

HARLEM AIRPORT

Branch: 17A **APRON**

A-11

Length: 235 LF Width: 280 LF Area: 65,320 SF Last Const: 2003 Family: ACAM
 From: T-12 To: TIEDOWNS Surface: AC

Inspections

Samples Surveyed: 5 Total Samples: 15 Last Inspection Date: 8/20/2012 **PCI: 81**

Sample # 1	Distress Description LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L M	Quantity 54 LF 1,936 SF	Area: 4,301 SF
Sample # 4	Distress Description DEPRESSION LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L L M	Quantity 14 SF 26 LF 1,936 SF	Area: 4,301 SF
Sample # 7	Distress Description LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L M	Quantity 40 LF 1,936 SF	Area: 4,301 SF
Sample # 9	Distress Description LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L M	Quantity 119 LF 1,936 SF	Area: 4,301 SF
Sample # 12	Distress Description LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L M	Quantity 131 LF 691 SF	Area: 4,301 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
DEPRESSION	L	41 SF	0.06%	0.30
LONGITUDINAL/TRANSVERSE CRACKING	L	1,121 LF	1.72%	6.66
WEATHERING	M	25,621 SF	39.22%	13.37

* 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

HARLEM AIRPORT

Branch: 17R RUNWAY

R-11

Length: 3,850 LF

Width: 75 LF

Area: 288,750 SF

Last Const: 2003

Family: ACRML

From: T-11

To: R-12

Surface: AC

Inspections

Samples Surveyed: 7

Total Samples: 55

Last Inspection Date: 8/20/2012

PCI: 77

Sample # 5

Distress Description

LONGITUDINAL/TRANSVERSE CRACKING
WEATHERING

Severity

L

M

Quantity

268 LF

3,255 SF

Area: 5,250 SF

Sample # 13

Distress Description

LONGITUDINAL/TRANSVERSE CRACKING
LONGITUDINAL/TRANSVERSE CRACKING
WEATHERING

Severity

L

M

M

Quantity

210 LF

10 LF

3,255 SF

Area: 5,250 SF

Sample # 21

Distress Description

LONGITUDINAL/TRANSVERSE CRACKING
WEATHERING

Severity

L

M

Quantity

160 LF

3,255 SF

Area: 5,250 SF

Sample # 29

Distress Description

LONGITUDINAL/TRANSVERSE CRACKING
RAVELING
WEATHERING

Severity

L

L

M

Quantity

102 LF

1 SF

3,255 SF

Area: 5,250 SF

Sample # 37

Distress Description

LONGITUDINAL/TRANSVERSE CRACKING
WEATHERING

Severity

L

M

Quantity

168 LF

3,255 SF

Area: 5,250 SF

Sample # 45

Distress Description

LONGITUDINAL/TRANSVERSE CRACKING
WEATHERING

Severity

L

M

Quantity

148 LF

3,938 SF

Area: 5,250 SF

Sample # 53

Distress Description

LONGITUDINAL/TRANSVERSE CRACKING
WEATHERING

Severity

L

M

Quantity

238 LF

3,938 SF

Area: 5,250 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
LONGITUDINAL/TRANSVERSE CRACKING	L	10,163 LF	3.52%	11.36
LONGITUDINAL/TRANSVERSE CRACKING	M	79 LF	0.03%	4.00
RAVELING	L	4 SF	0.00%	1.00
WEATHERING	M	189,758 SF	65.72%	17.39

* 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

100.0 % Climate/Durability

0.0 % Other

HARLEM AIRPORT

Branch: 17R RUNWAY

R-12

Length: 250 LF Width: 75 LF Area: 18,750 SF Last Const: 2003 Family: ACRML
 From: R-11 To: T-3 Surface: AC

Inspections

Samples Surveyed: 4 Total Samples: 4 Last Inspection Date: 8/20/2012 **PCI: 77**

<p>Sample # 1</p> <p>Distress Description LONGITUDINAL/TRANSVERSE CRACKING RAVELING WEATHERING</p>	<p>Severity L L M</p>	<p>Quantity 178 LF 0 SF 3,516 SF</p>	<p>Area: 4,688 SF</p>
<p>Sample # 2</p> <p>Distress Description LONGITUDINAL/TRANSVERSE CRACKING WEATHERING</p>	<p>Severity L M</p>	<p>Quantity 236 LF 3,516 SF</p>	<p>Area: 4,688 SF</p>
<p>Sample # 3</p> <p>Distress Description LONGITUDINAL/TRANSVERSE CRACKING WEATHERING</p>	<p>Severity L M</p>	<p>Quantity 162 LF 3,516 SF</p>	<p>Area: 4,688 SF</p>
<p>Sample # 4</p> <p>Distress Description LONGITUDINAL/TRANSVERSE CRACKING WEATHERING</p>	<p>Severity L M</p>	<p>Quantity 30 LF 3,516 SF</p>	<p>Area: 4,686 SF</p>

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
LONGITUDINAL/TRANSVERSE CRACKING	L	606 LF	3.23%	10.64
RAVELING	L	0 SF	0.00%	1.00
WEATHERING	M	14,064 SF	75.01%	18.38

* 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 100.0 % Climate/Durability 0.0 % Other

HARLEM AIRPORT

Branch: 17T TAXIWAY

T-11

Length: 738 LF Width: 35 LF Area: 28,174 SF Last Const: 2003 Family: ACRML
 From: R-11 To: A-11 Surface: AC

Inspections

Samples Surveyed: 3 Total Samples: 6 Last Inspection Date: 8/20/2012 **PCI: 74**

Sample # 1	Distress Description	Severity	Quantity	Area: 3,238 SF
	LONGITUDINAL/TRANSVERSE CRACKING	L	86 LF	
	RAVELING	M	64 SF	
	WEATHERING	L	1,619 LF	
	WEATHERING	M	1,619 SF	

Sample # 3	Distress Description	Severity	Quantity	Area: 4,839 SF
	DEPRESSION	L	0 SF	
	RAVELING	L	29 SF	
	WEATHERING	L	1,934 LF	
	WEATHERING	M	2,904 SF	

Sample # 6	Distress Description	Severity	Quantity	Area: 4,839 SF
	LONGITUDINAL/TRANSVERSE CRACKING	L	98 LF	
	WEATHERING	L	2,419 LF	
	WEATHERING	M	2,420 SF	

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
WEATHERING	M	15,145 SF	53.76%	15.82
RAVELING	M	140 SF	0.50%	6.13
LONGITUDINAL/TRANSVERSE CRACKING	L	400 LF	1.42%	5.91
WEATHERING	L	13,027 SF	46.24%	4.63
RAVELING	L	63 SF	0.22%	1.26
DEPRESSION	L	1 SF	0.00%	0.3

* 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 98.0 % Climate/Durability 2.0 % Other

HARLEM AIRPORT

FIRST YEAR LOCAL: 2013 **LOCAL REPAIR COST: \$196**

Section	Distress Description	Severity	Quantity	Work Description	Quantity	Cost	Policy
R-11	L & T CR	M	79 LF	Crack Sealing - AC	79 LF	\$196	PREV.

FIFTEEN YEAR PROJECTIONS **ESTIMATED AVERAGE ANNUAL COST: \$48,456**

Plan Year: 2013		Estimated Cost: \$110,499		PCI				
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Global MR + Preventive	\$870	\$16,330	\$0	\$0	\$17,200	79	86
R-11	Global MR + Preventive	\$7,806	\$72,188	\$0	\$0	\$79,994	76	80
R-12	Global MR + Preventive	\$507	\$4,688	\$0	\$0	\$5,194	76	80
T-11	Global MR + Preventive	\$1,066	\$7,044	\$0	\$0	\$8,110	73	77

Plan Year: 2014		Estimated Cost: \$7,181		PCI				
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Preventive	\$514	\$0	\$0	\$0	\$514	82	83
R-11	Preventive	\$5,413	\$0	\$0	\$0	\$5,413	78	78
R-12	Preventive	\$351	\$0	\$0	\$0	\$351	78	78
T-11	Preventive	\$902	\$0	\$0	\$0	\$902	75	75

Plan Year: 2015		Estimated Cost: \$10,538		PCI				
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Preventive	\$840	\$0	\$0	\$0	\$840	79	80
R-11	Preventive	\$8,060	\$0	\$0	\$0	\$8,060	76	76
R-12	Preventive	\$523	\$0	\$0	\$0	\$523	76	76
T-11	Preventive	\$1,115	\$0	\$0	\$0	\$1,115	73	73

Plan Year: 2016		Estimated Cost: \$14,141		PCI				
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Preventive	\$1,633	\$0	\$0	\$0	\$1,633	77	77
R-11	Preventive	\$10,515	\$0	\$0	\$0	\$10,515	74	74
R-12	Preventive	\$683	\$0	\$0	\$0	\$683	74	74
T-11	Preventive	\$1,310	\$0	\$0	\$0	\$1,310	72	72

Plan Year: 2017		Estimated Cost: \$17,470		PCI				
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Preventive	\$2,417	\$0	\$0	\$0	\$2,417	74	74
R-11	Preventive	\$12,738	\$0	\$0	\$0	\$12,738	73	73
R-12	Preventive	\$827	\$0	\$0	\$0	\$827	73	73
T-11	Preventive	\$1,488	\$0	\$0	\$0	\$1,488	71	71

Plan Year: 2018		Estimated Cost: \$136,821		PCI				
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Global MR + Preventive	\$3,202	\$18,931	\$0	\$0	\$22,133	72	77
R-11	Global MR + Preventive	\$14,769	\$83,686	\$0	\$0	\$98,454	71	74
R-12	Global MR + Preventive	\$959	\$5,434	\$0	\$0	\$6,393	71	74
T-11	Global MR + Preventive	\$1,676	\$8,165	\$0	\$0	\$9,841	70	72

Plan Year: 2019		Estimated Cost: \$18,266		PCI				
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Preventive	\$2,483	\$0	\$0	\$0	\$2,483	75	75
R-11	Preventive	\$13,351	\$0	\$0	\$0	\$13,351	73	73
R-12	Preventive	\$867	\$0	\$0	\$0	\$867	73	73
T-11	Preventive	\$1,565	\$0	\$0	\$0	\$1,565	71	71

Plan Year: 2020		Estimated Cost: \$21,608		PCI				
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Preventive	\$3,320	\$0	\$0	\$0	\$3,320	72	72
R-11	Preventive	\$15,526	\$0	\$0	\$0	\$15,526	72	72
R-12	Preventive	\$1,008	\$0	\$0	\$0	\$1,008	72	72
T-11	Preventive	\$1,753	\$0	\$0	\$0	\$1,753	70	70

Plan Year: 2021		Estimated Cost: \$24,903		PCI				
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Preventive	\$4,170	\$0	\$0	\$0	\$4,170	70	70
R-11	Preventive	\$17,514	\$0	\$0	\$0	\$17,514	71	71
R-12	Preventive	\$1,137	\$0	\$0	\$0	\$1,137	71	71
T-11	Preventive	\$2,081	\$0	\$0	\$0	\$2,081	69	69

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Plan Year: 2022		Estimated Cost: \$29,854				PCI		
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Preventive	\$6,077	\$0	\$0	\$0	\$6,077	68	68
R-11	Preventive	\$20,080	\$0	\$0	\$0	\$20,080	70	70
R-12	Preventive	\$1,304	\$0	\$0	\$0	\$1,304	70	70
T-11	Preventive	\$2,393	\$0	\$0	\$0	\$2,393	68	69

Plan Year: 2023		Estimated Cost: \$170,509				PCI		
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Global MR + Preventive	\$7,997	\$21,946	\$0	\$0	\$29,944	66	70
R-11	Global MR + Preventive	\$23,552	\$97,015	\$0	\$0	\$120,567	69	71
R-12	Global MR + Preventive	\$1,529	\$6,300	\$0	\$0	\$7,829	69	71
T-11	Global MR + Preventive	\$2,704	\$9,466	\$0	\$0	\$12,170	68	69

Plan Year: 2024		Estimated Cost: \$31,119				PCI		
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Preventive	\$6,257	\$0	\$0	\$0	\$6,257	68	68
R-11	Preventive	\$20,984	\$0	\$0	\$0	\$20,984	70	70
R-12	Preventive	\$1,363	\$0	\$0	\$0	\$1,363	70	70
T-11	Preventive	\$2,516	\$0	\$0	\$0	\$2,516	69	69

Plan Year: 2025		Estimated Cost: \$37,446				PCI		
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Preventive	\$8,298	\$0	\$0	\$0	\$8,298	66	66
R-11	Preventive	\$24,700	\$0	\$0	\$0	\$24,700	69	69
R-12	Preventive	\$1,604	\$0	\$0	\$0	\$1,604	69	69
T-11	Preventive	\$2,844	\$0	\$0	\$0	\$2,844	68	68

Plan Year: 2026		Estimated Cost: \$43,648				PCI		
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Preventive	\$10,370	\$0	\$0	\$0	\$10,370	64	64
R-11	Preventive	\$28,242	\$0	\$0	\$0	\$28,242	68	68
R-12	Preventive	\$1,834	\$0	\$0	\$0	\$1,834	68	68
T-11	Preventive	\$3,202	\$0	\$0	\$0	\$3,202	67	67

Plan Year: 2027		Estimated Cost: \$52,838				PCI		
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-11	Preventive	\$12,489	\$0	\$0	\$0	\$12,489	62	62
R-11	Preventive	\$31,885	\$0	\$0	\$0	\$31,885	68	68
R-12	Preventive	\$2,070	\$0	\$0	\$0	\$2,070	68	68
T-11	Preventive	\$3,610	\$0	\$0	\$0	\$3,610	67	67

HARLEM AIRPORT

8/20/2012



A-11, Overview with depression



R-11 and 12, Overview



R-11 and 12, Surface detail with crack



R-11 and 12, Surface detail with raveling

HARLEM AIRPORT

8/20/2012

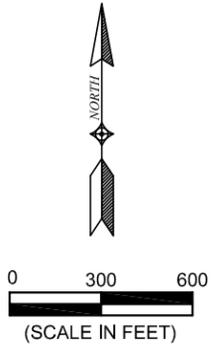
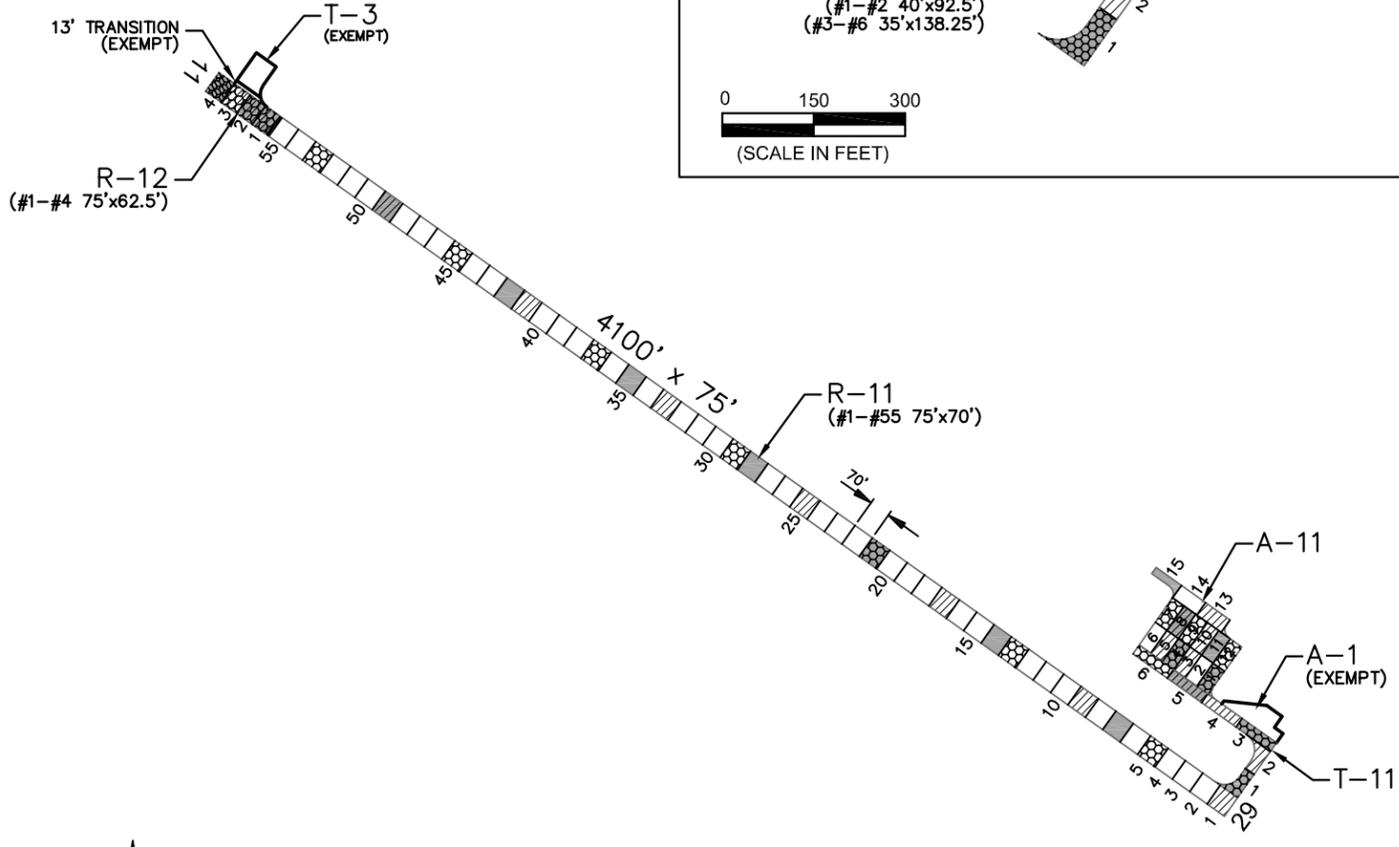
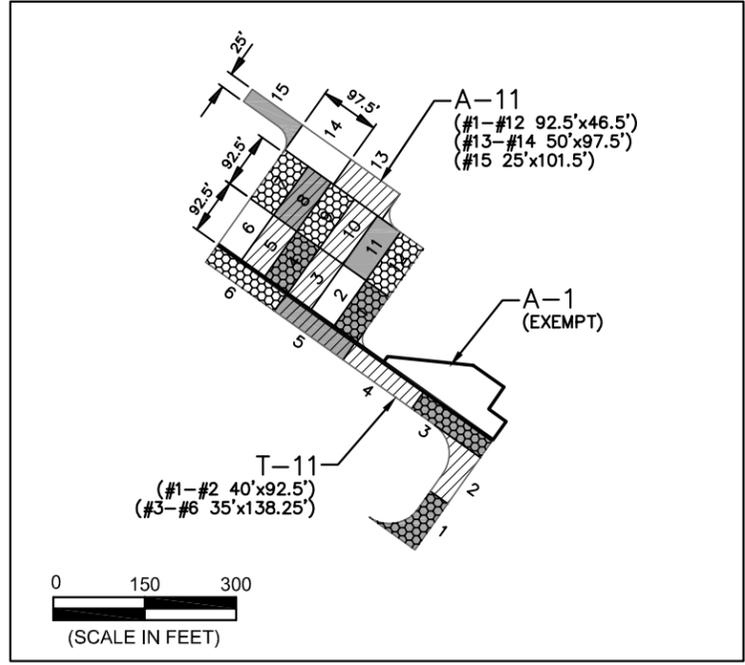


T-11, Overview with raveling



T-11, Overview

HARLEM



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-11	E-7	CBR=2	10.5"(MIN)P-154	6" P-208	3" P-401	P-609	12,500			△1 △2 △3 △4
R-12	E-7	CBR=2	10.5" P-154	6" P-208	3" P-401	P-609	12,500			△3 △4
TAXIWAYS										
T-11	E-7	CBR=2	10.5" P-154	6" P-208	3" P-401	P-609	12,500			△1 △2 △3 △4
T-3	E-7	CBR=2		8.5" P-208	1.5" P-609	1" P-402	8,000			△1 △2
APRONS										
A-1	E-7	CBR=2		8.5" P-208	1.5" P-609	1" P-402	8,000			△1
A-11	E-7	CBR=2	10.5" P-154	6" P-208	3" P-401	P-609	12,500			△3 △4

REMARKS:

- △1 AIP-001, 1983, CONSTRUCT RUNWAY, CONNECTING TAXIWAY, AND APRON
- △2 AIP-002, 1992, P-402 OVERLAY RUNWAY AND TAXIWAY, SEVERAL RUNWAY SECTIONS WERE REMOVED, REGRADED, COMPACTED, AND PAVED WITH 2" P-401 PRIOR TO P-402 OVERLAY.
- △3 AIP-004, 2003, RECONSTRUCT AND WIDEN RUNWAY; CONSTRUCT NEW TAXIWAY (T-11) AND APRON (A-11).
- △4 AIP-008, 2010, PAVEMENT MAINTENANCE INCLUDING CRACK REPAIR, CRACK SEAL, FOG SEAL, AND REMARK PAVEMENTS ON RUNWAY, TAXIWAY, AND APRON.

LEGEND □ 2000 SURVEY AREA ▨ 2003 SURVEY AREA ▩ 2006 SURVEY AREA (NOT SURVEYED) ▪ 2009 SURVEY AREA ▫ 2012 SURVEY AREA	DATE OF PAVEMENT STRENGTH SURVEY:	SEPT. 23, 1987	MONTANA AVIATION SYSTEM PLAN 2012 UPDATE - PAVEMENT CONDITION INDEXES
	EVALUATED BY:	C. NEW	
	DATE OF MOST RECENT PAVEMENT CONDITION SURVEY:	AUG. 20, 2012	HARLEM AIRPORT
	EVALUATED BY:	S. BROWN	
			PREPARED FOR: 
			PREPARED BY: 
			HARLEM MONTANA DATE: SEPT. 2012