

## **FAC 1166 Miscellaneous Airfield Pavement, Unsurfaced**

FY25 SUC: \$2.13 / SY

Source: Inflated from previous FY using ENR labor and material cost indices to measure actual inflation

Original Source: Army Staff-directed study, 2011

# Unpaved Runway Sustainment Funding

25 Aug 2011



# PURPOSE

To provide information and considerations related to sustainment of Unpaved Runways



# Overarching Considerations

- Factors that determine current sustainment funds must be reviewed for accuracy.  
Fuel, material, and labor costs have all increased recently.
- Incumbent on installations to ensure unpaved surface amounts are correctly reflected in real property inventories
- Should initially focus on sustainment and follow with restoration
- Fixing algorithm must be initial priority
- Can not solicit input from other installations until initial package is complete.
- Payment for use should be considered as a future option.
- Must define path ahead and required ACSIM data points to address/champion issue.
- Landing frequency spans from 92/year to 1500/year for canvassed installations
- **Analysis to this point indicates a cost spread of .85 to 2.05 per square yard with an average of \$1.34 to sustain and 3.38 to 4.61 per square yard for restoration.**

# DAMO TRS Guidance



REPLY TO:  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
OFFICE OF THE DEPUTY CHIEF OF STAFF, G-3/5/7  
400 ARMY PENTAGON  
WASHINGTON, DC 20310-0400

DAMO-TRS

30 August 2007

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Range and Training Land Complex Maintenance

1. Reference: AR 350-19, Sustainable Range Program 30 Aug 2005
2. The goal of the Sustainable Range Program is to maximize the capability, availability, and accessibility of ranges and training land by minimizing restrictions brought about by external factors. To maximize this availability requires maintaining the facility and components to the highest standards providing the greatest capability to training Soldiers and units.
3. Funding responsibilities for improvement and maintenance of ranges and training areas can fall in several programs.
  - a. The Facility Sustainment Model System calculates range maintenance and repair requirements for each facility. The installation DPW receives an annual allocation of SRM (funded through MDEP QRPA) based on the facility (real property) inventory and these funds should be used to maintain these ranges. SRM also includes facility improvements to meet ISR Infrastructure standards.
  - b. The Facilities Operations Model (FOM) supports range mowing operations in/around targets, etc. and is classified as Improved or Unimproved Grounds Maintenance (Service 40 or 41). The installation DPW requirement (funded through MDEP QDPW) to provide this service is identified in the FOM. DPWs will perform all Improved and Unimproved Grounds Maintenance for their installation.
  - c. The range operations program (funded through MDEP VSCW) is responsible for maintaining the targetry and operating systems on those ranges not supported through a MDEP WCLS contracted facility. When funds are available, this program will also provide for minor construction to upgrade ranges to current TC 25-8 standards.
  - d. The Integrated Training Area Management (ITAM) program (funded through MDEP TATM) is responsible for the repair of maneuver damage through land rehabilitation and maintenance projects. ITAM funds can not be used to perform routine range maintenance, range modifications or other SRM responsibilities. ITAM funds may not be used to support environmental conservation or environmental compliance requirements.

DAMO-TRS

SUBJECT: Range and Training Land Complex Maintenance

e. U.S. ARMY PEO STRI, Program Manager Field Operations & Support provides instrumentation and targetry for digital and urban ranges. Those facilities supported by this support contract (funded through MDEP WCLS) will provide maintenance of this instrumentation and targetry.

4. The Army G-3/5/7 point of contact is Mr. Dan Smith (DAMO-TRS) at (703) 692-6412 DSN 222 or e-mail: daniel.smith2@hqda.army.mil.

Thomas E. Macia  
Chief, Training Support  
Systems Division

Encl:

1. Target Graphic

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# Locally Applied Nomenclature vs CATCD

## Local Facility Nomenclature

Flight Landing Strip (FLS) – Not found in DA PAM 415-28

Aircraft Landing Strip (ALS) – Not found in DA PAM 415-28

Assault Landing Zone (ALZ) – Not found in DA PAM 415-28

## Commonly used CATCD

**CATCD:** 11111

**Long title:** FIXED WING RUNWAY, UNPAVED

**Short title:** FW RUNWAY UNPAV

**Facility type:** Structure

**UM1:** SY

**UM2:** LF

**Program UM:** SY

**FAC:** 1114

**FCG:** F11111

**Proponent:** DCS, G-3

**GLAC:** 1740

**Investment code:** 01

**Description:** An unpaved prepared surface for training, emergency, and other special takeoff and landing operations for fixed wing aircraft. It can also accommodate rotary wing aircraft. For inventory purposes, include only the prepared runway surface.

# FAC 1114 and 1166 in DA PAM 415-28

Table F-1  
FAC crosswalk table, by FAC

FAC	FCG	FCG description	UM	CATCD	CATCD short title	P UM
1111	F11110	RUNWAYS, FW	SY	11110	FW RUNWAY PAVE	SY
1112	F11120	RUNWAYS, RW	SY	11120	RW RUNWAY PAVE	SY
1112	F11120	RUNWAYS, RW	SY	11130	RW LAND PAD PAV	SY
1113	F11151	RUNWAY OVERRUN	SY	11151	RUNWAY OVERRUN	SY
1114	F11111	RUNWAY, UNSURF	SY	11111	FW RUNWAY UNPAV	SY
1114	F11111	RUNWAY, UNSURF	SY	11121	RW RUNWAY UNPAV	SY
1121	F11210	TAXIWAYS, FW	SY	11212	FW TAXIWAY PAVE	SY
1122	F11220	TAXIWAYS, RW	SY	11221	RW TAXIWAY PAVE	SY
1131	F11310	PARKING, FW	SY	11310	FW PK APRN PAVE	SY
1131	F11320	PARKING, RW	SY	11320	RW PK APRN PAVE	SY
1131	F11330	MNT APRON, ACFT	SY	11330	AC MNT APR PAVE	SY
1131	F11340	ACC APRON, HGR	SY	11340	HGR ACC APR PAV	SY
1131	F11350	HOLD APRN, ACFT	SY	11350	AC HLD APRN PAV	SY
1131	F11380	LOAD APRN, ACFT	SY	11380	AC LD APRN PAVE	SY
1161	F11610	SWING BS, ACFT	SY	11610	COMP SWING BASE	SY
1163	F11370	WASH APRN, ACFT	SY	11370	AC WSH APRN PAV	SY
1166	F11131	MISC AFLD PVMTS	SY	11131	RW LAND PAD UNP	SY
1166	F11131	MISC AFLD PVMTS	SY	11213	FW TAXIWAY UNP	SY
1166	F11131	MISC AFLD PVMTS	SY	11222	RW TAXIWAY UNP	SY
1166	F11131	MISC AFLD PVMTS	SY	11311	FW PK APRN UNP	SY
1166	F11131	MISC AFLD PVMTS	SY	11321	RW PK APRN UNP	SY
1166	F11131	MISC AFLD PVMTS	SY	11331	AC MNT APR UNP	SY
1166	F11131	MISC AFLD PVMTS	SY	11341	HGR ACC APR UNP	SY
1166	F11131	MISC AFLD PVMTS	SY	11351	AC HLD APRN UNP	SY
1166	F11131	MISC AFLD PVMTS	SY	11371	AC WSH APRN UNP	SY
1166	F11131	MISC AFLD PVMTS	SY	11383	AC LD APRN UNP	SY

# ACSIM ANALYSIS

										13,576,510.60												\$2,726,337.43		\$0.201 per SY		
SERVIC E	FMM_MNGC ML	REGIO N	FXM_I NST	MAINT _UIC	SITE_C ODF	RPUID	FACNO	FAC	CATCO DE	FSM_QUANTITY	PREDOMINANT _CATCODE	RPA_OPERATION AL_STATUS	CONST _TYPE	RPA_TYPE	FY	FSM	SUST_ORG	SUST_FUND	SUST_ACF	SUST_RQMT	FMM	RM_ORG	RM_FUND			
A	ARACT		37225		37225	289826	OLZ17	1166	11131	389620	11131	ACT	P	S	2011	Y	00	03	0.89	78210.04	Y	00	01			
A	ARACT		37225		37225	288763	OLZ18	1166	11131	502779.2	11131	ACT	P	S	2011	Y	00	03	0.89	100924.96	Y	00	01			
A	ARACT		37225		37225	296311	OLZ01	1166	11131	729291.2	11131	ACT	P	S	2011	Y	00	03	0.89	146393.66	Y	00	01			
A	ARACT		37225		37225	296665	OLZ05	1166	11131	290206.4	11131	ACT	P	S	2011	Y	00	03	0.89	58254.34	Y	00	01			
A	ARACT		37225		37225	289529	OLZ19	1166	11131	455056.8	11131	ACT	P	S	2011	Y	00	03	0.89	91345.44	Y	00	01			
A	ARACT		37225		37225	297098	OLZ22	1166	11131	453024	11131	ACT	P	S	2011	Y	00	03	0.89	90937.39	Y	00	01			
A	ARACT		37225		37225	297467	OLZ24	1166	11131	490195.2	11131	ACT	P	S	2011	Y	00	03	0.89	98398.92	Y	00	01			
A	ARACT		22725		22725	189192	M0160	1114	11111	82000	11111	ACT	T	S	2011	Y	00	03	0.88	16275.26	Y	00	01			
A	ARACT		51290		51290	277949	F0001	1114	11121	56667	11121	ACT	T	S	2011	Y	00	03	0.95	12141.86	Y	00	01			
A	ARACT		37225		37225	289743	OLZ21	1166	11131	473013.2	11131	ACT	P	S	2011	Y	00	03	0.89	94949.91	Y	00	01			
A	ARACT		37225		37225	296401	OLZ15	1166	11131	384102.4	11131	ACT	P	S	2011	Y	00	03	0.89	77102.47	Y	00	01			
A	ARACT		37225		37225	298629	OLZ14	1166	11131	394895.6	11131	ACT	P	S	2011	Y	00	03	0.89	79269.04	Y	00	01			
A	ARACT		37225		37225	296688	OLZ07	1166	11131	872506.8	11131	ACT	P	S	2011	Y	00	03	0.89	175141.92	Y	00	01			
A	ARACT		37225		37225	293113	OLZ06	1166	11131	723725.2	11131	ACT	P	S	2011	Y	00	03	0.89	145276.37	Y	00	01			
A	ARACT		22725		22725	292913	OSELF	1166	11213	2333	11121	ACT	T	S	2011	Y	00	03	0.88	463.05	Y	00	01			
A	ARACT		22725		22725	292913	OSELF	1114	11121	54666	11121	ACT	T	S	2011	Y	00	03	0.88	10850.04	Y	00	01			
A	ARACT		37225		37225	297321	OLZ23	1166	11131	661870	11131	ACT	P	S	2011	Y	00	03	0.89	132859.92	Y	00	01			
A	ARACT		37225		37225	288198	OLZ10	1166	11131	493244.4	11131	ACT	P	S	2011	Y	00	03	0.89	99011	Y	00	01			
A	ARACT		37225		37225	288202	OLZ11	1166	11131	550162.8	11131	ACT	P	S	2011	Y	00	03	0.89	110436.47	Y	00	01			
A	ARACT		37225		37225	289553	OLZ20	1166	11131	452152.8	11131	ACT	P	S	2011	Y	00	03	0.89	90762.51	Y	00	01			
A	ARACT		37225		37225	296471	OLZ03	1166	11131	215283.2	11131	ACT	P	S	2011	Y	00	03	0.89	43214.69	Y	00	01			
A	ARACT		37225		37225	296484	OLZ04	1166	11131	489711.2	11131	ACT	P	S	2011	Y	00	03	0.89	98301.77	Y	00	01			
A	ARACT		22725		22725	189176	M0161	1166	11311	60833	11311	ACT	T	S	2011	Y	00	03	0.88	12074.06	Y	00	01			
A	ARACT		37225		37225	297504	OLZ25	1166	11131	172110.4	11131	ACT	P	S	2011	Y	00	03	0.89	34548.44	Y	00	01			
A	ARACT		37225		37225	288403	OLZ12	1166	11131	1162713.2	11131	ACT	P	S	2011	Y	00	03	0.89	233396.26	Y	00	1			
A	ARACT		37225		37225	291138	OLZ08	1166	11131	192438.4	11131	ACT	P	S	2011	Y	00	03	0.89	38628.96	Y	00	01			
A	ARACT		37225		37225	288190	OLZ09	1166	11131	302500	11131	ACT	P	S	2011	Y	00	03	0.89	60722.08	Y	00	01			
A	ARACT		37225		37225	296899	OLZ13	1166	11131	1012237.6	11131	ACT	P	S	2011	Y	00	03	0.89	203190.66	Y	00	01			
A	ARACT		51290		51290	272037	AIRDZ	1114	11111	55556	11111	ACT	P	S	2011	Y	00	03	0.95	11903.81	Y	00	01			
A	ARACT		37225		37225	296470	OLZ02	1166	11131	1017464.8	11131	ACT	P	S	2011	Y	00	03	0.89	204239.94	Y	00	01			
8/15/2011	ARACT		37225		37225	296105	OLZ16	1166	11131	384150.8	11131	ACT	P	S	2011	Y	00	03	0.89	77112.19	Y	00	01	7		

## FAC 1114 V13 Sustainment Unit Cost

### References:

TM 5-626

COE WES Technical Report GL-98-12 *Determination of Semi-Prepared Airfield Pavement Structural Requirements for Supporting C-17 Aircraft Gear*

Based on: The C-17 can take off and land on runways as short as 3,500 feet (1,064 meters) and only 90 feet wide (27.4 meters)

Fringe and overhead from Circular A-76, Attachment C, Para B2f and B5

Engineered Performance Standards Handbook, Book 11, Army TB -- 420-33, NAVFAC P -- 716.0, Air Force manual -- 85-56 NAVFAC P-710.

R.S. Means Facilities Maintenance and Repair Cost Data

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U/M: SY

Mean inventory = 150,733.31 square yards = 126,031.99 square meters

Median inventory = 41,194 square yards = 34,443.849 square meters

Cost Source: R.S. Means Facilities Maintenance and Repair 2010

### Cost Elements

1. Perform "windshield inspection" once per quarter
2. Detailed inspection of sample units annually
3. Correct drainage, corrugations, dust, potholes, ruts or loose aggregate as needed

Perform "windshield inspection" once per quarter

- GS-12 Hourly Rate: Basic rate 40.66/hr x 1.325 (fringe) x 1.12 (overhead) = \$60.34
- 1 hour prep time + 1 hour inspection x 4 times per year = \$482.72
- Per unit = \$482.72/150,733.31 = \$0.003/SY

### Detailed Annual Inspection of Sample Units:

- Average sample = 231 square meters = 2500 SF = 278 SY
- Time requirement = .5 hr prep, 1 hr field inspection, 1 hr report preparation
- 2.5 hr x \$60.34 = \$150.85 per sample
- Number of samples (assume C-17 minimum) =  $(90' \times 3500') / 2500 \text{ SF} = 126 \text{ samples}$
- Annual cost = \$150.85 x 126 = \$19,007
- Per unit = \$19,007/150,733.31 = \$0.126/SY

Correct drainage, corrugations, dust, potholes, ruts or loose aggregate as needed:

<b>FAC 1114</b>	<b>Runway, Unsurfaced</b>		<b>Mean Size</b>		<b>SY</b>	<b>150,733.31</b>
		Width FT	Length FT	% Repaired		
	Area to be repaired	90	3500	5%		15750
		New Material Area %	Depth			
	Assumed new material to be placed	1%	0.5		CY	2.92
			Task Time		Task Units	Hours
	spread material with grader & bulldozer		0.03149		CY	0.092
	grade using motor grader		0.0474	15000	SF	0.04977
	oil surface with oil truck & spray nozzle		0.00021		SF	3.3075
	rough roll		0.0011		SF	17.325
	finish roll with roller, broom and water down		0.00055		SF	8.6625
TOTAL Hrs						29.44
Crew	B-32C: 1 foreman, 2 laborers, 3 equipment operators, 1 grader, 1 tandem roller, 1 dozer			8	HR	\$ 4,744.12
	Adjustment for Arlington VA			0.928		\$ 4,402.54
TOTAL Cost						\$ 16,199.50
	Per Unit					0.10747125

Total:

- Perform "windshield inspection" once per quarter \$0.003
- Detailed Annual Inspection of Sample Units \$0.126
- Correct drainage, corrugations, dust, potholes, ruts \$0.107
- Total \$0.236

# Facility Support Model (FSM) Comparison (V11.2)

Installation	Reported FAC	UM/SY	Sustainment Cost	Cost/SY
AP HILL	1114 Unpaved Runway	112,223.54	\$24,046	\$0.21
FBNC	1166 Misc Airfield Pavements	13,264,445.6	\$2,662,629	\$0.20
FPLA	1114 Unpaved Runway	136,666	\$27,537	\$0.20
	1166 Misc Airfield Pavements	63,166	\$12,537	\$0.19



Note 1 : FAC 1166 contains multiple unpaved surface CATCDs.

Note 2. Minor differences in Cost/SY due to local area cost factors.

# AP HILL



# Task Analysis (AP Hill)

Task	Materials	Material Costs	Labor	Equipment Lease Costs	Fuel Costs
Routine Grading	0	0	3370.56	4320	2450
Repair Grading	#10 Stone Dust	41600	7302.88	2880	1575
Water Distributor	0	0	6179.36	2640	1925
Roller Compaction	0	0	6179.36	3300	1344
Inspection	0	0	421.32	0	0
Annual Estimated Costs Depending on Usage					
	.32 sq ft = 2.88 sq yd combined cost for FY09, FY10 and FY11 to date. That equates to 176,091.84 in sustainment for this period. For the annual sustainment I broke the period down into 33 months. 176,091.84 divided by 33 months x 12 = 64,033 annual sustainment with an annual sq yd figure of <b>1.05 per sq yd.</b>				
<b>Totals</b>			Landing Strip		Surface Type
Materials	\$41,600.00		ALZ		
Fuel	\$7,294.00		AF1		
Equipment Lease	\$13,140.00		Pender		
Labor	\$23,453.48				
Total	\$85,487.48				

# FAPH ALZA Utilization

MISSION DATE	UNIT	TYPE OF AIRCRAFT	# OF LANDING	# TAKE OFF	FULL STOP	TOUCH & GO	LOW APPROACH	# Jumper
6-7 Dec 10	437th Aw Charleston, SC	C-17					6	
7-Dec-10	USACATT	CASA 212	4	4	4			56
8-Dec-10	USACTT	CASA 212	6	6	6			56
8-Dec-10	USACATT( VMGR 254 AW)	C-30	4	4	4			90
8-Dec-10	437th Aw Charleston, SC	C-17 (2)					8	
10-Dec-10	AWG (Gary)	Twin Otter	6	6	6			
14-Dec-10	914th AW Cancelled mission due to WX							
14-Dec-10	440th AW, Pope AFB	C-130	10	10				2 LZSO
21-Dec-10	914th AW	C-130	1	1				
22-Jan-11	450th CAB (135th AW Support)	C-130			Drop Only		9	90
31-Jan-11	AWG (Gary)	Twin Otter	1	1			2	

# FAPH ALZA Utilization

MISSION DATE	UNIT	TYPE OF AIRCRAFT	# OF LANDING	# TAKE OFF	FULL STOP	TOUCH & GO	LOW APPROACH	# Jumper
6-14 Apr 2011	Semi-Annual Maintenance							
19-20 May 2011	NVESD	C-208	8	8	8		4 each day	
23-26 May 2011	NVESD	C-208	16	16	16		4 each day	
14 June 2011	USACATT	C-7	10	10	10			144
15 June 2011	USACATT	C-7	12	12	12			114
20 June 2011	2nd MAW	C-130	1	1	1			
23 June 2011	18th Abn Corps JFEX C-17 (2) 437th AW	C-17 (2)	2	2	2			
	C-17 10186 McCord	C-17	1	1	1			
	C-17 27159 Dover	C-17	5	5	5			
24 June 2011	C-17 Dover	C-17	5	5	5		Night Opns	18

## Total Landings

C17	13
C130	12
C30	4
C7	22
C208	24
CASA 212	10
Twin Otter	7
<b>GRAND TOTAL</b>	<b>92</b>

# FAPH Unpaved Runway Inventory

- FAPH ALZA C130, C17, Twin Otter, DHC-4
  - 4400 Ln ft stone surface
- FAPH AF1- Casa 212, 235, Twin Otter
  - Grass strip
- FAPH PENDER AF- Twin Otter
  - Grass strip
- FAPH COOKE AF- Current ops rotary wing only
  - Grass strip

# FAPH ALZA RPID 272037 – FCC 11111



# FAPH AF1 RPID 272838 – FCC 11111



# FAPH Cooke AF RPID 272839 – FCC 11111



# FAPH Pender AF RPID 272842 – FCC 11111



# AP Hill Erosion Example - C17 Turnabout



# AP Hill Erosion Example - C17 Rutting



# AP Hill Erosion Example C17 Ruts edge of runway night ops



# AP Hill Erosion Example - Typical C17 Effects



# AP Hill Erosion Example - Average ruts 7.5 to 9.5 inches



# AP Hill Sustainment

Aggregates Used in Construction/Maintenance:

Base: #21A

Mid-Level: S-5 Blend (Very small aggregate with no dust)

Top: #10 Dust.

All aggregate is watered and compacted utilizing a vibratory roller.

Maintenance Cost Per Square Foot: **\$0.32\* or \$1.05 per SQYD**

\*Based on costs incurred over the last three fiscal years to include FY11 to date. Cost will fluctuate based on type of aircraft and usage.

# FORT POLK



# Fort Polk Cost per SQ YD

## FLS Estimates

### Self FLS

6" Cement Stabo	\$1,286,130.00	14.109/sqyd	All totals include 6" Soil Stabilization, Soil Test Team, 10% Select Fill, Boundry and Survey Markers and 5 man Survey team.
6" Asphalt Stabo	\$942,476.00	10.339/sqyd	
6" Lime Stabo	\$987,142.00	10.829/sqyd	
91,155 sq yd = 18.8336 ac			

### Geronimo FLS

6" Cement Stabo	\$1,104,436.00	14.124/sqyd	All totals include 6" Soil Stabilization, Soil Test Team, 10% Select Fill, Boundry and Survey Markers and 5 man Survey team.
6" Asphalt Stabo	\$809,637.00	10.353/sqyd	
6" Lime Stabo	\$847,953.00	10.844/sqyd	
78,196 sq yd = 16.1561 ac			

### Peason FLS

6" Cement Stabo	\$857,238.00	14.154/sqyd	All totals include 6" Soil Stabilization, Soil Test Team, 10% Select Fill, Boundry and Survey Markers and 5 man Survey team.
6" Asphalt Stabo	\$628,908.00	10.384/sqyd	
6" Lime Stabo	\$658,584.00	10.874/sqyd	
60,565 sq yd = 12.5134 ac			

This sustainment occurs every three years. This results of an annual cost per square yard average from **\$3.38 to \$4.61** depending on stabilization technique/materials used.

# Fort Polk Comments

1. We acknowledge the Real Property data is not correct.
2. Attached is our latest calculations based on sqyds
3. **Our plan conducts in-depth repairs on a three year cycle.** So dollar figures total could be divided by three for annual costs.
4. Attached are aerial photos with areas that require sustainment. We have it broken down by surface and/or design standard.
5. We also included an overall area, we call "Sustainable Area" realizing that drainage and surrounding terrain (within reason ~ 200') need maintenance annually. This is not currently discussed in any document that we've seen. Limiting the funding to "surfaced" square yards leaves a burden on installation.

**Observation: Plan seems to employ a “restoration” methodology.**

# Fort Polk Utilization

[illegible]

# FPLA - SELF AIRSTRIP ALS



# FPLA – Peason Ridge FLS



# FPLA – Geronimo ALS



# FORT BRAGG





# Fort Bragg Facts

- A 500,000lb aircraft landing at 120kts/2Gs causes significant runway damage as do 4 engines each producing 14,400lb of thrust.
- While this is an Army-wide issue, FBNC provides an excellent case study:
  - Fort Bragg is facing significant challenges sustaining Flight Landing Strips for C17, C130, and CASA aircraft.
  - Seventy percent of runway use is in direct support of 82<sup>nd</sup> ABN DIV training.
  - Affected facilities are Holland (C17, C130), Sicily (C130), St Mere (CASA). Luzon.(C130/C17).
  - Associated Sustainment funds are insufficient. Historical annual costs (over 10 years) average \$350-450K dollars per year.
  - Primary cost is purchase of sand / clay material
  - Combat Engineers are used when possible to reduce costs and simultaneously provide training venue. (Less than 20% of the time)
  - Frequent deployment of Combat Engineers requires use of Range Maintenance (In contradiction of CLS and without proper training/certification) and or contracted labor to conduct work.
  - Reduced 82<sup>nd</sup> ABN DIV deployment OPTEMPO will increase annual use of these facilities
  - Air Force personnel request sole use of these facilities 30% of the time – and are always Joint use with Army units.

## Task Analysis (Bragg)

[illegible]

# Fort Bragg Utilization

MISSION DATE	ALS	TYPE OF AIRCRAFT	# OF LANDING	# TAKE OFF	FULL STOP	TOUCH & GO	LOW APPROACH	# Jumper
<b>Sicily:</b> C130,109 landings, 109 takeoffs; CASA, 68 landings, 68 takeoffs. <b>Holland:</b> C130 29 landings, 29 takeoffs; CASA, 10 landings, 10 takeoffs (Holland was closed for 9 months of FY10). <b>St Mere:</b> CASA, 237 landings, 237 takeoffs. <b>Luzon:</b> C17, 6 landings, 6 takeoffs C130, 15 landings, 15 takeoffs CASA, 35 landings, 35 takeoffs (Luzon was down for 10 months / C17 stuck on turnaround caused substantial damage)			 					
			<b>Total Landings/Takeoffs</b>					
			C17	6				
			C130	153				
			CASA	340				
			<b>Grand Total</b>	<b>509</b>				

# Holland Overview

**Primary Users: C130/C17**

**Runway Sustainment:**

- REQUIRES QUARTERLY MAINTENANCE AND OPERATIONAL REPAIR DURING JFEX/JOAX
- WILL NEED TOTAL UPGRADE EVERY 10 YEARS \$4-5M (BASED ON CURRENT DAY COST) CURRENTLY UNDERGOING UPGRADE.

**Annual Maintenance Costs**

Sand/Clay: \$125K (ESTIMATED)

Labor: \$15K (ESTIMATED)

Misc: \$10K Fuel/Equipment

Repair (ESTIMATED)



# Rhine Luzon Overview

**Primary Users: C130/C17**

**Runway Sustainment:**

- REQUIRES QUARTERLY MAINTENANCE AND OPERATIONAL REPAIR DURING JFEX/JOAX
- WILL NEED TOTAL UPGRADE EVERY 10 YEARS \$4-5M (BASED ON CURRENT DAY COST).

**Annual Maintenance Costs:**

Sand/Clay: \$100 (ESTIMATED)

Labor: \$15K (ESTIMATED)

Misc: FUEL/EQUIPMENT REPAIR \$10K (ESTIMATED)



# Sicily Overview

**Primary User: C130**

**Runway Sustainment:**

- REQUIRES QUARTERLY MAINTENANCE AND OPERATIONAL REPAIR DURING JFEX/JOAX
- WILL NEED TOTAL UPGRADE EVERY 10 YEARS \$4-5M (BASED ON CURRENT DAY COST)

**Annual Maintenance Costs:**

Sand/Clay: \$125K (ESTIMATED)

Labor: \$15K (ESTIMATED)

Misc: FUEL/EQUIPMENT REPAIR \$10K (ESTIMATED)



# St Mere Overview

**Primary Users: RW AND SOF  
STOL AIRCRAFT**

**Runway Sustainment:**

- MAINTENANCE REQUIRES QUARTLRY GRADING AND PACKING .
- REQUIRES TOTAL UPGRADE EVERY 10-12 YEARS .

**Annual Maintenance Costs:**

Sand/Clay: 2,500 CUBIC YARDS  
\$25,000 (Estimated)

Labor: \$10,000 (Estimated)

Misc: FUEL/EQUIPMENT REPAIR  
\$5K (Estimated)



# Fort Bragg Erosion Examples



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# Recommendations

- Ensure installations have unpaved runways correctly annotated in real property inventory and on Facility Sustainment Model (FSM). Also, ensure all other unpaved resources are annotated (i.e., taxiways, aprons).
- Assess damage immediately after C17/C130 landings. Estimate annual damage repair costs. Incorporate into SRM funding computations.
- Compare/contrast actual annual maintenance costs (per square yard) to amount programmed to establish delta.
- Evaluate current cost factor computation factors for relevance /currency.
- Refine CATCD to better identify/describe purpose, configuration, and primary use of ALZ / ALS / FLS facilities.
- **Adjust cost factors to provide realistic sustainment funding to installations.**
- Utilize Air Force Redhorse Engineers to assist with maintenance and repair of unpaved runways that support Air Force training.
- Establish a landing fee for Air Force training when not in support of Army training.

# Questions

