Maine Department of Transportation

Pavement Summary Report

MaineDOT

Airport Pavement Management System

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ARA

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Abbreviations and Acronyms

AC - Asphalt Concrete

APMS - Airport Pavement Management System

ARA - Applied Research Associates, Inc.

FAA - Federal Aviation Administration

FOD - Foreign Object Debris/Foreign Object Damage

MaineDOT - Maine Department of Transportation Division of Aviation

M&R - Maintenance & Rehabilitation

MSL - Minimum Service Level

NPIAS - National Plan of Integrated Airport Systems

PCC - Portland Cement Concrete

PCI - Pavement Condition Index

1. Airport Pavement Management Systems

1.1 Introduction

To help individual airports effectively maintain their pavement infrastructure and improve airport pavement conditions statewide, the Maine Department of Transportation Division of Aviation (MaineDOT) contracted with DuBois and King (D&K) to provide pavement evaluation surveys at FAA and MaineDOT supported airports. This report contains a summary of results from the 28 public use paved airports that MaineDOT selected to include in phase one of the Airport Pavement Management System (APMS) update, including Loring International. Separate individual reports are provided with more detailed information at each airport.

1.2 Management Approach

The goal of any pavement management system is to identify pavements that will receive the most benefit from an optimally timed repair using the Pavement Condition Index (PCI). PCI is a number between 0 and 100 that is representative of the current health of the pavement with 0 being total failure and 100 being newly constructed pavement. Typically, the optimal repair time is the point at which a gradual rate of deterioration begins to increase to a much faster rate, or the Minimum Service Level (MSL). The MaineDOT has placed the MSL at a PCI of 70.

Figure 1 shows conceptually how pavement management works. It is more cost-effective to maintain pavements that are in good condition, rather than wait until the poor condition requires an expensive reconstruction.

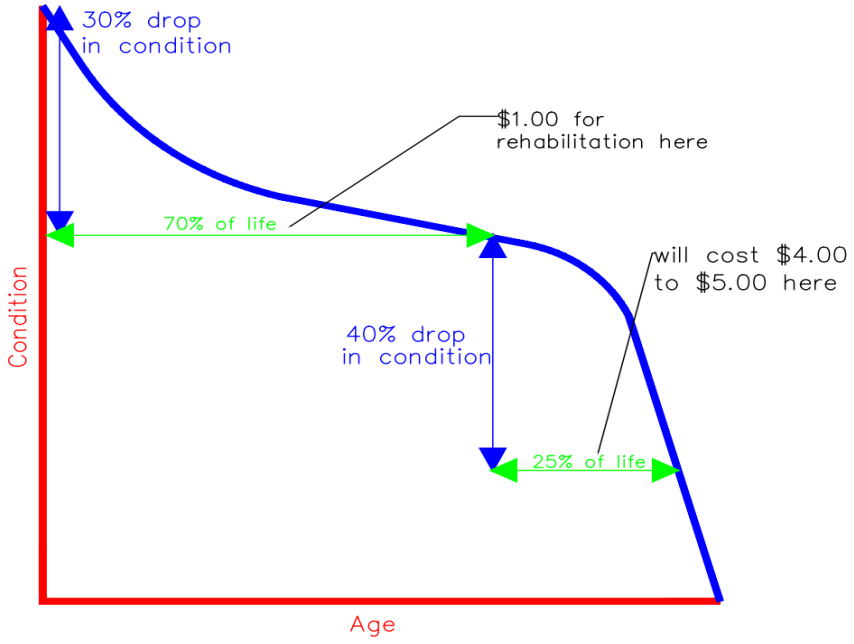


Figure 1. Pavement condition life cycle.

Benchmark MSL values are used to trigger rehabilitation and are the minimum pavement condition desirable in managing Maine's airfield pavements. The MSL values used in the MaineDOT APMS are shown in Table 1.

Runway	Taxiway	Apron
70	70	70

Table 1. Minimum service levels (critical PCI) for Maine airports.

1.3 Performance Models

To predict future repair needs and funding requirements, the APMS must have a reliable method to project pavement performance. A "family" approach is used that groups together pavement sections that are expected to deteriorate in a similar fashion.

Historical information needed for each section includes pavement age at the time of inspection and the resulting PCI for that inspection. When these data points are plotted on an Age vs. PCI graph, MicroPAVER determines the best-fit curve for this data set (family) and creates a family curve.

Future PCI for a section is predicted by shifting the overall family curve so that it intersects the current age/PCI point and is projected ahead in time, as shown conceptually in Figure 2.

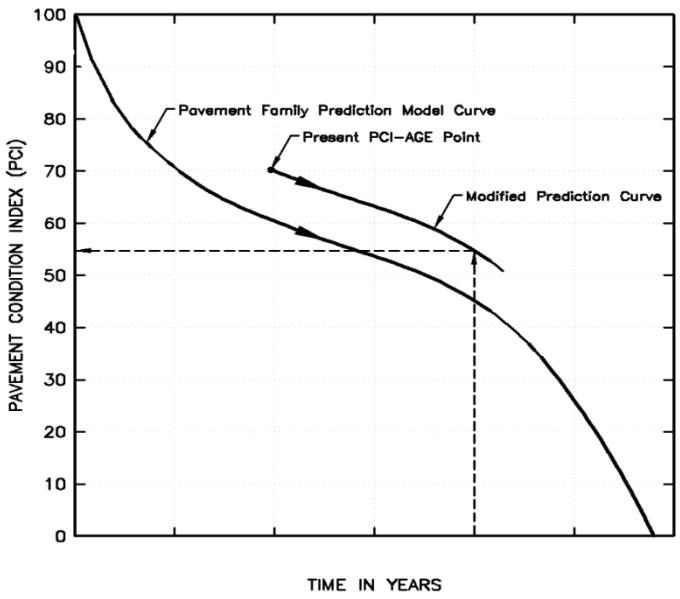


Figure 2. Predicting pavement condition.
(source: Pavement Management for Airports, Roads, and Parking Lots. M.Y. Shahin)

1.4 Family Curves

Several family curve performance models were investigated for MaineDOT, including regional and subgrade variations. Differences due to regional or subgrade classifications did not warrant separate performance models; however, asphalt concrete (AC) pavement and Portland cement concrete (PCC) sections were separated into unique performance families based on deterioration and a history of maintenance and surface treatments. Additionally, separate AC and PCC families were created for runways and taxiways/aprons in order to easily change desired MSL for the branches, but the performance equations remain the same.

Figure 3 shows the two performance families selected to model the deterioration trends for Maine's state supported public use airports. Table 2 shows the equations that describe these performance families. Family curve assignments for each section are detailed in appendix D.

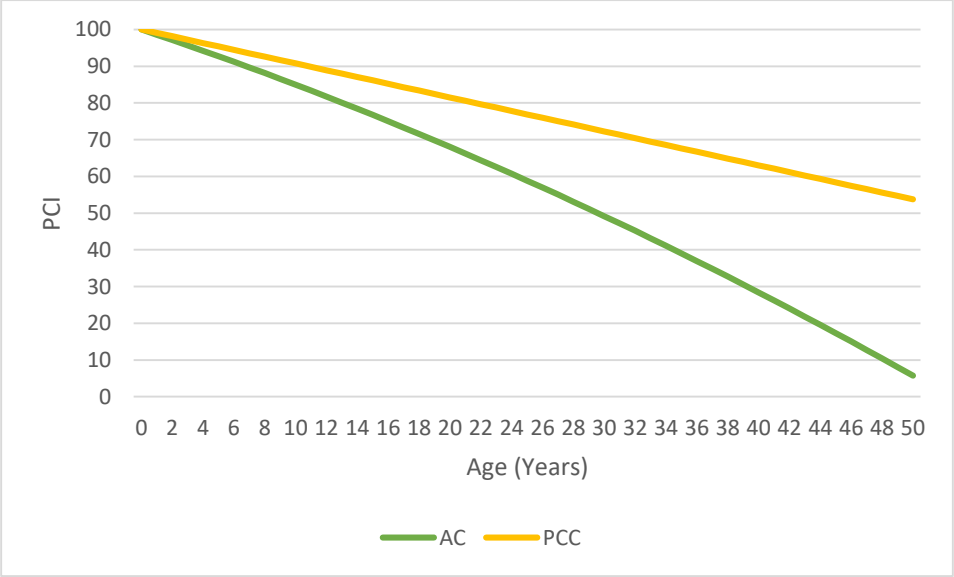


Figure 3. MaineDOT family curves.

Type	Equation
AC	$PCI = 100 - 1.4073x^1 - .0096x^2$
PCC	$PCI = 100 - .9248x^1$

Table 2. Equations describing MaineDOT family curves.

1.5 Evaluation

Pavement conditions at each airport were assessed using the PCI procedure, outlined in Federal Aviation Administration (FAA) Advisory Circular 150/5380 and ASTM D5340-12 for airfield pavements. The PCI procedure was developed to provide a numerical value indicating the overall pavement condition. During a PCI survey, visible signs of deterioration within a selected sample unit are recorded and analyzed. The final calculated PCI value is a number from 0 to 100, with 100 representing a pavement in excellent condition. The PCI evaluation makes possible forecasting of future deterioration and allows for accurate projections of maintenance and rehabilitation needs.

After collecting and summarizing the distress type, severity, and quantity for each of the inspected sample units at Maine airports, the distress data were entered into the MicroPAVER database and a PCI was calculated. The PCI procedure uses established deduct curves to determine the actual number of points to deduct for each distress type/severity combination, depending on the density of the distress. The inspected sample unit PCIs were then averaged to determine an overall PCI for that section.

The PCI value provides a sense of the level of rehabilitation that will be needed to repair a given pavement. In general terms, preventive maintenance activities such as crack sealing and patching often provide benefit when the PCI is greater than 70. However, as the pavement continues to deteriorate, more extensive and costly treatments will be necessary. Pavements with a PCI between 40 and 70 are good candidates for a variety of major repairs ranging from overlays to reconstruction. Once the PCI drops below 40, reconstruction is typically the only viable alternative. Figure 4 presents the PCI inputs, rating scale, and corresponding general work repair levels. Appendix A shows examples of typical pavement conditions at various PCI levels observed at the Maine airports.

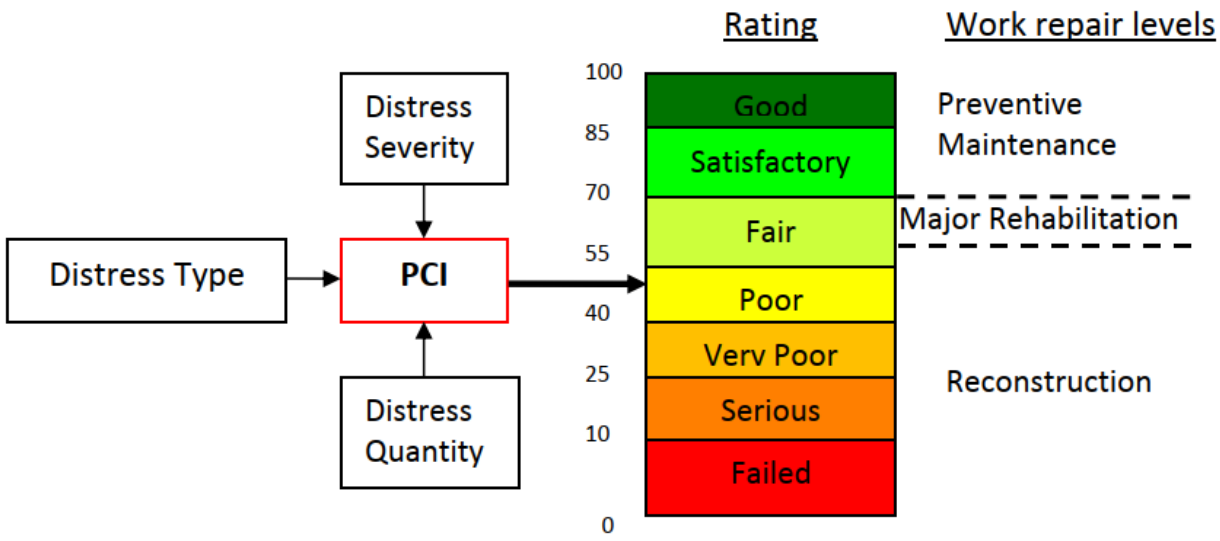


Figure 4. PCI rating scale and repair levels.

1.6 Pavement Network Definitions

The 2019 MaineDOT APMS database is divided into 28 airport networks. Each airport network is further divided into branches, sections, and sample units. A branch is a single entity that serves a distinct function. For example, a runway is considered a branch because it serves a single function (allowing aircraft to take off and land). On an airfield, a branch typically represents an entire runway, taxiway, or apron.

Because of the disparity of characteristics that can occur throughout a branch, a branch is further subdivided into sections. A section is a portion of the branch that has uniform construction history, pavement structure, traffic patterns, and condition. The guideline for determining section breaks is to consider the section as a “repair unit”—a portion of the pavement that will be managed independently and evaluated separately for pavement maintenance and rehabilitation (M&R).

Sections are further subdivided into sample units for inspection purposes. The typical sample unit size for AC pavements is 5,000 square feet ± 2,000 square feet, and the typical sample unit size for PCC pavements is 20 slabs ± 8 slabs. A statistical sampling rate described in ASTM D5340 was used to determine the number of sample units to inspect for each section. The inspected sample units were representative of the overall condition within a section and were used to extrapolate the condition as a whole.

An example airport layout showing branches, sections, and sample units is shown on the following page in Figure 5. The layout for each airport is documented in the individual airport reports.

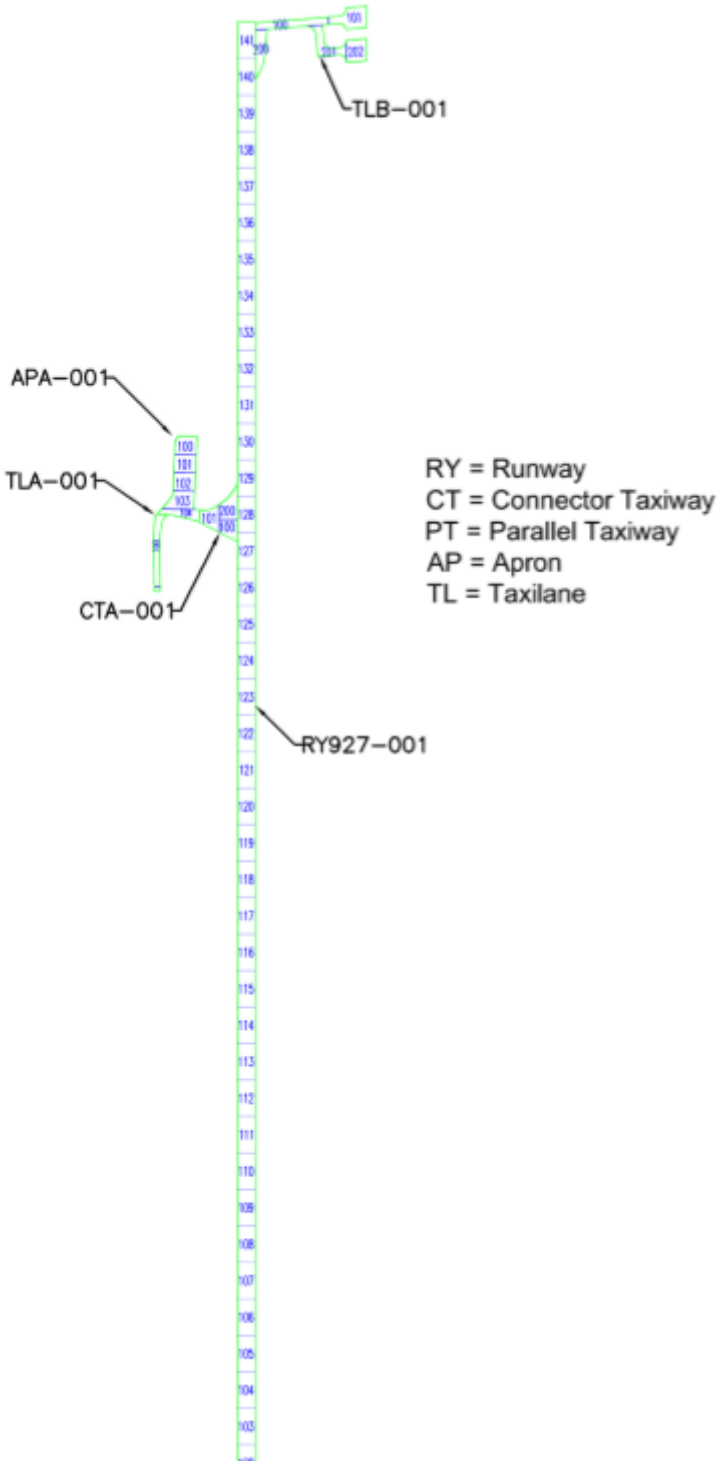


Figure 5. Example network layout.

2. Network Inventory

The MaineDOT APMS for airports contains 28 airports. Loring International Airport was added to this project and was funded directly by the State of Maine. These airports are listed in Table 3, sorted by airport name.

Num.	ID	Airport Name
1	LEW	Auburn/Lewiston Municipal
2	AUG	Augusta State
3	BST	Belfast Municipal
4	0B1	Bethel Regional
5	B19	Biddeford Municipal
6	BXM	Brunswick Executive
7	CAR	Caribou Municipal
8	OWK	Central Maine Airport of Norridgewock
9	OLD	Dewitt Field, Old Town Municipal
10	1B0	Dexter Regional
11	IZG	Eastern Slope Regional
12	EPM	Eastport Municipal
13	3B1	Greenville Municipal
14	HUL	Houlton International
15	LRG	Lincoln Regional
16	MVM	Machias Valley Municipal
17	MLT	Millinocket Municipal
18	59B	Newton Field, Jackman
19	FVE	Northern Aroostook Regional
20	81B	Oxford County Regional
21	2B7	Pittsfield Municipal
22	PNN	Princeton Municipal
23	SFM	Sanford Seacoast Regional
24	8B0	Stephen A. Bean Municipal
25	B21	Sugarloaf Regional, Carrabassett
26	WVL	Waterville Robert LaFleur
27	IWI	Wiscasset
28	ME16	Loring International Airport

Table 3. Airports in the MaineDOT APMS.

In total, the MaineDOT APMS contains over 33 million square feet of pavement distributed by surface type and pavement use as shown in Table 4, Figure 6, and Figure 7.

Surface Type	Area (SF)
Asphalt Concrete (AC)	27,093,370
Portland Cement Concrete (PCC)	6,536,200
Asphalt-overlaid Asphalt (AAC)	378,060
Pavement Use	**Area (SF)**
Apron	10,074,531
Runway	16,785,400
Taxilane	1,096,879
Taxiway	5,658,470

Table 4. Network distribution.

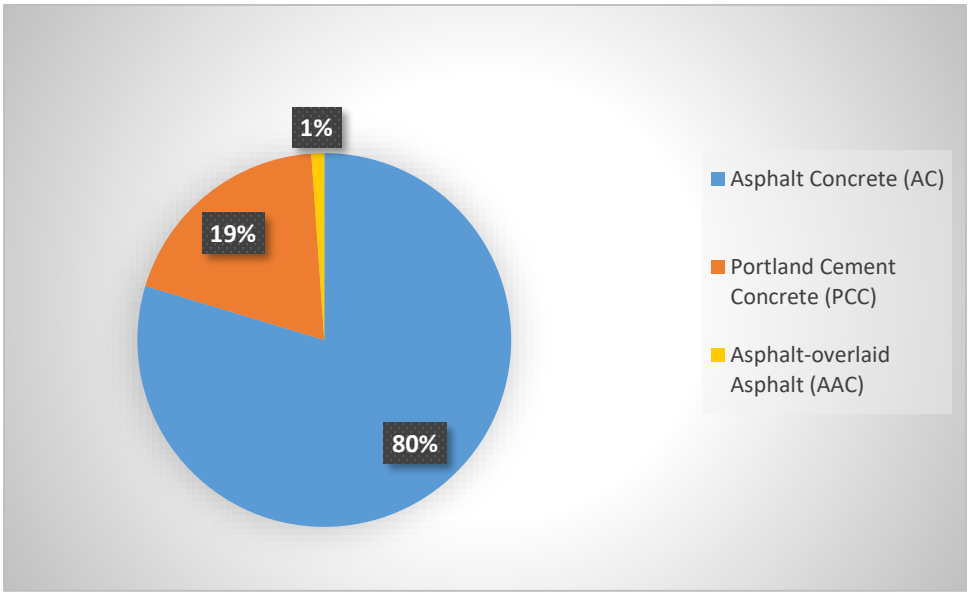


Figure 6. Total square footage by pavement type.

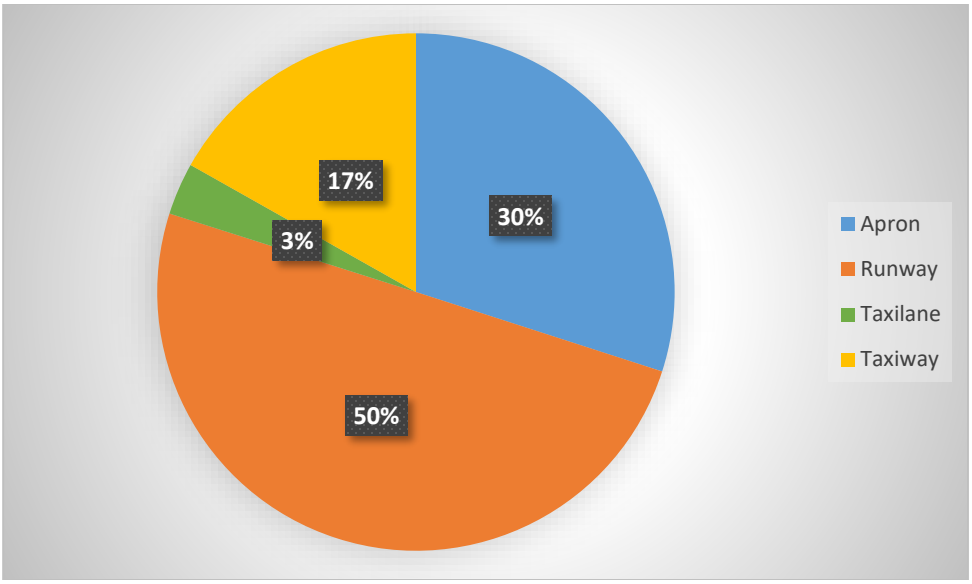


Figure 7. Total square footage by pavement use.

3. Pavement Condition

3.1 Network Condition

Although this report is dated 2019, the physical inspections of the airports were conducted in the Fall of 2018. During the 2018 airport pavement inspections, the MaineDOT APMS network had an overall area-weighted average PCI of 78 (Satisfactory), as depicted in table 5. Average PCI by pavement use and by pavement type are shown below in Figure 8 and Figure 9, respectively. The colors in the figures relate to the pavement condition (Good, Satisfactory, Fair, Poor, Very Poor, Serious, and Failed) as defined in the ASTM standard and as shown in Figure 4.

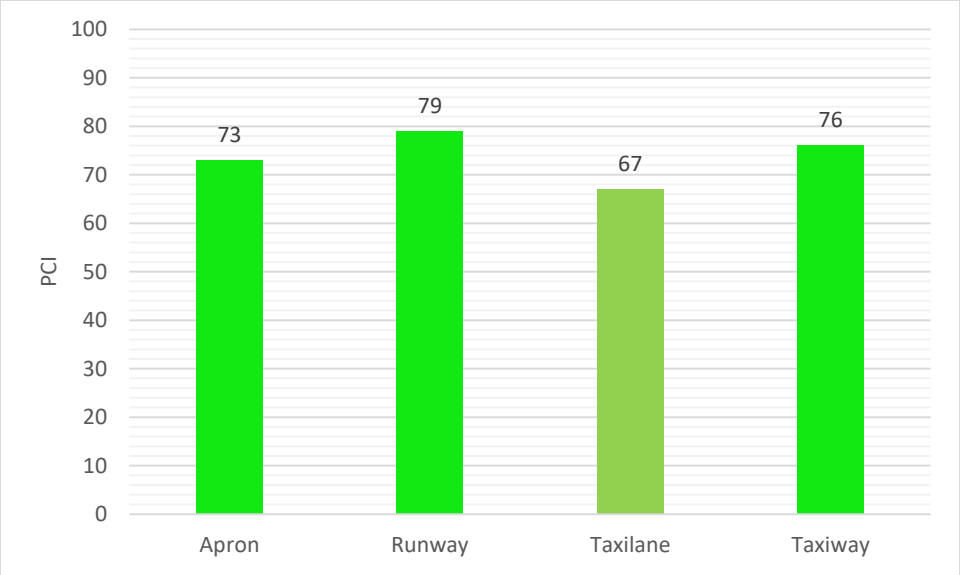


Figure 8. Average PCI by pavement use.

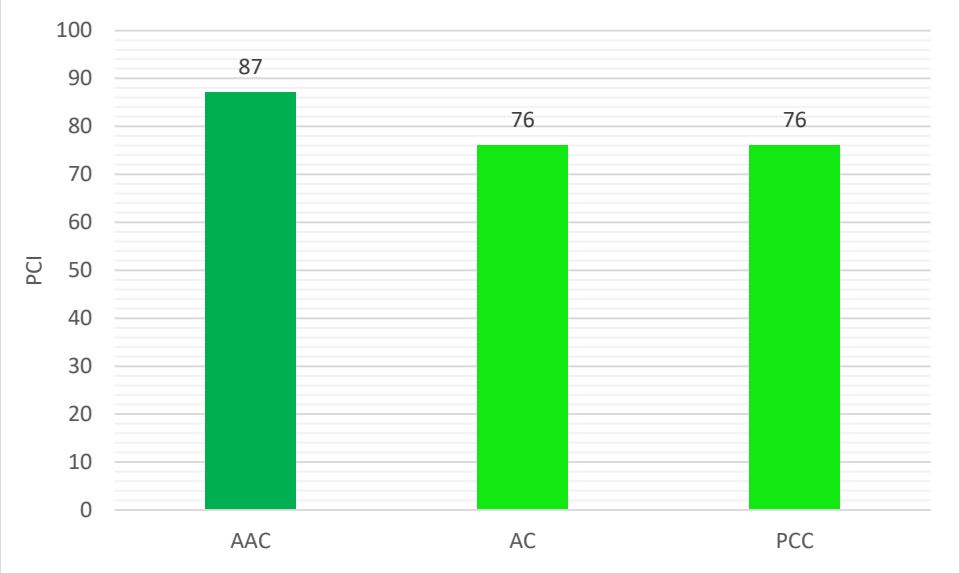


Figure 9. Average PCI by pavement type.

Figure 10 shows the distribution of pavement by percent area that falls within each PCI category. While the overall area-weighted average PCI is 78 (Satisfactory), 62.9 percent of the MaineDOT airside pavement is in good condition (PCI = 71-100), another 15.7 percent is in fair condition (PCI = 56-70), and 21.4 percent is in poor condition (PCI = 0-55). Figures 10A through 10D further break down the network condition into pavement use by percent area.

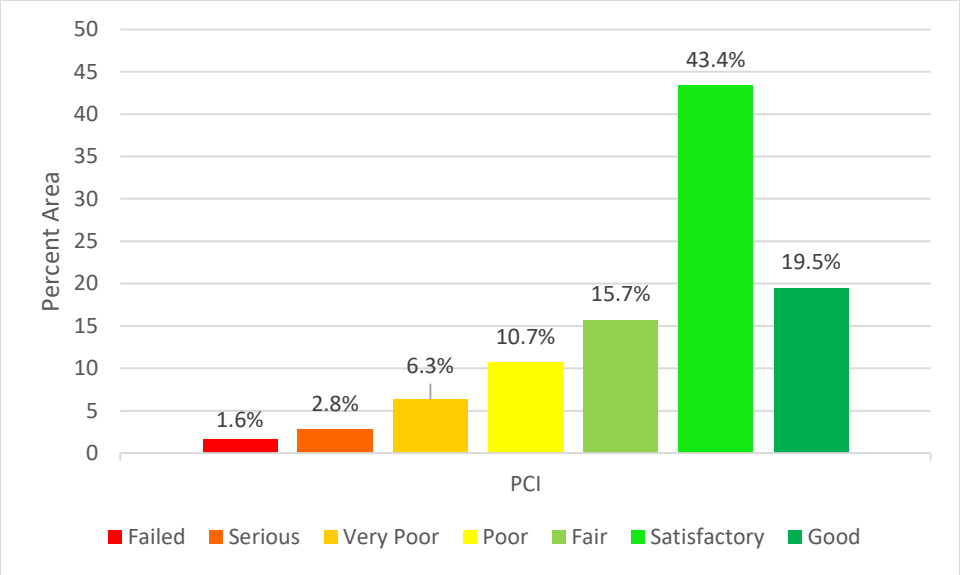


Figure 10. 2018 summary network condition distribution.

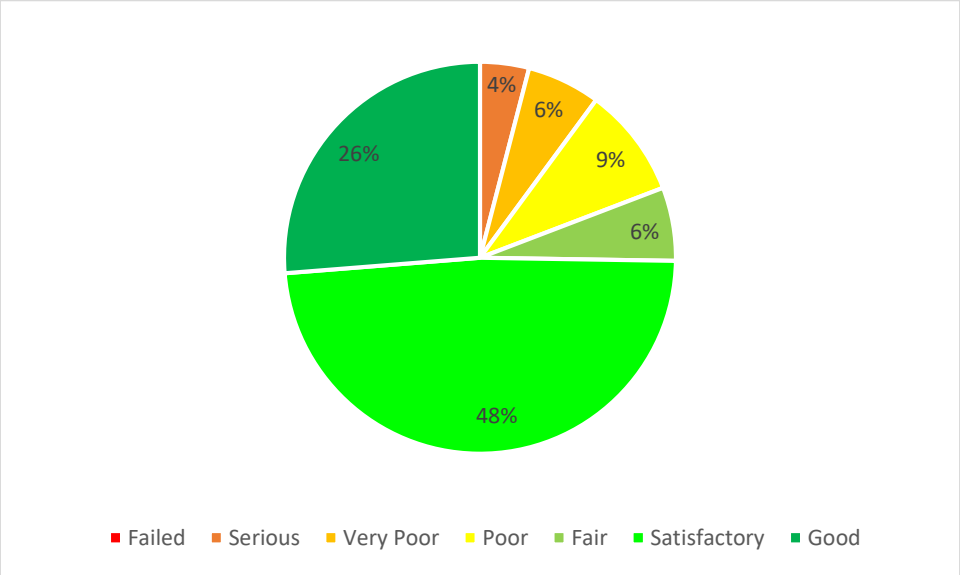


Figure 10A. 2018 apron condition distribution.

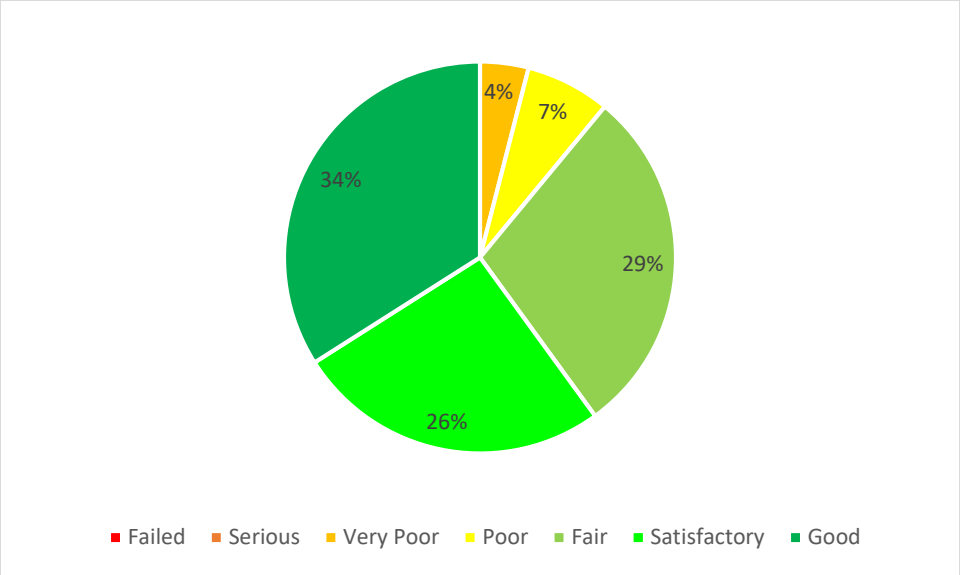


Figure 10B. 2018 runway condition distribution.

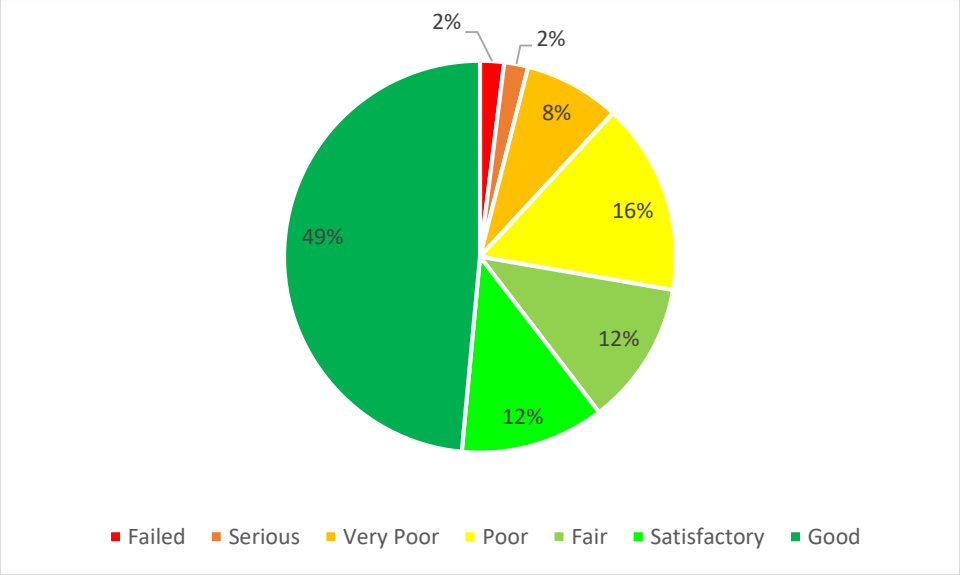


Figure 10C. 2018 taxilane condition distribution.

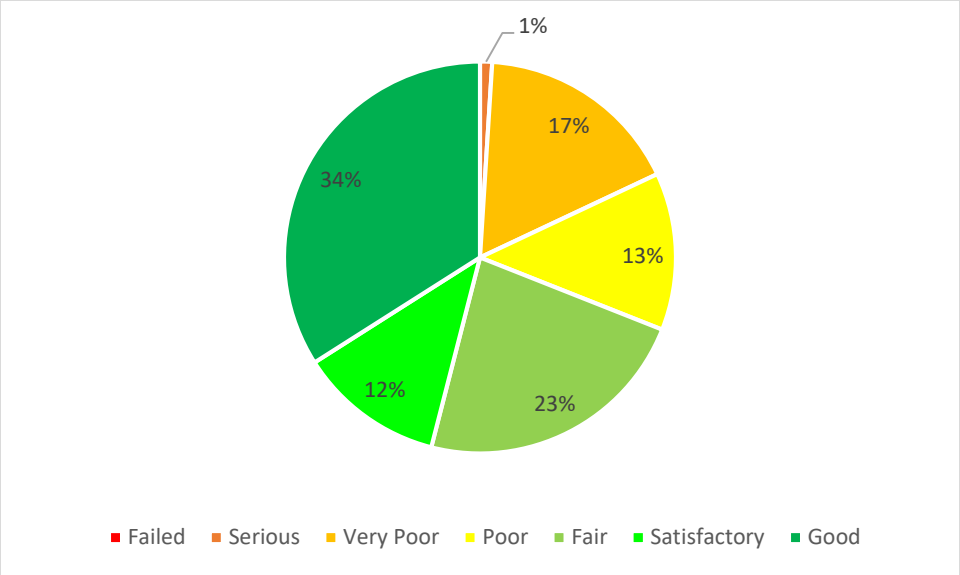


Figure 10D. 2018 taxiway condition distribution.

3.2 Airport Condition

Table 5 summarizes the overall average condition at each of the 28 (27 NPIAS and 1 - Loring International) airports in the APMS. Tables 5A through 5D further break down average condition by pavement use. When summarizing PCI values, an area-weighted calculation is used instead of a straight mathematical average because the area-weighted calculations eliminate skewing of the PCI due to the disparity of the section sizes.

ID	Airport Name	2018 PCI	Rating
PNN	Princeton Municipal	98	Good
MVM	Machias Valley Municipal	96	Good
CAR	Caribou Municipal	93	Good
OLD	Dewitt Field, Old Town Municipal	93	Good
8B0	Stephen A. Bean Municipal	92	Good
1B0	Dexter Regional	91	Good
3B1	Greenville Municipal	86	Good
HUL	Houlton International	85	Satisfactory
BXM	Brunswick Executive	83	Satisfactory
OWK	Central Maine Airport of Norridgewock	82	Satisfactory
FVE	Northern Aroostook Regional	82	Satisfactory
2B7	Pittsfield Municipal	80	Satisfactory
SFM	Sanford Seacoast Regional	80	Satisfactory
B21	Sugarloaf Regional, Carrabassett	79	Satisfactory

WVL	Waterville Robert LaFleur	79	Satisfactory
IWI	Wiscasset	79	Satisfactory
AUG	Augusta State	77	Satisfactory
59B	Newton Field, Jackman	76	Satisfactory
LEW	Auburn/Lewiston Municipal	74	Satisfactory
BST	Belfast Municipal	74	Satisfactory
0B1	Bethel Regional	74	Satisfactory
81B	Oxford County Regional	73	Satisfactory
1ZG	Eastern Slope Regional	70	Fair
LRG	Lincoln Regional	62	Fair
MLT	Millinocket Municipal	58	Fair
EPM	Eastport Municipal	53	Poor
ME16	Loring International Airport	52	Poor
B19	Biddeford Municipal	50	Poor
	Overall Area-Weighted Average	78	Satisfactory

Table 5. Area-weighted, average inspected PCI by airport.

ID	Airport Name	2019 PCI	Rating
1B0	Dexter Regional	100	Good
OLD	Dewitt Field, Old Town Municipal	97	Good
2B7	Pittsfield Municipal	95	Good
B21	Sugarloaf Regional, Carrabassett	87	Good
BXM	Brunswick Executive	85	Satisfactory
PNN	Princeton Municipal	85	Satisfactory
HUL	Houlton International	84	Satisfactory
LEW	Auburn/Lewiston Municipal	83	Satisfactory
3B1	Greenville Municipal	81	Satisfactory
0B1	Bethel Regional	79	Satisfactory
EPM	Eastport Municipal	79	Satisfactory
MVM	Machias Valley Municipal	77	Satisfactory
1ZG	Eastern Slope Regional	75	Satisfactory
OWK	Central Maine Airport of Norridgewock	72	Satisfactory
59B	Newton Field, Jackman	71	Satisfactory
WVL	Waterville Robert LaFleur	69	Fair
MLT	Millinocket Municipal	68	Fair
SFM	Sanford Seacoast Regional	67	Fair
FVE	Northern Aroostook Regional	66	Fair

8B0	Stephen A. Bean Municipal	66	Fair
IWI	Wiscasset	66	Fair
BST	Belfast Municipal	65	Fair
CAR	Caribou Municipal	59	Fair
LRG	Lincoln Regional	56	Fair
81B	Oxford County Regional	55	Poor
ME16	Loring International Airport	55	Poor
AUG	Augusta State	49	Poor
B19	Biddeford Municipal	41	Poor
	Apron Area-Weighted Average	73	Satisfactory

Table 5A. Area-weighted, average inspected apron PCI by airport.

ID	Airport Name	2019 PCI	Rating
MVM	Machias Valley Municipal	100	Good
PNN	Princeton Municipal	100	Good
OLD	Dewitt Field, Old Town Municipal	99	Good
CAR	Caribou Municipal	98	Good
WVL	Waterville Robert LaFleur	95	Good
HUL	Houlton International	94	Good
1B0	Dexter Regional	91	Good
AUG	Augusta State	89	Good
81B	Oxford County Regional	88	Good
SFM	Sanford Seacoast Regional	86	Good
FVE	Northern Aroostook Regional	85	Satisfactory
OWK	Central Maine Airport of Norridgewock	83	Satisfactory
3B1	Greenville Municipal	81	Satisfactory
1ZG	Eastern Slope Regional	79	Satisfactory
59B	Newton Field, Jackman	78	Satisfactory
BXM	Brunswick Executive	77	Satisfactory
IWI	Wiscasset	77	Satisfactory
2B7	Pittsfield Municipal	76	Satisfactory
B21	Sugarloaf Regional, Carrabassett	76	Satisfactory
BST	Belfast Municipal	75	Satisfactory
0B1	Bethel Regional	71	Satisfactory
LEW	Auburn/Lewiston Municipal	68	Fair
8B0	Stephen A. Bean Municipal	67	Fair
LRG	Lincoln Regional	66	Fair

ME16	Loring International Airport	57	Fair
MLT	Millinocket Municipal	56	Fair
B19	Biddeford Municipal	54	Poor
EPM	Eastport Municipal	48	Poor
	Runway Area-Weighted Average	79	Satisfactory

Table 5B. Area-weighted, average inspected runway PCI by airport.

ID	Airport Name	2019 PCI	Rating
PNN	Princeton Municipal	100	Good
BST	Belfast Municipal	100	Good
OLD	Dewitt Field, Old Town Municipal	94	Good
IWI	Wiscasset	94	Good
SFM	Sanford Seacoast Regional	90	Good
WVL	Waterville Robert LaFleur	90	Good
3B1	Greenville Municipal	89	Good
2B7	Pittsfield Municipal	86	Good
1B0	Dexter Regional	84	Satisfactory
CAR	Caribou Municipal	83	Satisfactory
0B1	Bethel Regional	73	Satisfactory
B19	Biddeford Municipal	54	Poor
LEW	Auburn/Lewiston Municipal	51	Poor
1ZG	Eastern Slope Regional	46	Poor
EPM	Eastport Municipal	36	Very Poor
OWK	Central Maine Airport of Norridgewock	33	Very Poor
LRG	Lincoln Regional	22	Serious
AUG	Augusta State	-	No Taxilane
BXM	Brunswick Executive	-	No Taxilane
HUL	Houlton International	-	No Taxilane
MVM	Machias Valley Municipal	-	No Taxilane
MLT	Millinocket Municipal	-	No Taxilane
59B	Newton Field, Jackman	-	No Taxilane
FVE	Northern Aroostook Regional	-	No Taxilane
81B	Oxford County Regional	-	No Taxilane
8B0	Stephen A. Bean Municipal	-	No Taxilane
B21	Sugarloaf Regional, Carrabassett	-	No Taxilane
ME16	Loring International Airport	-	No Taxilane
	Taxilane Area-Weighted Average	67	Fair

Table 5C. Area-weighted, average inspected taxilane PCI by airport.

ID	Airport Name	2019 PCI	Rating
MVM	Machias Valley Municipal	100	Good
LEW	Auburn/Lewiston Municipal	97	Good
3B1	Greenville Municipal	97	Good
PNN	Princeton Municipal	97	Good
81B	Oxford County Regional	91	Good
IWI	Wiscasset	90	Good
OWK	Central Maine Airport of Norridgewock	89	Good
1B0	Dexter Regional	89	Good
FVE	Northern Aroostook Regional	89	Good
CAR	Caribou Municipal	87	Good
8B0	Stephen A. Bean Municipal	85	Satisfactory
AUG	Augusta State	83	Satisfactory
B21	Sugarloaf Regional, Carrabassett	82	Satisfactory
SFM	Sanford Seacoast Regional	78	Satisfactory
BXM	Brunswick Executive	76	Satisfactory
0B1	Bethel Regional	74	Satisfactory
HUL	Houlton International	73	Satisfactory
2B7	Pittsfield Municipal	73	Satisfactory
MLT	Millinocket Municipal	68	Fair
BST	Belfast Municipal	65	Fair
EPM	Eastport Municipal	65	Fair
59B	Newton Field, Jackman	65	Fair
1ZG	Eastern Slope Regional	57	Fair
B19	Biddeford Municipal	56	Fair
OLD	Dewitt Field, Old Town Municipal	55	Poor
WVL	Waterville Robert LaFleur	53	Poor
LRG	Lincoln Regional	44	Poor
ME16	Loring International Airport	40	Very Poor
	Taxiway Area-Weighted Average	76	Satisfactory

Table 5D. Area-weighted, average inspected taxiway PCI by airport.

Table 6 summarizes the individual pavement sections at each airport that are currently at or below the MSL. This information can be used as a starting point in developing the statewide capital improvement plan. Pavement sections are grouped by usage and sorted by PCI. Some sections can be restored above MSL through maintenance. M&R recommendations are provided in chapter 4 of this report.

Branch Use	ID	Name	PID	PCI
Apron	0B1	Bethel Regional	0B1:APA:002	69
Apron	LEW	Auburn/Lewiston Municipal	LEW:APA:003	68
Apron	IWI	Wiscasset	IWI:APA:001	66
Apron	FVE	Northern Aroostook Regional	FVE:APA:001	66
Apron	AUG	Augusta State	AUG:APB:002	63
Apron	IZG	Eastern Slope Regional	IZG:APA:002	61
Apron	AUG	Augusta State	AUG:APA:001	58
Apron	3B1	Greenville Municipal	3B1:APB:001	58
Apron	LRG	Lincoln Regional	LRG:APA:001	56
Apron	81B	Oxford County Regional	81B:APA:001	55
Apron	LEW	Auburn/Lewiston Municipal	LEW:APA:002	54
Apron	AUG	Augusta State	AUG:APB:001	54
Apron	BST	Belfast Municipal	BST:APA:003	52
Apron	59B	Newton Field, Jackman	59B:APA:001	47
Apron	BXM	Brunswick Executive	BXM:APA:003	45
Apron	B19	Biddeford Municipal	B19:APA:001	42
Apron	SFM	Sanford Seacoast Regional	SFM:APC:003	41
Apron	ME16	Loring International Airport	ME16:APA:001	41
Apron	B19	Biddeford Municipal	B19:APA:002	41
Apron	BXM	Brunswick Executive	BXM:APB:004	39
Apron	8B0	Stephen A. Bean Municipal	8B0:APA:002	37
Apron	SFM	Sanford Seacoast Regional	SFM:APC:001	35
Apron	CAR	Caribou Municipal	CAR:APA:001	35
Apron	WVL	Waterville Robert LaFleur	WVL:APA:001	31
Apron	ME16	Loring International Airport	ME16:APA:003	26
Apron	ME16	Loring International Airport	ME16:APA:002	24
Apron	8B0	Stephen A. Bean Municipal	8B0:APA:001	24
Apron	MLT	Millinocket Municipal	MLT:APA:003	19
Apron	SFM	Sanford Seacoast Regional	SFM:APC:002	15
Apron	AUG	Augusta State	AUG:APB:003	12
Apron	MLT	Millinocket Municipal	MLT:APA:004	7
Taxiway	SFM	Sanford Seacoast Regional	SFM:CTA:001	70
Taxiway	CAR	Caribou Municipal	CAR:RTA:002	70
Taxiway	BST	Belfast Municipal	BST:PTA:001	69
Taxiway	0B1	Bethel Regional	0B1:CTB:001	69
Taxiway	2B7	Pittsfield Municipal	2B7:CTA:001	69
Taxiway	SFM	Sanford Seacoast Regional	SFM:CTB:001	68
Taxiway	2B7	Pittsfield Municipal	2B7:CTB:001	68
Taxiway	IWI	Wiscasset	IWI:CTB:003	67
Taxiway	BXM	Brunswick Executive	BXM:PTA:002	67

Branch Use	ID	Name	PID	PCI
Taxiway	AUG	Augusta State	AUG:CTC:001	66
Taxiway	IZG	Eastern Slope Regional	IZG:CTC:001	65
Taxiway	59B	Newton Field, Jackman	59B:CTA:001	65
Taxiway	SFM	Sanford Seacoast Regional	SFM:CTD:001	64
Taxiway	BST	Belfast Municipal	BST:CTA:001	64
Taxiway	ME16	Loring International Airport	ME16:CTC:001	63
Taxiway	HUL	Houlton International	HUL:PTB:002	63
Taxiway	ME16	Loring International Airport	ME16:CTD:002	62
Taxiway	MLT	Millinocket Municipal	MLT:RTA:001	61
Taxiway	BST	Belfast Municipal	BST:CTB:001	61
Taxiway	EPM	Eastport Municipal	EPM:RTA:002	60
Taxiway	AUG	Augusta State	AUG:PTA:003	59
Taxiway	SFM	Sanford Seacoast Regional	SFM:CTC:002	57
Taxiway	AUG	Augusta State	AUG:RPA:001	57
Taxiway	B19	Biddeford Municipal	B19:CTA:001	56
Taxiway	AUG	Augusta State	AUG:PTB:003	56
Taxiway	LRG	Lincoln Regional	LRG:CTA:001	55
Taxiway	IZG	Eastern Slope Regional	IZG:PTA:001	55
Taxiway	HUL	Houlton International	HUL:PTA:002	55
Taxiway	ME16	Loring International Airport	ME16:PTA:002	53
Taxiway	LEW	Auburn/Lewiston Municipal	LEW:CTK:001	53
Taxiway	AUG	Augusta State	AUG:PTB:004	53
Taxiway	WVL	Waterville Robert LaFleur	WVL:CTC:002	51
Taxiway	MLT	Millinocket Municipal	MLT:CTA:001	48
Taxiway	ME16	Loring International Airport	ME16:PTA:005	46
Taxiway	WVL	Waterville Robert LaFleur	WVL:PTA:001	44
Taxiway	OLD	Dewitt Field, Old Town Municipal	OLD:CTB:001	42
Taxiway	HUL	Houlton International	HUL:CTC:002	41
Taxiway	IZG	Eastern Slope Regional	IZG:CTB:001	38
Taxiway	EPM	Eastport Municipal	EPM:CTA:001	34
Taxiway	LRG	Lincoln Regional	LRG:RTA:002	30
Taxiway	EPM	Eastport Municipal	EPM:RTA:001	30
Taxiway	ME16	Loring International Airport	ME16:PTA:001	28
Taxiway	ME16	Loring International Airport	ME16:PTA:003	26
Taxiway	OLD	Dewitt Field, Old Town Municipal	OLD:CTB:002	25
Taxilane	LEW	Auburn/Lewiston Municipal	LEW:TLA:001	70
Taxilane	B19	Biddeford Municipal	B19:TLB:001	69
Taxilane	LEW	Auburn/Lewiston Municipal	LEW:TLA:002	67
Taxilane	OWK	Central Maine Airport of Norridgewock	OWK:TLA:001	66
Taxilane	WVL	Waterville Robert LaFleur	WVL:TLB:001	63

Branch Use	ID	Name	PID	PCI
Taxilane	SFM	Sanford Seacoast Regional	SFM:TLC:001	56
Taxilane	IZG	Eastern Slope Regional	IZG:TLB:001	54
Taxilane	OWK	Central Maine Airport of Norridgewock	OWK:TLC:001	46
Taxilane	IZG	Eastern Slopes Regional	IZG:TLA:001	44
Taxilane	LEW	Auburn/Lewiston Municipal	LEW:TLA:003	43
Taxilane	LEW	Auburn/Lewiston Municipal	LEW:TLB:001	42
Taxilane	B19	Biddeford Municipal	B19:TLA:001	39
Taxilane	IZG	Eastern Slopes Regional	IZG:TLB:003	36
Taxilane	EPM	Eastport Municipal	EPM:TLA:001	36
Taxilane	1B0	Dexter Regional	1B0:TLA:002	29
Taxilane	LRG	Lincoln Regional	LRG:TLB:001	23
Taxilane	LRG	Lincoln Regional	LRG:TLA:001	20
Taxilane	CAR	Caribou Municipal	CAR:TLA:001	16
Taxilane	IZG	Eastern Slope Regional	IZG:TLC:001	9
Taxilane	OWK	Central Maine Airport of Norridgewock	OWK:TLB:001	6
Taxilane	IZG	Eastern Slope Regional	IZG:TLA:002	0
Runway	LEW	Auburn/Lewiston Municipal	LEW:RY1735:001	69
Runway	OWK	Central Maine Airport of Norridgewock	OWK:RY0321:001	68
Runway	BXM	Brunswick Executive	BXM:RY119:002	68
Runway	LRG	Lincoln Regional	LRG:RY1735:001	66
Runway	AUG	Augusta State	AUG:RY826:002	66
Runway	MLT	Millinocket Municipal	MLT:RY1129:003	65
Runway	LEW	Auburn/Lewiston Municipal	LEW:RY422:001	65
Runway	ME16	Loring International Airport	ME16:RW119:003	63
Runway	ME16	Loring International Airport	ME16:RW119:004	61
Runway	MLT	Millinocket Municipal	MLT:RY1634:001	54
Runway	B19	Biddeford Municipal	B19:RY624:001	54
Runway	MLT	Millinocket Municipal	MLT:RY1129:001	53
Runway	MLT	Millinocket Municipal	MLT:RY1129:002	52
Runway	EPM	Eastport Municipal	EPM:RY1533:001	48
Runway	ME16	Loring International Airport	ME16:RW119:005	37
Runway	ME16	Loring International Airport	ME16:RW119:006	35
Runway	ME16	Loring International Airport	ME16:RW119:002	34
Runway	ME16	Loring International Airport	ME16:RW119:001	29

Table 6. Pavement sections currently at/below MSL.

4. Pavement M&R Needs and Budget Planning

As a planning tool for MaineDOT, an analysis was developed to see the impact that various funding scenarios would have on the network. The planning analysis was divided into two categories—Localized M&R and Major M&R. Localized M&R is intended to address annual maintenance needs such as crack sealing and patching, while Major M&R is capable of returning the pavement to a new, nearly distress-free state. Costs for both categories were developed based on recent bid tabs and are intended to represent typical unit costs in Maine. While these cost estimates provide a useful network-level planning tool, they are not meant to represent an engineer's estimate for any particular project. Project-specific cost estimates must be developed on a case-by-case basis.

The unit costs used to determine the Localized M&R and Major M&R needs are shown in Table 7 and Table 8. Unlike the Localized M&R costs based on specific actions shown in Table 7, PAVER estimates Major M&R costs based on the PCI value. Therefore, the costs shown in Table 8 are meant to represent a unit cost per square foot for complete reconstruction (PCI < 61) of $31.01 for PCC and $20.40 for AC pavement. For major rehabilitation (PCI between 61 and 80), unit costs range between $5.45 and $8.75 for PCC and between $1.10 and $2.75 for AC pavement. The unit cost above PCI values of 80 represents the cost of surface treatments and associated crack repairs. Note that the unit cost of $2.75 between PCI values of 61 and 70 for AC pavement represents the cost of a 2-inch mill and inlay.

Code	Treatment Name	Unit Cost
CS-AC	Crack Sealing - AC	$1.38 / Ft
CS-PCC	Crack Sealing - PCC	$3.93 / Ft
GR-PP	Grinding (Localized)	$5.75 / Ft
JS-LC	Joint Seal(Localized)	$3.85 / Ft
PA-AD	Patching - AC Deep	$18.56 / SqFt
PA-AS	Patching - AC Shallow	$16.81 / SqFt
SS-LO	Surface Treatment	$0.61 / SqFt
PA-PF	Patching - PCC Full Depth	$119.00 / SqFt
PA-PP	Patching - PCC Partial Depth	$61.63 / SqFt
SL-PC	Slab Replacement - PCC	$31.55 / SqFt
-	Undersealing - PCC	$3.03 / Ft

Table 7. Unit costs for Localized M&R.

M&R Type	PCI	Cost AC	Cost PCC
Reconstruction	0-60	$20.40 / SqFt	$31.01 / SqFt
Major Rehab	61-70	$2.75 / SqFt	$8.75 / SqFt
Major Rehab	71-80	$1.10 / SqFt	$5.45 / SqFt
Maintenance	81-100	$0.61 / SqFt	$0.61 / SqFt

Table 8. Unit costs for Major M&R.

4.1 Localized M&R

The Localized M&R analysis involved applying a maintenance policy to the distress data recorded during the most recent PCI inspection. Appendix C contains the maintenance policies developed during the APMS update. The maintenance policies identify a treatment such as crack sealing or patching to apply to each distress/severity combination.

The total cost of Localized M&R needs identified at these 28 (1 of which is Loring International Airport; a non-NPIAS airport) airports was approximately $11.7 million, as shown in Table 9. However, it is expected that a portion of the restorative and stopgap needs will be addressed through more comprehensive Major M&R rehabilitation projects administered through the capital improvement program.

Category	Total Cost
Preventive	$1,991,214.15
Restorative	$386,552.11
Stopgap	$9,303,958.91
Total	$11,681,725.17

Table 9. Statewide Localized M&R needs.

The Localized M&R needs are categorized as preventive, restorative, or stopgap repairs. Preventive maintenance is applied to pavement above the MSL and is generally a cost-effective means of prolonging pavement life. The preventive maintenance needs of $2 Million are shown in Table 10. It is desirable to address preventive maintenance needs as soon as possible.

Code	Treatment Name	Quantity	Unit	Cost ($)
CS-AC	Crack Sealing - AC	47,407	Ft	65,422.38
CS-PC	Crack Sealing - PCC	3,900	Ft	15,325.07
GR-PP	Grinding (Localized)	0	Ft	0.00
JS-LC	Joint Seal (Localized)	287,597	Ft	1,107,244.26
PA-AD	Patching - AC Deep	799	SqFt	14,848.75
PA-AS	Patching - AC Shallow	364	SqFt	6,115.25
SS-LO	Surface Seal	151,381	SqFt	92,342.59
PA-PF	Patching - PCC Full Depth	4,437	SqFt	527,999.47
PA-PP	Patching - PCC Partial Depth	2,479	SqFt	153,293.97
SL-PC	Slab Replacement - PCC	273	SqFt	8,622.41
	Total Cost			1,991,214.15

Table 10. Statewide localized preventive maintenance needs.

Restorative maintenance is defined as treatments that have the potential to restore the PCI to a level above the MSL. In some cases, restorative maintenance is highly cost-effective, while in other cases Major M&R will be preferred. These projects have been selected for additional project-level analysis on a case-by-case basis to determine the optimum repair strategy. The restorative maintenance needs are summarized in Table 11.

Code	Treatment Name	Quantity	Unit	Cost ($)
CS-AC	Crack Sealing - AC	42366	Ft	58,465.14
CS-PC	Crack Sealing - PCC	414	Ft	1,626.74
GR-PP	Grinding (Localized)	0	Ft	0.00
JS-LC	Joint Seal (Localized)	3025	Ft	11,646.15
PA-AD	Patching - AC Deep	11,261	SqFt	209,235.49
PA-AS	Patching - AC Shallow	1283	SqFt	21,565.13
SS-LO	Surface Seal	41888	SqFt	25,552.02
PA-PF	Patching - PCC Full Depth	88	SqFt	10,457.68
PA-PP	Patching - PCC Partial Depth	22	SqFt	1,354.83
SL-PC	Slab Replacement - PCC	1479	SqFt	46,648.93
	Total Cost			386,552.11

Table 11. Statewide localized restorative maintenance needs.

Because the restorative maintenance projects start at a PCI below the MSL, they also appear in the capital improvement program. The approximately $387,000 in restorative maintenance costs have a corresponding cost in the capital improvement program of approximately $15.3

million for Major M&R. It is recommended that MaineDOT project managers and local airport consultants focus on the pavement sections where restorative maintenance was identified with the goal of realizing as much of the $15 million differential between the restorative maintenance and Major M&R costs as can be justified from a life cycle cost analysis (see section 4.2).

Stopgap maintenance does not restore the pavement above the MSL and should be limited to the minimum necessary to maintain safety until more extensive rehabilitation can be programmed. The stopgap needs are shown in Table 12.

Code	Treatment Name	Quantity	Unit	Cost ($)
CS-AC	Crack Sealing - AC	538,809	Ft	538,809.72
CS-PC	Crack Sealing - PCC	7,803	Ft	30,666.63
GR-PP	Grinding (Localized)	0	Ft	0.00
JS-LC	Joint Seal (Localized)	52,949	Ft	203,853.76
PA-AD	Patching - AC Deep	145,097	SqFt	2,695,908.26
PA-AS	Patching - AC Shallow	62,371	SqFt	1,048,060.16
SS-LO	Surface Seal	3,120,620	SqFt	1,903,582.83
PA-PF	Patching - PCC Full Depth	4,675	SqFt	556,334.27
PA-PP	Patching - PCC Partial Depth	237	SqFt	14,625.15
SL-PC	Slab Replacement - PCC	66782	SqFt	2,106,973.71
	Total Cost			9,303,958.91

Table 12. Statewide localized stopgap maintenance needs.

4.2 Life Cycle Cost Analysis

Table 13 provides the details of all pavement sections where both Major M&R and restorative maintenance were identified as feasible pavement rehabilitation strategies. For example, the parallel taxiway at Belfast Municipal (BST:PTA:001) was below the MSL, with a PCI of 69, and therefore appears in the capital improvement program with a Major M&R cost of $42,761 to provide a new surface and restore the PCI to 100. Additionally, the maintenance analysis showed that a combination of crack repairs and patching was predicted to restore the PCI to a 73, at a cost of $3,248.

To perform a very simple network-level life cycle cost analysis for this apron section, we could divide these costs by the anticipated pavement life to compare the annual cost of each option. Assuming a 20-year life for Major M&R and a 3-year life extension from the restorative Local M&R, the equivalent annual costs comparing these two options are approximately $2,138/year for the Major M&R option and approximately $1,083/year for the restorative Local M&R option.

While a more detailed project-level life cycle cost analysis is recommended for each pavement section in Table 13, a preliminary evaluation of this taxiway section shows that restorative maintenance should be considered, with the caveat that this particular pavement may only remain above the MSL for 3 years.

Because of the differential in restorative maintenance costs versus the corresponding Major M&R costs for the MaineDOT APMS network ($386,552 versus $15.3 million), the pavement sections identified in Table 13 have the potential to significantly reduce the overall needs of the 5-year capital improvement program if the identified restorative maintenance is deemed to be an acceptable alternative to Major M&R.

PID	Local M&R			Major M&R	
	PCI Before	PCI After	Cost ($)	PCI After	Cost ($)
OB1:APA:002	69	72	1,056	100	89,648
OB1:CTB:001	69	74	518	100	25,299
2B7:CTA:001	69	70	128	100	32,174
81B:APA:001	55	70	40,230	100	4,545,042
B19:TLB:001	69	73	739	100	38,224
BST:PTA:001	69	73	3,248	100	42,761
BXM:RY0119:002	68	71	16,024	100	962,476
CAR:APA:001	35	70	58,117	100	876,165
CAR:TLA:001	16	72	8,563	100	74,459
HUL:PTB:002	63	72	57,720	100	4,347,166
IWI:APA:001	66	77	22,491	100	482,750
IWI:CTB:003	67	72	968	100	43,449
IZG:TLB:003	36	70	60,056	100	670,129
LEW:APA:003	68	75	2,603	100	98,585
LEW:RY1735:001	69	71	47,942	100	1,374,415
LEW:TLA:002	67	75	2,861	100	102,297
LOR:PTA:005	46	77	71,734	100	1,293,122
LRG:TLA:001	20	75	16,742	100	124,438
SFM:CTB:001	68	70	2,638	100	66,136
Total			386,552		15,288,735

Table 13. Pavement sections recommended for life cycle cost analysis.

4.3 Major M&R

In addition to the maintenance activities such as crack sealing and patching, some pavements may require more substantial rehabilitation. As a planning aid for MaineDOT, DuBois & King used the MicroPAVER work plan analysis to model and compare future maintenance backlogs using an unlimited budget and a no funding scenario. These scenarios provide examples of funding consequences, but are not meant to dictate future budget policies for MaineDOT.

The example work plans explore the resulting budgets and pavement conditions associated with different funding approaches for the APMS network. The work plans were assumed to start in 2019 and extend through 2023 with no adjustment for inflation. PCI values are determined to reflect the condition after the recommended work has been accomplished. Results for the 5-year period using different budget scenarios are shown in Figure 11 and Table 14.

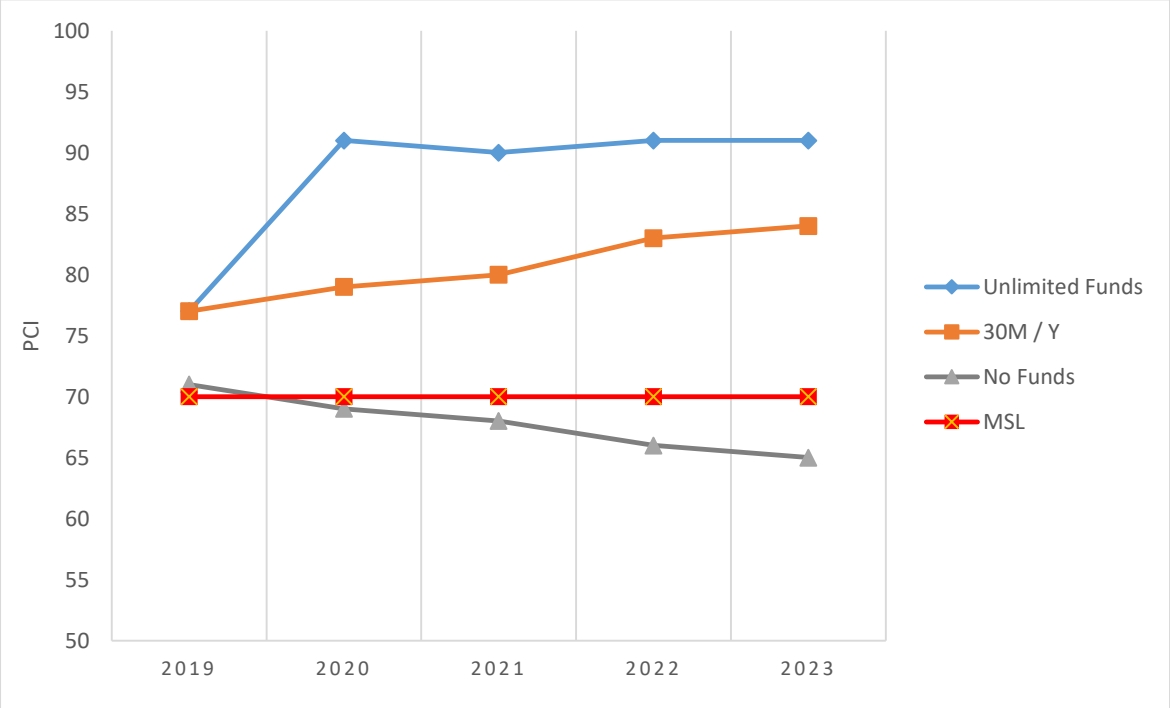


Figure 11. Summary of budget scenarios.

Year	Funded Below MSL ($)	Unfunded Projects ($)	PCI Before	PCI After
Unlimited Funding				
2019	9,167,726	0	72	77
2020	214,665,476	0	75	92
2021	1,676,549	0	89	90
2022	5,237,518	0	89	91
2023	2,194,260	0	89	91
30M / Year				
2019	30,000,000	202,941,529	72	77
2020	30,000,000	172,941,529	76	79
2021	30,000,000	142,941,529	77	80
2022	30,000,000	112,941,529	78	83
2023	30,000,000	82,941,529	81	84
No Funding				
2019	0	9,167,726	73	71
2020	0	223,833,202	71	69
2021	0	225,509,751	69	68
2022	0	230,747,269	68	66
2023	0	232,941,529	66	65

Table 14. Summary of budget scenarios.

While all costs shown in Table 14 are in 2019 dollars (no inflation factor), delayed projects will still become more expensive in future years due to the projected PCI decrease and associated cost increase related to the PCI ranges shown in Table 8. As an example, funding all projects over a 5-year period costs $233 million and all pavements are kept above the recommended MSL. The no funding scenario results in the unfunded backlog growing from $9M to $233M. Because the unit cost for Major M&R is based on the condition of the pavement, the decreased PCI of non-maintained pavement means that necessary but delayed projects will become more

expensive as more extensive and costly rehabilitation is required. The $30 million annual balanced budget does a good job maintaining and even slightly raises overall condition.

4.4 PCI Projection

Figure 12 through Figure 14 show the projected percentage of the network area at various PCI ranges for the next 5 years using each of the example budget scenarios. The figures show how each of the funding scenarios affects the network condition distribution. For example, in the unlimited funding scenario, nearly 100 percent of the pavement is projected to be in good or satisfactory condition (PCI > 70) after 5 years; however, in the no funding scenario, only 47 percent of the network pavement would be in similar condition.

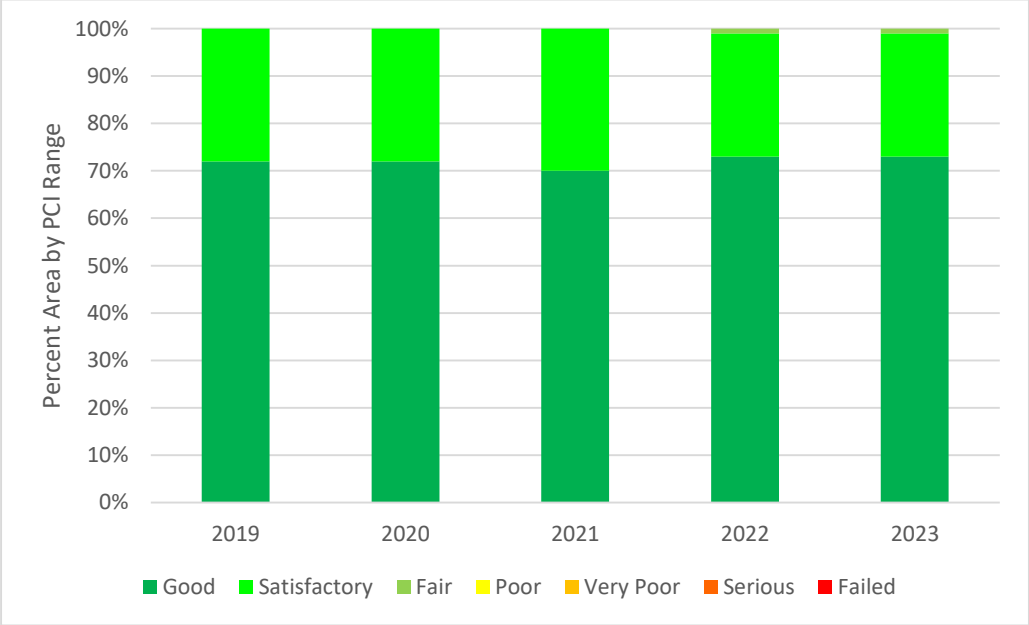


Figure 12. Projected PCI by percent area (Unlimited Funding).

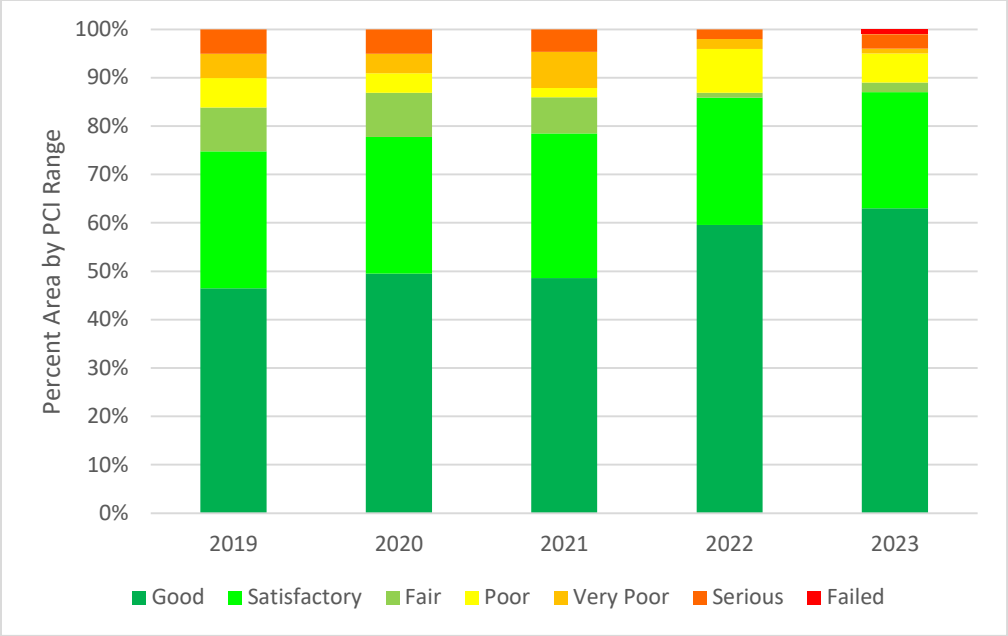


Figure 13. Projected PCI by percent area (30M/yr).

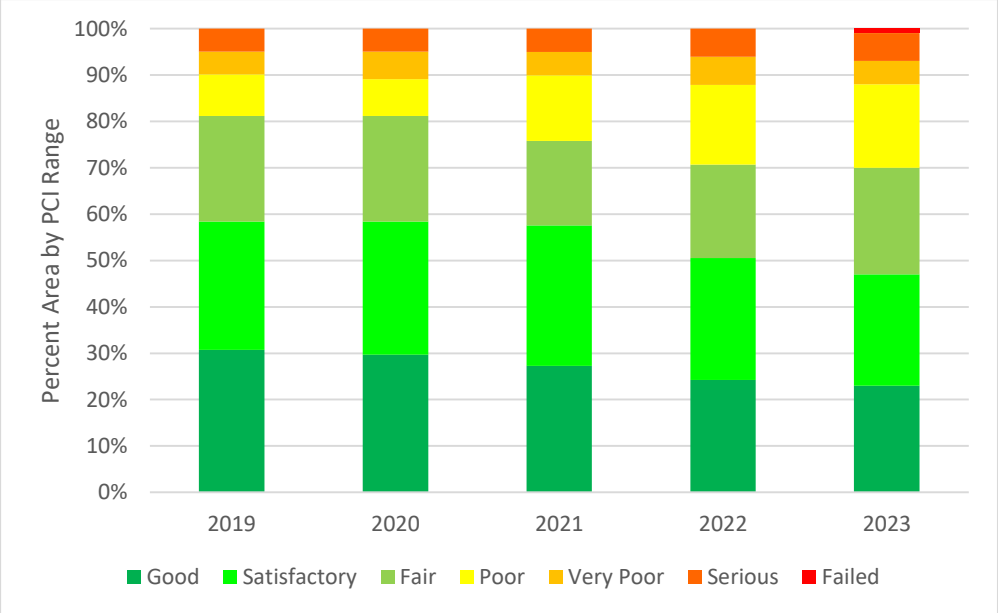


Figure 14. Projected PCI by percent area (No Funding).

Appendix A

Photos of PCI Condition Levels

Airfield Pavement Condition Index Guide

This document provides photographic examples of various airport pavement conditions at general aviation airports. The condition ratings are based on the PCI methodology as described in ASTM D5340. The PCI procedure is the standard used in the aviation industry for evaluating the functional condition of a pavement. The PCI is further used in the APMS for predicting future condition levels and forming repair strategies for maintaining these pavements. The main purpose of this document is to visually portray PCI condition levels so that readers can have a better understanding of what conditions look like at various PCI levels.

The PCI methodology is based on a numerical scale of 0 to 100, where 100 represents a pavement free of defects (distress) and 0 represents a totally failed pavement. The PCI value provides a sense of the level of rehabilitation that will be needed to repair a given pavement. In general terms, maintenance activities such as crack sealing, surface treatments, and patching often provide benefit when the PCI is greater than 70. However, as the pavement continues to deteriorate, more complex and expensive treatments will be necessary. Pavements with a PCI between 40 and 70 generally are good candidates for a variety of major repairs ranging from overlays to reconstruction. Once the PCI drops below 40, reconstruction is typically the only viable alternative.

The inputs for calculating the PCI are distress type, severity (how bad the distress is), and quantity (how much there is of the distress).

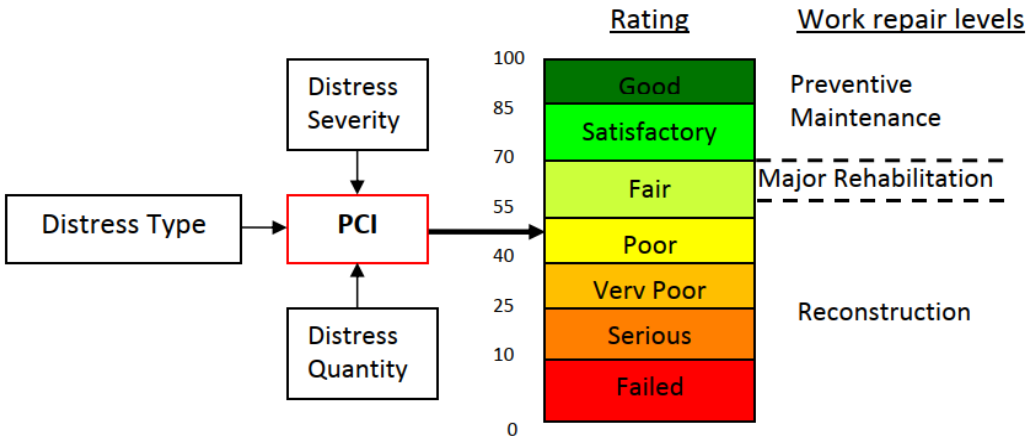


Figure A1: PCI Rating

This document is organized by surface type, with asphalt surface (AC) pictures first, followed by concrete (PCC).

Asphalt Pavements PCI = 100

Newly constructed asphalt pavements should be free of any distress and represent the highest PCI level of 100. After the first year or two of service the asphalt may begin to show minor amounts of distress at low severities. The asphalt will become lighter in color as it is exposed to the environment and begins oxidation, the environmental process that weakens the asphalt binder over time.

Asphalt Pavements PCI = 90

As the pavement begins to deteriorate, the first quantifiable distresses begin to appear. Typically, the first distress to appear is longitudinal cracking associated with a paving lane seam or joint. Enough cracking has appeared at this stage that it is beneficial to crack seal the pavement to keep the distress from advancing to higher severities and/or quantities. Other maintenance activities, such as surface treatments (bottom picture), can be applied to slow the oxidation process and keep the asphalt in better condition for a longer period.

Asphalt Pavements PCI = 80

More advanced stages of distress will be prevalent at this condition level, with some distresses noticeable to pilots (i.e., decreased ride quality). By now, transverse cracking will appear, which is typically due to cracking during the winter season as the asphalt becomes more brittle in cold temperatures. In addition to low-severity cracking, some cracks may open wider and/or have secondary cracking associated with the initial crack, making them medium- or high-severity cracks (see bottom picture). Maintenance treatments will continue to provide benefit for this condition level.

Asphalt Pavements PCI = 70

Pavements at this condition level typically include greater quantities of low-severity distresses and may also include load-related distress types such as alligator cracking (bottom picture). Load-related distresses greatly affect the PCI rating. As such, maintenance such as crack sealing and surface treatments may need to be supplemented with patching to address high-severity distresses and load- related distresses. Foreign object damage (FOD) potential is more prevalent due to greater quantities and severities.

Asphalt Pavements PCI = 60

Pavement at this condition level is transitioning to a point where major rehabilitation treatments begin to become viable repair options. Widespread distress types such as raveling may be present, and these typically need to be addressed with global treatments such as surface treatments or overlays. While surface treatments typically provide the most benefit to pavements with weathering/raveling distress, an overlay may be better suited for pavements that have additional distresses. FOD is an issue, and ride quality is impacted by vertical distresses that may be occurring such as depressions, swelling, and rutting. Maintenance treatments will need to be prioritized to specific distress conditions in order to continue to provide benefit.

Asphalt Pavements PCI = 50

Asphalt pavements at this condition level are typically good candidates for mill/overlay treatments, since cracking and surface irregularities can often be adequately addressed with this repair technique. Maintenance efforts may be necessary to keep the pavement operational until a major repair can be programmed, but these maintenance treatments will not provide the same longevity as before and become less beneficial. If an overlay cannot be applied within the next few years, full-depth patching might be required to address the most severe distresses.

Asphalt Pavements PCI = 40

A PCI of 40 is often used as the threshold at which reconstruction becomes the only option. The depth of removal of the asphalt layers is often dictated by the advanced stage of distresses that have weakened the asphalt and/or base layers of the pavement structure. Pre-overlay repairs such as full- depth patching might be required to provide the overlay better support and a longer life. Pavement deterioration can quickly accelerate as additional cracking allows more moisture into the pavement structure. Traffic is impacted by the poor condition from a rideability standpoint as well as FOD potential.

Asphalt Pavements PCI = 30

At this condition level the pavement has effectively reached the end of its useful life. The distresses are widespread and severe enough to warrant reconstruction. Maintenance treatments are only beneficial to keep the pavement in a safe operating condition. The major repair strategy should already be in progress before the pavement reaches this condition level.

Asphalt Pavements PCI = 20

Most pavements that have reached this condition level are seldom-used pavements and may not warrant an expensive repair. Poor pavement conditions at this PCI level often dictate the speed at which the aircraft can safely operate. Maintenance treatments to address safety issues have little or no impact on the overall functionality of the pavement since there are so many needs.

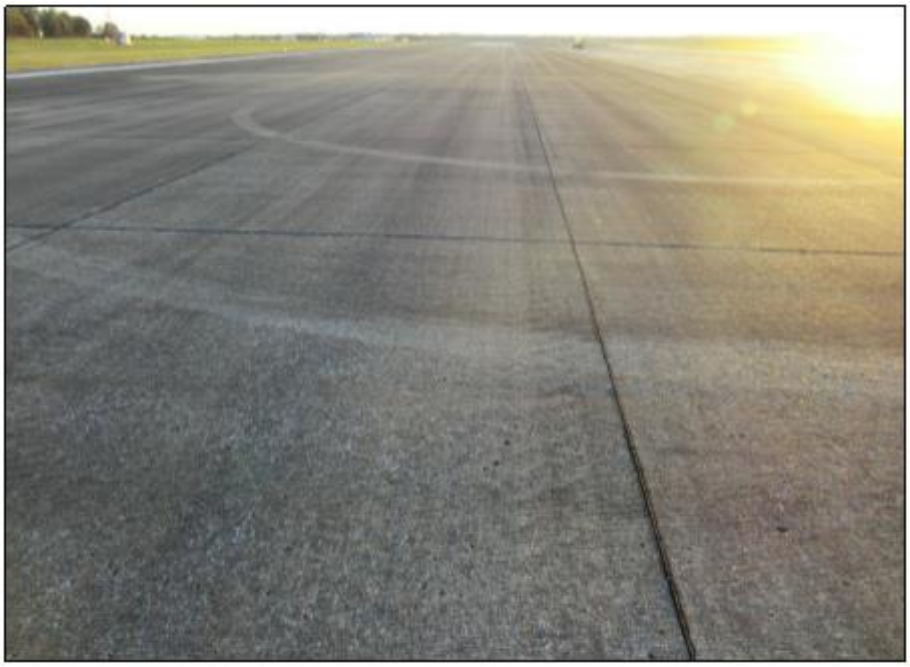
Asphalt Pavements PCI < 10

Any pavement with a PCI less than 10 is considered “failed” since it has no value in terms of future rehabilitations. Traffic should be directed away from pavements that have reached this level due to the safety hazard they present. Load-related distresses such as alligator cracking are commonly found throughout the pavement.

PCC Pavements PCI = 100

A relatively new PCC pavement should be free of distress to have the highest PCI of 100. Some blemishes on the surface may be present, but these are typically not considered distresses that impact the PCI. A new PCC pavement may change color as the white curing compound and other construction- related coatings begin to wear away.

PCC Pavements PCI = 90



Minor amounts of distress will begin appearing at this condition level. The first distresses to develop on a PCC pavement are often related to the joints, such as joint spalling, joint seal damage, or shrinkage cracks.

PCC Pavements PCI = 80

This condition level will have a greater amount of distresses at low severity, or the initial distresses will have progressed to medium or high severity. Maintenance efforts at this level will typically include crack sealing or partial-depth patching, depending on the distress type. FOD is generally isolated to slabs with distress that have not received any maintenance treatments.

PCC Pavements PCI = 70

Most PCC pavements are greater than 10 years old by the time they reach this condition level, which typically means the original joint seal material will need replacement if it has not been replaced yet. Keeping the joint seal material in good condition is important because well-sealed joints will reduce the occurrence of FOD-producing distress types such as joint/corner spalling.

PCC Pavements PCI = 60

Pavement at this condition level is transitioning to a point where more extensive maintenance efforts will be needed to keep FOD potential low. Partial-depth patching, full-depth patching, and even slab replacement might be needed to keep the surface in good condition with little or no FOD. The bottom picture is an example of durability cracking (D-cracking), which causes breakdown around joints/cracks and can cause continual FOD issues.

PCC Pavements PCI = 50

Concrete pavements at this condition level will typically require more substantial maintenance efforts beyond resealing the joints and crack sealing. For example, the corner breaks in the top picture would need a full-depth patch to provide an optimal repair solution. Besides FOD concerns, ride quality will usually be a factor as faulting/settlement between slabs and/or cracks begins to occur. Viable options for major rehabilitation include restoring the surface to a FOD-free and level condition by performing a combination of patching (full- and partial-depth), resealing joints, crack sealing, grinding, and slab jacking. Overlaying with asphalt is also an option, but the pavement will require maintenance to address the reflection cracking.

PCC Pavements PCI = 40

A PCI of 40 is often used as the threshold at which reconstruction becomes the only option. However, if the pavement is used by traffic at low speeds and/or infrequently (e.g., aprons, taxilanes), this condition might be acceptable. Pre-overlay repairs such as full-depth patching might be required to provide better overlay performance. Traffic is impacted by the poor condition from a rideability standpoint as well as FOD potential.

PCC Pavements PCI = < 30

At this condition level the pavement has effectively reached the end of its useful life. The distresses are widespread and severe enough to warrant reconstruction. Maintenance treatments are only beneficial to keep the pavement in a safe operating condition. The major repair strategy should already be in progress before the pavement reaches this condition level.

Appendix B

Color Condition Maps

Figure Num.	ID	Airport Name
1	LEW	Auburn/Lewiston Municipal
2	AUG	Augusta State
3	BST	Belfast Municipal
4	0B1	Bethel Regional
5	B19	Biddeford Municipal
6	BXM	Brunswick Executive
7	CAR	Caribou Municipal
8	OWK	Central Maine Airport of Norridgewock
9	OLD	Dewitt Field, Old Town Municipal
10	1B0	Dexter Regional
11	IZG	Eastern Slope Regional
12	EPM	Eastport Municipal
13	3B1	Greenville Municipal
14	HUL	Houlton International
15	LRG	Lincoln Regional
16	MVM	Machias Valley Municipal
17	MLT	Millinocket Municipal
18	59B	Newton Field, Jackman
19	FVE	Northern Aroostook Regional
20	81B	Oxford County Regional
21	2B7	Pittsfield Municipal
22	PNN	Princeton Municipal
23	SFM	Sanford Seacoast Regional
24	8B0	Stephen A. Bean Municipal
25	B21	Sugarloaf Regional, Carrabassett
26	WVL	Waterville Robert LaFleur
27	IWI	Wiscasset
28	ME16	Loring International Airport

Table B1. Color condition maps included in this appendix
(All aerial photography taken from Google Earth)

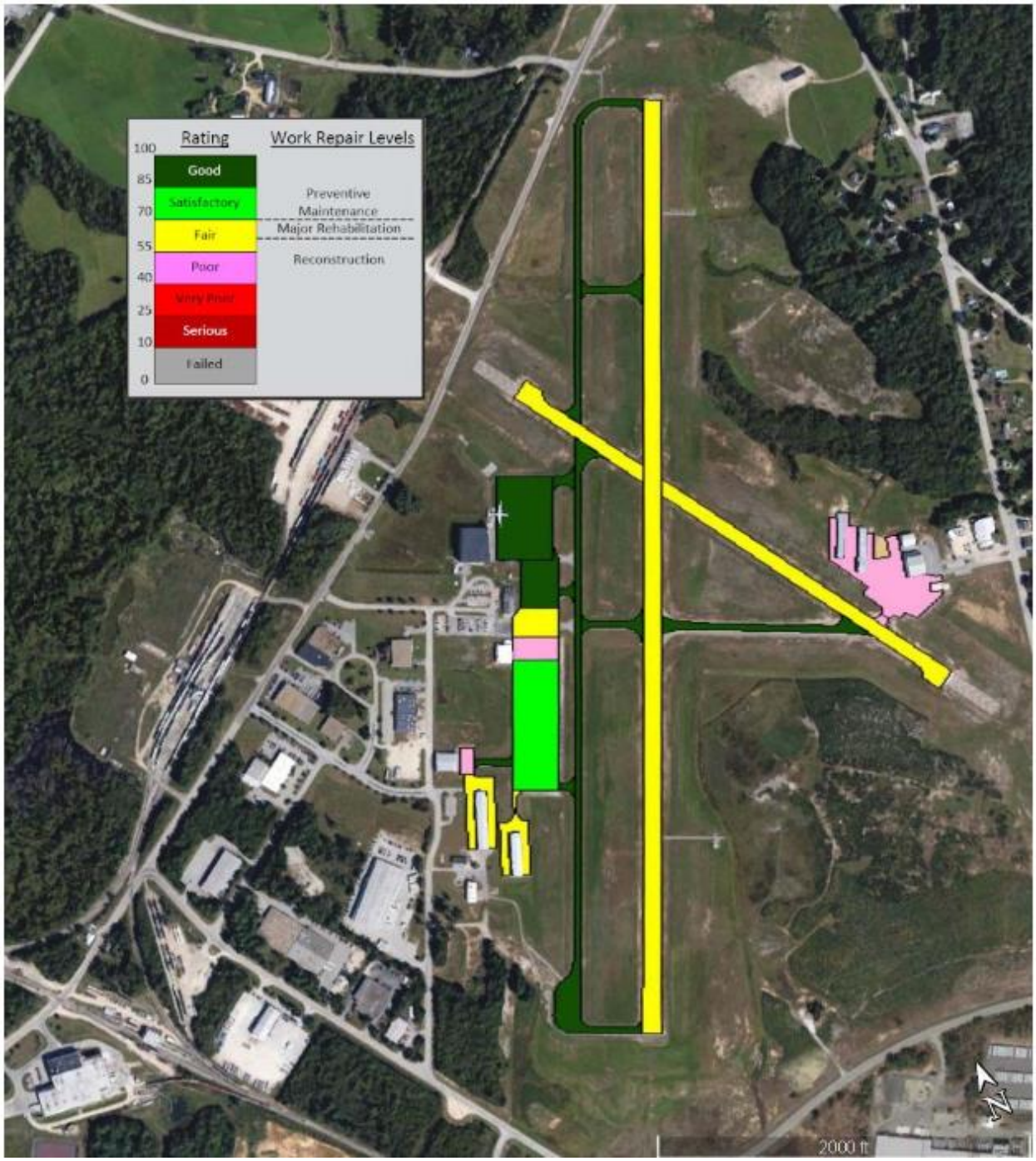


Figure B-1. Auburn/Lewiston Municipal Airport (LEW)

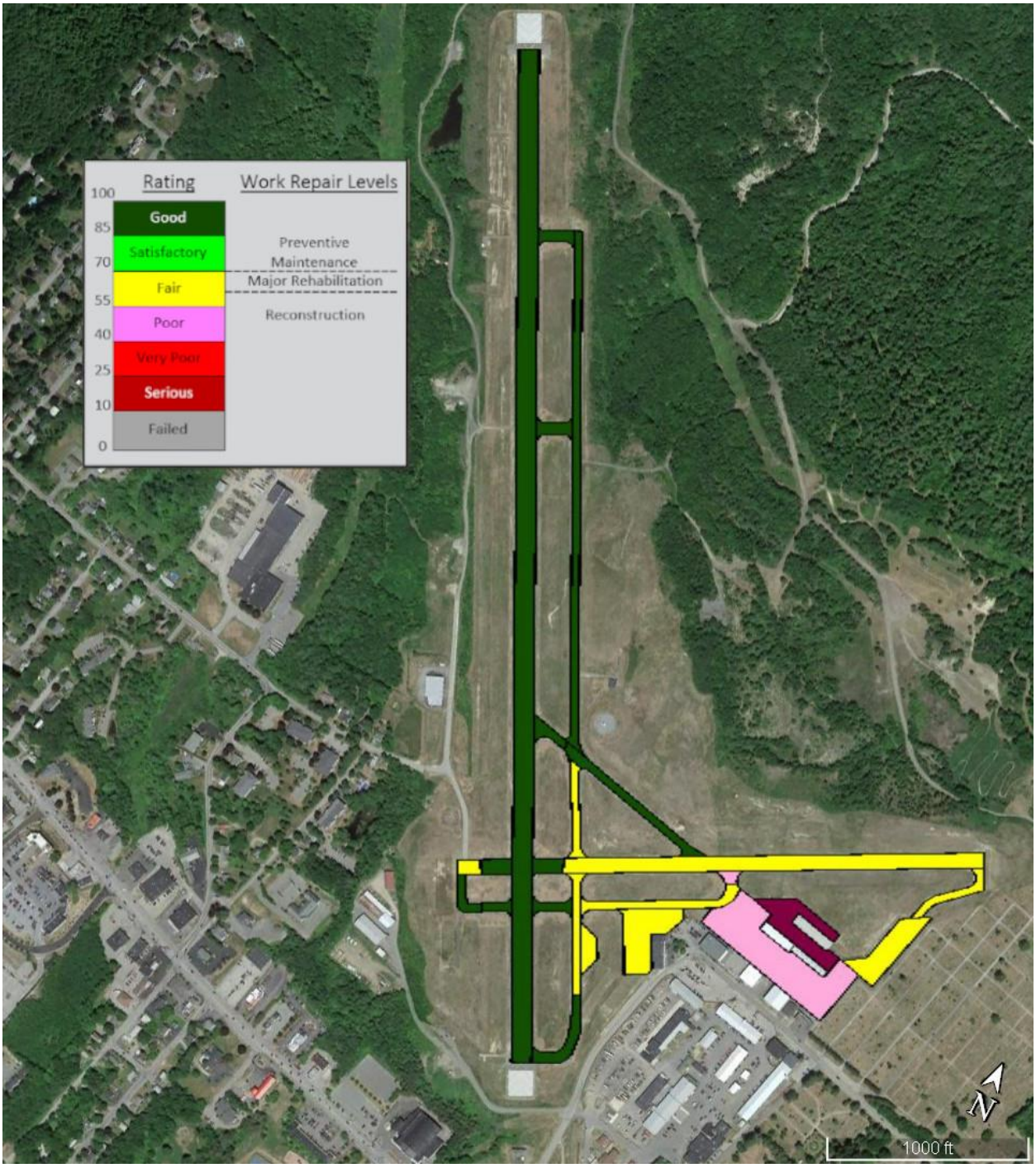


Figure B-2. Augusta State Airport (AUG)

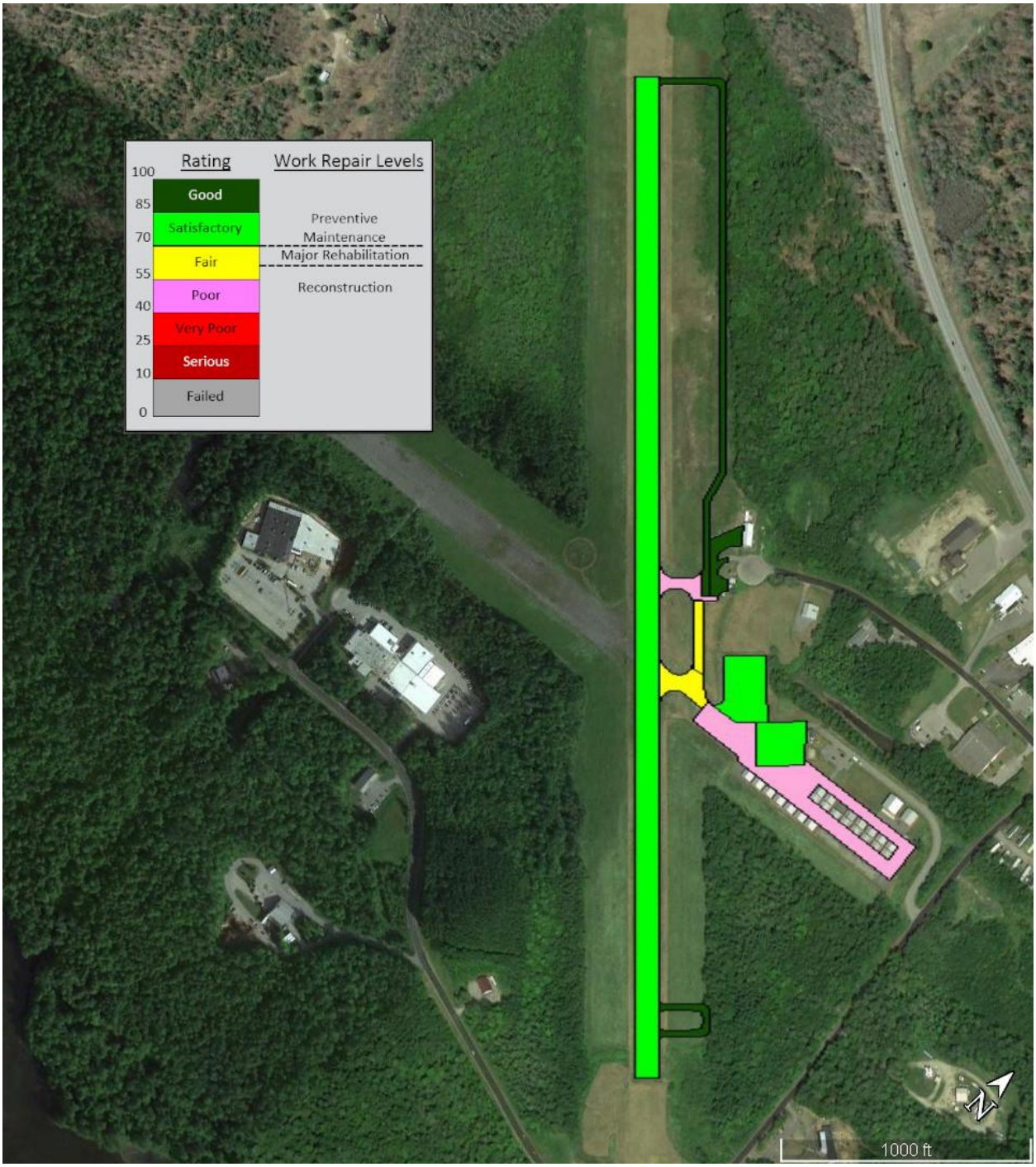


Figure B-3. Belfast Municipal Airport (BST)

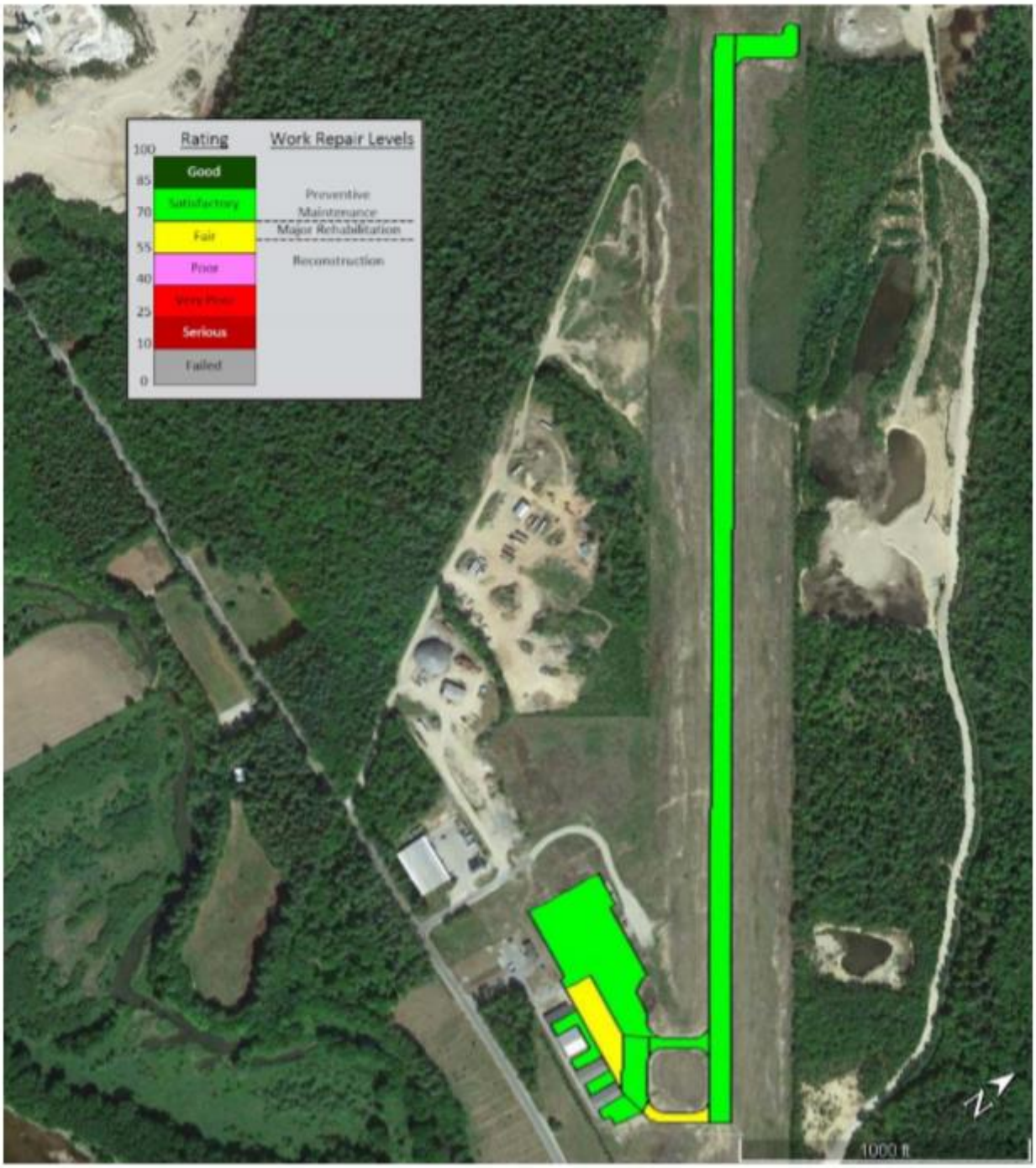


Figure B-4. Bethel Regional Airport (0B1)

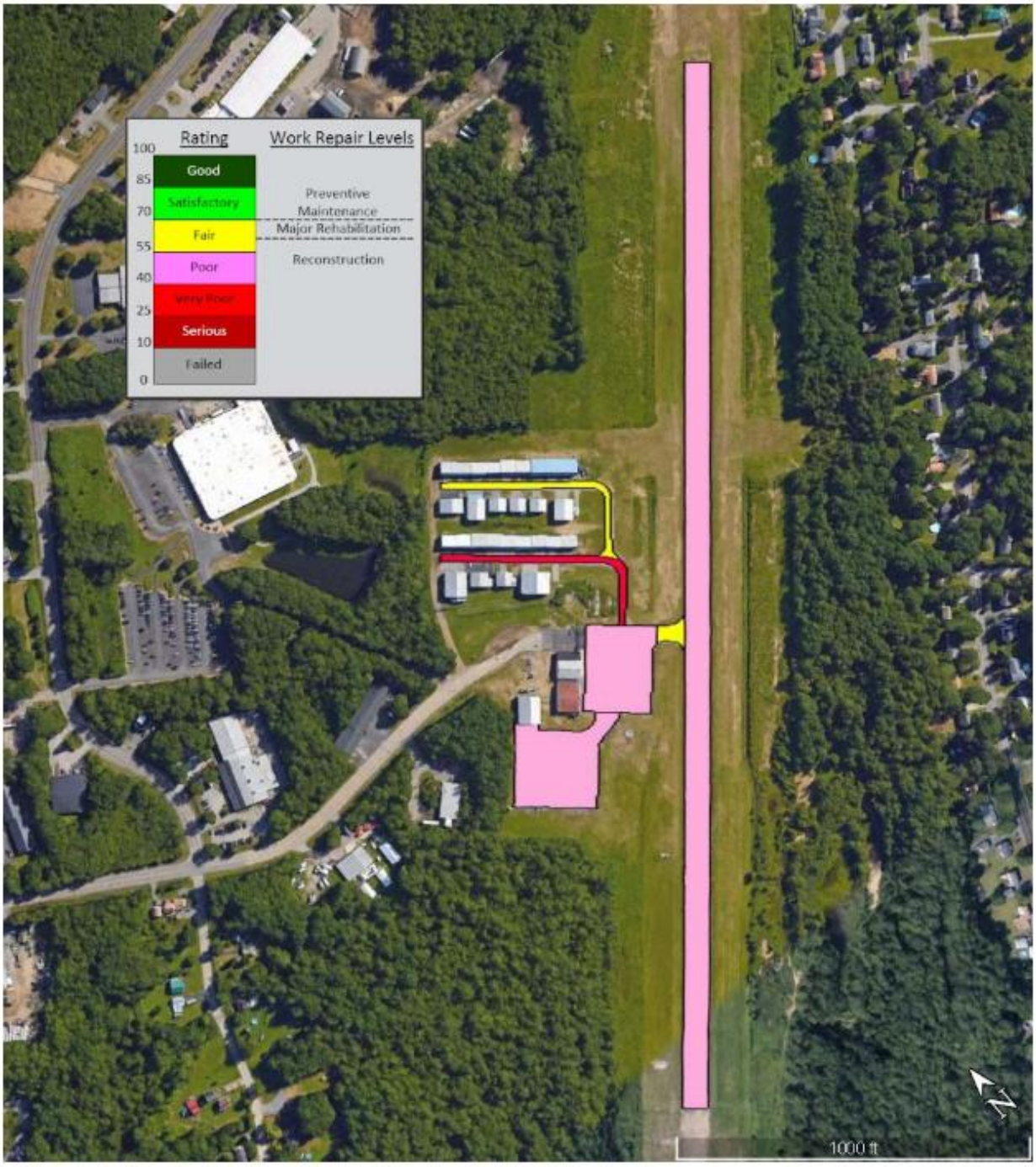


Figure B-5. Biddeford Municipal Airport (B19)

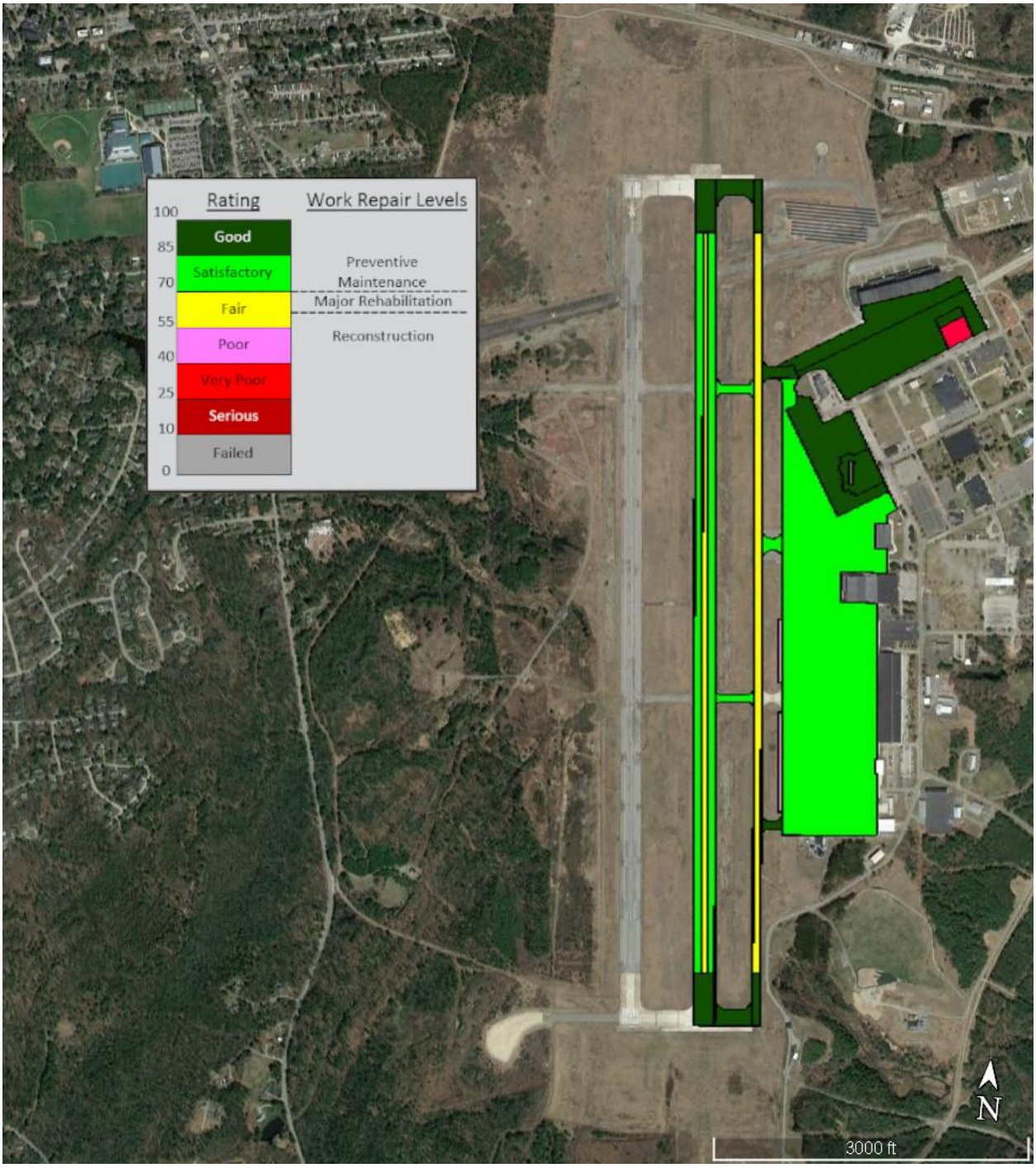


Figure B-6. Brunswick Executive Airport (BXM)

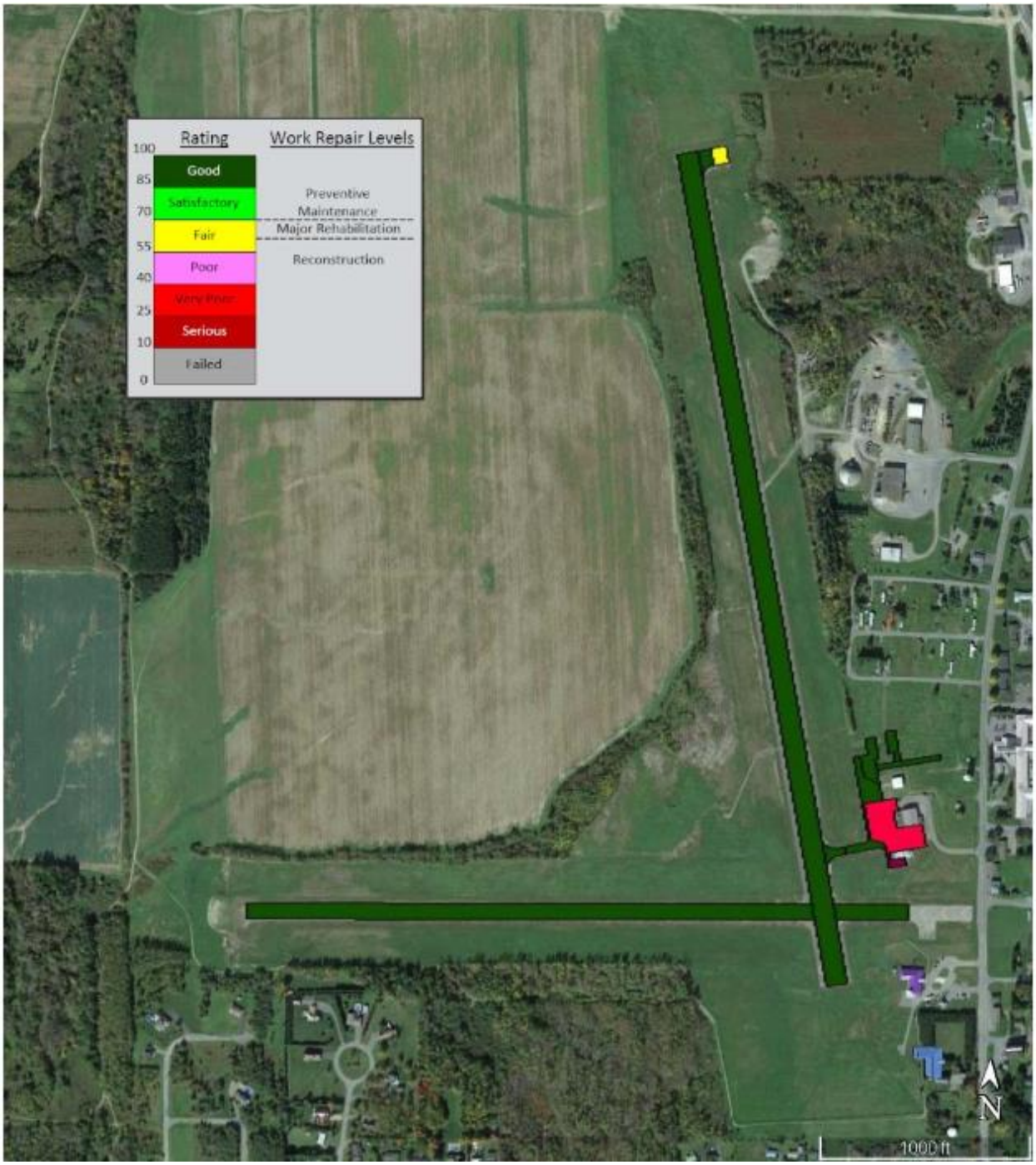


Figure B-7. Caribou Municipal Airport (CAR)

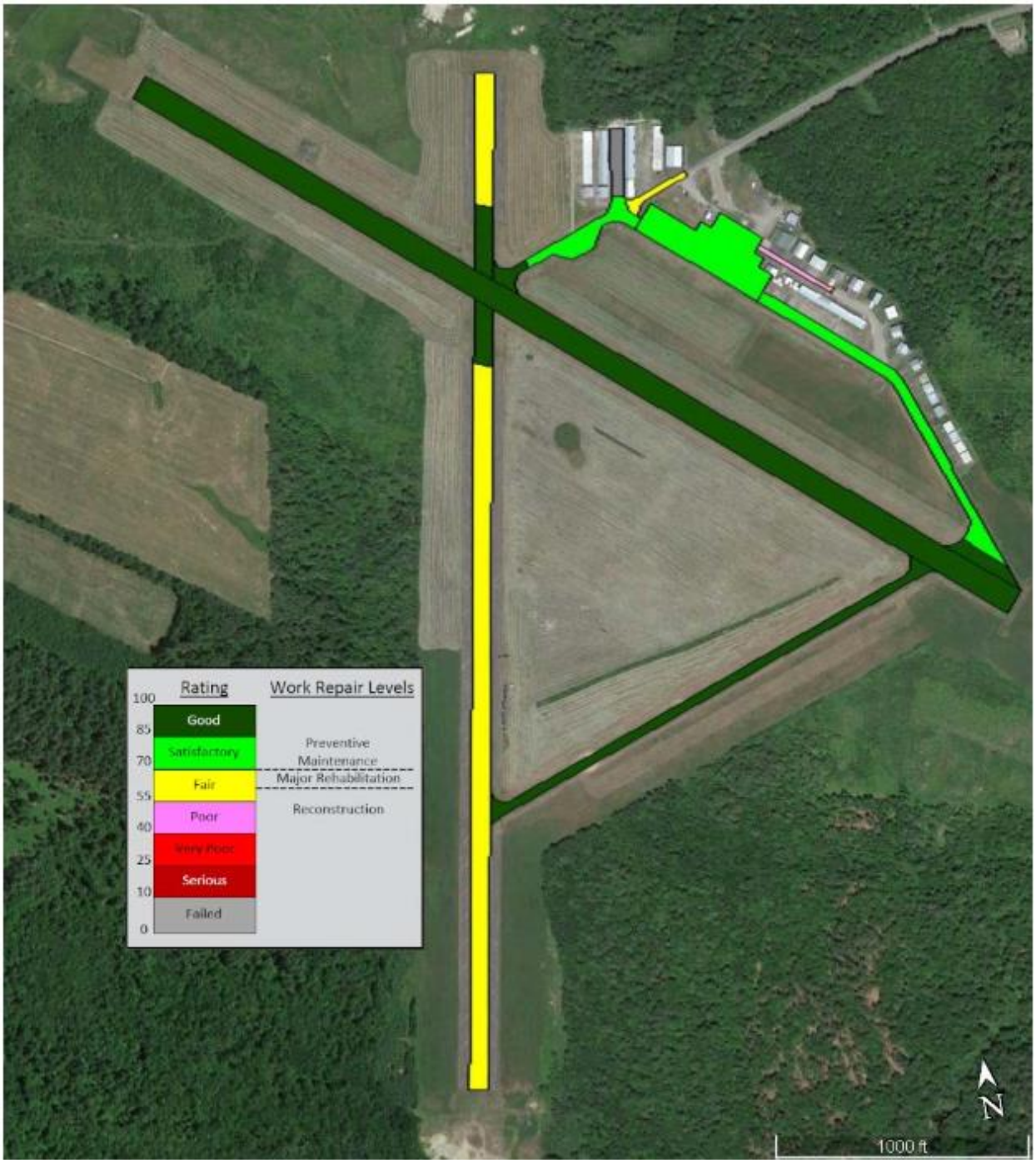


Figure B-8. Central Maine Airport of Norridgewock (OWK)

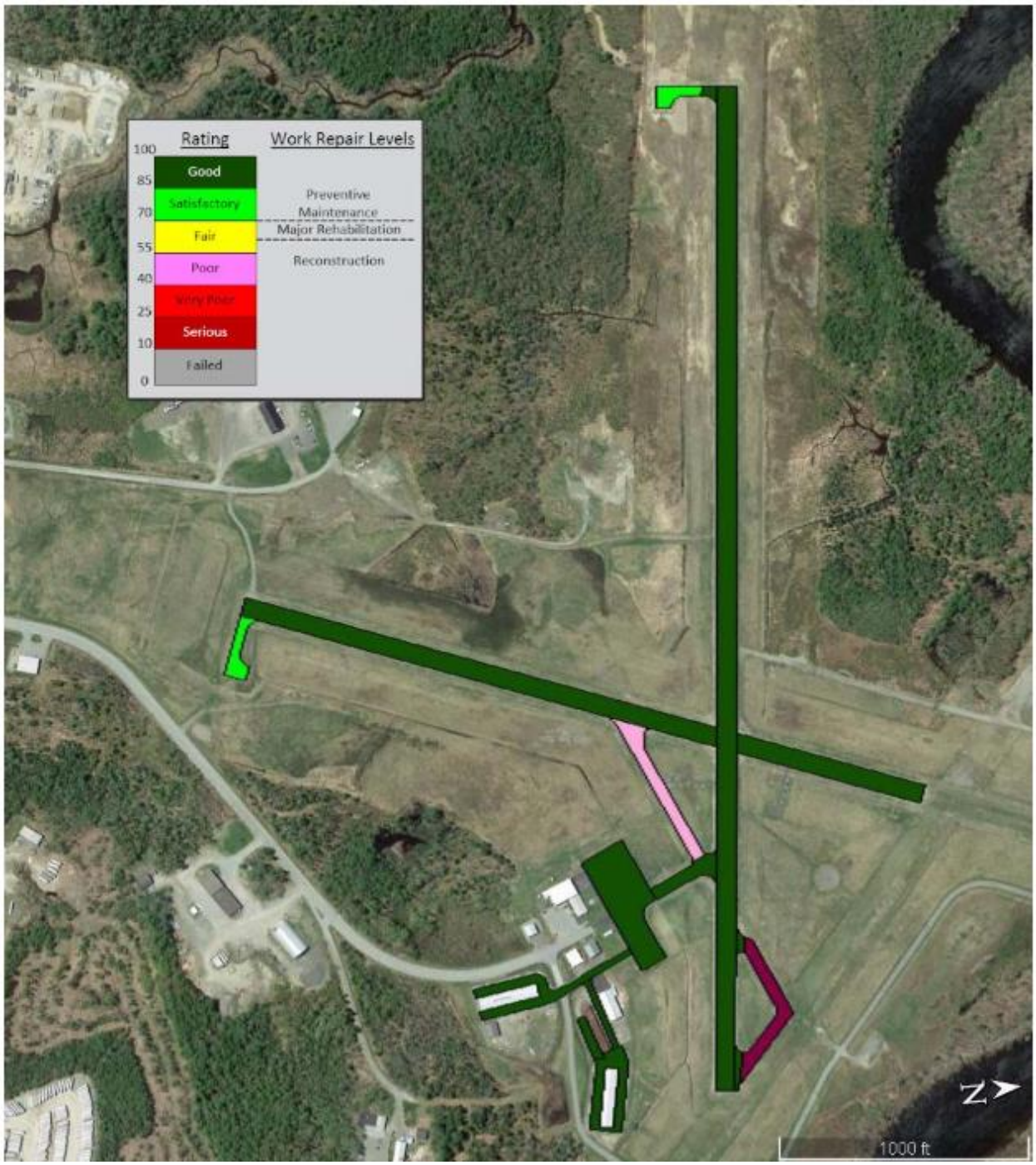


Figure B-9. Dewitt Field, Old Town Municipal Airport (OLD)

Figure B-10. Dexter Regional Airport (1B0)

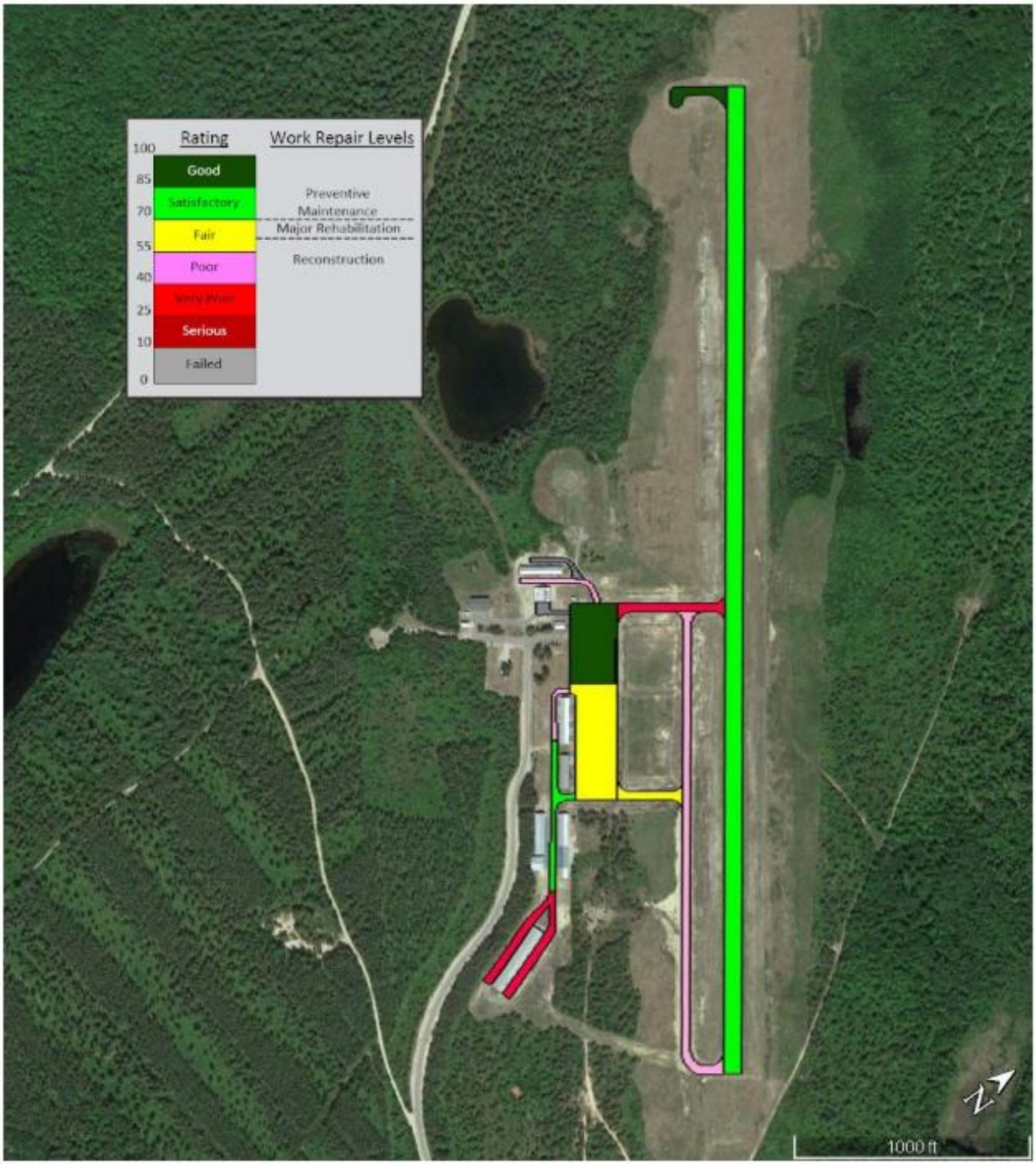


Figure B-11. Eastern Slope Regional Airport (1ZG)

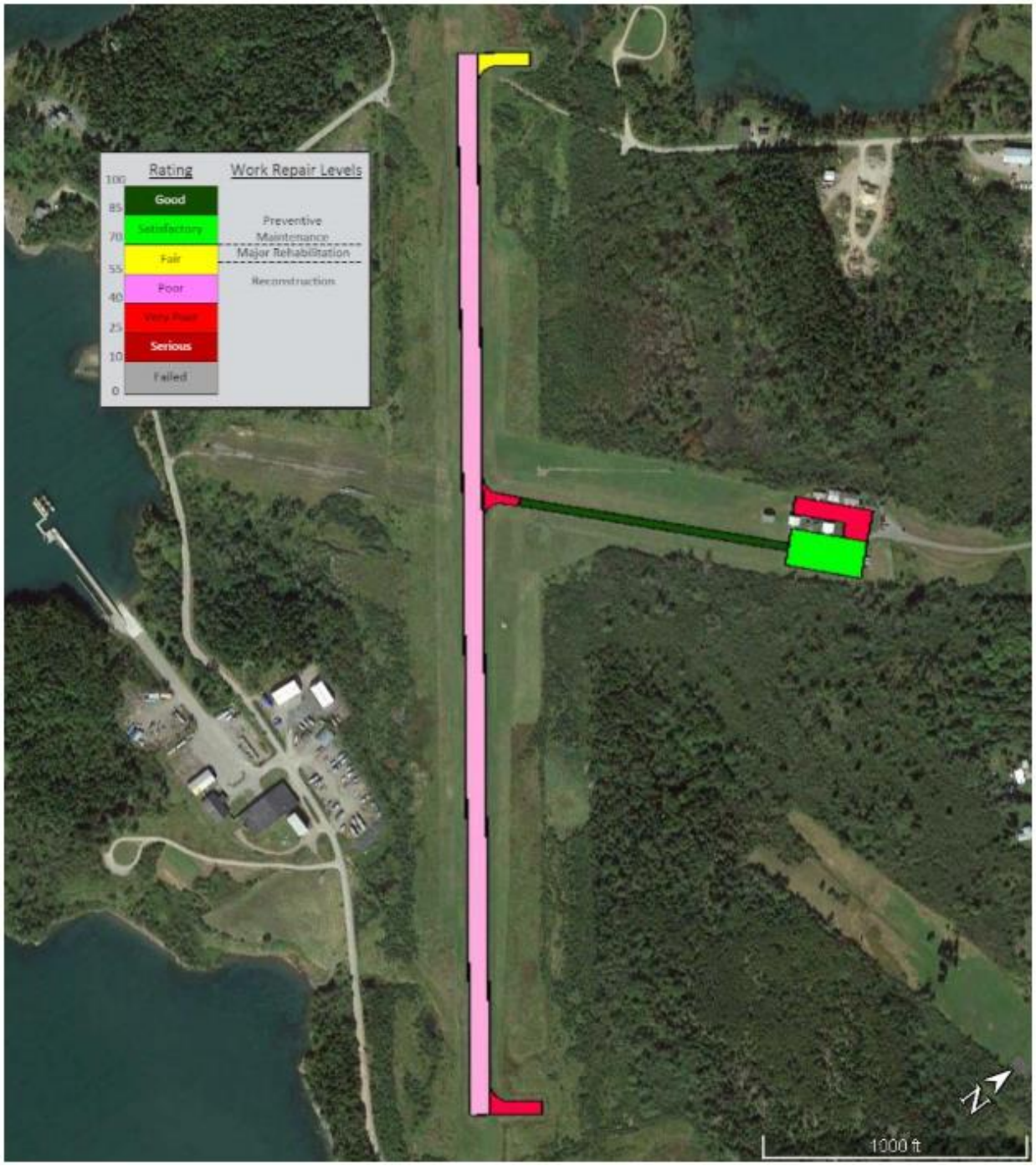


Figure B-12. Eastport Municipal Airport (EPM)

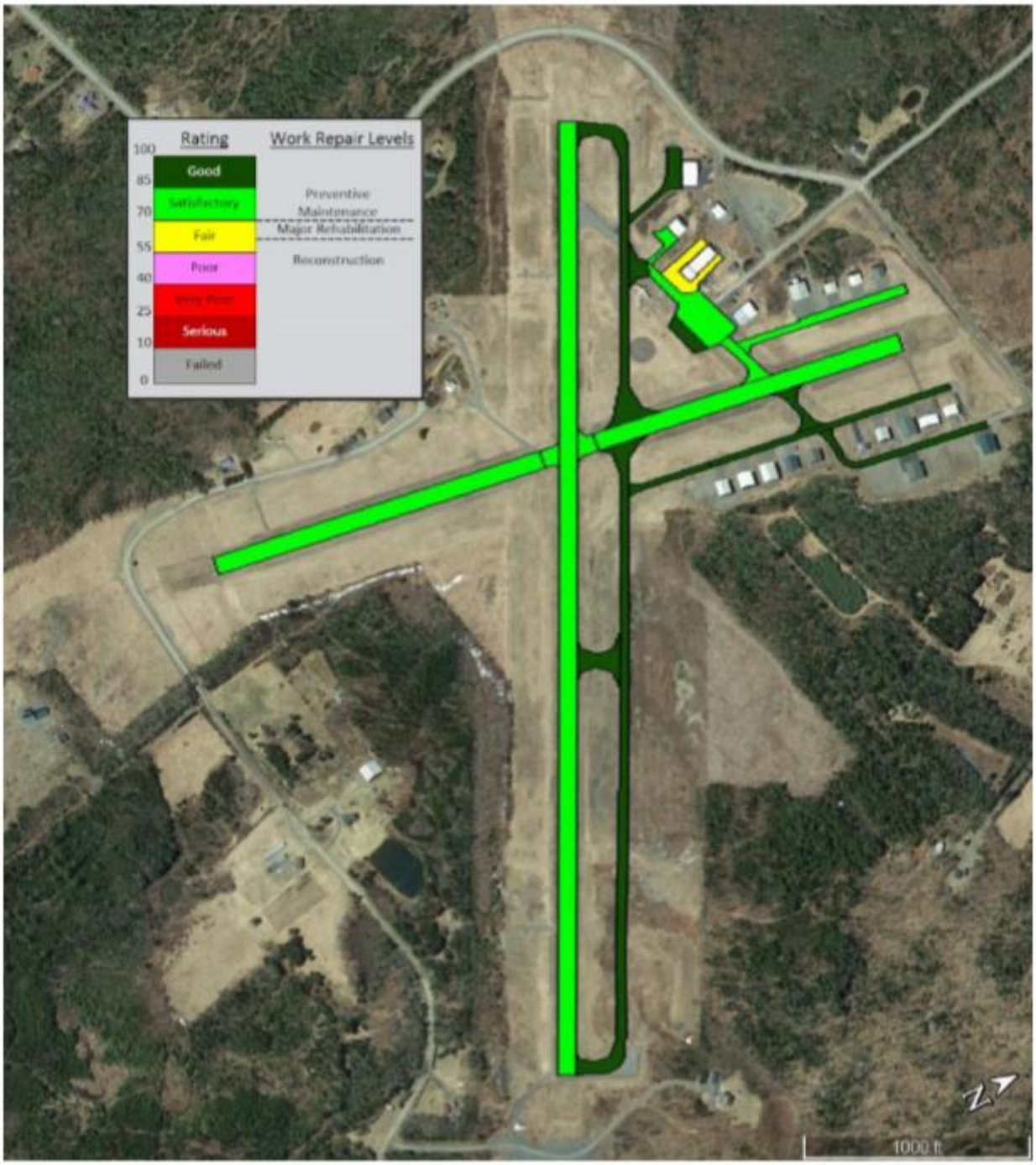


Figure B-13. Greenville Municipal Airport (3B1)

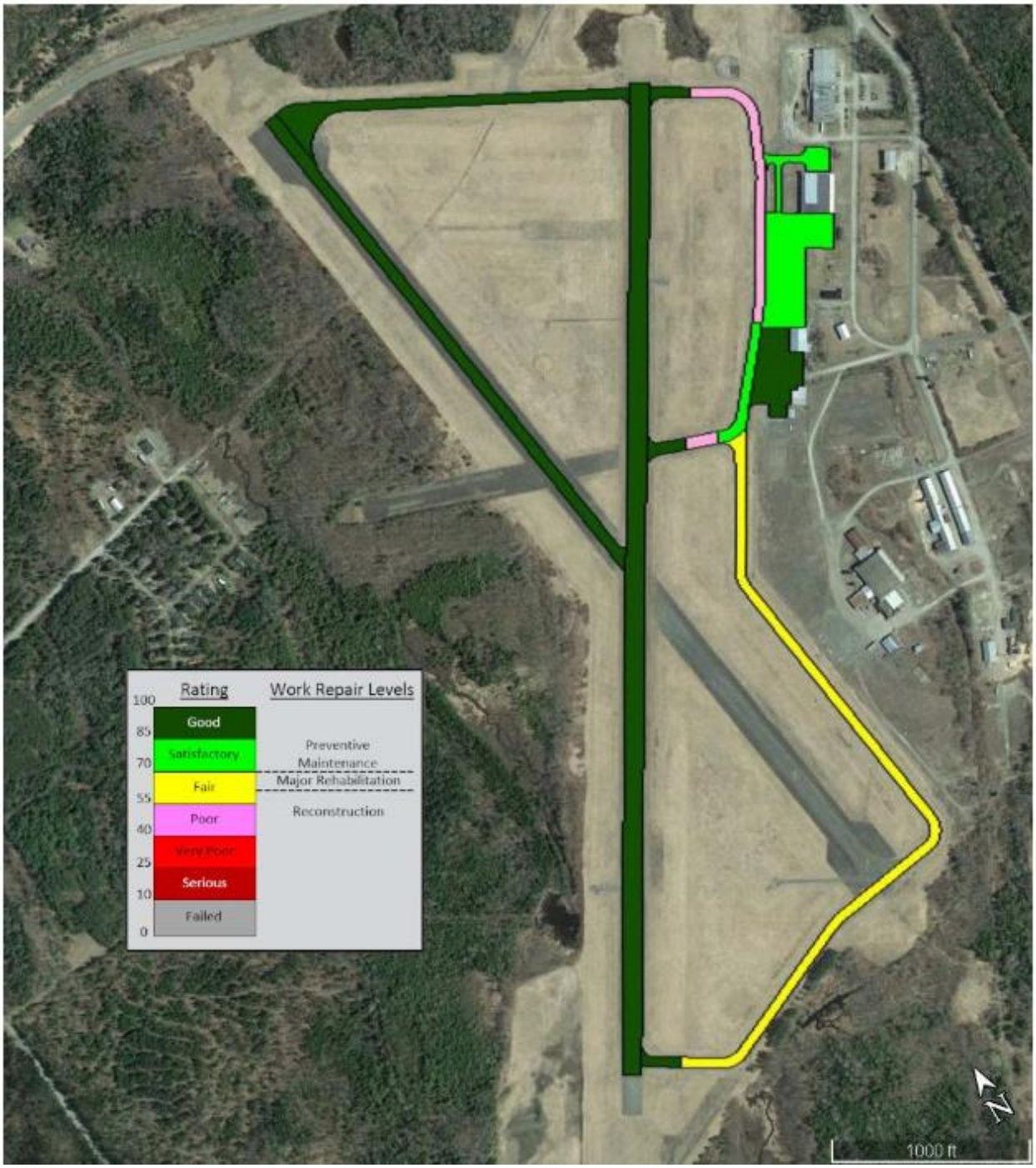


Figure B-14. Houlton International Airport (HUL)

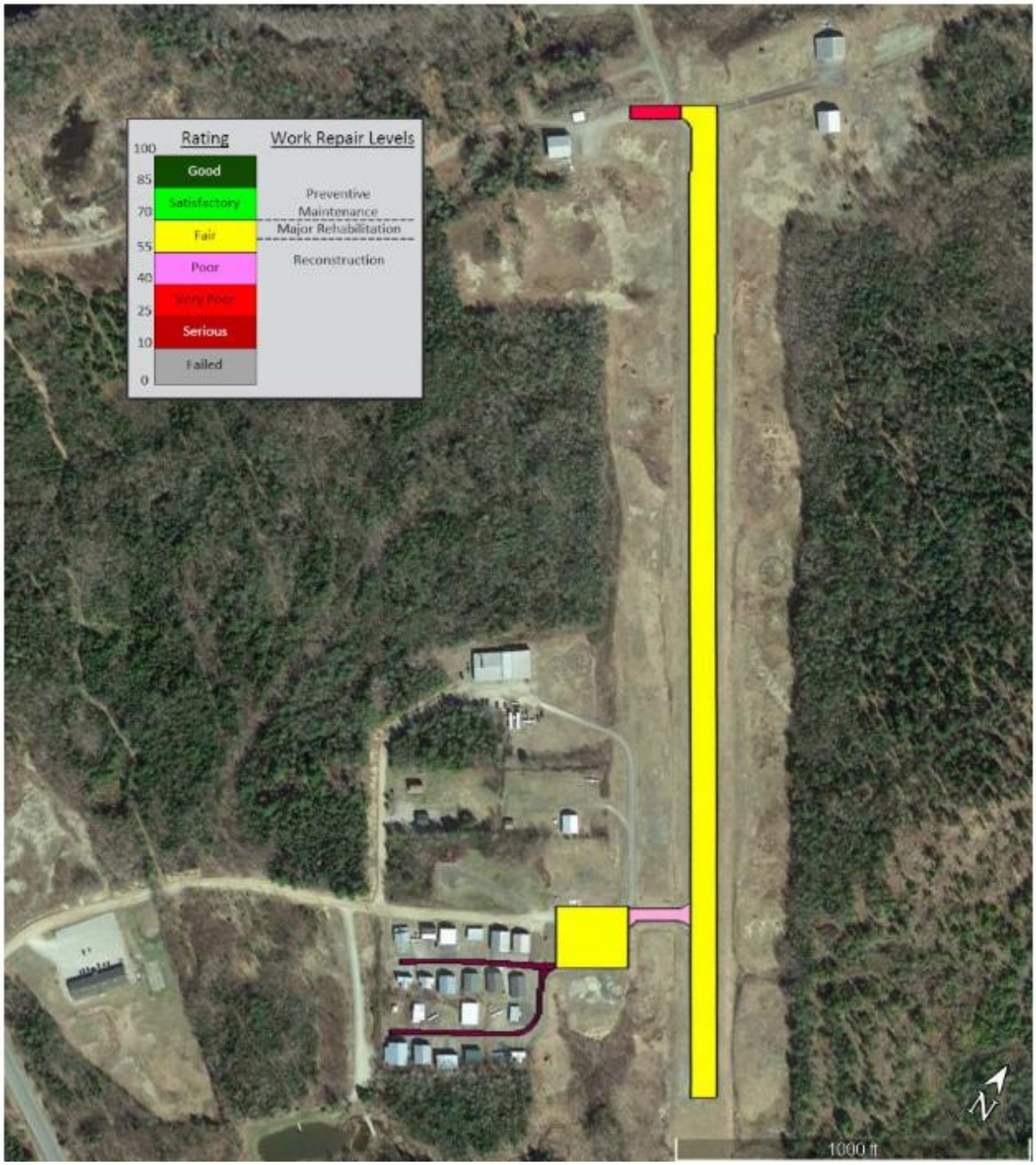


Figure B-15. Lincoln Regional Airport (LRG)

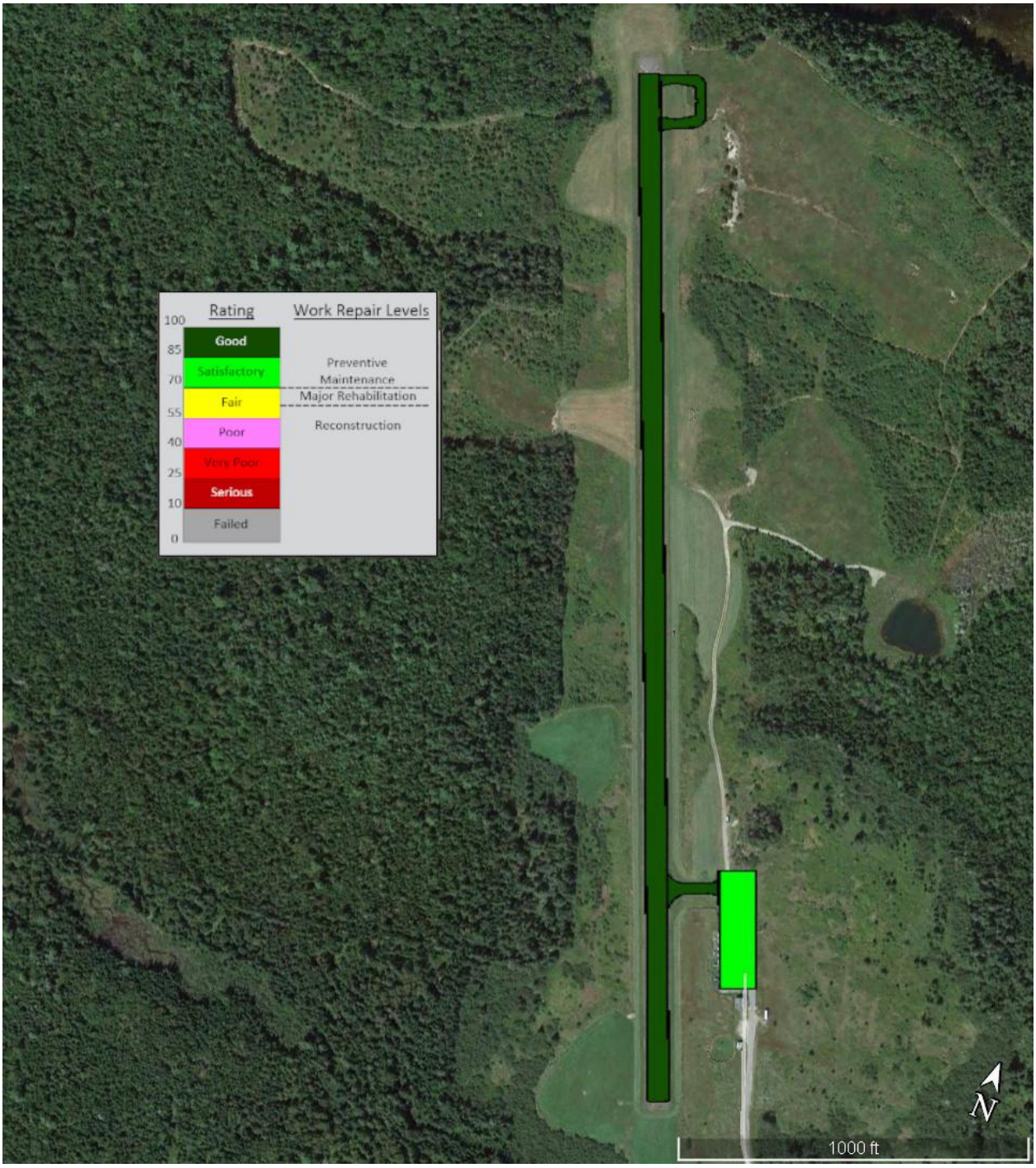


Figure B-16. Machias Valley Municipal Airport (MVM)

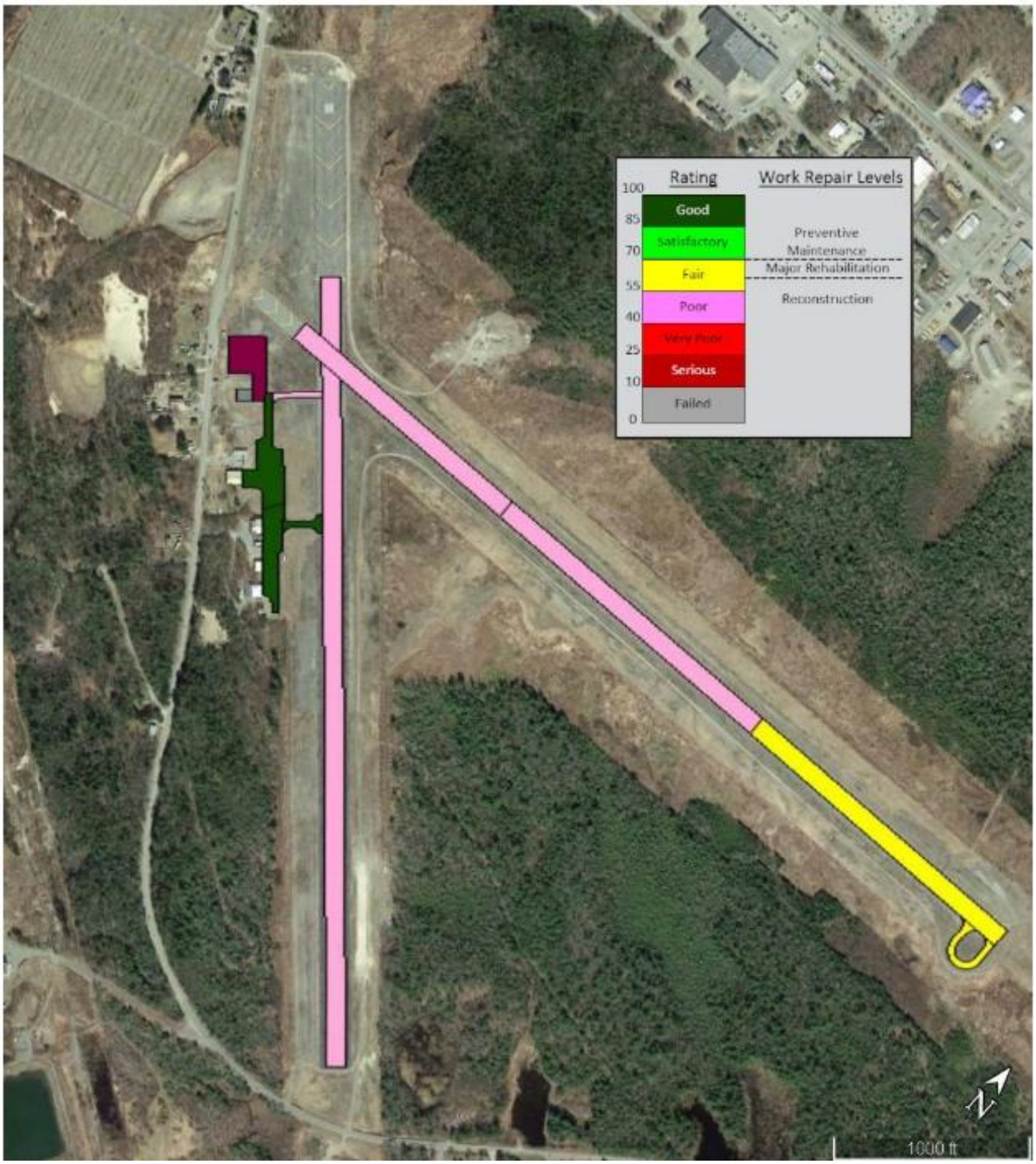


Figure B-17. Millinocket Municipal Airport (MLT)

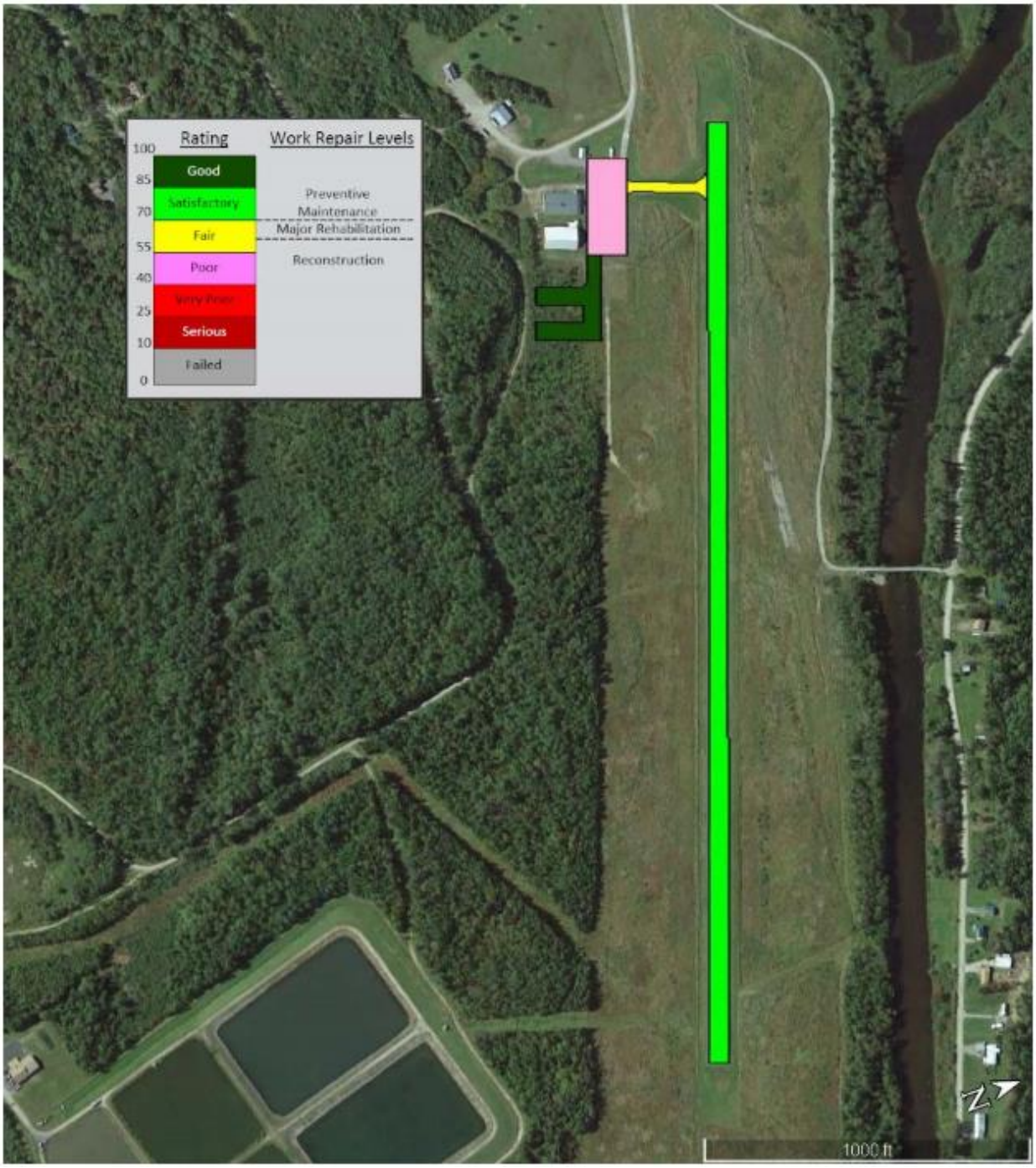


Figure B-18. Newton Field (Jackman) (59B)

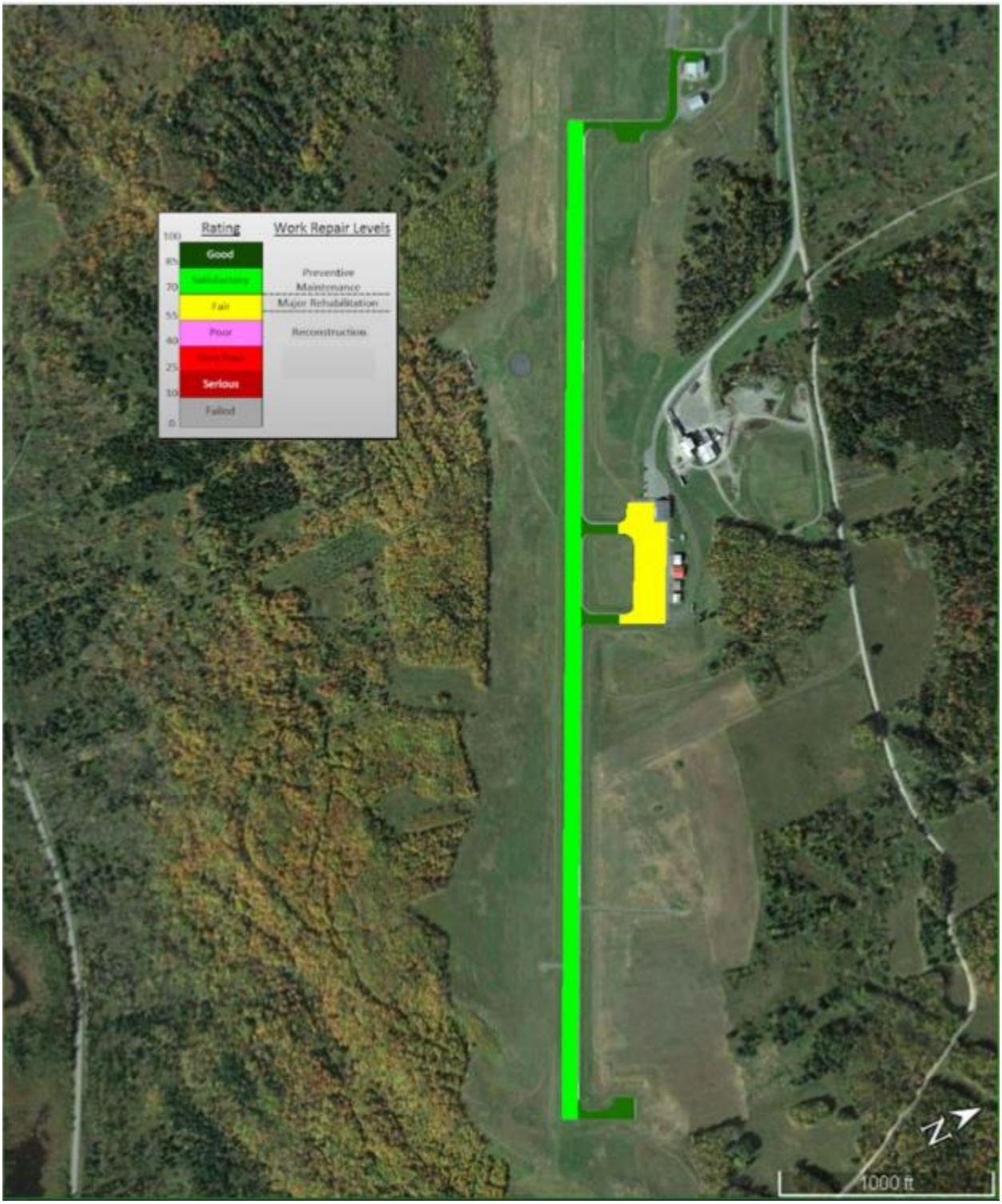


Figure B-19. Northern Aroostook Regional Airport (FVE)

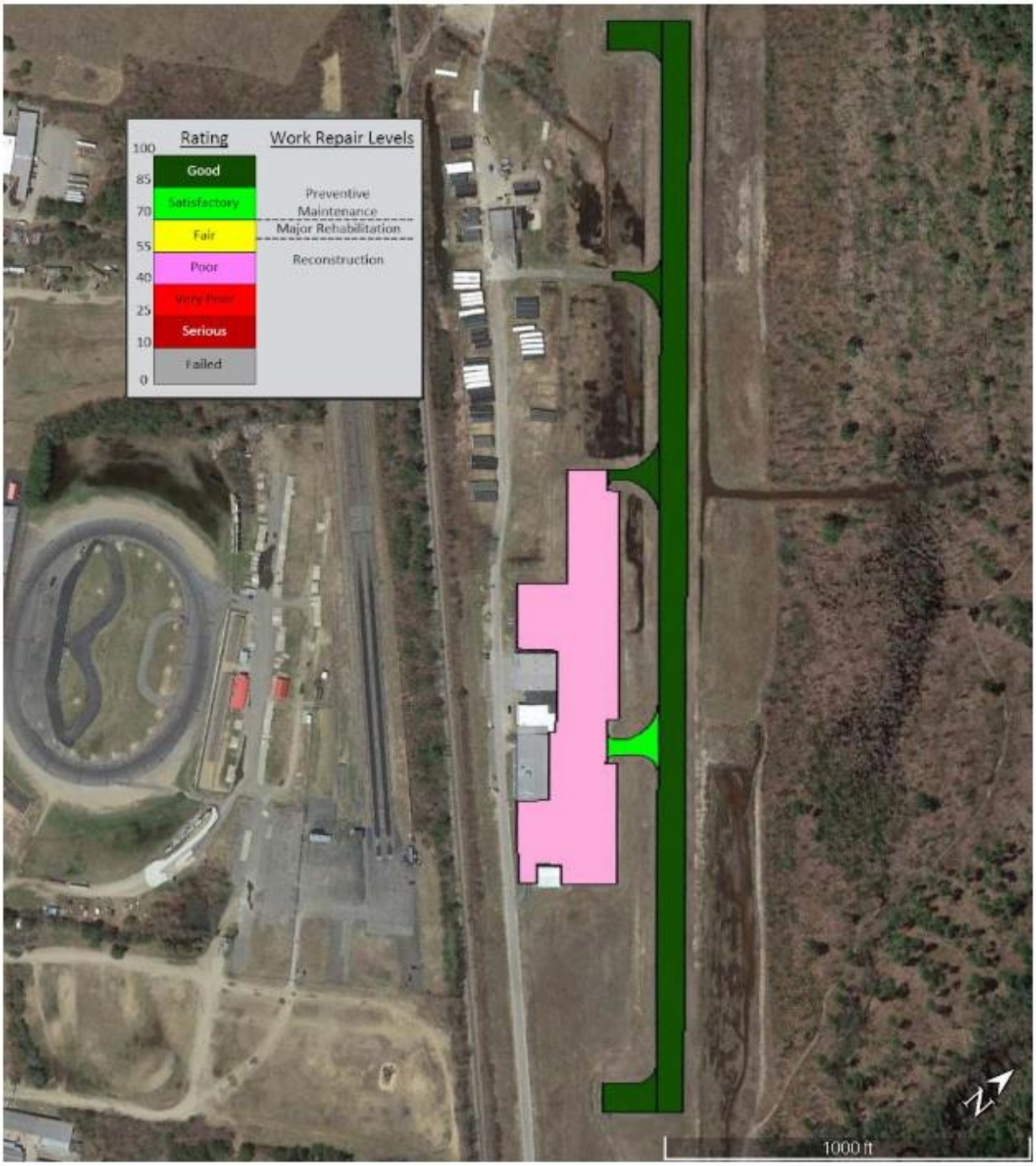


Figure B-20. Oxford County Regional Airport (81B)

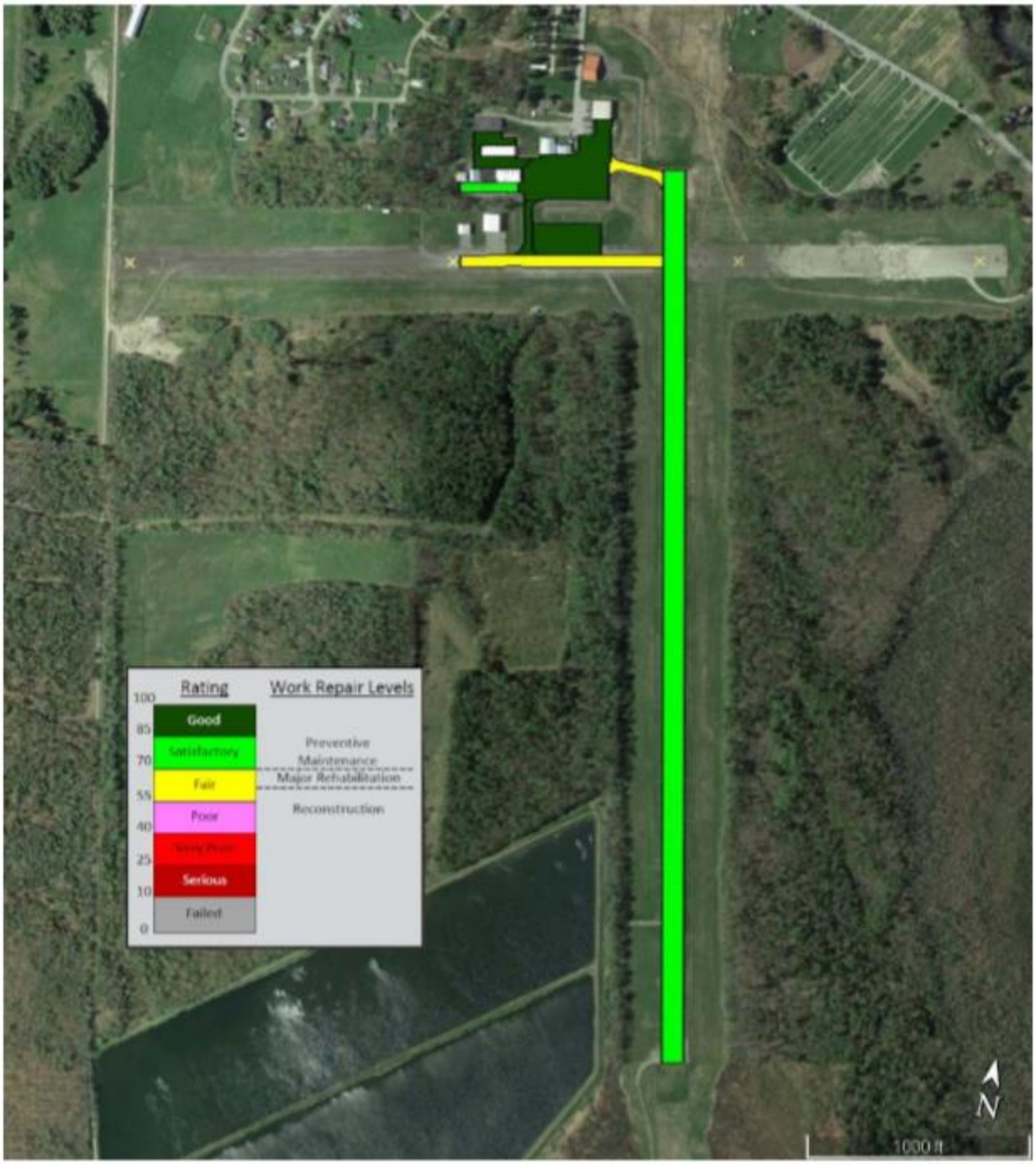


Figure B-21. Pittsfield Municipal Airport (2B7)

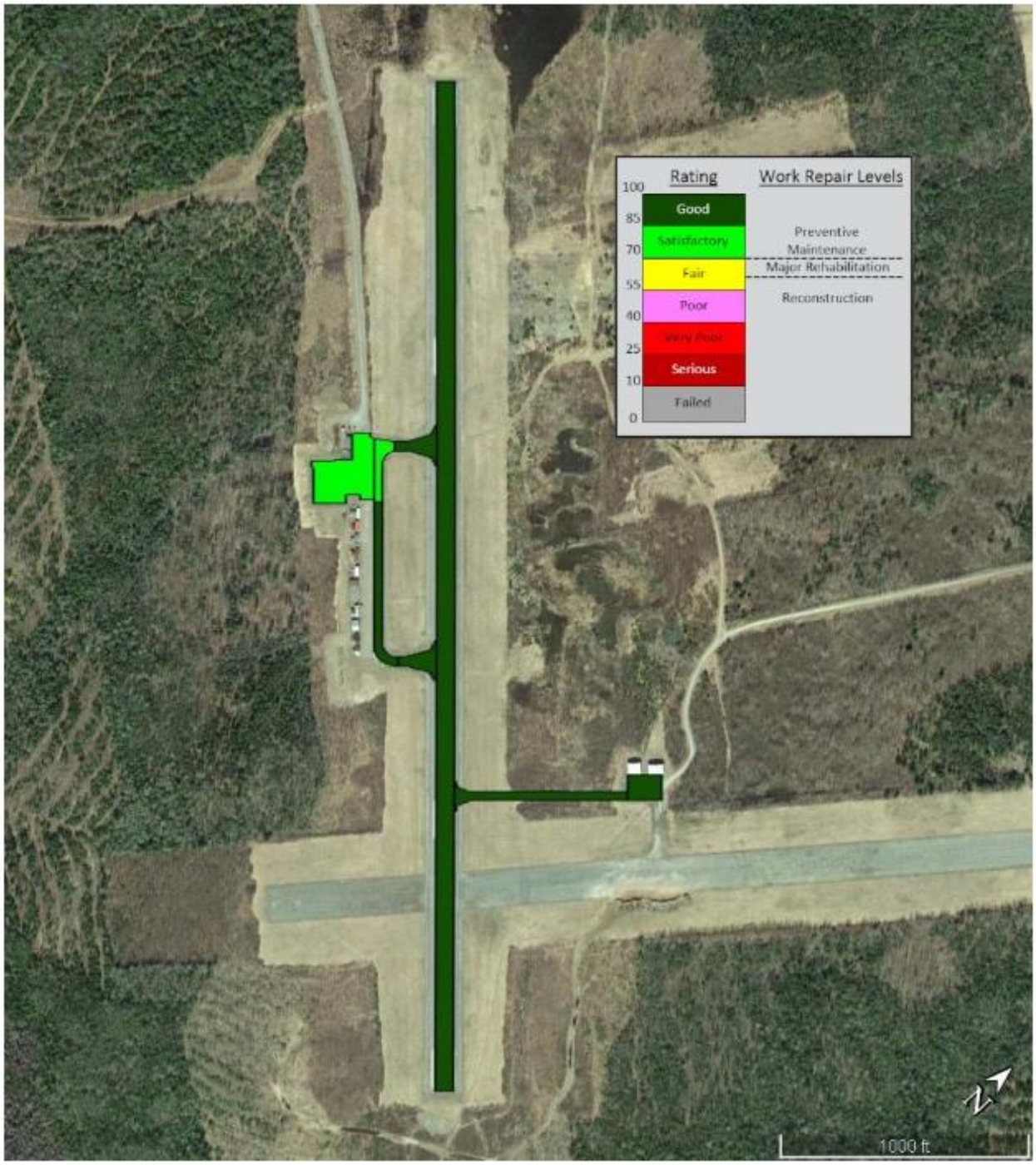


Figure B-22. Princeton Municipal Airport (PNN)

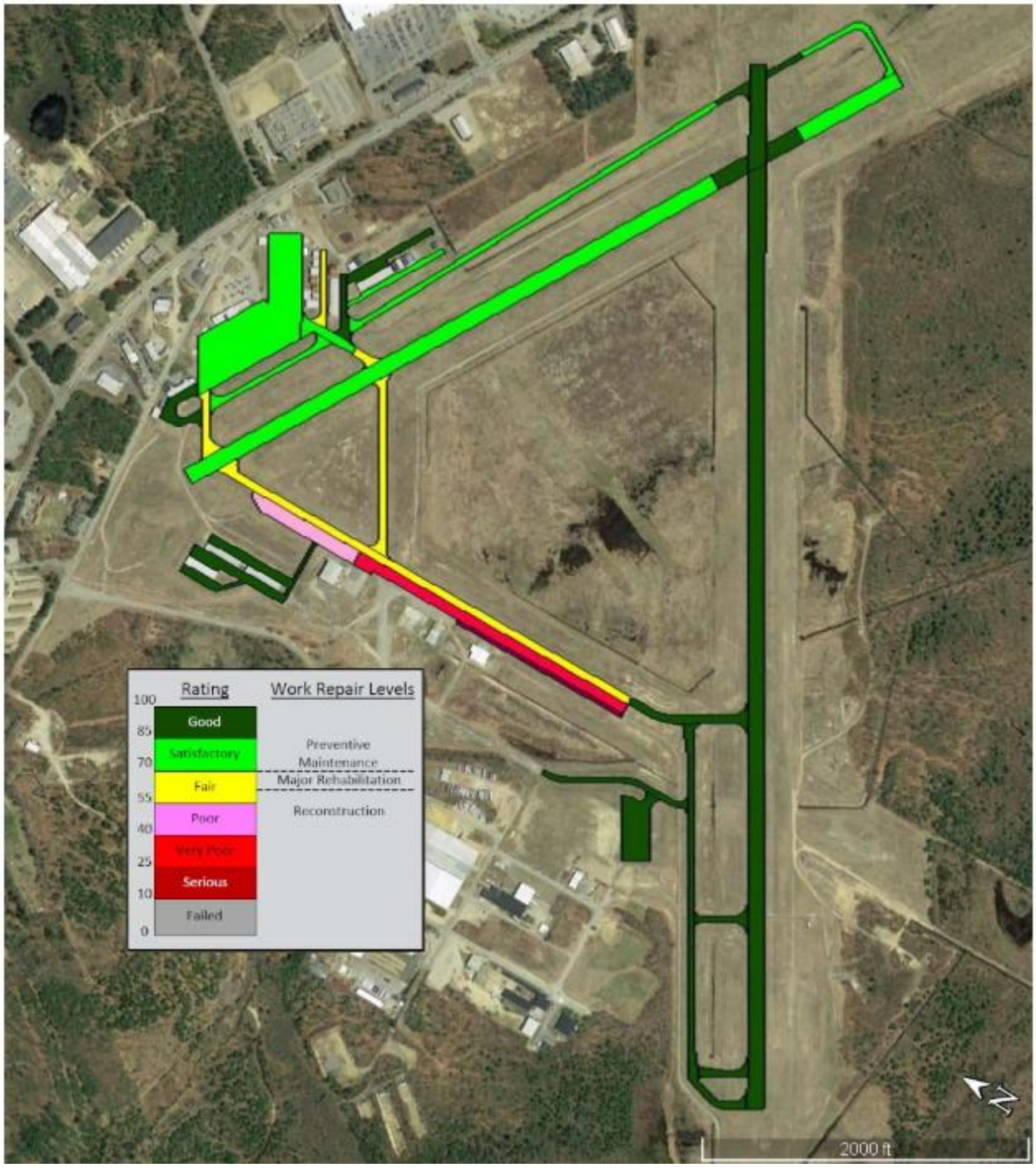


Figure B-23. Sanford Seacoast Regional Airport (SFM)

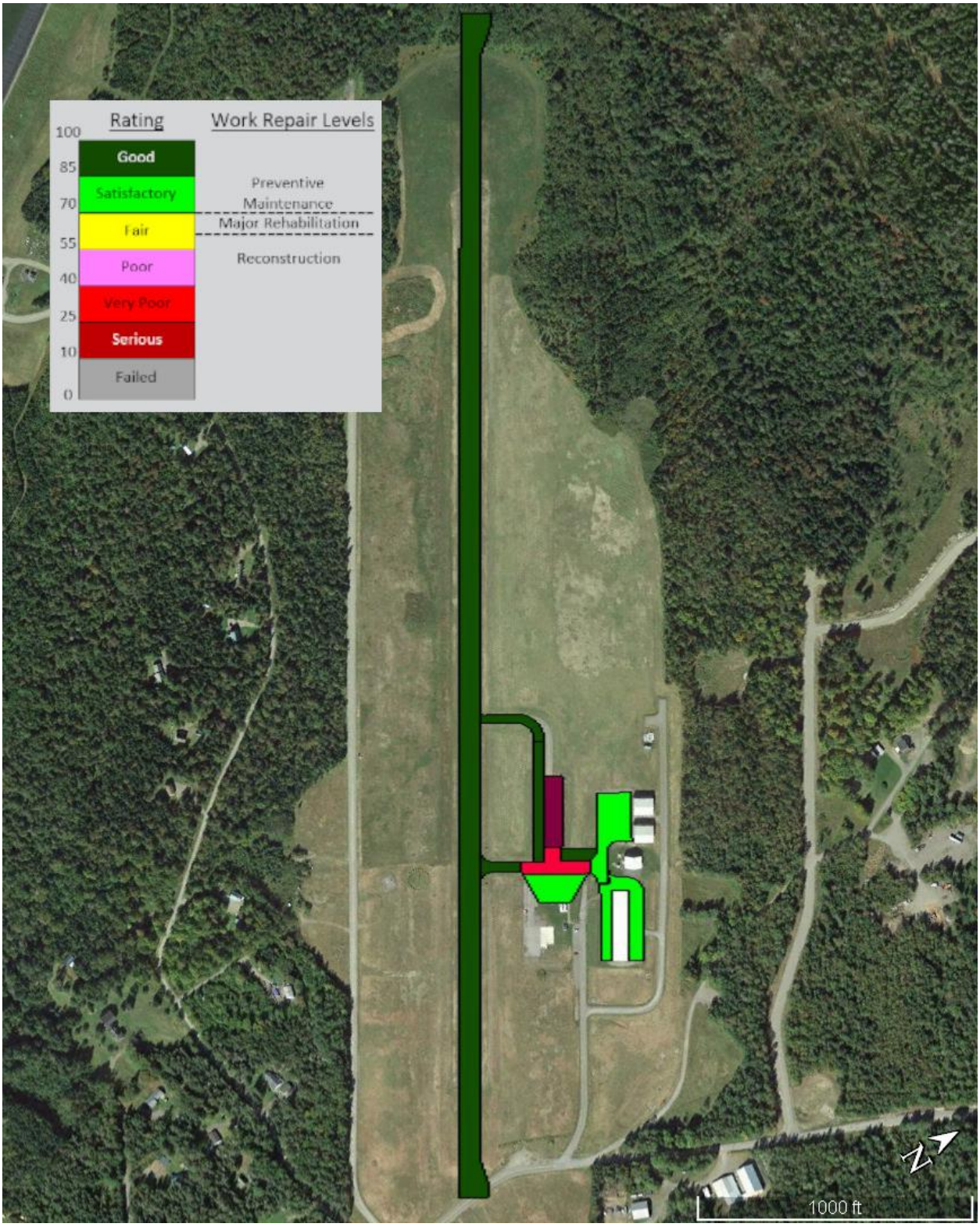


Figure B-24. Stephen A. Bean Municipal Airport (8B0)

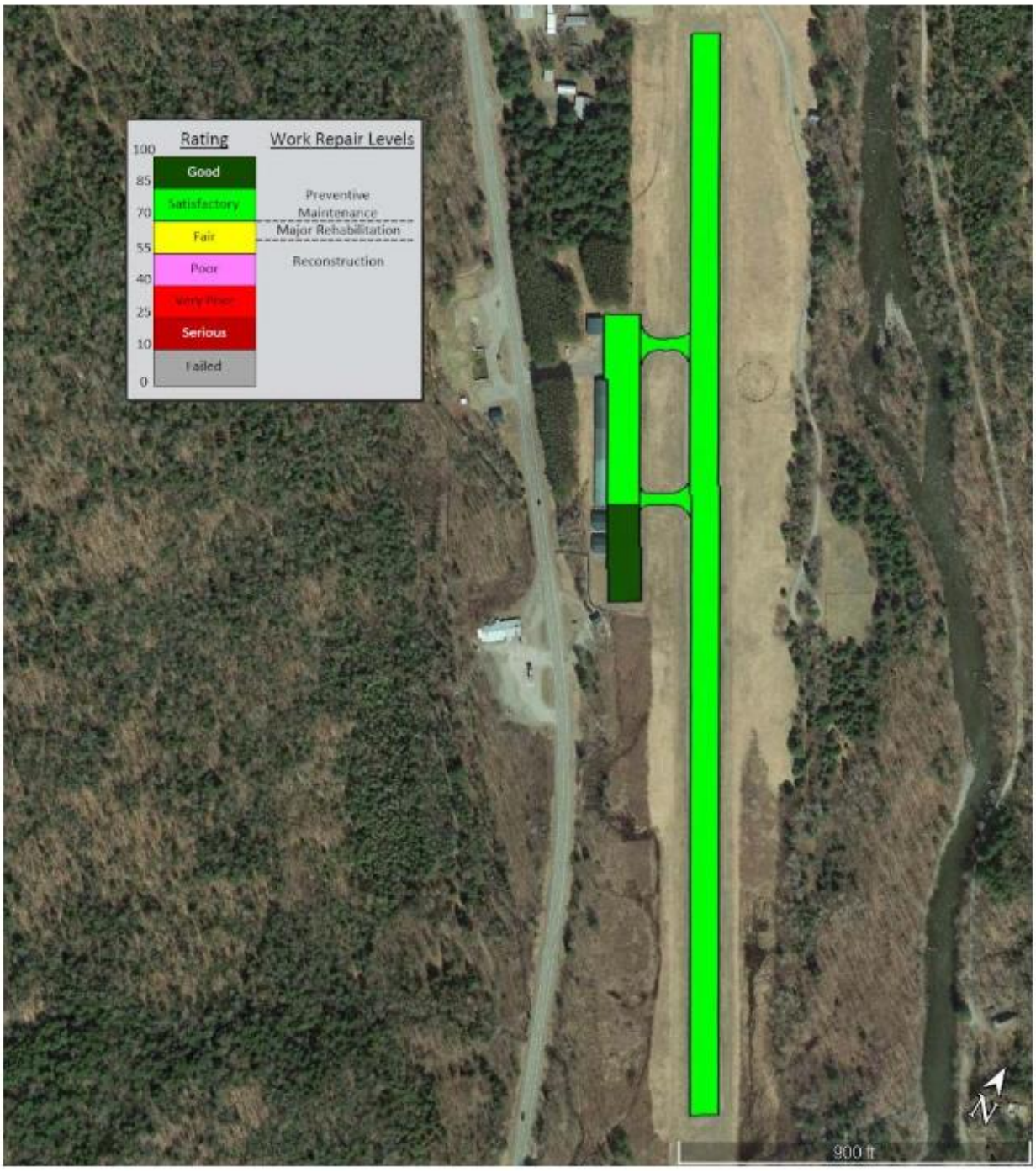


Figure B-25. Sugarloaf Regional Airport (Carrabassett) (B21)

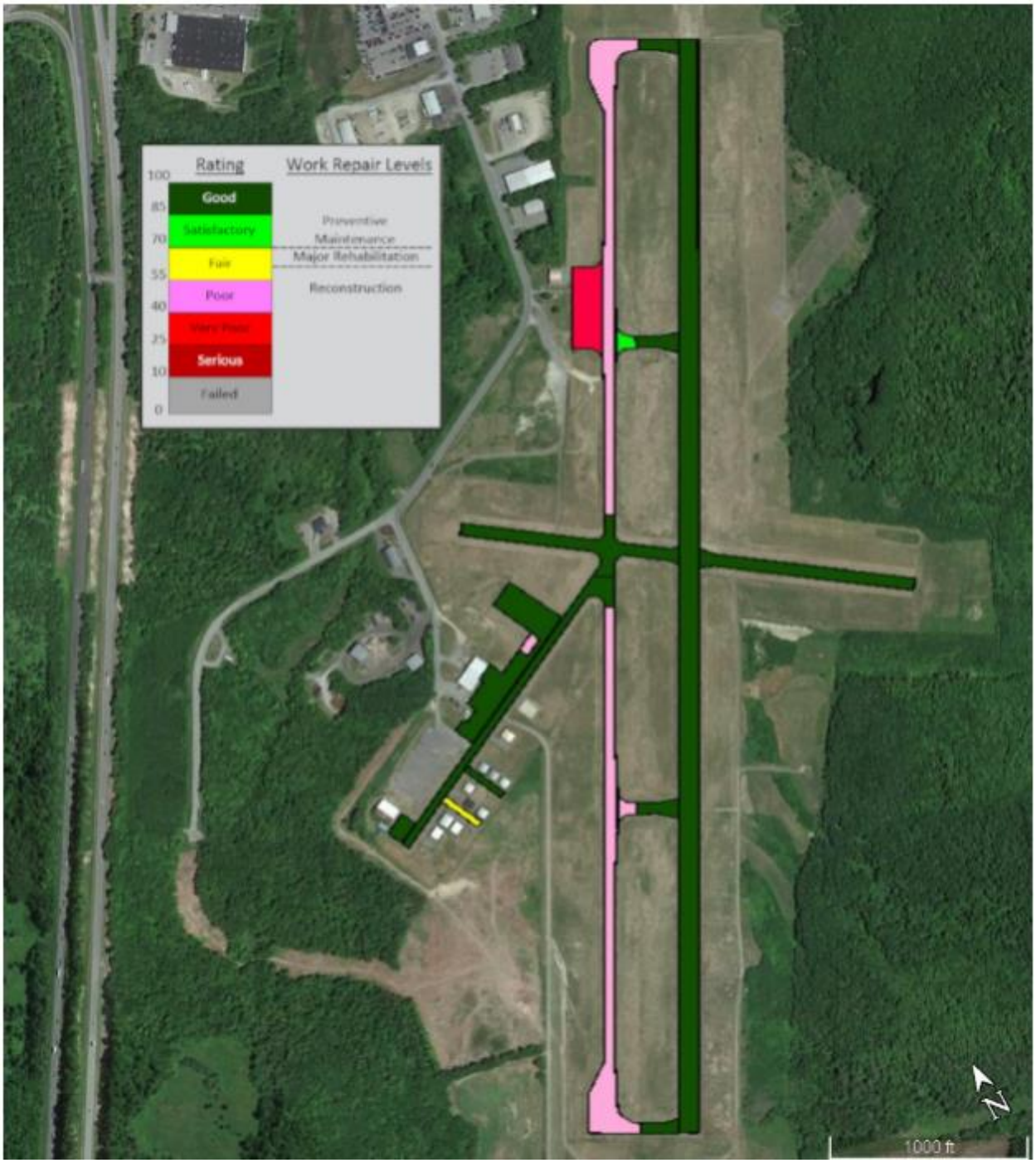


Figure B-26. Waterville Robert LaFleur Airport (WVL)

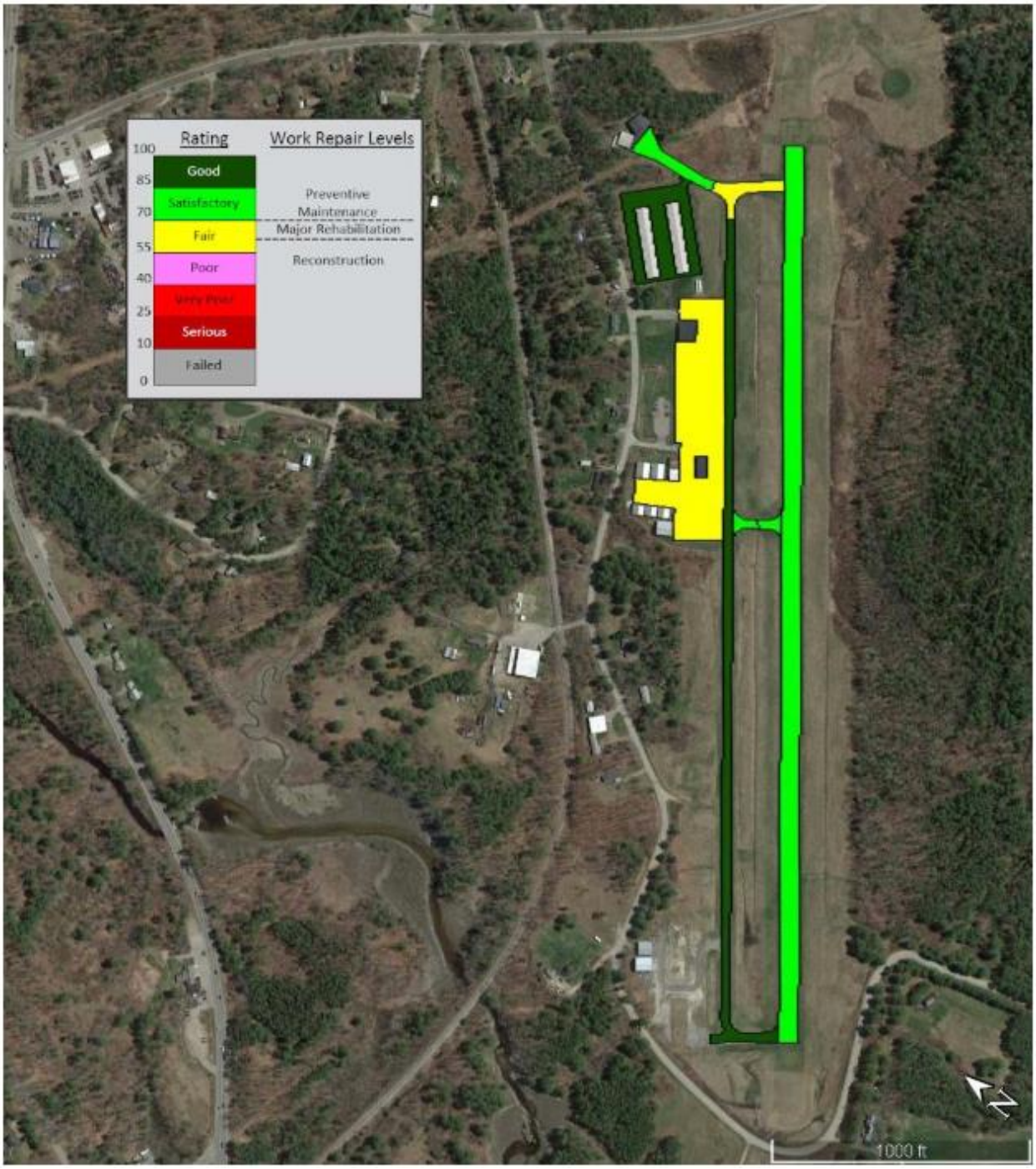


Figure B-27. Wiscasset Airport (IWI)

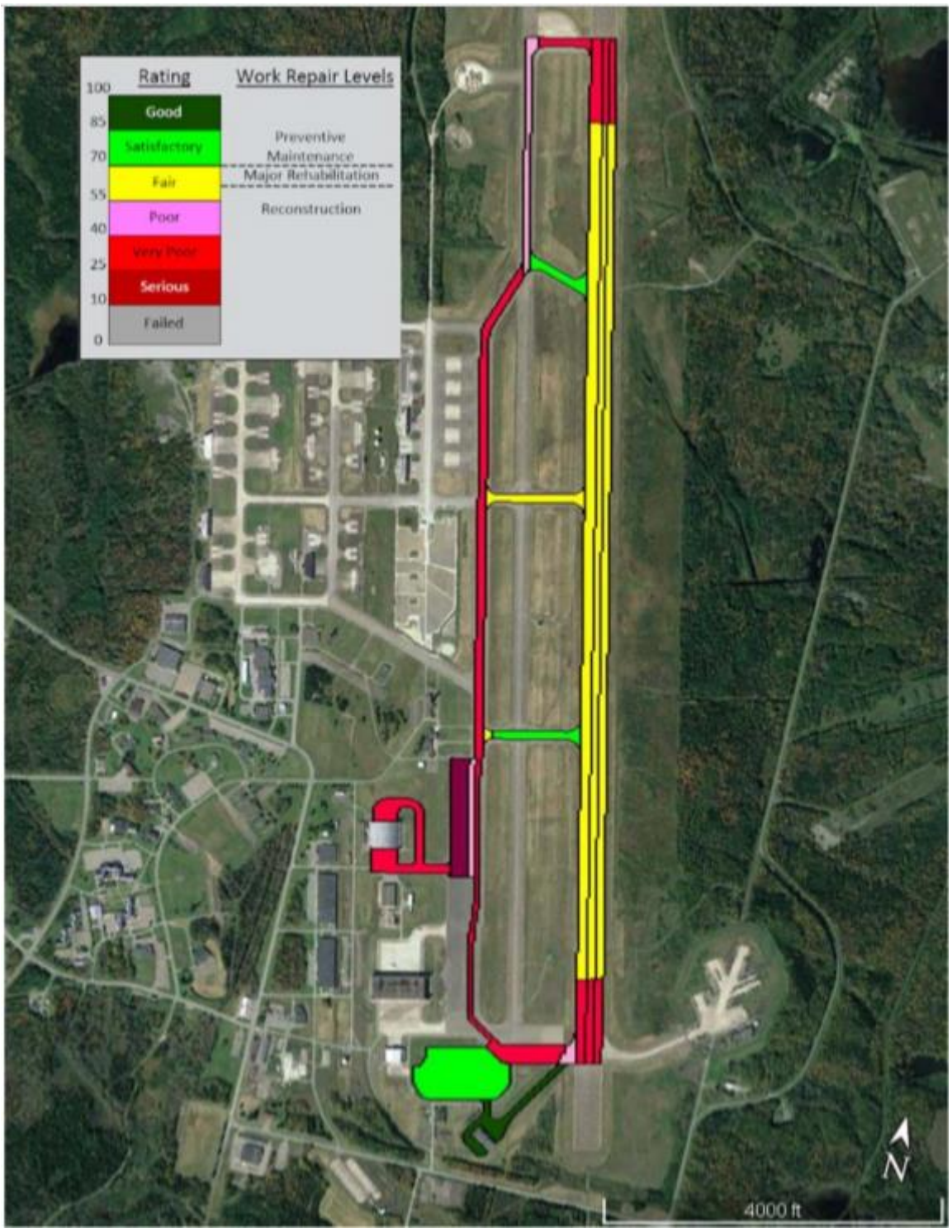


Figure B-28. Loring International Airport (ME16)

Appendix C

Maintenance and Repair Policies

Distress Type	Distress Severity	Maintenance Treatment
Alligator cracking	Low	Monitor
	Medium	Patching - AC Deep
	High	Patching - AC Deep
Bleeding	N/A	Monitor
Block cracking	Low	Monitor
	Medium	Crack Sealing - AC
	High	Crack Sealing - AC
Corrugation	Low	Monitor
	Medium	Patching - AC Shallow
	High	Patching - AC Shallow
Depression	Low	Monitor
	Medium	Patching - AC Shallow
	High	Patching - AC Shallow
Jet blast	N/A	Monitor
Joint Reflection Cracking	Low	Monitor
	Medium	Crack Sealing - AC
	High	Crack Sealing - AC
Longitudinal & transverse cracking	Low	Monitor
	Medium	Crack Sealing - AC
	High	Crack Sealing - AC
Oil Spillage	N/A	Patching - AC Shallow
Patching	Low	Monitor
	Medium	Patching - AC Shallow
	High	Patching - AC Shallow
Polished aggregate	N/A	Monitor
Raveling	Low	Surface Treatment
	Medium	Surface Treatment
	High	Patching - AC Shallow
Rutting	Low	Monitor
	Medium	Patching - AC Deep
	High	Patching - AC Deep
Shoving	Low	Monitor
	Medium	Patching - AC Shallow
	High	Patching - AC Shallow
Slippage Cracking	N/A	Patching - AC Shallow
Swelling	Low	Monitor
	Medium	Patching - AC Shallow
	High	Patching - AC Shallow
Weathering	Low	Monitor
	Medium	Patching - AC Shallow
	High	Patching - AC Shallow

Table C1. Localized maintenance policy for asphalt surfaces.

Distress Type	Distress Severity	Maintenance Treatment
Blow up	Low	Slab Replacement - PCC
	Medium	Slab Replacement - PCC
	High	Slab Replacement - PCC
Corner break	Low	Monitor
	Medium	Patching - PCC Full Depth
	High	Patching - PCC Full Depth
Linear cracking	Low	Monitor
	Medium	Crack Sealing - PCC
	High	Slab Replacement - PCC
Durability cracking	Low	Monitor
	Medium	Patching - PCC Full Depth
	High	Slab Replacement - PCC
Joint seal damage	Low	Monitor
	Medium	Joint Seal (Localized)
	High	Joint Seal (Localized)
Small patch	Low	Monitor
	Medium	Monitor
	High	Patching - PCC Full Depth
Large patch	Low	Monitor
	Medium	Monitor
	High	Patching - PCC Full Depth
Popouts	N/A	Monitor
Pumping	N/A	Monitor
Scaling	Low	Monitor
	Medium	Monitor
	High	Slab Replacement - PCC
Faulting	Low	Monitor
	Medium	Monitor
	High	Grinding (Localized)
Shattered slab	Low	Monitor
	Medium	Slab Replacement - PCC
	High	Slab Replacement - PCC
Shrinkage cracking	N/A	Monitor
Joint spall	Low	Monitor
	Medium	Patching - PCC Partial Depth
	High	Patching - PCC Partial Depth
Corner spall	Low	Monitor
	Medium	Patching - PCC Partial Depth
	High	Patching - PCC Partial Depth
ASR	Low	Monitor
	Medium	Slab Replacement - PCC
	High	Slab Replacement - PCC

Table C2. Localized maintenance policy for PCC surfaces.

Appendix D

Family Curve by Section

Airport	PID	PCI Family
Auburn/Lewiston Municipal	LEW:APA:001	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:APA:002	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:APA:003	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:APA:004	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:APA:005	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:CTA:001	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:CTB:001	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:CTB:002	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:CTC:001	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:CTD:001	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:CTE:001	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:CTK:001	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:CTL:001	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:PTA:001	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:RY422:001	me_ac_rw
Auburn/Lewiston Municipal	LEW:RY1735:001	me_ac_rw
Auburn/Lewiston Municipal	LEW:TLA:001	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:TLA:002	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:TLA:003	me_ac_tw_ap_tl
Auburn/Lewiston Municipal	LEW:TLB:001	me_ac_tw_ap_tl
Augusta State	AUG:APA:001	me_ac_tw_ap_tl
Augusta State	AUG:APB:001	me_ac_tw_ap_tl
Augusta State	AUG:APB:002	me_ac_tw_ap_tl
Augusta State	AUG:APB:003	me_ac_tw_ap_tl
Augusta State	AUG:CTC:001	me_ac_tw_ap_tl
Augusta State	AUG:CTD:001	me_ac_tw_ap_tl
Augusta State	AUG:CTD:002	me_ac_tw_ap_tl
Augusta State	AUG:CTE:001	me_ac_tw_ap_tl
Augusta State	AUG:PTA:001	me_ac_tw_ap_tl
Augusta State	AUG:PTA:002	me_ac_tw_ap_tl
Augusta State	AUG:PTA:003	me_ac_tw_ap_tl
Augusta State	AUG:PTA:004	me_ac_tw_ap_tl
Augusta State	AUG:PTB:001	me_ac_tw_ap_tl
Augusta State	AUG:PTB:002	me_ac_tw_ap_tl

Airport	PID	PCI Family
Augusta State	AUG:PTB:003	me_ac_tw_ap_tl
Augusta State	AUG:PTB:004	me_ac_tw_ap_tl
Augusta State	AUG:RPA:001	me_ac_tw_ap_tl
Augusta State	AUG:RY1735:001	me_ac_rw
Augusta State	AUG:RY826:001	me_ac_rw
Augusta State	AUG:RY826:002	me_ac_rw
Belfast Municipal	BST:APA:001	me_ac_tw_ap_tl
Belfast Municipal	BST:APA:002	me_ac_tw_ap_tl
Belfast Municipal	BST:APA:003	me_ac_tw_ap_tl
Belfast Municipal	BST:CTA:001	me_ac_tw_ap_tl
Belfast Municipal	BST:CTB:001	me_ac_tw_ap_tl
Belfast Municipal	BST:PTA:001	me_ac_tw_ap_tl
Belfast Municipal	BST:RY1533:001	me_ac_rw
Belfast Municipal	BST:TLA:001	me_ac_rw
Bethel Municipal	0B1:APA:001	me_ac_tw_ap_tl
Bethel Municipal	0B1:APA:002	me_ac_tw_ap_tl
Bethel Municipal	0B1:APA:003	me_ac_tw_ap_tl
Bethel Municipal	0B1:CTA:001	me_ac_tw_ap_tl
Bethel Municipal	0B1:CTB:001	me_ac_tw_ap_tl
Bethel Municipal	0B1:RTA:001	me_ac_tw_ap_tl
Bethel Municipal	0B1:RY1432:001	me_ac_rw
Bethel Municipal	0B1:TLA:001	me_ac_tw_ap_tl
Biddeford Municipal	B19:APA:001	me_ac_tw_ap_tl
Biddeford Municipal	B19:APA:002	me_ac_tw_ap_tl
Biddeford Municipal	B19:CTA:001	me_ac_tw_ap_tl
Biddeford Municipal	B19:RY624:001	me_ac_rw
Biddeford Municipal	B19:TLA:001	me_ac_tw_ap_tl
Biddeford Municipal	B19:TLB:001	me_ac_tw_ap_tl
Brunswick Executive	BXM:APA:001	me_pcc_tw_ap_tl
Brunswick Executive	BXM:APA:002	me_pcc_tw_ap_tl
Brunswick Executive	BXM:APA:003	me_pcc_tw_ap_tl
Brunswick Executive	BXM:APA:004	me_ac_tw_ap_tl
Brunswick Executive	BXM:APB:001	me_pcc_tw_ap_tl
Brunswick Executive	BXM:APB:002	me_pcc_tw_ap_tl
Brunswick Executive	BXM:APB:003	me_pcc_tw_ap_tl
Brunswick Executive	BXM:APB:004	me_pcc_tw_ap_tl
Brunswick Executive	BXM:CTA:001	me_pcc_tw_ap_tl
Brunswick Executive	BXM:CTB:001	me_pcc_tw_ap_tl
Brunswick Executive	BXM:CTD:001	me_pcc_tw_ap_tl

Airport	PID	PCI Family
Brunswick Executive	BXM:CTE:001	me_pcc_tw_ap_tl
Brunswick Executive	BXM:CTF:001	me_ac_tw_ap_tl
Brunswick Executive	BXM:CTG:001	me_ac_tw_ap_tl
Brunswick Executive	BXM:CTH:001	me_pcc_tw_ap_tl
Brunswick Executive	BXM:PTA:001	me_pcc_tw_ap_tl
Brunswick Executive	BXM:PTA:002	me_ac_tw_ap_tl
Brunswick Executive	BXM:PTA:003	me_ac_tw_ap_tl
Brunswick Executive	BXM:RY0119:001	me_pcc_rw
Brunswick Executive	BXM:RY0119:002	me_ac_rw
Brunswick Executive	BXM:RY0119:003	me_pcc_rw
Brunswick Executive	BXM:RY0119:004	me_ac_rw
Caribou Municipal	CAR:APA:001	me_ac_tw_ap_tl
Caribou Municipal	CAR:APA:002	me_ac_tw_ap_tl
Caribou Municipal	CAR:APA:003	me_ac_tw_ap_tl
Caribou Municipal	CAR:CTA:001	me_ac_tw_ap_tl
Caribou Municipal	CAR:CTA:002	me_ac_tw_ap_tl
Caribou Municipal	CAR:RTA:001	me_ac_tw_ap_tl
Caribou Municipal	CAR:RTA:002	me_ac_tw_ap_tl
Caribou Municipal	CAR:RY1129:001	me_ac_rw
Caribou Municipal	CAR:RY119:001	me_ac_rw
Caribou Municipal	CAR:TLA:001	me_ac_tw_ap_tl
Caribou Municipal	CAR:TLB:001	me_ac_tw_ap_tl
Caribou Municipal	CAR:TLB:002	me_ac_tw_ap_tl
Central Maine (Norridgewock)	OWK:APA:001	me_ac_tw_ap_tl
Central Maine (Norridgewock)	OWK:CTA:001	me_ac_tw_ap_tl
Central Maine (Norridgewock)	OWK:CTA:002	me_ac_tw_ap_tl
Central Maine (Norridgewock)	OWK:CTB:001	me_ac_tw_ap_tl
Central Maine (Norridgewock)	OWK:CTC:001	me_ac_tw_ap_tl
Central Maine (Norridgewock)	OWK:CTC:002	me_ac_tw_ap_tl
Central Maine (Norridgewock)	OWK:RY0321:001	me_ac_rw
Central Maine (Norridgewock)	OWK:RY0321:002	me_ac_rw
Central Maine (Norridgewock)	OWK:RY1533:001	me_ac_rw
Central Maine (Norridgewock)	OWK:TLA:001	me_ac_tw_ap_tl
Central Maine (Norridgewock)	OWK:TLB:001	me_ac_tw_ap_tl
Central Maine (Norridgewock)	OWK:TLC:001	me_ac_tw_ap_tl
Dewitt Field (Old Town Municipal)	OLD:APA:001	me_ac_tw_ap_tl
Dewitt Field (Old Town Municipal)	OLD:CTA:001	me_ac_tw_ap_tl
Dewitt Field (Old Town Municipal)	OLD:CTB:001	me_ac_tw_ap_tl
Dewitt Field (Old Town Municipal)	OLD:CTB:002	me_ac_tw_ap_tl

Airport	PID	PCI Family
Dewitt Field (Old Town Municipal)	OLD:CTB:003	me_ac_tw_ap_tl
Dewitt Field (Old Town Municipal)	OLD:CTB:004	me_ac_tw_ap_tl
Dewitt Field (Old Town Municipal)	OLD:RTA:001	me_ac_tw_ap_tl
Dewitt Field (Old Town Municipal)	OLD:RTA:002	me_ac_tw_ap_tl
Dewitt Field (Old Town Municipal)	OLD:RTB:001	me_ac_tw_ap_tl
Dewitt Field (Old Town Municipal)	OLD:RY0422:001	me_ac_rw
Dewitt Field (Old Town Municipal)	OLD:RY1230:001	me_ac_rw
Dewitt Field (Old Town Municipal)	OLD:TLA:001	me_ac_tw_ap_tl
Dewitt Field (Old Town Municipal)	OLD:TLB:001	me_ac_tw_ap_tl
Dewitt Field (Old Town Municipal)	OLD:TLB:002	me_ac_tw_ap_tl
Dewitt Field (Old Town Municipal)	OLD:TLB:003	me_ac_tw_ap_tl
Dexter Regional	1B0:APA:001	me_ac_tw_ap_tl
Dexter Regional	1B0:CTA:001	me_ac_tw_ap_tl
Dexter Regional	1B0:RY1634:001	me_ac_rw
Dexter Regional	1B0:TLA:001	me_ac_tw_ap_tl
Dexter Regional	1B0:TLA:002	me_ac_tw_ap_tl
Dexter Regional	1B0:TLA:003	me_ac_tw_ap_tl
Dexter Regional	1B0:TLB:001	me_ac_tw_ap_tl
Eastern Slope Regional	IZG:APA:001	me_ac_tw_ap_tl
Eastern Slope Regional	IZG:APA:002	me_ac_tw_ap_tl
Eastern Slope Regional	IZG:APA:003	me_pcc_tw_ap_tl
Eastern Slope Regional	IZG:CTB:001	me_ac_tw_ap_tl
Eastern Slope Regional	IZG:CTC:001	me_ac_tw_ap_tl
Eastern Slope Regional	IZG:PTA:001	me_ac_tw_ap_tl
Eastern Slope Regional	IZG:RTA:001	me_ac_tw_ap_tl
Eastern Slope Regional	IZG:RW1432:001	me_ac_rw
Eastern Slope Regional	IZG:TLA:001	me_ac_tw_ap_tl
Eastern Slope Regional	IZG:TLA:002	me_ac_tw_ap_tl
Eastern Slope Regional	IZG:TLB:001	me_ac_tw_ap_tl
Eastern Slope Regional	IZG:TLB:002	me_ac_tw_ap_tl
Eastern Slope Regional	IZG:TLB:003	me_ac_tw_ap_tl
Eastern Slope Regional	IZG:TLC:001	me_ac_tw_ap_tl
Eastport Municipal	EPM:APA:001	me_ac_tw_ap_tl
Eastport Municipal	EPM:CTA:001	me_ac_tw_ap_tl
Eastport Municipal	EPM:CTA:002	me_ac_tw_ap_tl
Eastport Municipal	EPM:RTA:001	me_ac_tw_ap_tl
Eastport Municipal	EPM:RTA:002	me_ac_tw_ap_tl
Eastport Municipal	EPM:RY1533:001	me_ac_rw
Eastport Municipal	EPM:TLA:001	me_ac_tw_ap_tl

Airport	PID	PCI Family
Greenville Municipal	3B1:APA:001	me_ac_tw_ap_tl
Greenville Municipal	3B1:APA:002	me_ac_tw_ap_tl
Greenville Municipal	3B1:APB:001	me_ac_tw_ap_tl
Greenville Municipal	3B1:APC:001	me_ac_tw_ap_tl
Greenville Municipal	3B1:APD:001	me_ac_tw_ap_tl
Greenville Municipal	3B1:CTB:001	me_ac_tw_ap_tl
Greenville Municipal	3B1:CTD:001	me_ac_tw_ap_tl
Greenville Municipal	3B1:CTD:002	me_ac_tw_ap_tl
Greenville Municipal	3B1:CTE:001	me_ac_tw_ap_tl
Greenville Municipal	3B1:PTA:001	me_ac_tw_ap_tl
Greenville Municipal	3B1:RY0321:001	me_ac_rw
Greenville Municipal	3B1:RY0321:002	me_ac_rw
Greenville Municipal	3B1:RY1432:001	me_ac_rw
Greenville Municipal	3B1:TLA:001	me_ac_tw_ap_tl
Greenville Municipal	3B1:TLB:001	me_ac_tw_ap_tl
Greenville Municipal	3B1:TLB:002	me_ac_tw_ap_tl
Greenville Municipal	3B1:TLB:003	me_ac_tw_ap_tl
Houlton International	HUL:APA:001	me_ac_tw_ap_tl
Houlton International	HUL:APA:002	me_ac_tw_ap_tl
Houlton International	HUL:CTA:001	me_ac_tw_ap_tl
Houlton International	HUL:CTC:001	me_ac_tw_ap_tl
Houlton International	HUL:CTC:002	me_ac_tw_ap_tl
Houlton International	HUL:CTD:001	me_ac_tw_ap_tl
Houlton International	HUL:PTA:001	me_ac_tw_ap_tl
Houlton International	HUL:PTA:002	me_ac_tw_ap_tl
Houlton International	HUL:PTA:003	me_ac_tw_ap_tl
Houlton International	HUL:PTB:001	me_ac_tw_ap_tl
Houlton International	HUL:PTB:002	me_ac_tw_ap_tl
Houlton International	HUL:RY119:001	me_ac_rw
Houlton International	HUL:RY523:001	me_ac_rw
Lincoln Regional	LRG:APA:001	me_ac_tw_ap_tl
Lincoln Regional	LRG:CTA:001	me_ac_tw_ap_tl
Lincoln Regional	LRG:RTA:002	me_ac_tw_ap_tl
Lincoln Regional	LRG:RY1735:001	me_ac_rw
Lincoln Regional	LRG:TLA:001	me_ac_tw_ap_tl
Lincoln Regional	LRG:TLB:001	me_ac_tw_ap_tl
Machias Valley Municipal	MVM:APA:001	me_ac_tw_ap_tl
Machias Valley Municipal	MVM:CTA:001	me_ac_tw_ap_tl
Machias Valley Municipal	MVM:RY1836:001	me_ac_rw

Airport	PID	PCI Family
Millinocket Municipal	MLT:APA:001	me_ac_tw_ap_tl
Millinocket Municipal	MLT:APA:002	me_ac_tw_ap_tl
Millinocket Municipal	MLT:APA:003	me_ac_tw_ap_tl
Millinocket Municipal	MLT:APA:004	me_ac_tw_ap_tl
Millinocket Municipal	MLT:CTA:001	me_ac_tw_ap_tl
Millinocket Municipal	MLT:CTB:001	me_ac_tw_ap_tl
Millinocket Municipal	MLT:RTA:001	me_ac_tw_ap_tl
Millinocket Municipal	MLT:RY1129:001	me_ac_rw
Millinocket Municipal	MLT:RY1129:002	me_ac_rw
Millinocket Municipal	MLT:RY1129:003	me_ac_rw
Millinocket Municipal	MLT:RY1634:001	me_ac_rw
Newton Field (Jackman)	59B:APA:001	me_ac_tw_ap_tl
Newton Field (Jackman)	59B:APA:002	me_ac_tw_ap_tl
Newton Field (Jackman)	59B:CTA:001	me_ac_tw_ap_tl
Newton Field (Jackman)	59B:RY1331:001	me_ac_rw
Northern Aroostook	FVE:APA:001	me_ac_tw_ap_tl
Northern Aroostook	FVE:CTA:001	me_aac_tw_ap_tl
Northern Aroostook	FVE:CTB:001	me_aac_tw_ap_tl
Northern Aroostook	FVE:CTC:001	me_aac_tw_ap_tl
Northern Aroostook	FVE:CTD:001	me_ac_tw_ap_tl
Northern Aroostook	FVE:CTD:002	me_ac_tw_ap_tl
Northern Aroostook	FVE:RY1432:001	me_aac_rw
Oxford County Regional	81B:APA:001	me_ac_tw_ap_tl
Oxford County Regional	81B:CTA:001	me_ac_tw_ap_tl
Oxford County Regional	81B:CTB:001	me_ac_tw_ap_tl
Oxford County Regional	81B:CTC:001	me_ac_tw_ap_tl
Oxford County Regional	81B:RTA:001	me_ac_tw_ap_tl
Oxford County Regional	81B:RTB:001	me_ac_tw_ap_tl
Oxford County Regional	81B:RY1533:001	me_ac_rw
Pittsfield Municipal	2B7:APA:001	me_ac_tw_ap_tl
Pittsfield Municipal	2B7:APB:001	me_ac_tw_ap_tl
Pittsfield Municipal	2B7:CTA:001	me_ac_tw_ap_tl
Pittsfield Municipal	2B7:CTB:001	me_ac_tw_ap_tl
Pittsfield Municipal	2B7:CTB:002	me_ac_tw_ap_tl
Pittsfield Municipal	2B7:RY1836:001	me_ac_rw
Pittsfield Municipal	2B7:TLA:001	me_ac_tw_ap_tl
Pittsfield Municipal	2B7:TLB:001	me_ac_tw_ap_tl
Princeton Municipal	PNN:APA:001	me_ac_tw_ap_tl
Princeton Municipal	PNN:CTA:001	me_ac_tw_ap_tl

Airport	PID	PCI Family
Princeton Municipal	PNN:CTC:001	me_ac_tw_ap_tl
Princeton Municipal	PNN:PPTB:001	me_ac_tw_ap_tl
Princeton Municipal	PNN:PPTB:002	me_ac_tw_ap_tl
Princeton Municipal	PNN:PPTB:003	me_ac_tw_ap_tl
Princeton Municipal	PNN:RY1533:001	me_ac_rw
Princeton Municipal	PNN:TLA:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:APA:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:APB:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:APC:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:APC:002	me_ac_tw_ap_tl
Sanford Seacoast	SFM:APC:003	me_ac_tw_ap_tl
Sanford Seacoast	SFM:CTA:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:CTA:002	me_ac_tw_ap_tl
Sanford Seacoast	SFM:CTB:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:CTC:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:CTC:002	me_ac_tw_ap_tl
Sanford Seacoast	SFM:CTD:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:CTF1:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:CTG:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:CTI:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:PTE:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:PTE:002	me_ac_tw_ap_tl
Sanford Seacoast	SFM:PTE:003	me_ac_tw_ap_tl
Sanford Seacoast	SFM:PTF:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:RY1432:001	me_ac_rw
Sanford Seacoast	SFM:RY1432:002	me_ac_rw
Sanford Seacoast	SFM:RY725:001	me_ac_rw
Sanford Seacoast	SFM:TLA:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:TLA:002	me_ac_tw_ap_tl
Sanford Seacoast	SFM:TLA:003	me_ac_tw_ap_tl
Sanford Seacoast	SFM:TLB:001	me_ac_tw_ap_tl
Sanford Seacoast	SFM:TLC:001	me_ac_tw_ap_tl
Stephen A. Bean Regional	8B0:APA:001	me_ac_tw_ap_tl
Stephen A. Bean Regional	8B0:APA:002	me_ac_tw_ap_tl
Stephen A. Bean Regional	8B0:APA:003	me_ac_tw_ap_tl
Stephen A. Bean Regional	8B0:APA:004	me_ac_tw_ap_tl
Stephen A. Bean Regional	8B0:APA:005	me_ac_tw_ap_tl
Stephen A. Bean Regional	8B0:APA:006	me_ac_tw_ap_tl
Stephen A. Bean Regional	8B0:CTA:001	me_ac_tw_ap_tl

Airport	PID	PCI Family
Stephen A. Bean Regional	8B0:CTB:001	me_ac_tw_ap_tl
Stephen A. Bean Regional	8B0:CTB:002	me_ac_tw_ap_tl
Stephen A. Bean Regional	8B0:RY1432:001	me_ac_rw
Sugarloaf Regional	B21:APA:001	me_ac_tw_ap_tl
Sugarloaf Regional	B21:APA:002	me_ac_tw_ap_tl
Sugarloaf Regional	B21:CTA:001	me_ac_tw_ap_tl
Sugarloaf Regional	B21:CTB:001	me_ac_tw_ap_tl
Sugarloaf Regional	B21:RY1735:001	me_ac_rw
Waterville Robert LaFleur	WVL:APA:001	me_ac_tw_ap_tl
Waterville Robert LaFleur	WVL:APB:001	me_ac_tw_ap_tl
Waterville Robert LaFleur	WVL:APB:002	me_ac_tw_ap_tl
Waterville Robert LaFleur	WVL:APC:001	me_ac_tw_ap_tl
Waterville Robert LaFleur	WVL:CTA:001	me_ac_tw_ap_tl
Waterville Robert LaFleur	WVL:CTB:001	me_ac_tw_ap_tl
Waterville Robert LaFleur	WVL:CTB:002	me_ac_tw_ap_tl
Waterville Robert LaFleur	WVL:CTC:001	me_ac_tw_ap_tl
Waterville Robert LaFleur	WVL:CTC:002	me_ac_tw_ap_tl
Waterville Robert LaFleur	WVL:CTD:001	me_ac_tw_ap_tl
Waterville Robert LaFleur	WVL:PTA:001	me_ac_tw_ap_tl
Waterville Robert LaFleur	WVL:RY0523:001	me_ac_rw
Waterville Robert LaFleur	WVL:RY1432:001	me_ac_rw
Waterville Robert LaFleur	WVL:TLA:001	me_ac_tw_ap_tl
Waterville Robert LaFleur	WVL:TLB:001	me_ac_tw_ap_tl
Waterville Robert LaFleur	WVL:TLC:001	me_ac_tw_ap_tl
Wiscasset	IWI:APA:001	me_ac_tw_ap_tl
Wiscasset	IWI:CTB:001	me_ac_tw_ap_tl
Wiscasset	IWI:CTB:002	me_ac_tw_ap_tl
Wiscasset	IWI:CTB:003	me_ac_tw_ap_tl
Wiscasset	IWI:PTA:001	me_ac_tw_ap_tl
Wiscasset	IWI:RY725:001	me_ac_rw
Wiscasset	IWI:TLA:001	me_ac_tw_ap_tl
Wiscasset	IWI:TLB:001	me_ac_tw_ap_tl
Loring International	ME16:APA:001	me_ac_tw_ap_tl
Loring International	ME16:APA:001	me_ac_tw_ap_tl
Loring International	ME16:APA:003	me_ac_tw_ap_tl
Loring International	ME16:APB:001	me_pcc_tw_ap_tl
Loring International	ME16:APB:002	me_pcc_tw_ap_tl
Loring International	ME16:CTB:001	me_ac_tw_ap_tl
Loring International	ME16:CTC:001	me_ac_tw_ap_tl

Airport	PID	PCI Family
Loring International	ME16:CTD:001	me_ac_tw_ap_tl
Loring International	ME16:CTD:002	me_ac_tw_ap_tl
Loring International	ME16:PTA:001	me_pcc_tw_ap_tl
Loring International	ME16:PTA:002	me_ac_tw_ap_tl
Loring International	ME16:PTA:003	me_ac_tw_ap_tl
Loring International	ME16:PTA:005	me_pcc_tw_ap_tl
Loring International	ME16:RY119:001	me_pcc_rw
Loring International	ME16:RY119:002	me_pcc_rw
Loring International	ME16:RY119:003	me_ac_rw
Loring International	ME16:RY119:004	me_ac_rw
Loring International	ME16:RY119:005	me_pcc_rw
Loring International	ME16:RY119:006	me_pcc_rw

Table D1. Family curves by section