STANFORD AIRPORT

Branch: 20A **APRON** **A-2**

Length: 300 LF **Width:** 200 LF **Area:** 60,000 SF **Last Const. :** 1997 **Family:** 9ACAM
From: ENTIRE APRON **To:** T-2 **Surface:** AC

Inspections

Samples Surveyed: 4 **Total Samples:** 12 **Last Inspection Date:** 8/13/2009 **PCI: 70**

Sample # 1 **Area:** 5000 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	137 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	30 LF
DEPRESSION	L	32 SF
WEATHERING/RAVELING	M	25 SF
SWELLING	L	18 SF

Sample # 4 **Area:** 5000 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	237 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	15 LF
WEATHERING/RAVELING	M	25 SF
DEPRESSION	L	13 SF

Sample # 6 **Area:** 5000 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	275 LF
WEATHERING/RAVELING	M	25 SF
SWELLING	L	16 SF
PATCHING	L	9 SF
DEPRESSION	L	7 SF
DEPRESSION	M	3 SF
OIL SPILLAGE	N	1 SF

Sample # 9 **Area:** 5000 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	221 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	12 LF
WEATHERING/RAVELING	M	25 SF
PATCHING	L	21 SF
OIL SPILLAGE	N	14 SF
DEPRESSION	M	7 SF
DEPRESSION	L	4 SF
WEATHERING/RAVELING	H	1 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
LONGITUDINAL/TRANSVERSE CRACKING	L	2611 LF	4.35 %	13.33
LONGITUDINAL/TRANSVERSE CRACKING	M	171 LF	0.29 %	6.30
WEATHERING/RAVELING	M	300 SF	0.50 %	6.15
WEATHERING/RAVELING	H	3 SF	0.00 %	6.00
DEPRESSION	M	30 SF	0.05 %	5.20
PATCHING	L	90 SF	0.15 %	2.01
OIL SPILLAGE	N	45 SF	0.07 %	2.00
DEPRESSION	L	168 SF	0.28 %	1.45
SWELLING	L	102 SF	0.17 %	1.42

* 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** 77.0 **% Climate/Durability** 23.0 **% Other**

STANFORD AIRPORT

Branch: 20R **RUNWAY** **R-2**

Length: 700 LF **Width:** 100 LF **Area:** 70,000 SF **Last Const. :** 1997 **Family:** 9ACRML

From: STA 35+00 RWY 11-29 **To:** STA 42+00 RWY 11-29 **Surface:** AC

Inspections

Samples Surveyed: 4 **Total Samples:** 14 **Last Inspection Date:** 8/13/2009 **PCI: 79**

Sample # 4 **Area:** 3750 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	188 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	27 LF
WEATHERING/RAVELING	M	19 SF
DEPRESSION	L	3 SF

Sample # 7 **Area:** 3750 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	76 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	36 LF
WEATHERING/RAVELING	M	19 SF

Sample # 10 **Area:** 3750 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	141 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	21 LF
WEATHERING/RAVELING	M	19 SF

Sample # 13 **Area:** 3750 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	102 LF
WEATHERING/RAVELING	M	19 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
LONGITUDINAL/TRANSVERSE CRACKING	L	2367 LF	3.38 %	11.01
LONGITUDINAL/TRANSVERSE CRACKING	M	392 LF	0.56 %	8.72
WEATHERING/RAVELING	M	355 SF	0.51 %	6.17
DEPRESSION	L	14 SF	0.02 %	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** 99.0 **% Climate/Durability** 1.0 **% Other**

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Branch: 20R **RUNWAY** **R-3**

Length: 3,500 LF **Width:** 75 LF **Area:** 262,500 SF **Last Const. :** 1997 **Family:** 9ACRML
From: STA 0+00, RW 11-29 **To:** STA 35+00, RW 11-29 **Surface:** AC

Inspections

Samples Surveyed: 7 **Total Samples:** 55 **Last Inspection Date:** 8/13/2009 **PCI: 73**

Sample # 5 **Area:** 4950 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	280 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	18 LF
WEATHERING/RAVELING	M	25 SF
DEPRESSION	L	11 SF
SWELLING	L	1 SF

Sample # 12 **Area:** 4950 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	270 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	26 LF
WEATHERING/RAVELING	M	25 SF
DEPRESSION	L	6 SF
PATCHING	L	4 SF
SWELLING	L	2 SF

Sample # 19 **Area:** 4950 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	263 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	8 LF
WEATHERING/RAVELING	M	25 SF
DEPRESSION	L	15 SF
WEATHERING/RAVELING	H	1 SF

Sample # 26 **Area:** 4950 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	219 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	9 LF
WEATHERING/RAVELING	M	25 SF
DEPRESSION	L	14 SF

Sample # 33 **Area:** 4950 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	205 LF
WEATHERING/RAVELING	M	25 SF
DEPRESSION	L	7 SF

Sample # 40 **Area:** 4950 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	259 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	25 LF
WEATHERING/RAVELING	M	25 SF
DEPRESSION	L	8 SF
WEATHERING/RAVELING	H	1 SF
PATCHING	L	1 SF
SWELLING	L	1 SF

Sample # 47 **Area:** 4950 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	187 LF
WEATHERING/RAVELING	M	25 SF
DEPRESSION	L	12 SF
WEATHERING/RAVELING	H	1 SF
SWELLING	L	1 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
LONGITUDINAL/TRANSVERSE CRACKING	L	12753 LF	4.86 %	14.46
WEATHERING/RAVELING	M	1326 SF	0.51 %	6.17
WEATHERING/RAVELING	H	23 SF	0.01 %	6.00
LONGITUDINAL/TRANSVERSE CRACKING	M	652 LF	0.25 %	5.84
PATCHING	L	38 SF	0.01 %	2.00
SWELLING	L	38 SF	0.01 %	1.00
DEPRESSION	L	553 SF	0.21 %	0.87

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

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Branch: 20R **RUNWAY** **R-3**

Percent of Deduct Values Based on Distress Mechanism

0.0 **% Load**	95.0 **% Climate/Durability**	5.0 **% Other**

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Branch: 20T **TAXIWAY** **T-2**

Length: 220 LF **Width:** 80 LF **Area:** 13,100 SF **Last Const. :** 1997 **Family:** 9ACRML
From: TURNAROUND & RW **To:** APRON **Surface:** AC

Inspections

Samples Surveyed: 3 **Total Samples:** 3 **Last Inspection Date:** 8/13/2009 **PCI: 86**

Sample # 1 **Area:** 3500 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	115 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	27 LF
WEATHERING/RAVELING	M	17 SF
DEPRESSION	L	6 SF
SWELLING	L	2 SF
PATCHING	L	2 SF
WEATHERING/RAVELING	H	1 SF

Sample # 2 **Area:** 4800 SF

Distress Description	Severity	Quantity
DEPRESSION	L	24 SF
WEATHERING/RAVELING	M	24 SF

Sample # 3 **Area:** 4800 SF

Distress Description	Severity	Quantity
WEATHERING/RAVELING	M	24 SF
DEPRESSION	L	2 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
WEATHERING/RAVELING	M	65 SF	0.50 %	6.13
WEATHERING/RAVELING	H	1 SF	0.01 %	6.00
LONGITUDINAL/TRANSVERSE CRACKING	M	27 LF	0.21 %	5.24
LONGITUDINAL/TRANSVERSE CRACKING	L	115 LF	0.88 %	4.70
PATCHING	L	2 SF	0.02 %	2.00
DEPRESSION	L	32 SF	0.24 %	1.15
SWELLING	L	2 SF	0.02 %	1.00

* 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**

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FIRST YEAR LOCAL:2010 LOCAL REPAIR COST: $5,076

Section	Distress Description	Severity	Quantity	Work Description	Quantity	Cost	Policy
A-2	L & T CR	M	172 LF	Crack Sealing - AC	172 LF	$257	PREV.
A-2	OIL SPILLAGE	N	45 SF	Patching - AC Shallow	76 SF	$1,140	PREV.
A-2	DEPRESSION	M	30 SF	Patching - AC Deep	57 SF	$2,074	PREV.
R-2	L & T CR	M	393 LF	Crack Sealing - AC	393 LF	$588	PREV.
R-3	L & T CR	M	652 LF	Crack Sealing - AC	652 LF	$978	PREV.
T-2	L & T CR	M	27 LF	Crack Sealing - AC	27 LF	$41	PREV.

FIFTEEN YEAR PROJECTIONS: ESTIMATED AVERAGE ANNUAL COST: $100,460

PLAN YEAR: 2010 ESTIMATED COST: $654,038

SectionI	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	PCI before	PCI after
A-2	Prev. & Thin AC	$3,470	$96,000			$99,470	69	84
R-2	Prev. & Thin AC	$588	$112,000			$112,588	78	95
R-3	Prev. & Thin AC	$978	$420,001			$420,979	72	85
T-2	Prev. & Thin AC	$41	$20,960			$21,001	85	100

PLAN YEAR: 2011 ESTIMATED COST: $4,401

SectionI	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	PCI before	PCI after
A-2	Basic Prev.	$897				$897	81	81
R-3	Basic Prev.	$3,504				$3,504	82	82

PLAN YEAR: 2012 ESTIMATED COST: $6,618

SectionI	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	PCI before	PCI after
A-2	Basic Prev.	$1,327				$1,327	78	78
R-2	Basic Prev.	$319				$319	87	87
R-3	Basic Prev.	$4,973				$4,973	79	79

PLAN YEAR: 2013 ESTIMATED COST: $9,180

SectionI	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	PCI before	PCI after
A-2	Basic Prev.	$1,780				$1,780	75	75
R-2	Basic Prev.	$716				$716	84	84
R-3	Basic Prev.	$6,641				$6,641	76	76
T-2	Basic Prev.	$44				$44	88	88

PLAN YEAR: 2014 ESTIMATED COST: $11,500

SectionI	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	PCI before	PCI after
A-2	Basic Prev.	$2,216				$2,216	72	72
R-2	Basic Prev.	$1,073				$1,073	81	81
R-3	Basic Prev.	$8,092				$8,092	74	74
T-2	Basic Prev.	$119				$119	84	84

PLAN YEAR: 2015 ESTIMATED COST: $13,610

SectionI	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	PCI before	PCI after
A-2	Basic Prev.	$2,561				$2,561	69	69
R-2	Basic Prev.	$1,511				$1,511	78	78
R-3	Basic Prev.	$9,350				$9,350	72	72
T-2	Basic Prev.	$188				$188	81	81

PLAN YEAR: 2016 ESTIMATED COST: $15,425

SectionI	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	PCI before	PCI after
A-2	Basic Prev.	$2,783				$2,783	66	66
R-2	Basic Prev.	$1,931				$1,931	76	76
R-3	Basic Prev.	$10,445				$10,445	71	71
T-2	Basic Prev.	$265				$265	78	78

PLAN YEAR: 2017 ESTIMATED COST: $16,786

SectionI	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	PCI before	PCI after
A-2	Basic Prev.	$3,004				$3,004	63	63
R-2	Basic Prev.	$2,298				$2,298	73	73
R-3	Basic Prev.	$11,138				$11,138	69	69
T-2	Basic Prev.	$347				$347	76	76

PLAN YEAR: 2018 ESTIMATED COST: $17,870

SectionI	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	PCI before	PCI after
A-2	Basic Prev.	$3,224				$3,224	61	61
R-2	Basic Prev.	$2,616				$2,616	72	72
R-3	Basic Prev.	$11,613				$11,613	68	68
T-2	Basic Prev.	$417				$417	74	74

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PLAN YEAR: 2019					ESTIMATED COST:	$19,090	PCI	
SectionI	**Maintenance**	**Local**	**Global**	**Major<Crit**	**Major>Crit**	**Total**	**before**	**after**
A-2	Basic Prev.	$3,652				$3,652	58	58
R-2	Basic Prev.	$2,889				$2,889	70	70
R-3	Basic Prev.	$12,072				$12,072	66	66
T-2	Basic Prev.	$478				$478	72	72

PLAN YEAR: 2020					ESTIMATED COST:	$669,205	PCI	
SectionI	**Maintenance**	**Local**	**Global**	**Major<Crit**	**Major>Crit**	**Total**	**before**	**after**
A-2	Prev. & Thin AC	$4,137	$96,000			$100,137	55	69
R-2	Prev. & Thin AC	$3,021	$112,000			$115,021	69	78
R-3	Prev. & Thin AC	$12,554	$420,001			$432,556	65	72
T-2	Prev. & Thin AC	$531	$20,960			$21,491	70	81

PLAN YEAR: 2021					ESTIMATED COST:	$15,425	PCI	
SectionI	**Maintenance**	**Local**	**Global**	**Major<Crit**	**Major>Crit**	**Total**	**before**	**after**
A-2	Basic Prev.	$2,783				$2,783	66	66
R-2	Basic Prev.	$1,931				$1,931	76	76
R-3	Basic Prev.	$10,445				$10,445	71	71
T-2	Basic Prev.	$266				$266	78	78

PLAN YEAR: 2022					ESTIMATED COST:	$16,786	PCI	
SectionI	**Maintenance**	**Local**	**Global**	**Major<Crit**	**Major>Crit**	**Total**	**before**	**after**
A-2	Basic Prev.	$3,004				$3,004	63	63
R-2	Basic Prev.	$2,298				$2,298	73	73
R-3	Basic Prev.	$11,138				$11,138	69	69
T-2	Basic Prev.	$347				$347	76	76

PLAN YEAR: 2023					ESTIMATED COST:	$17,870	PCI	
SectionI	**Maintenance**	**Local**	**Global**	**Major<Crit**	**Major>Crit**	**Total**	**before**	**after**
A-2	Basic Prev.	$3,224				$3,224	61	61
R-2	Basic Prev.	$2,616				$2,616	72	72
R-3	Basic Prev.	$11,613				$11,613	68	68
T-2	Basic Prev.	$417				$417	74	74

PLAN YEAR: 2024					ESTIMATED COST:	$19,090	PCI	
SectionI	**Maintenance**	**Local**	**Global**	**Major<Crit**	**Major>Crit**	**Total**	**before**	**after**
A-2	Basic Prev.	$3,652				$3,652	58	58
R-2	Basic Prev.	$2,889				$2,889	70	70
R-3	Basic Prev.	$12,072				$12,072	66	66
T-2	Basic Prev.	$478				$478	72	72

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8/13/2009

A-2, overview

A-2, surface detail

T-2, surface detail

T-2, overview

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8/13/2009

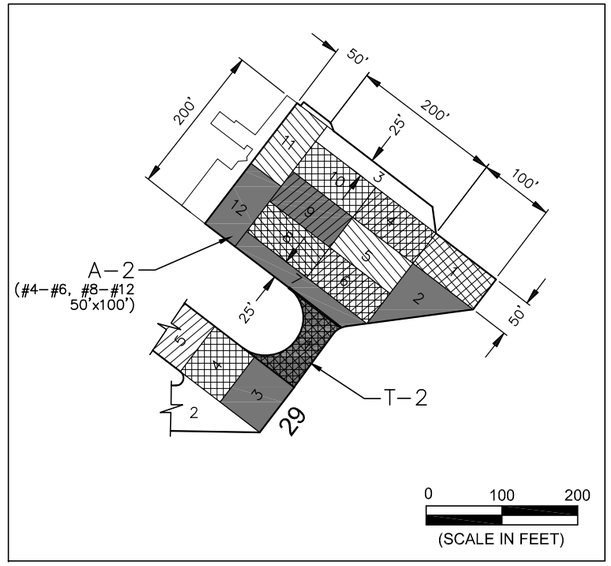
R-2, overview

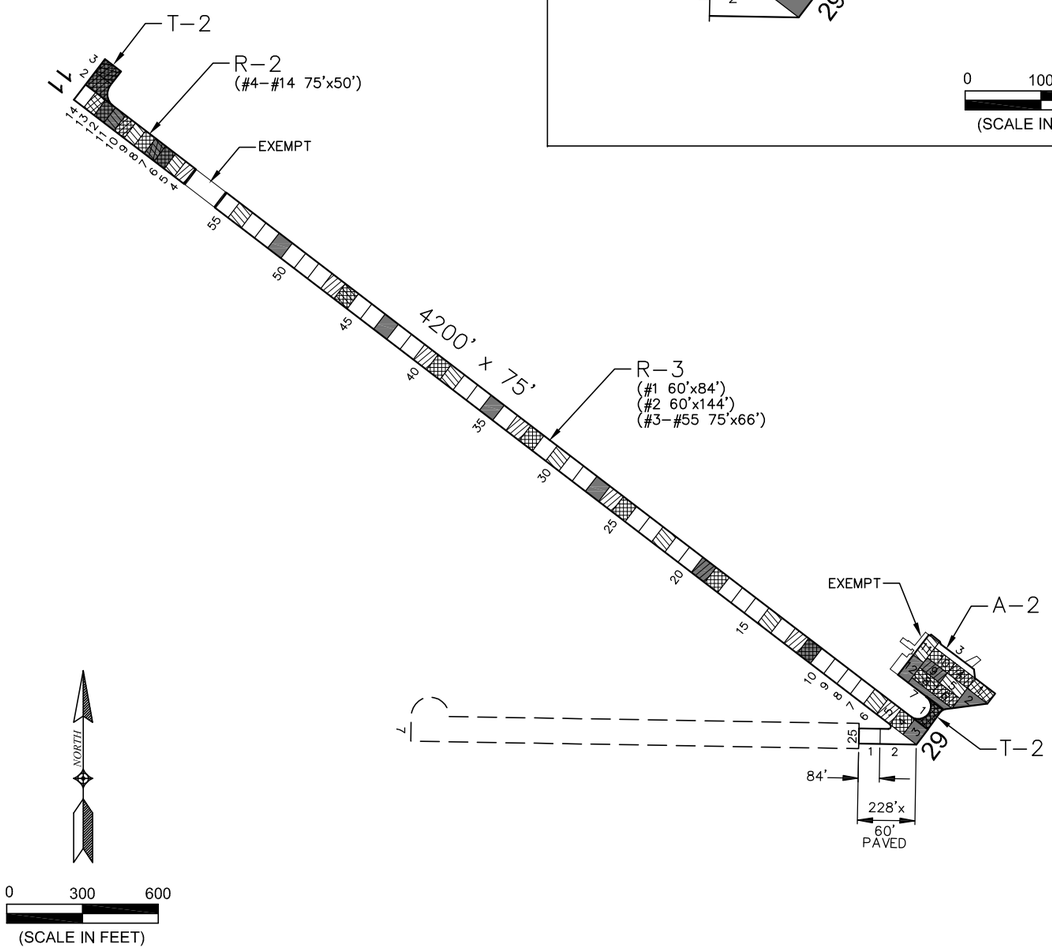
R-2, surface detail

R-3, surface detail

R-3, overview

STANFORD





PAVEMENT STRENGTH SURVEY/PAVEMENT CONDITION SURVEY

PAVE. IDENT.	SOIL CLASS	SUB GRADE CLASS	SUBBASE COURSE	BASE COURSE	SURFACE COURSE	OVERLAY	PAVEMENT STRENGTH MAX. GROSS LOAD (LBS) SINGLE	DUAL	DUAL TAN.	REMARKS
RUNWAYS										
R–2	CBR=1.0		12" P–152	12"P–208	P–609	3"P–401	12,500			1 2 3 4
R–3	E–7	F7		8"P–207	3"P–401		12,500			2 3 4
TAXIWAYS										
T–2	E–7	F7		8"P–207	3"P–401		12,500			2 3 4
APRONS										
A–2	E–7	F7		8"P–207	3"P–401		12,500			2 3 4

REMARKS:

1. AIP–02, 1986, RUNWAY EXTENSION AND CHIP SEAL.
2. AIP–03, 1997, PULVERIZE AND RECONSTRUCT ALL PAVEMENTS EXCEPT RUNWAY 11 END (R–2) EXTENSION, WHICH WAS OVERLAYED.
3. AIP–004–2005, CRACK SEAL, FOG SEAL, AND REMARK PAVEMENTS.
4. AIP–006–2009, CRACK SEAL, FOG SEAL, AND REMARK PAVEMENTS [INSPECTED AFTER PAVEMENT MAINTENANCE].

LEGEND

- 1997 SURVEY AREA (RECONSTRUCTED)
- 2000 SURVEY AREA (NOT SURVEYED)
- 2003 SURVEY AREA
- 2006 SURVEY AREA
- 2009 SURVEY AREA

DATE OF PAVEMENT STRENGTH SURVEY:	
EVALUATED BY:	
DATE OF MOST RECENT PAVEMENT CONDITION SURVEY:	AUG. 13, 2009
EVALUATED BY:	B. BURKLAND

MONTANA AVIATION SYSTEM PLAN
2009 UPDATE - PAVEMENT CONDITION INDEXES

STANFORD AIRPORT

PREPARED FOR: MONTANA AERONAUTICS DIVISION

STANFORD
MONTANA

DATE: NOV. 2009

PREPARED BY: RPA

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