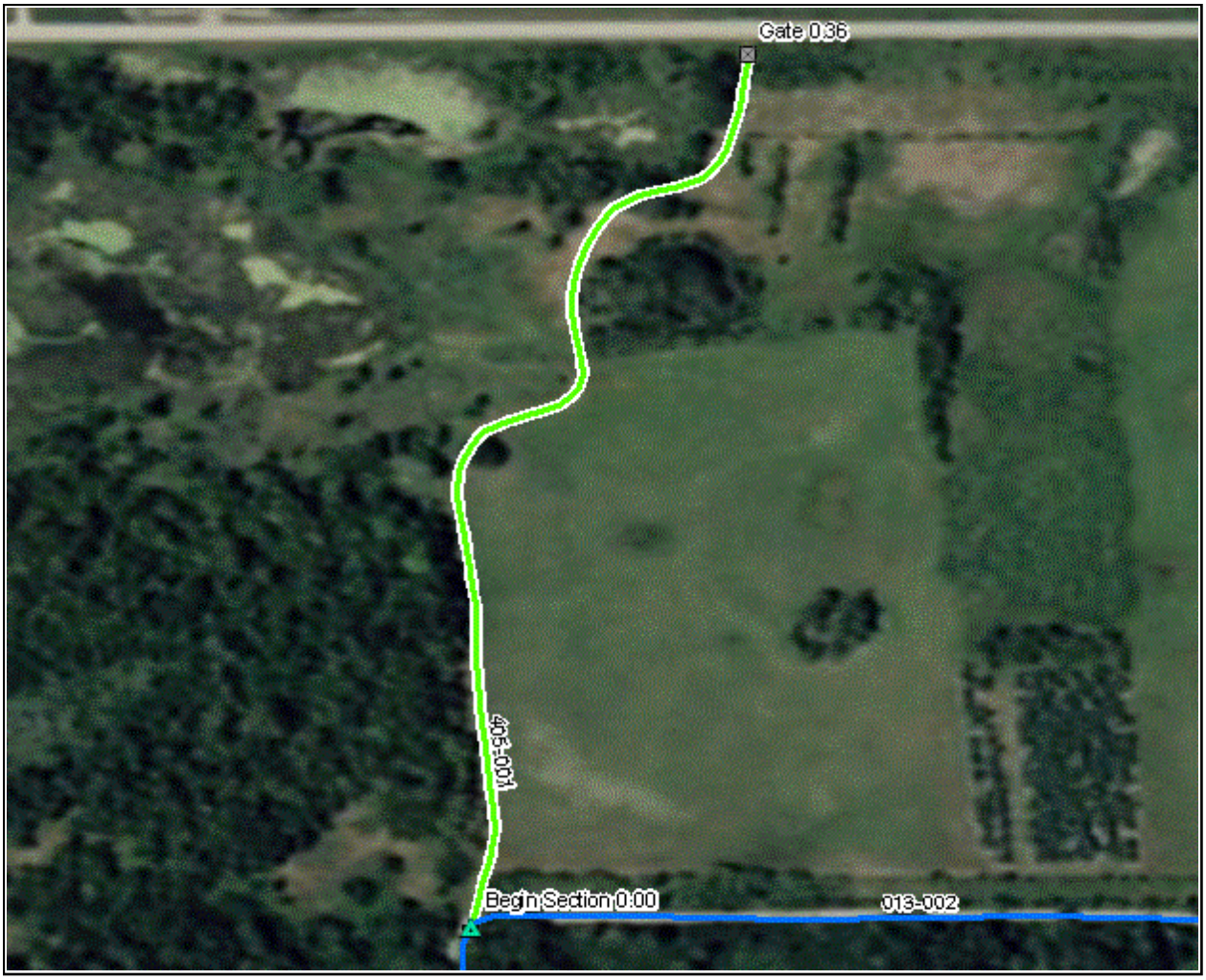
N

Route: 404 Ditch 73 Access Road

Total Route Length: **0.08 Miles**

Route Description: From Tamarac Trail Road (Route 14) to refuge boundary

Asset Number	10043695
Section Number	001
Section Length (miles)	0.08
Inspection Date	08/03/2009
Section Information	
Surface Type	Gravel
Number of Lanes	1
Roadway Width (feet)	12.00
Roadway Condition Information	
Condition	Fair
Remaining Service Life (years)	4
Cost Estimate	300
CRV	52,100.00

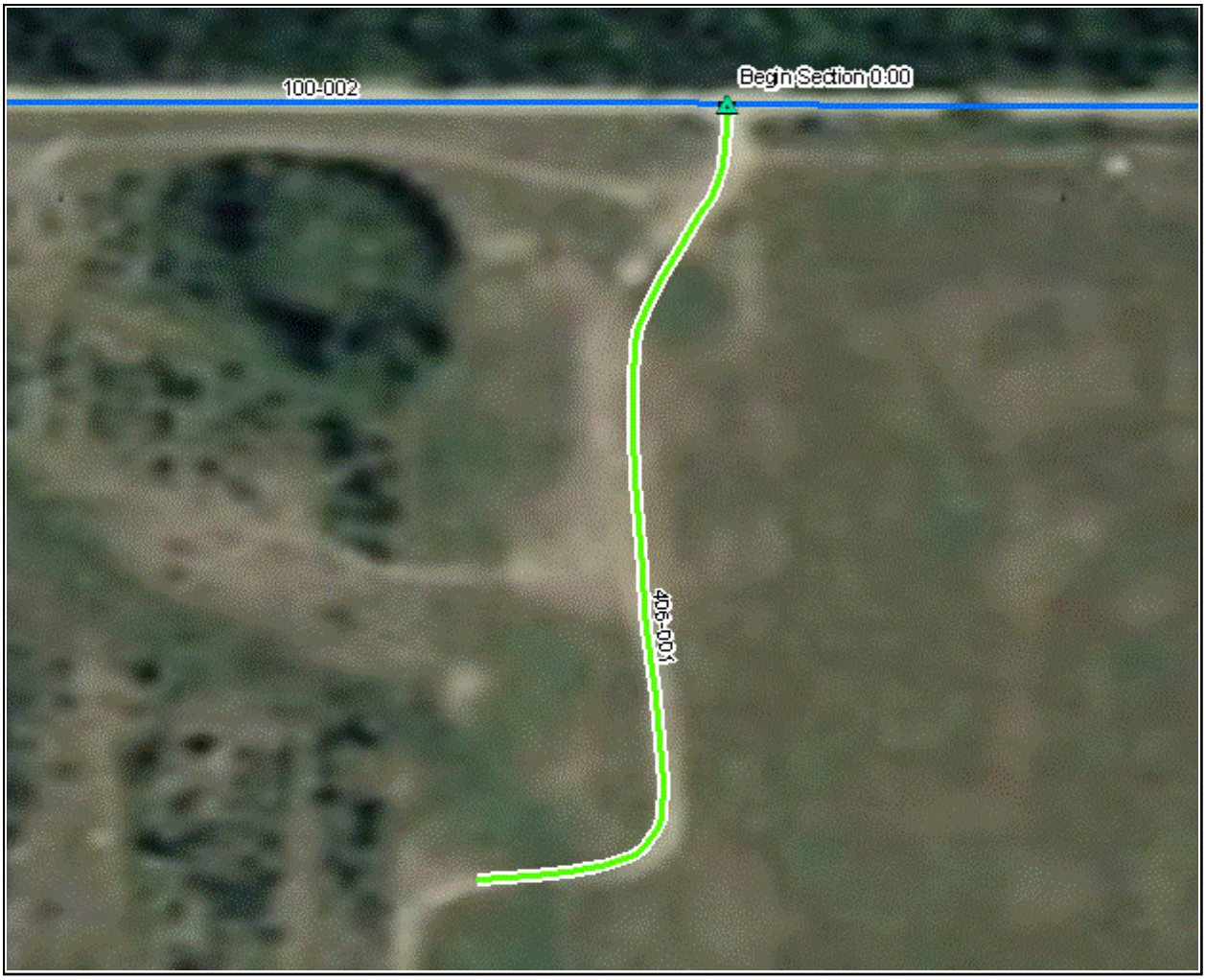


Route: 405 Partridge Field Road

Total Route Length: **0.35 Miles**

Route Description: From Auto Tour Route (Route 13) to refuge boundary

Asset Number	10053164
Section Number	001
Section Length (miles)	0.35
Inspection Date	08/03/2009
Section Information	
Surface Type	Native
Number of Lanes	1
Roadway Width (feet)	10.00
Roadway Condition Information	
Condition	Good
Remaining Service Life (years)	7
Cost Estimate	600
CRV	117,600.00

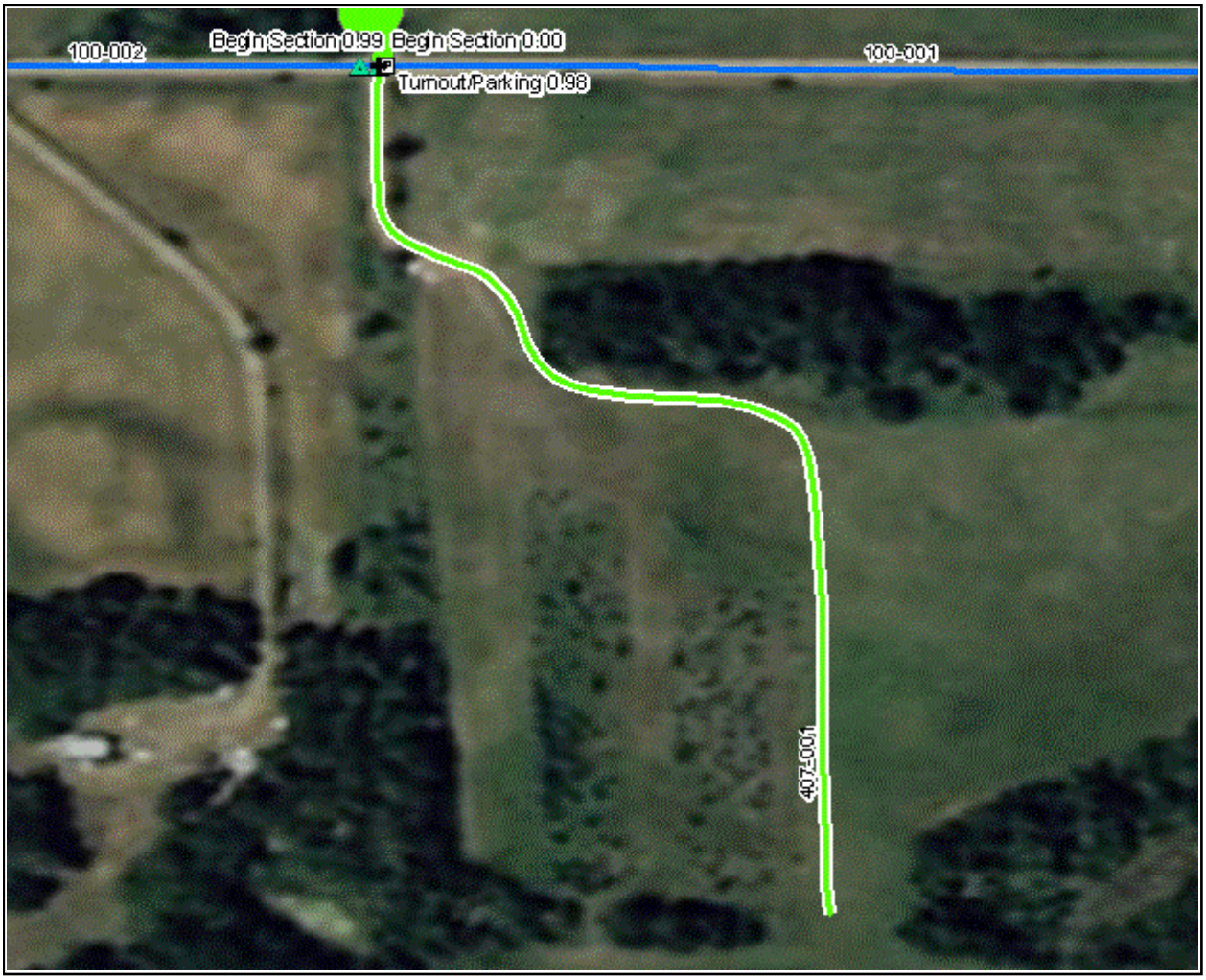


Route: 406 Solie Field Access Road

Total Route Length: **0.15 Miles**

Route Description: From Old County Road 10 (Route 100) to end of route at tree line

Asset Number	10053164
Section Number	001
Section Length (miles)	0.15
Inspection Date	08/03/2009
Section Information	
Surface Type	Primitive
Number of Lanes	1
Roadway Width (feet)	8.00
Roadway Condition Information	
Condition	Good
Remaining Service Life (years)	7
Cost Estimate	100
CRV	0.00



0.02 0 0.02 0.04 0.06 Miles

Excellent Good Fair Poor Failed

N

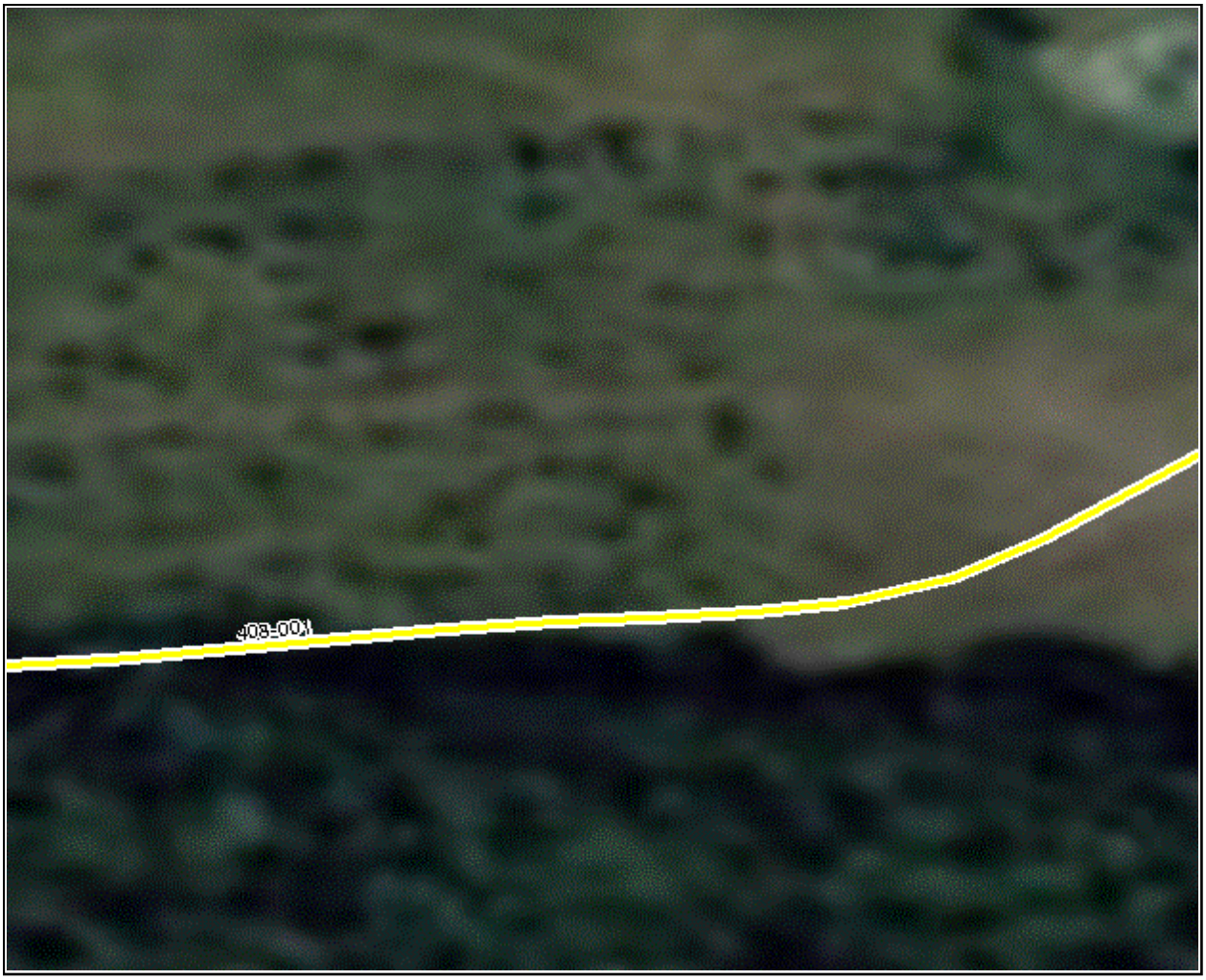
Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

Route: 407 Buness Field Access Road

Total Route Length: **0.29 Miles**

Route Description: From Old County Road 10 (Route 100) to end of route

Asset Number	10053164
Section Number	001
Section Length (miles)	0.29
Inspection Date	08/03/2009
Section Information	
Surface Type	Primitive
Number of Lanes	1
Roadway Width (feet)	8.00
Roadway Condition Information	
Condition	Good
Remaining Service Life (years)	7
Cost Estimate	100
CRV	0.00



0.009 0 0.009 0.018 0.027
Miles

Excellent Good Fair Poor Failed

Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

N

Route: 408 High Lake Field Access Road

Total Route Length: **0.14 Miles**

Route Description: From Old County 10 Road (Route 100) to end of route

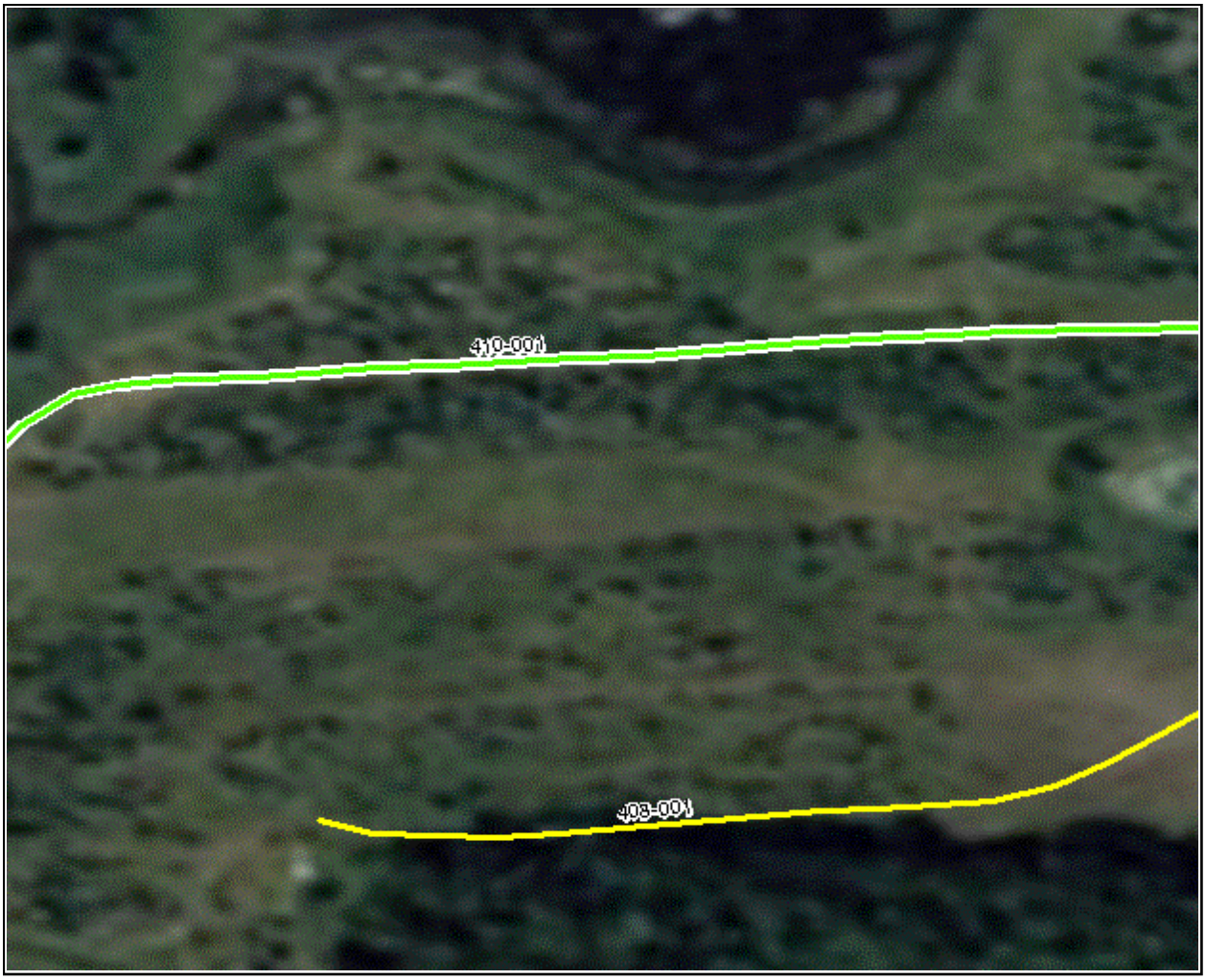
Asset Number	10053164
Section Number	001
Section Length (miles)	0.14
Inspection Date	08/03/2009
Section Information	
Surface Type	Primitive
Number of Lanes	1
Roadway Width (feet)	8.00
Roadway Condition Information	
Condition	Fair
Remaining Service Life (years)	4
Cost Estimate	100
CRV	0.00

Route: 409 Fern Gully Field Access Road

Total Route Length: **0.07 Miles**

Route Description: From Clifford Lake Road (Route 101) to end of route

Asset Number	10053164
Section Number	001
Section Length (miles)	0.07
Inspection Date	08/03/2009
Section Information	
Surface Type	Primitive
Number of Lanes	1
Roadway Width (feet)	8.00
Roadway Condition Information	
Condition	Good
Remaining Service Life (years)	5
Cost Estimate	0
CRV	0.00



0.01 0 0.01 0.02 0.03
Miles

Excellent Good Fair Poor Failed

Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

N

Route: 410 Little Otter Field Access Road

Total Route Length: **0.22 Miles**

Route Description: From Clifford Lake Road (Route 101) to end of route

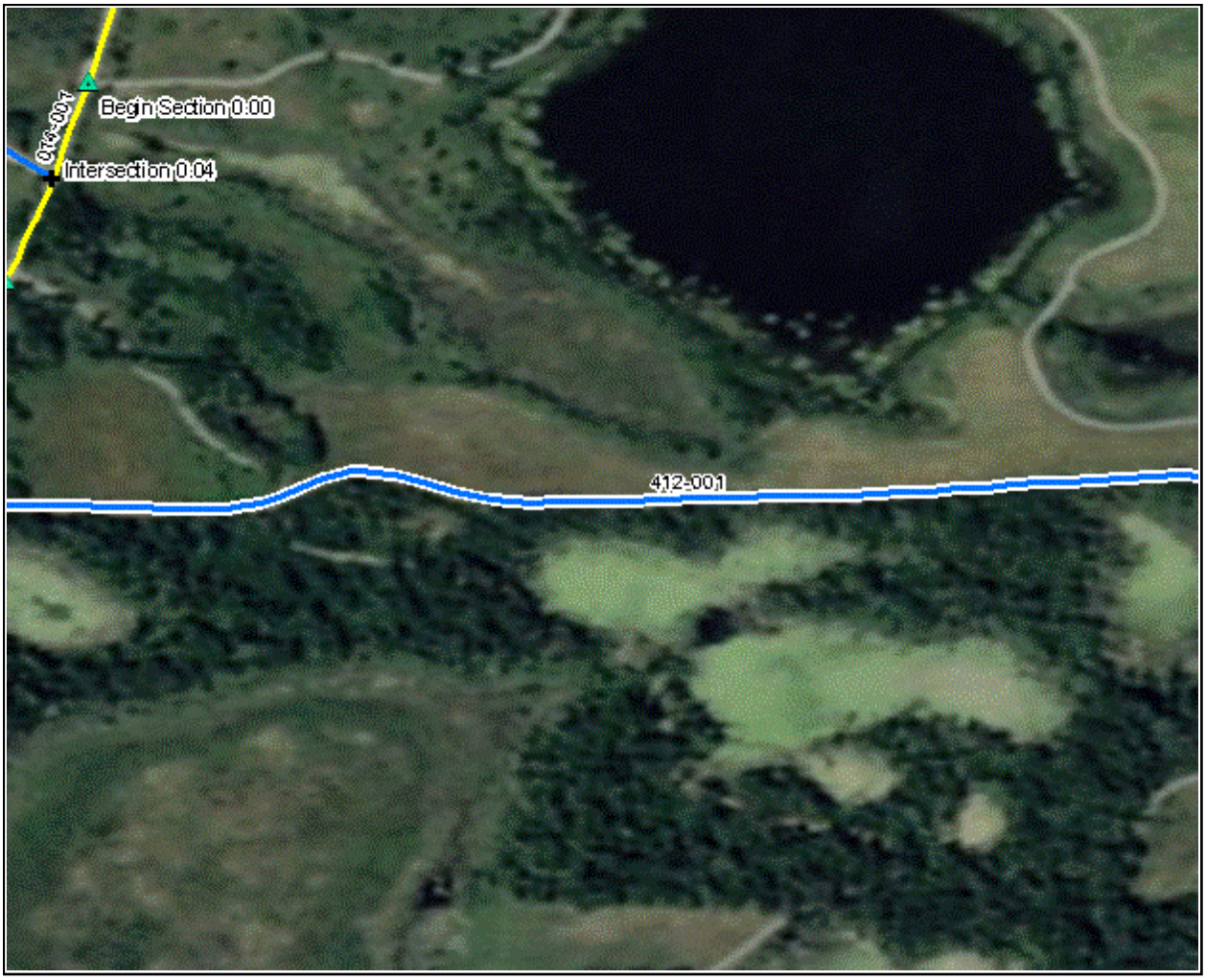
Asset Number	10053164
Section Number	001
Section Length (miles)	0.22
Inspection Date	08/03/2009
Section Information	
Surface Type	Primitive
Number of Lanes	1
Roadway Width (feet)	8.00
Roadway Condition Information	
Condition	Good
Remaining Service Life (years)	7
Cost Estimate	100
CRV	0.00

Route: 411 Sunset Lake Outlet Road

Total Route Length: **0.36 Miles**

Route Description: From Old County Road 10 (Route 100) to Church Lake Road (Route 012)

Asset Number	10053164	10053164
Section Number	001	002
Section Length (miles)	0.08	0.28
Inspection Date	08/03/2009	08/03/2009
Section Information		
Surface Type	Gravel	Primitive
Number of Lanes	1	1
Roadway Width (feet)	12.00	10.00
Roadway Condition Information		
Condition	Excellent	Good
Remaining Service Life (years)	10	7
Cost Estimate	0	100
CRV	49,900.00	0.00



0.03 0 0.03 0.06 0.09 Miles

Excellent Good Fair Poor Failed

Bridge
Begin Section
Boat Ramp
Gate
Low Water Crossing
Fee Station
Culvert
Intersection
Political Boundary
Deficiency
Railroad Crossing
Turnout/Parking
Visitor Center
Problem Area

N

Route: 412 Rance Lake Field Road

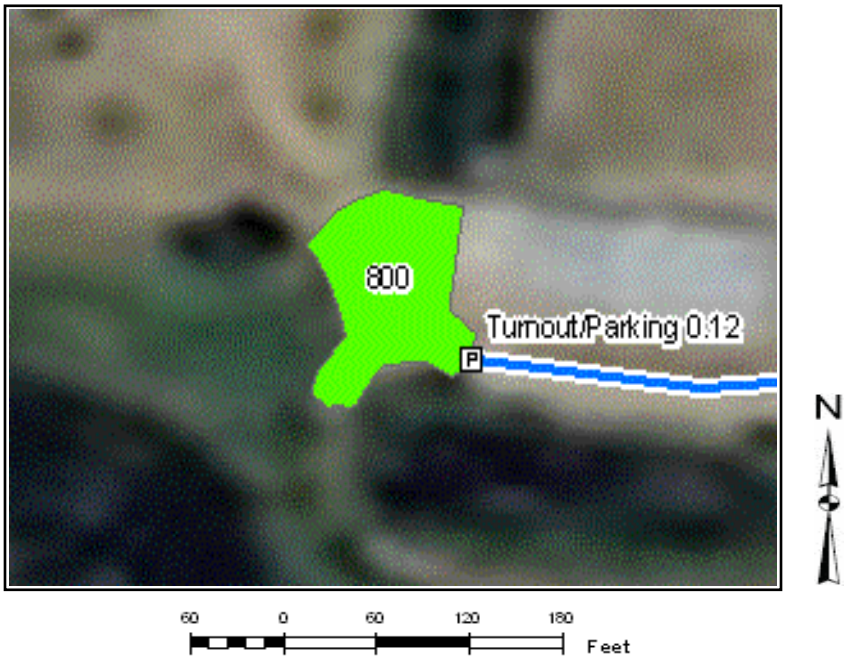
Total Route Length: **0.36 Miles**

Route Description: From Tamarac Trail Road (Route 14) to end of route at hiking trail

Asset Number	
Section Number	001
Section Length (miles)	0.36
Inspection Date	08/03/2009
Section Information	
Surface Type	Gravel
Number of Lanes	1
Roadway Width (feet)	12.00
Roadway Condition Information	
Condition	Excellent
Remaining Service Life (years)	9
Cost Estimate	0
CRV	229,200.00

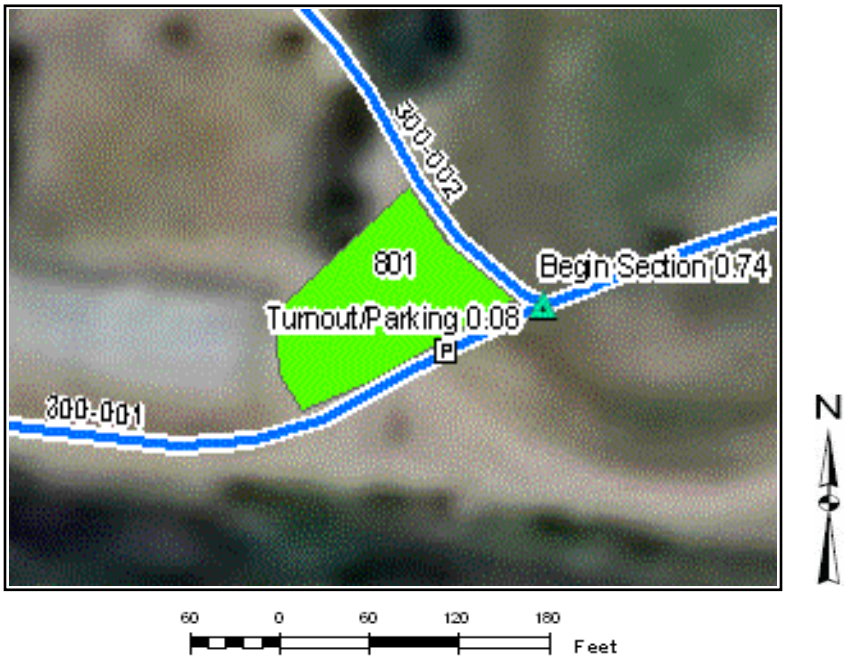
800: Shop Parking

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
	07/28/2009	Gravel	4,350	Good	600



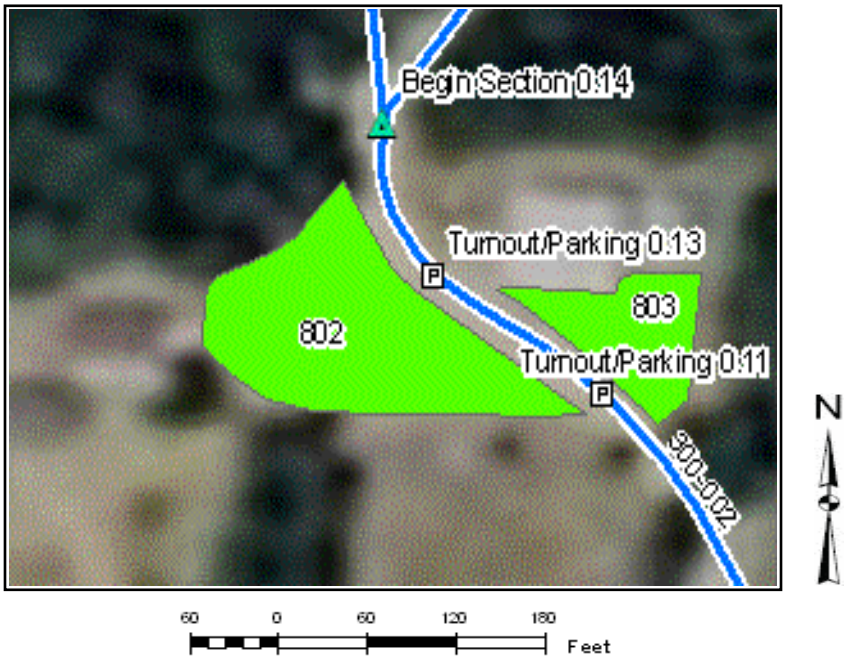
801: Shop Parking #2

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
	07/28/2009	Gravel	5,191	Good	700



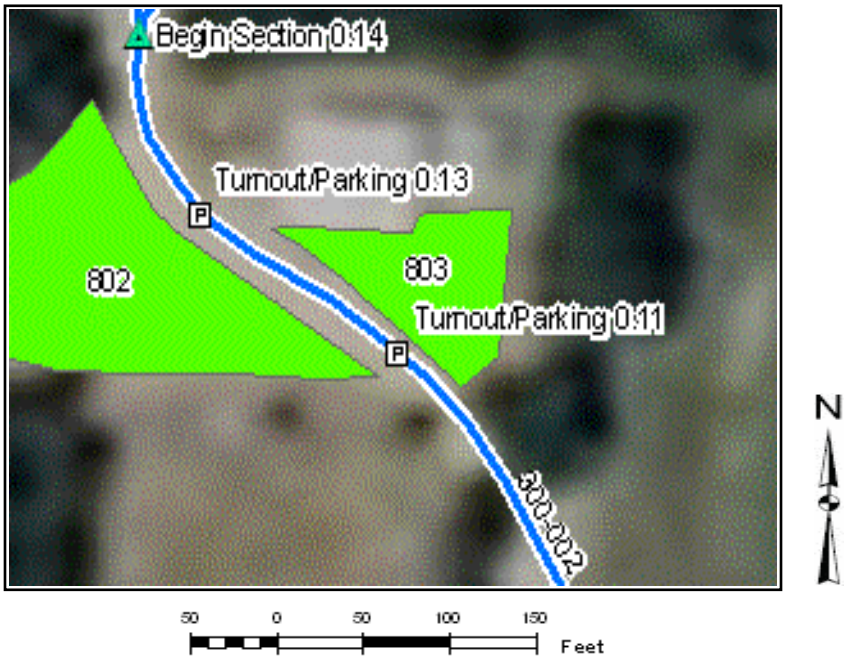
802: Shop Parking #3

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
	07/28/2009	Gravel	8,643	Good	1,200



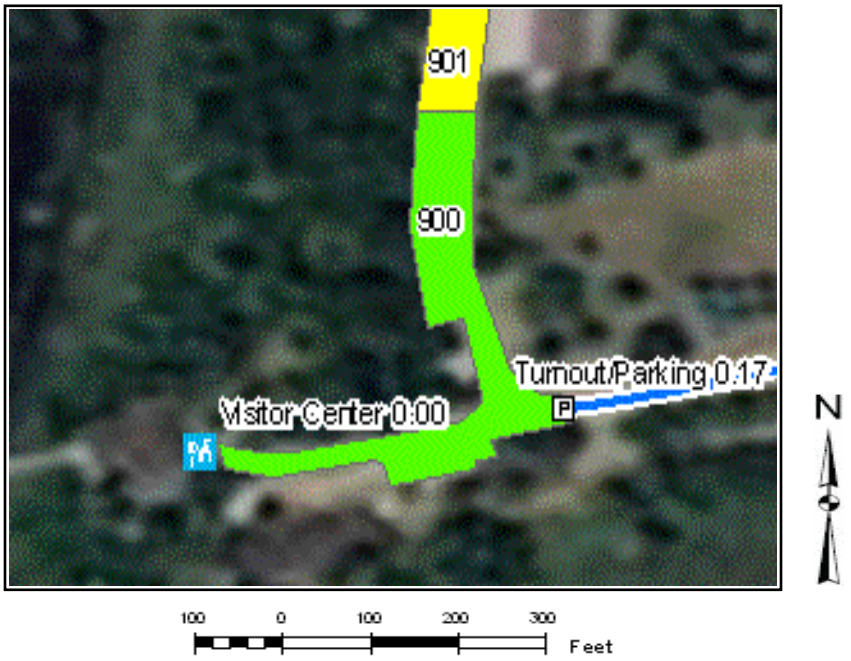
803: Shop Parking #4

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
	07/28/2009	Gravel	3,111	Good	400



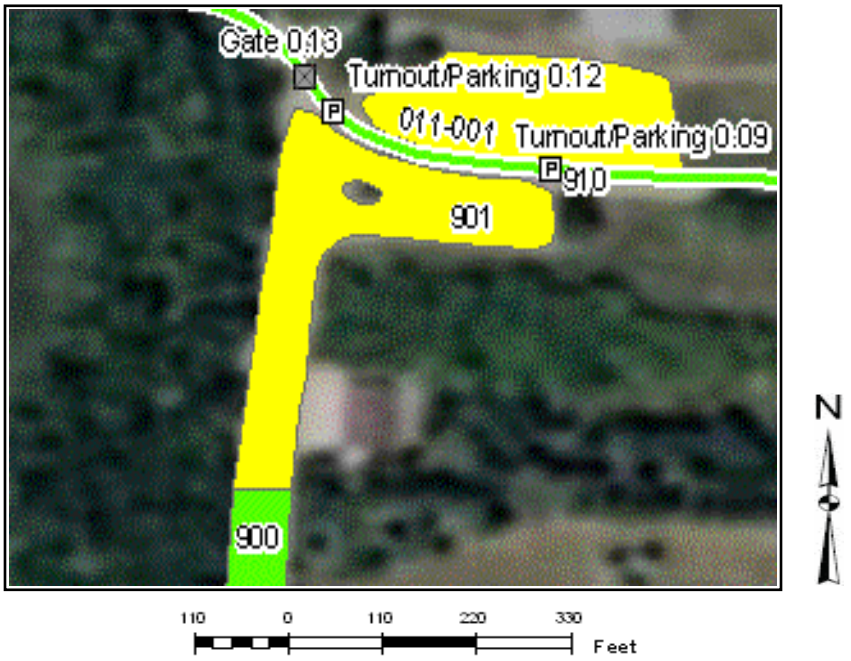
900: Headquarters Parking

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
10012049	07/28/2009	Asphalt	15,732	Good	2,700



901: Overflow Parking

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
10043698	07/28/2009	Gravel	22,089	Fair	5,400

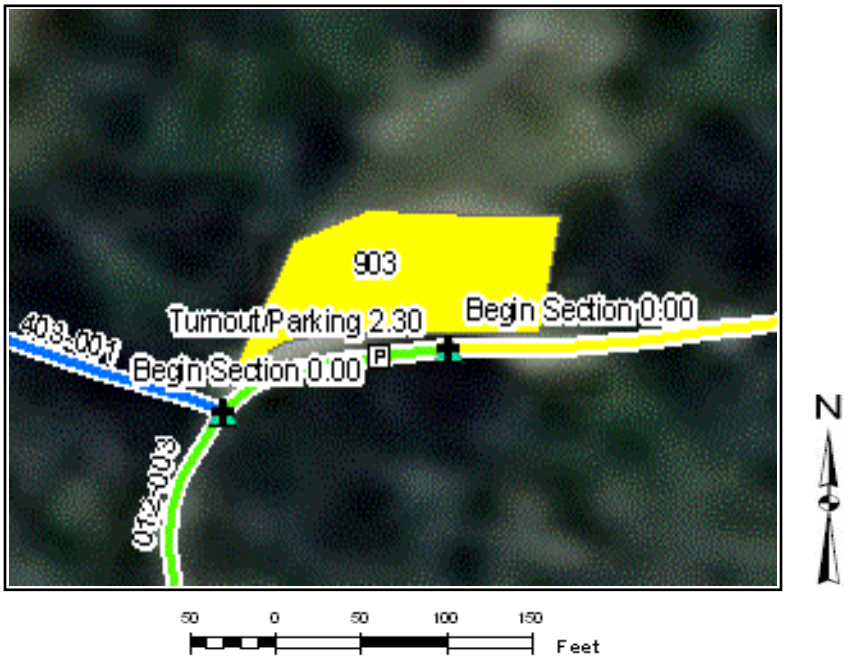


902: Auto Tour Parking #1

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
10043699	06/17/2005	Gravel	8,393	Good	1,200

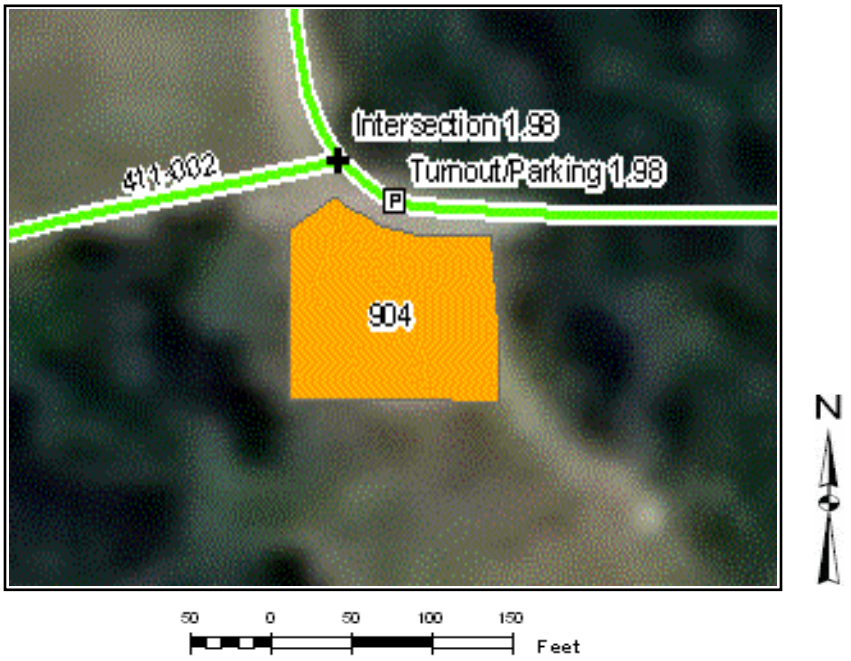
903: Auto Tour Parking #2

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
10043699	07/28/2009	Gravel	4,839	Fair	1,200



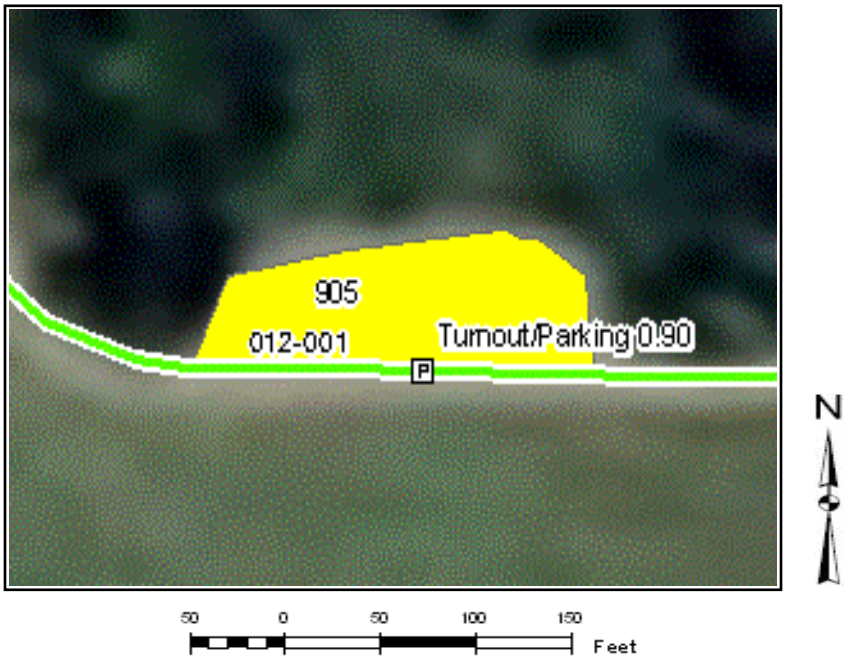
904: Auto Tour Parking #3

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
10043699	07/28/2009	Gravel	6,023	Poor	6,200



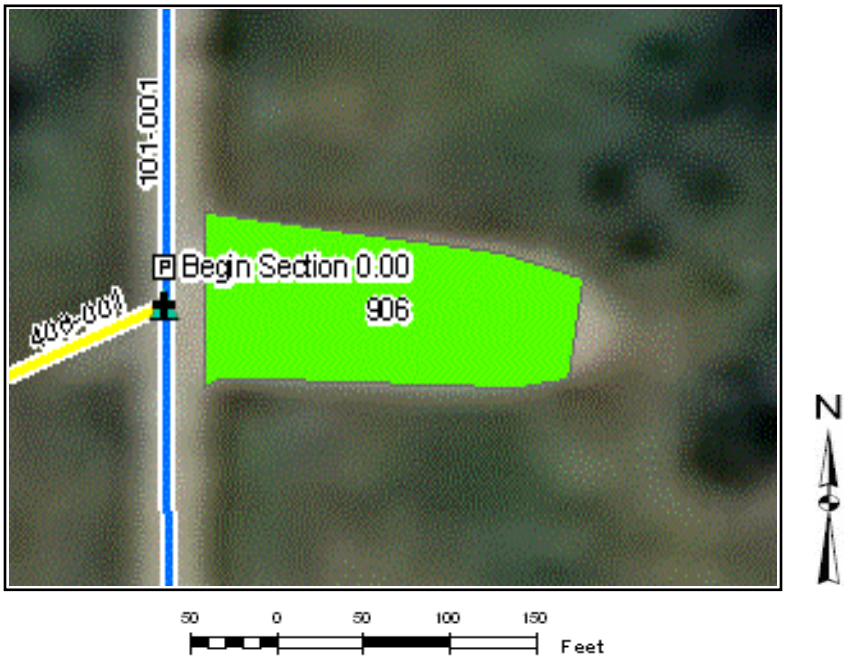
905: Church Lake Parking

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
10043700	07/28/2009	Gravel	5,136	Fair	1,300



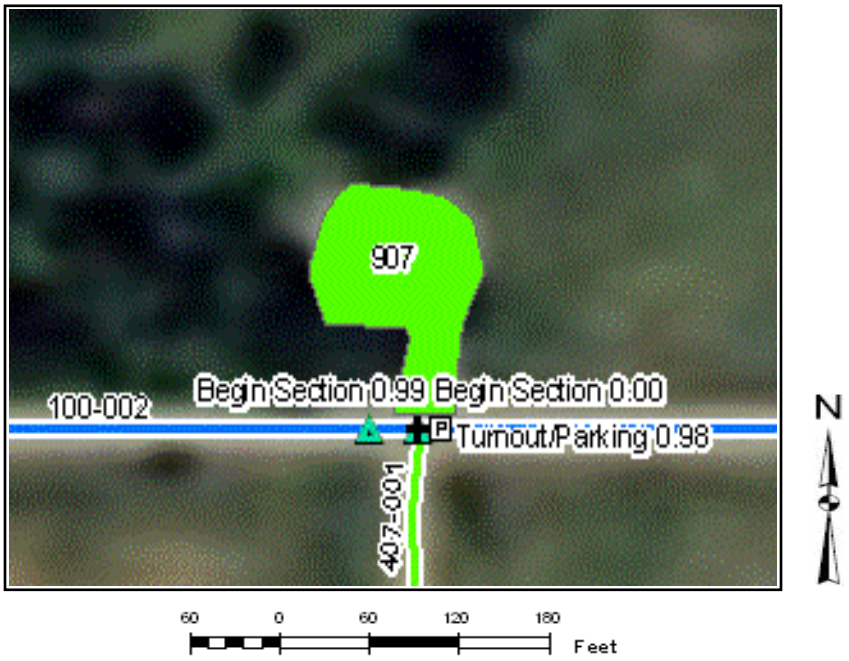
906: Clifford Lake Parking

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
10043701	08/03/2009	Gravel	7,718	Good	1,100



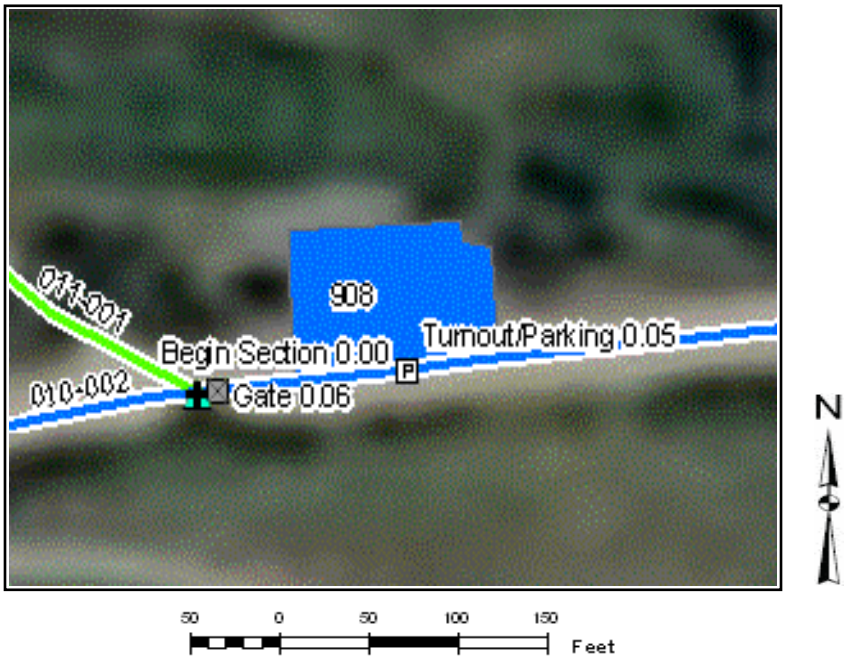
907: Route 100 Parking

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
10043702	08/03/2009	Gravel	5,021	Good	700



908: Front Gate Parking

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
	07/28/2009	Asphalt	3,801	Excellent	0

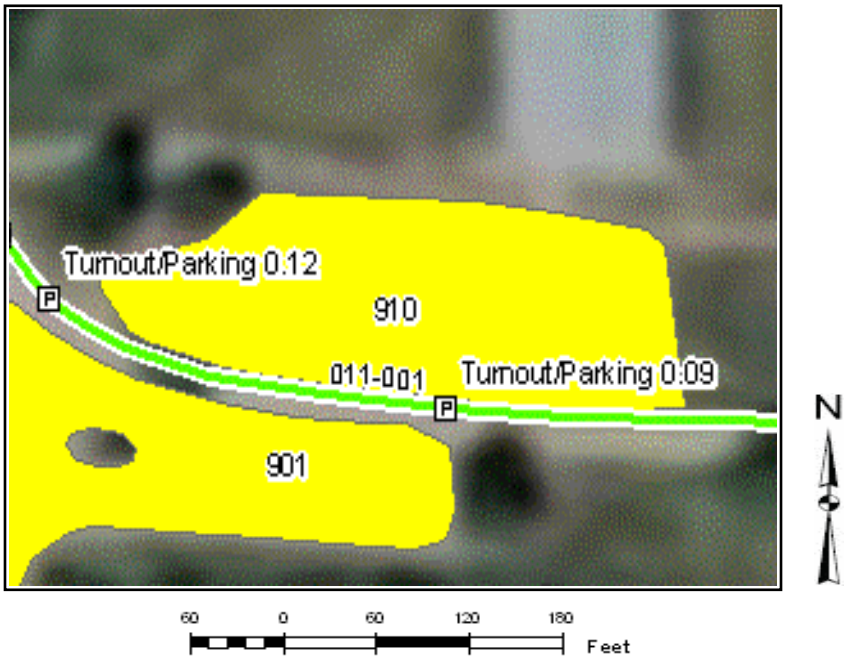


909: Auto Tour Parking #4

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
10053163	07/28/2009	Gravel	1,249	Fair	300

910: Overflow RV/Bus Parking

Asset Number	Date Visited	Surface Type	Area (Sq Ft)	Condition	Cost to Improve
	07/28/2009	Native	17,367	Fair	4,300



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

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 010 ROUTE NAME: Refuge Entrance Road

Photo # RYDE_C4_0643 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 010 ROUTE NAME: Refuge Entrance Road

Photo # RYDE_C4_0644 - MP 0.02 - Begin Section 002

ROUTE NUMBER: 011 ROUTE NAME: Golden Pond Road

Photo # RYDE_C4_0654 - MP 0.00 - Begin Section 001

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 012 ROUTE NAME: Church Lake Road

Photo # RYDE_C4_0670 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 012 ROUTE NAME: Church Lake Road

Photo # RYDE_C4_0678 - MP 0.98 - Begin Section 002

ROUTE NUMBER: 012 ROUTE NAME: Church Lake Road

Photo # RYDE_C4_0679 - MP 1.25 - E/S 002

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 012 ROUTE NAME: Church Lake Road

Photo # RYDE_C4_0681 - MP 1.58 - Begin Section 003

ROUTE NUMBER: 012 ROUTE NAME: Church Lake Road

Photo # RYDE_C4_0688 - MP 2.25 - R 003

ROUTE NUMBER: 013 ROUTE NAME: Auto Tour Road

Photo # RYDE_C4_1002 - MP 0.00 - Begin Section 001

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 013 ROUTE NAME: Auto Tour Road

Photo # RYDE_C4_1003 - MP 0.04 - Begin Section 002

ROUTE NUMBER: 013 ROUTE NAME: Auto Tour Road

Photo # RYDE_C4_1004 - MP 0.66 - R 002

ROUTE NUMBER: 013 ROUTE NAME: Auto Tour Road

Photo # RYDE_C4_1005 - MP 0.72 - R 002

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 013 ROUTE NAME: Auto Tour Road

Photo # RYDE_C4_1008 - MP 0.88 - R 002

ROUTE NUMBER: 014 ROUTE NAME: Tamarac Trail Road

Photo # RYDE_C4_1012 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 014 ROUTE NAME: Tamarac Trail Road

Photo # RYDE_C4_1013 - MP 0.08 - Begin Section 002

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 100 ROUTE NAME: Old County 10 Road

Photo # RYDE_C4_1021 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 100 ROUTE NAME: Old County 10 Road

Photo # RYDE_C4_1023 - MP 0.99 - Begin Section 002

ROUTE NUMBER: 100 ROUTE NAME: Old County 10 Road

Photo # RYDE_C4_1024 - MP 1.15 - R 002

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 101 ROUTE NAME: Clifford Lake Road

Photo # RYDE_C4_1031 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 101 ROUTE NAME: Clifford Lake Road

Photo # RYDE_C4_1032 - MP 0.04 - R 001

ROUTE NUMBER: 101 ROUTE NAME: Clifford Lake Road

Photo # RYDE_C4_1034 - MP 0.47 - R 001

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 101 ROUTE NAME: Clifford Lake Road

Photo # RYDE_C4_1035 - MP 0.49 - R 001

ROUTE NUMBER: 300 ROUTE NAME: Shop Access Road

Photo # RYDE_C4_0656 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 300 ROUTE NAME: Shop Access Road

Photo # RYDE_C4_0660 - MP 0.74 - Begin Section 002

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 300 ROUTE NAME: Shop Access Road

Photo # RYDE_C4_0660 - MP 0.14 - Begin Section 003

ROUTE NUMBER: 400 ROUTE NAME: Church Lake Access Road

Photo # RYDE_C4_0668 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 401 ROUTE NAME: Rodres Field Road

Photo # RYDE_C4_0669 - MP 0.00 - Begin Section 001

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 402 ROUTE NAME: Aasnes Field Road

Photo # RYDE_C4_0675 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 403 ROUTE NAME: Bluebird Field Road

Photo # RYDE_C4_0686 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 403 ROUTE NAME: Bluebird Field Road

Photo # RYDE_C4_0687 - MP 0.04 - Problem Area 001

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 404 ROUTE NAME: Ditch 73 Access Road

Photo # RYDE_C4_1010 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 405 ROUTE NAME: Partridge Field Road

Photo # RYDE_C4_1014 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 405 ROUTE NAME: Partridge Field Road

Photo # RYDE_C4_1015 - MP 0.22 - R 001

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 406 ROUTE NAME: Solie Field Access Road

Photo # RYDE_C4_1027 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 407 ROUTE NAME: Buness Field Access Road

Photo # RYDE_C4_1028 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 407 ROUTE NAME: Buness Field Access Road

Photo # RYDE_C4_1029 - MP 0.00 - R 001

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 408 ROUTE NAME: High Lake Field Access Road

Photo # RYDE_C4_1039 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 409 ROUTE NAME: Fern Gully Field Access Road

Photo # RYDE_C4_1040 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 410 ROUTE NAME: Little Otter Field Access Road

Photo # RYDE_C4_1041 - MP 0.00 - Begin Section 001

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 411 ROUTE NAME: Sunset Lake Outlet Road

Photo # RYDE_C4_1042 - MP 0.00 - Begin Section 001

ROUTE NUMBER: 411 ROUTE NAME: Sunset Lake Outlet Road

Photo # RYDE_C4_1043 - MP 0.00 - R 001

ROUTE NUMBER: 411 ROUTE NAME: Sunset Lake Outlet Road

Photo # RYDE_C4_1044 - MP 0.08 - Problem Area 001

FEATURES PHOTOGRAPHS

ROUTE NUMBER: 411 ROUTE NAME: Sunset Lake Outlet Road

Photo # RYDE_C4_1045 - MP 0.28 - Problem Area 002

ROUTE NUMBER: 411 ROUTE NAME: Sunset Lake Outlet Road

Photo # RYDE_C4_1046 - MP 0.28 - Begin Section 002

ROUTE NUMBER: 412 ROUTE NAME: Rance Lake Field Road

Photo # RYDE_C4_1020 - 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

TABLE 1 - GENERAL FWS ROAD FUNCTIONAL CLASSIFICATION	
Class I	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.
Class II	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.
Class III	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
Class IV	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.
Class V	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 join 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	No Defects	Extent (Length) 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	No Defects	Extent (Area) 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	No Defects	Extent (Length) 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	No Defects	Extent: Low 1 crack WP	Extent: Med 2 cracks WP	Extent: 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	No Defects	Extent (Length): Low <10%	Extent (Length): Med 10-30%	Extent (Length): 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	No Defects	Extent: Low 1 crack full length	Extent: Med 2 cracks full length	Extent: 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	No Defects	Extent (Length): Low > 15x15' squares	Extent (Length): Med 15-10' squares	Extent (Length): 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	No Defects	Extent (ft between cracks): Low > 200'	Extent (ft between cracks): Med 200-50'	Extent (ft between cracks): 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	No Defects	Extent (Length): Low <10%	Extent (Length): Med 10-30%	Extent (Length): 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)

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

Broken Slabs

Extent (% slabs)

Severity	No Defects	Low <5%	Med 5-15%	High >15%
	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)

Severity	No Defects	Low <10%	Med 10-20%	High >20%
	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)

Severity	No Defects	Low <10%	Med 10-20%	High >20%
	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)

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

Patch Deterioration

Extent (Area)

Severity	No Defects	Low <10%	Med 10-30%	High >30%
	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)

Severity	No Defects	Low <10%	Med 10-20%	High >20%
	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)

Severity	No Defects	Low <10%	Med 10-20%	High >20%
	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)

Severity	No Defects	Low <10%	Med 10-20%	High >20%
	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	
Distress Rating	Remaining Service Life
0	20
1	10
2	8
3	6
4	8
5	6
6	4
7	6
8	2
9	0

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

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

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

Longitudinal Cracking	
Distress Rating	Remaining Service Life
0	20
1	14
2	12
3	10
4	12
5	10
6	8
7	10
8	8
9	6

Block Cracking	
Distress Rating	Remaining Service Life
0	20
1	12
2	10
3	8
4	10
5	8
6	6
7	12
8	6
9	2

Drainage/Roughness/Rutting	
Distress Rating	Remaining Service Life
0	20
1	16
2	10
3	4

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

Concrete Rating Sheet

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

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

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

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

Faulting	
Distress Rating	Remaining Service Life
0	20
1	15
2	12
3	10
4	12
5	8
6	6
7	10
8	4
9	0

Patch Deterioration	
Distress Rating	Remaining Service Life
0	18
1	16
2	14
3	12
4	12
5	10
6	8
7	10
8	6
9	0

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

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

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

Deficiency Ratings With Associated Remaining Service Life

Native Primitive Improved Rating Sheet

Cross Section	
Distress Rating	**Remaining Service Life**
0	10
1	7
2	5
3	0

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

Roadside Drainage	
Distress Rating	**Remaining Service Life**
0	10
1	8
2	4
3	0

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

Dust	
Distress Rating	**Remaining Service Life**
0	10
1	8
2	6
3	2

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

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

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

Gravel Rating Sheet

Cross Section	
Distress Rating	**Remaining Service Life**
0	10
1	7
2	5
3	0

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

Roadside Drainage	
Distress Rating	**Remaining Service Life**
0	10
1	8
2	4
3	0

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

Dust	
Distress Rating	**Remaining Service Life**
0	10
1	8
2	6
3	2

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