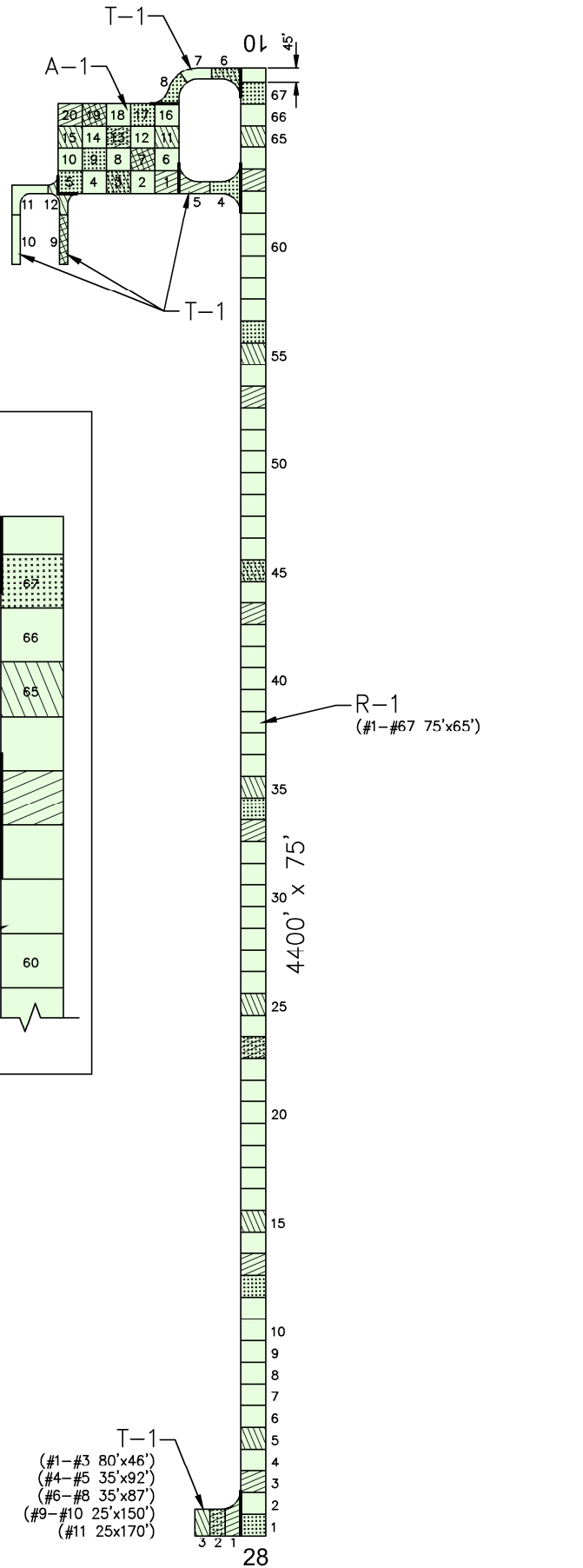


BROADUS



PAVEMENT STRENGTH SURVEY/PAVEMENT CONDITION SURVEY

PAVE. IDENT.	SOIL CLASS	SUB GRADE CLASS	SUBBASE COURSE	BASE COURSE	SURFACE COURSE	OVERLAY	PAVEMENT STRENGTH			REMARKS	
							MAX. GROSS LOAD (LBS)				
							SINGLE	DUAL	DUAL TAN.		
RUNWAYS											
R-1			8" P-152	6" P-154	4" P-208	3.5" P-401	P-609	12,500			1,2
TAXIWAYS											
T-1			8" P-152	6" P-154	4" P-208	3.5" P-401	P-609	12,500			1,2
APRONS											
A-1			8" P-152	6" P-154	4" P-208	3.5" P-401	P-609	12,500			1,2

REMARKS:

- AIP-002-2005, ALL NEW CONSTRUCTION: CONSTRUCT RUNWAY 10/28 (R-1), TAXIWAYS (T-1), AND APRON (A-1).
- AIP-005-2011, CRACK SEAL, FOG SEAL, AND REMARK ALL PAVEMENTS.

LEGEND

- 2003 SURVEY AREA (N/A)
- 2006 SURVEY AREA (N/A)
- 2009 SURVEY AREA
- 2012 SURVEY AREA
- 2015 SURVEY AREA

- MAINTAIN: PCI > 60
- TRANSITION: PCI 45 TO 60
- RECONSTRUCT: PCI < 45

DATE OF PAVEMENT STRENGTH SURVEY:

EVALUATED BY:

DATE OF MOST RECENT PAVEMENT CONDITION SURVEY:

EVALUATED BY:

LOCATION:

SEPT. 3, 2015

B. BURKLAND
BROADUS MONTANA

**MONTANA AVIATION SYSTEM PLAN
2015 UPDATE - PAVEMENT CONDITION INDEXES**

**BROADUS AIRPORT
(00F)**

Date: DECEMBER 2015

Prepared For:

MONTANA
MDT
DEPARTMENT OF TRANSPORTATION

Prepared By:

RPA
Robert Peccia & Associates, Inc.

BROADUS AIRPORT

9/3/2015



A-1, Overview with tie downs



A-1, Surface detail with medium raveling count



T-1, Overview



T-1, Surface detail with low cracking

BROADUS AIRPORT

9/3/2015



R-1, Overview



R-1, Surface detail with gouge

BROADUS AIRPORT

Branch: 62A

APRON

A-1

Length: 268 LF **Width:** 360 LF **Area:** 99,855 SF **Last Const. :** 2005 **Family:** ACAM15
From: ENTIRE APRON **To:** OFF T-1 **Surface:** AC

Inspections

Samples Surveyed: 5 **Total Samples:** 20 **Last Inspection Date (RPA)** 9/3/2015 **PCI:** 84

Sample # 3 **Area:** 4824 SF

Distress Description	Severity	Quantity
WEATHERING	L	144 SF
RAVELING	L	96 SF
RAVELING	M	24 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	1 LF
PATCHING	L	1 SF
DEPRESSION	L	1 SF

Sample # 5 **Area:** 4824 SF

Distress Description	Severity	Quantity
WEATHERING	L	144 SF
RAVELING	L	96 SF
RAVELING	M	24 SF
DEPRESSION	L	10 SF
OIL SPILLAGE	N	1 SF

Sample # 9 **Area:** 4824 SF

Distress Description	Severity	Quantity
WEATHERING	L	120 SF
RAVELING	L	78 SF
RAVELING	M	15 SF
PATCHING	L	11 SF
DEPRESSION	H	5 SF
OIL SPILLAGE	N	2 SF

Sample # 13 **Area:** 4824 SF

Distress Description	Severity	Quantity
WEATHERING	L	144 SF
RAVELING	L	96 SF
RAVELING	M	24 SF
OIL SPILLAGE	N	3 SF

Sample # 19 **Area:** 4824 SF

Distress Description	Severity	Quantity
WEATHERING	L	144 SF
RAVELING	L	96 SF
RAVELING	M	24 SF
DEPRESSION	L	7 SF
OIL SPILLAGE	N	4 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
DEPRESSION	H	21 SF	0.02 %	12.00
RAVELING	M	460 SF	0.46 %	5.98
RAVELING	L	1913 SF	1.92 %	3.88
LONGITUDINAL/TRANSVERSE CRACKING	L	4 LF	0.00 %	2.50
OIL SPILLAGE	N	41 SF	0.04 %	2.00
PATCHING	L	50 SF	0.05 %	2.00
WEATHERING	L	2881 SF	2.89 %	0.81
DEPRESSION	L	75 SF	0.07 %	0.30

* Multiple deduct values are scaled down from their algebraic sum to keep the model consistent with experimental data.

Percent of Deduct Values Based on Distress Mechanism

0.0 % Load 51.0 % Climate/Durability 49.0 % Other

BROADUS AIRPORT

Branch: 62R

RUNWAY

R-1

Length: 4,400 LF **Width:** 75 LF **Area:** 330,000 SF **Last Const. :** 2005 **Family:** ACRML15
From: STA. 12+00 RWY 10/28 **To:** STA. 56+00 RWY 10/28 **Surface:** AC

Inspections

Samples Surveyed: 7 **Total Samples:** 67 **Last Inspection Date (RPA)** 9/3/2015 **PCI:** **85**

Sample # 1	Distress Description WEATHERING RAVELING LONGITUDINAL/TRANSVERSE CRACKING RAVELING	Severity L L L M	Quantity 147 SF 98 SF 16 LF 34 SF	Area: 4875 SF
Sample # 12	Distress Description LONGITUDINAL/TRANSVERSE CRACKING WEATHERING LONGITUDINAL/TRANSVERSE CRACKING RAVELING RAVELING	Severity L L M L M	Quantity 47 LF 147 SF 30 LF 98 SF 1 SF	Area: 4875 SF
Sample # 23	Distress Description LONGITUDINAL/TRANSVERSE CRACKING WEATHERING RAVELING LONGITUDINAL/TRANSVERSE CRACKING PATCHING OIL SPILLAGE	Severity L L L M M N	Quantity 49 LF 147 SF 93 SF 8 LF 1 SF 1 SF	Area: 4875 SF
Sample # 34	Distress Description LONGITUDINAL/TRANSVERSE CRACKING WEATHERING RAVELING RAVELING	Severity L L L M	Quantity 63 LF 147 SF 93 SF 13 SF	Area: 4875 SF
Sample # 45	Distress Description WEATHERING LONGITUDINAL/TRANSVERSE CRACKING RAVELING	Severity L L L	Quantity 147 SF 34 LF 93 SF	Area: 4875 SF
Sample # 56	Distress Description LONGITUDINAL/TRANSVERSE CRACKING WEATHERING RAVELING	Severity L L L	Quantity 66 LF 147 SF 93 SF	Area: 4875 SF
Sample # 67	Distress Description LONGITUDINAL/TRANSVERSE CRACKING WEATHERING RAVELING	Severity L L L	Quantity 98 LF 147 SF 93 SF	Area: 4875 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
PATCHING	M	10 SF	0.00 %	6.20
LONGITUDINAL/TRANSVERSE CRACKING	L	3607 LF	1.09 %	5.14
RAVELING	M	464 SF	0.14 %	4.28
LONGITUDINAL/TRANSVERSE CRACKING	M	367 LF	0.11 %	3.98
RAVELING	L	6392 SF	1.94 %	3.91
OIL SPILLAGE	N	10 SF	0.00 %	2.00
WEATHERING	L	9951 SF	3.02 %	0.83

* Multiple deduct values are scaled down from their algebraic sum to keep the model consistent with experimental data.

Percent of Deduct Values Based on Distress Mechanism

0.0 % Load
92.0 % Climate/Durability
8.0 % Other

BROADUS AIRPORT

Branch: 62T

TAXIWAY

T-1

Length: 1,300 LF **Width:** 35 LF **Area:** 45,500 SF **Last Const. :** 2005 **Family:** ACRML15
From: NORTH END & SOUTH END **To:** SOUTHWEST CORNER A-1 **Surface:** AC

Inspections

Samples Surveyed: 4 **Total Samples:** 11 **Last Inspection Date (RPA)** 9/3/2015 **PCI:** 84

Sample # 2 **Distress Description** **Severity** **Quantity** **Area:** 3680 SF

WEATHERING	L	111 SF
RAVELING	L	74 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	6 LF
PATCHING	L	1 SF

Sample # 4 **Distress Description** **Severity** **Quantity** **Area:** 3680 SF

LONGITUDINAL/TRANSVERSE CRACKING	L	111 LF
WEATHERING	L	129 SF
RAVELING	L	86 SF
RAVELING	M	22 SF

Sample # 6 **Distress Description** **Severity** **Quantity** **Area:** 3589 SF

LONGITUDINAL/TRANSVERSE CRACKING	L	34 LF
WEATHERING	L	105 SF
RAVELING	L	71 SF
RAVELING	M	18 SF

Sample # 8 **Distress Description** **Severity** **Quantity** **Area:** 3481 SF

WEATHERING	L	102 SF
RAVELING	L	68 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	12 LF
RAVELING	M	17 SF
OIL SPILLAGE	N	1 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
RAVELING	M	180 SF	0.40 %	5.69
LONGITUDINAL/TRANSVERSE CRACKING	L	514 LF	1.13 %	5.22
RAVELING	L	943 SF	2.07 %	4.07
OIL SPILLAGE	N	3 SF	0.01 %	2.00
PATCHING	L	3 SF	0.01 %	2.00
WEATHERING	L	1409 SF	3.10 %	0.84

* Multiple deduct values are scaled down from their algebraic sum to keep the model consistent with experimental data.

Percent of Deduct Values Based on Distress Mechanism

0.0 % Load 90.0 % Climate/Durability 10.0 % Other

BROADUS AIRPORT

FIFTEEN YEAR PROJECTIONS: ESTIMATED AVERAGE ANNUAL COST: \$48,373

PLAN YEAR: 2016 ESTIMATED COST: \$136,711 PCI

SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
T-1	Prev. & Seal Coat	\$366	\$12,740			\$13,107	82	88
R-1	Prev. & Seal Coat	\$2,376	\$92,400			\$94,776	83	89
A-1	Prev. & Seal Coat	\$868	\$27,959			\$28,828	81	88

PLAN YEAR: 2017 ESTIMATED COST: \$2,269 PCI

SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
T-1	Basic Prev.	\$253				\$253	85	85
A-1	Basic Prev.	\$538				\$538	85	85
R-1	Basic Prev.	\$1,478				\$1,478	86	86

PLAN YEAR: 2018 ESTIMATED COST: \$3,676 PCI

SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
A-1	Basic Prev.	\$883				\$883	82	82
R-1	Basic Prev.	\$2,417				\$2,417	83	83
T-1	Basic Prev.	\$376				\$376	82	82

PLAN YEAR: 2019 ESTIMATED COST: \$5,377 PCI

SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
T-1	Basic Prev.	\$489				\$489	80	80
A-1	Basic Prev.	\$1,615				\$1,615	79	79
R-1	Basic Prev.	\$3,273				\$3,273	81	81

PLAN YEAR: 2020 ESTIMATED COST: \$8,799 PCI

SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
R-1	Basic Prev.	\$5,110				\$5,110	79	79
A-1	Basic Prev.	\$2,854				\$2,854	76	76
T-1	Basic Prev.	\$835				\$835	78	79

PLAN YEAR: 2021 ESTIMATED COST: \$167,260 PCI

SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
R-1	Prev. & Seal Coat	\$7,695	\$107,117			\$114,812	77	81
T-1	Prev. & Seal Coat	\$1,181	\$14,769			\$15,951	77	81
A-1	Prev. & Seal Coat	\$4,085	\$32,413			\$36,497	74	79

PLAN YEAR: 2022 ESTIMATED COST: \$8,797 PCI

SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
R-1	Basic Prev.	\$5,074				\$5,074	79	79
A-1	Basic Prev.	\$2,880				\$2,880	76	77
T-1	Basic Prev.	\$843				\$843	79	79

PLAN YEAR: 2023 ESTIMATED COST: \$13,279 PCI

SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
R-1	Basic Prev.	\$7,873				\$7,873	78	78
T-1	Basic Prev.	\$1,215				\$1,215	77	77
A-1	Basic Prev.	\$4,191				\$4,191	74	74

PLAN YEAR: 2024 ESTIMATED COST: \$17,591 PCI

SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
T-1	Basic Prev.	\$1,570				\$1,570	76	76
R-1	Basic Prev.	\$10,517				\$10,517	76	76
A-1	Basic Prev.	\$5,504				\$5,504	72	72

PLAN YEAR: 2025 ESTIMATED COST: \$22,318 PCI

SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
R-1	Basic Prev.	\$13,089				\$13,089	75	75
A-1	Basic Prev.	\$7,308				\$7,308	69	70
T-1	Basic Prev.	\$1,921				\$1,921	74	74

PLAN YEAR: 2026 ESTIMATED COST: \$207,308 PCI

SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
A-1	Prev. & Seal Coat	\$10,428	\$37,575			\$48,003	67	72
T-1	Prev. & Seal Coat	\$2,287	\$17,122			\$19,408	73	76
R-1	Prev. & Seal Coat	\$15,718	\$124,178			\$139,897	74	76

PLAN YEAR: 2027 ESTIMATED COST: \$22,969 PCI

SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
R-1	Basic Prev.	\$13,593				\$13,593	75	75
A-1	Basic Prev.	\$7,381				\$7,381	70	70
T-1	Basic Prev.	\$1,995				\$1,995	75	75

PLAN YEAR: 2028			ESTIMATED COST:			\$29,448	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
T-1	Basic Prev.	\$2,382				\$2,382	73	73
R-1	Basic Prev.	\$16,374				\$16,374	74	74
A-1	Basic Prev.	\$10,692				\$10,692	67	68
PLAN YEAR: 2029			ESTIMATED COST:			\$36,233	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
A-1	Basic Prev.	\$14,107				\$14,107	65	66
T-1	Basic Prev.	\$2,798				\$2,798	72	72
R-1	Basic Prev.	\$19,328				\$19,328	73	73
PLAN YEAR: 2030			ESTIMATED COST:			\$43,561	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
R-1	Basic Prev.	\$22,579				\$22,579	71	71
A-1	Basic Prev.	\$17,717				\$17,717	63	63
T-1	Basic Prev.	\$3,265				\$3,265	71	71