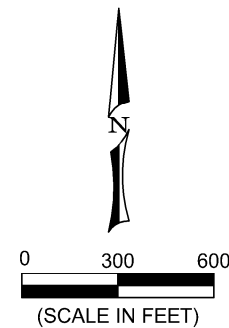
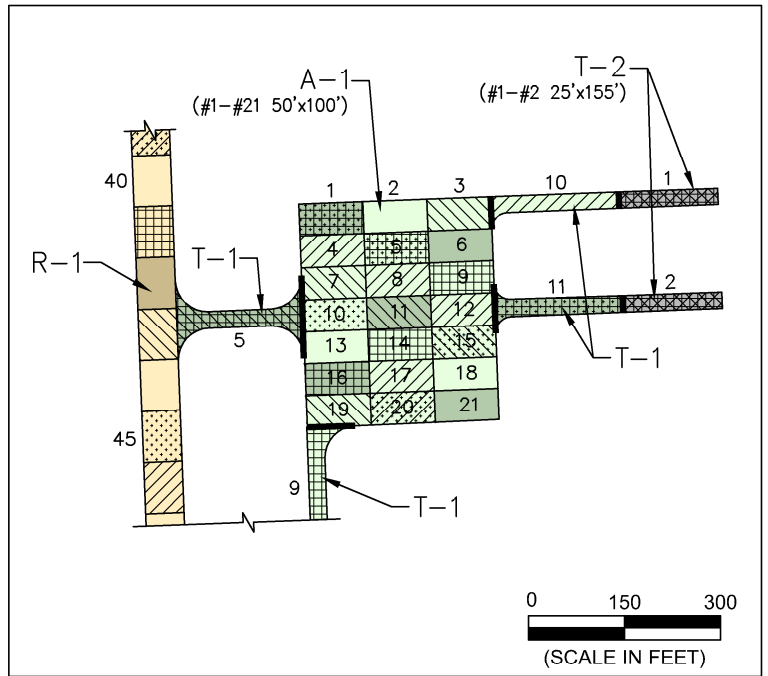
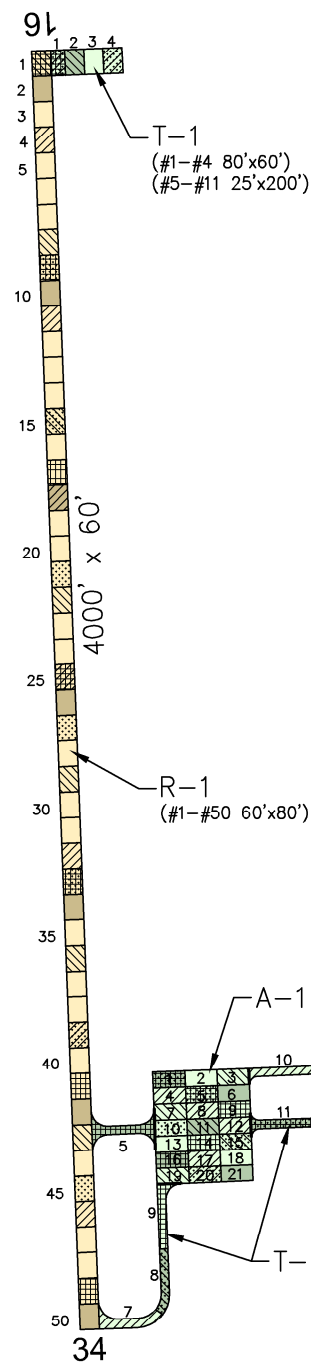


TOWNSEND



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			10" P-152	4" P-208	3" P-401	2"P-401,P-609	12,500			1,2,3,4,5
TAXIWAYS										
T-1			10" P-152	4" P-208	3" P-401	2"P-401,P-609	12,500			1,2,3,4,5
T-2			P-152	12" P-208	4" P-401		12,500			3,4,5
APRONS										
A-1			10" P-152	4" P-208	3" P-401	2"P-401,P-609	12,500			1,2,3,4,5

REMARKS:

- AIP-03, AUGUST 1992, NEW CONSTRUCTION; 0.25" P-609 COMPLETED IN SEPTEMBER 1993.
- NON-AIP, 1996, CRACK SEAL, FOG SEAL, AND REMARK ALL PAVEMENTS.
- AIP-04, 2002, CRACK SEAL AND OVERLAY RUNWAY (R-1), TAXIWAYS (T-1), AND APRON (A-1); CONSTRUCT HANGAR ACCESS TAXIWAY EXTENSIONS (T-2).
- AIP-007-2007, CRACK SEAL, FOG SEAL, AND REMARK ALL PAVEMENTS.
- AIP-010-2012, CRACK SEAL, FOG SEAL, AND REMARK ALL PAVEMENTS.

LEGEND ■ 2003 SURVEY AREA ■ 2006 SURVEY AREA ▨ 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:		MONTANA AVIATION SYSTEM PLAN 2015 UPDATE - PAVEMENT CONDITION INDEXES TOWNSEND AIRPORT (8U8)	
	EVALUATED BY:			
	DATE OF MOST RECENT PAVEMENT CONDITION SURVEY:	AUG. 6, 2015	Date: DECEMBER 2015	Prepared For: MONTANA MDT DEPARTMENT OF TRANSPORTATION
	EVALUATED BY:	B. BURKLAND	Prepared By: RPA Robert Peccia & Associates, Inc.	
LOCATION:	TOWNSEND MONTANA			

TOWNSEND

TOWNSEND AIRPORT

08/06/2015



A-1, overview



A-1, surface detail with cracking



R-1, surface detail with cracking



R-1, overview

TOWNSEND AIRPORT

08/06/2015



T-1, overview



T-1, surface detail with cracking & raveling

TOWNSEND AIRPORT

Branch: 55A

APRON

A-1

Length: 350 LF **Width:** 300 LF **Area:** 105,000 SF **Last Const. :** 2002 **Family:** ACAM15
From: ENTIRE APRON **To:** **Surface:** AAC

Inspections

Samples Surveyed: 5 **Total Samples:** 21 **Last Inspection Date (RPA)** 8/6/2015 **PCI:** 69

Sample # 1 **Area:** 5000 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	598 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	91 LF
WEATHERING	M	150 SF
WEATHERING	L	50 SF
RAVELING	L	4 SF

Sample # 5 **Area:** 5000 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	471 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	90 LF
WEATHERING	L	45 SF
OIL SPILLAGE	N	12 SF
DEPRESSION	L	3 SF

Sample # 10 **Area:** 5000 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	550 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	89 LF
WEATHERING	L	50 SF
DEPRESSION	L	4 SF
RAVELING	L	3 SF

Sample # 15 **Area:** 5000 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	507 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	27 LF
WEATHERING	L	50 SF

Sample # 20 **Area:** 5000 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	455 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	55 LF
WEATHERING	L	50 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
LONGITUDINAL/TRANSVERSE CRACKING	L	10840 LF	10.32 %	23.70
LONGITUDINAL/TRANSVERSE CRACKING	M	1478 LF	1.41 %	13.18
OIL SPILLAGE	N	50 SF	0.05 %	2.00
WEATHERING	M	630 SF	0.60 %	1.55
RAVELING	L	29 SF	0.03 %	1.00
WEATHERING	L	1029 SF	0.98 %	0.49
DEPRESSION	L	29 SF	0.03 %	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 95.0 % Climate/Durability 5.0 % Other

TOWNSEND AIRPORT

Branch: 55R

RUNWAY

R-1

Length: 4,000 LF **Width:** 60 LF **Area:** 240,000 SF **Last Const. :** 2002 **Family:** ACRML15
From: STA 0+00 RWY 16/34 **To:** STA 40+00 RWY 16/34 **Surface:** AAC

Inspections

Samples Surveyed: 7 **Total Samples:** 50 **Last Inspection Date (RPA)** 8/6/2015 **PCI:** 58

Sample # 9 **Area:** 4800 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	304 LF
WEATHERING	L	144 SF
LONGITUDINAL/TRANSVERSE CRACKING	M	22 LF
LONGITUDINAL/TRANSVERSE CRACKING	H	8 LF
DEPRESSION	L	18 SF
DEPRESSION	M	10 SF
RAVELING	M	4 SF

Sample # 15 **Area:** 4800 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	329 LF
WEATHERING	L	144 SF
LONGITUDINAL/TRANSVERSE CRACKING	M	25 LF
LONGITUDINAL/TRANSVERSE CRACKING	H	22 LF
DEPRESSION	L	20 SF
DEPRESSION	M	14 SF
SWELLING	L	11 SF
DEPRESSION	H	5 SF
RAVELING	M	4 SF

Sample # 21 **Area:** 4800 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	340 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	54 LF
WEATHERING	L	144 SF
LONGITUDINAL/TRANSVERSE CRACKING	H	31 LF
DEPRESSION	L	38 SF
RAVELING	M	24 SF
DEPRESSION	M	24 SF

Sample # 27 **Area:** 4800 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	264 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	52 LF
WEATHERING	L	144 SF
LONGITUDINAL/TRANSVERSE CRACKING	H	16 LF
DEPRESSION	L	20 SF
SWELLING	L	12 SF
DEPRESSION	M	12 SF
RAVELING	M	2 SF

Sample # 33 **Area:** 4800 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	321 LF
WEATHERING	L	144 SF
LONGITUDINAL/TRANSVERSE CRACKING	M	19 LF
LONGITUDINAL/TRANSVERSE CRACKING	H	8 LF
SWELLING	L	25 SF
DEPRESSION	L	16 SF
DEPRESSION	M	8 SF
RAVELING	H	1 SF

Sample # 39 **Area:** 4800 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	242 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	79 LF
LONGITUDINAL/TRANSVERSE CRACKING	H	47 LF
WEATHERING	L	144 SF
DEPRESSION	L	55 SF
DEPRESSION	M	28 SF

TOWNSEND AIRPORT

Branch: 55R

RUNWAY

R-1

Sample # 45

Area: 4800 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	305 LF
WEATHERING	L	144 SF
LONGITUDINAL/TRANSVERSE CRACKING	M	33 LF
LONGITUDINAL/TRANSVERSE CRACKING	H	22 LF
DEPRESSION	L	16 SF
DEPRESSION	M	8 SF
RAVELING	H	1 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
LONGITUDINAL/TRANSVERSE CRACKING	L	15036 LF	6.26 %	17.31
LONGITUDINAL/TRANSVERSE CRACKING	H	1100 LF	0.46 %	13.93
DEPRESSION	H	36 SF	0.01 %	12.00
LONGITUDINAL/TRANSVERSE CRACKING	M	2029 LF	0.85 %	10.43
DEPRESSION	M	743 SF	0.31 %	7.92
RAVELING	H	14 SF	0.01 %	6.00
RAVELING	M	243 SF	0.10 %	4.01
DEPRESSION	L	1307 SF	0.54 %	3.64
SWELLING	L	343 SF	0.14 %	1.33
WEATHERING	L	7200 SF	3.00 %	0.82

* 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

68.0 % Climate/Durability

32.0 % Other

TOWNSEND AIRPORT

Branch: 55T

TAXIWAY

T-1

Length: 1,324 LF **Width:** 26 LF **Area:** 34,700 SF **Last Const. :** 2002 **Family:** ACRML15
From: APRON to RWY 16/34 **To:** and TURNAROUNDS at ENDS **Surface:** AAC

Inspections

Samples Surveyed: 4 **Total Samples:** 11 **Last Inspection Date (RPA)** 8/6/2015 **PCI:** 69

Sample # 1 **Area:** 4800 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	504 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	53 LF
LONGITUDINAL/TRANSVERSE CRACKING	H	16 LF
WEATHERING	L	48 SF
DEPRESSION	L	30 SF
RAVELING	M	3 SF
PATCHING	L	2 SF

Sample # 4 **Area:** 4800 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	293 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	90 LF
WEATHERING	L	48 SF
LONGITUDINAL/TRANSVERSE CRACKING	H	10 LF
DEPRESSION	L	23 SF
RAVELING	M	10 SF

Sample # 8 **Area:** 5000 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	265 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	25 LF
PATCHING	L	60 SF
WEATHERING	L	50 SF

Sample # 11 **Area:** 5000 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	266 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	90 LF
WEATHERING	L	50 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
LONGITUDINAL/TRANSVERSE CRACKING	L	2351 LF	6.78 %	18.25
LONGITUDINAL/TRANSVERSE CRACKING	M	457 LF	1.32 %	12.76
LONGITUDINAL/TRANSVERSE CRACKING	H	46 LF	0.13 %	8.67
RAVELING	M	23 SF	0.07 %	4.00
PATCHING	L	110 SF	0.32 %	2.14
DEPRESSION	L	94 SF	0.27 %	1.37
WEATHERING	L	347 SF	1.00 %	0.49

* 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 97.0 % Climate/Durability 3.0 % Other

TOWNSEND AIRPORT

FIFTEEN YEAR PROJECTIONS: ESTIMATED AVERAGE ANNUAL COST: \$171,593

PLAN YEAR: 2016			ESTIMATED COST:			\$1,091,866	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
A-1	Prev. & Seal Coat	\$8,463	\$29,400			\$37,863	67	72
R-1	Reconstruct			\$1,041,601		\$1,041,601	54	100
T-1	Prev. & Seal Coat	\$2,686	\$9,716			\$12,402	67	71
PLAN YEAR: 2017			ESTIMATED COST:			\$8,126	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
T-1	Basic Prev.	\$2,026				\$2,026	69	69
A-1	Basic Prev.	\$6,100				\$6,100	69	69
PLAN YEAR: 2018			ESTIMATED COST:			\$11,421	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
T-1	Basic Prev.	\$2,732				\$2,732	68	68
A-1	Basic Prev.	\$8,689				\$8,689	67	67
PLAN YEAR: 2019			ESTIMATED COST:			\$15,670	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
A-1	Basic Prev.	\$11,370				\$11,370	65	65
T-1	Basic Prev.	\$3,591				\$3,591	66	66
R-1	Basic Prev.	\$709				\$709	87	88
PLAN YEAR: 2020			ESTIMATED COST:			\$20,334	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
A-1	Basic Prev.	\$14,206				\$14,206	63	63
T-1	Basic Prev.	\$4,640				\$4,640	63	63
R-1	Basic Prev.	\$1,488				\$1,488	84	85
PLAN YEAR: 2021			ESTIMATED COST:			\$70,698	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
T-1	Prev. & Seal Coat	\$5,922	\$11,264			\$17,185	60	66
R-1	Basic Prev.	\$2,194				\$2,194	82	82
A-1	Prev. & Seal Coat	\$17,236	\$34,083			\$51,319	61	66
PLAN YEAR: 2022			ESTIMATED COST:			\$22,300	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
T-1	Basic Prev.	\$4,740				\$4,740	64	64
R-1	Basic Prev.	\$2,841				\$2,841	80	80
A-1	Basic Prev.	\$14,719				\$14,719	63	63
PLAN YEAR: 2023			ESTIMATED COST:			\$28,872	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
A-1	Basic Prev.	\$17,912				\$17,912	61	61
R-1	Basic Prev.	\$4,900				\$4,900	78	78
T-1	Basic Prev.	\$6,060				\$6,060	61	61
PLAN YEAR: 2024			ESTIMATED COST:			\$199,031	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
T-1	Reconstruct			\$170,069		\$170,069	58	100
A-1	Basic Prev.	\$22,067				\$22,067	59	59
R-1	Basic Prev.	\$6,895				\$6,895	77	77
PLAN YEAR: 2025			ESTIMATED COST:			\$36,238	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
R-1	Basic Prev.	\$8,803				\$8,803	75	76
A-1	Basic Prev.	\$27,435				\$27,435	57	57
PLAN YEAR: 2026			ESTIMATED COST:			\$83,579	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
A-1	Prev. & Seal Coat	\$33,359	\$39,511			\$72,870	54	59
R-1	Basic Prev.	\$10,709				\$10,709	74	74
PLAN YEAR: 2027			ESTIMATED COST:			\$41,242	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
A-1	Basic Prev.	\$28,408				\$28,408	57	57
R-1	Basic Prev.	\$12,704				\$12,704	73	73
T-1	Basic Prev.	\$130				\$130	87	88

PLAN YEAR: 2028			ESTIMATED COST:			\$49,812	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
A-1	Basic Prev.	\$34,649				\$34,649	55	55
R-1	Basic Prev.	\$14,890				\$14,890	72	72
T-1	Basic Prev.	\$273				\$273	84	85
PLAN YEAR: 2029			ESTIMATED COST:			\$59,344	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
T-1	Basic Prev.	\$402				\$402	82	82
A-1	Basic Prev.	\$41,588				\$41,588	52	52
R-1	Basic Prev.	\$17,354				\$17,354	70	70
PLAN YEAR: 2030			ESTIMATED COST:			\$835,364	PCI	
SectionID	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	before	after
T-1	Basic Prev.	\$520				\$520	80	80
R-1	Basic Prev.	\$23,342				\$23,342	69	69
A-1	Reconstruct			\$811,502		\$811,502	49	100