Appendix H
Civilian Airfield Analysis

This page intentionally left blank.

PACNORWEST FCLP SCREENING CONSIDERATIONS

Assumptions. The attached matrix screens paved public use civil airports to potentially support EA-18G Field Carrier Landing Practice (FCLP). Since none of the airports have the requisite equipment to support FCLP, such as IFLOLS or MOVLAS, the equipment cost is not taken into consideration and is assumed to be approximately the same for all airfields; at least $2M. Additionally, firefighting and aircraft rescue capabilities are not considered since there is no formal requirement for this capability for military operations at civil airports. However, if a civilian airport was to support EA-18G FCLP, Commander, Naval Air Force Pacific (CNAP) may not be willing to accept the increased risk of operating without fire and rescue capability on the field.

Criteria. Each column is explained in more detail below:

1. Distance from Ault Field. The 50 nm transit distance is based on CNAP analysis provided as part of the revalidation of the 2003 EA-18G requirements letter. It is based on the ability of the EA-18G to transit to the FCLP location, conduct a full set of FCLP (8 landings) and transit back to Ault Field with acceptable fuel reserves without refueling. The distances listed in the matrix are simple straight line distances. Actual transit distances could be considerably farther depending on airspace complexity. Airports out to approximately 75 nm are included in the matrix to ensure the analysis doesn't miss an airport that meets all other criterion but is beyond 50 nm.
2. Field Elevation. The maximum field elevation of 1000 ft. above ground level (agl) is intended to duplicate the atmospheric conditions at sea level necessary to simulate carrier landings. It is a long-established standard for carrier based aircraft and is delineated in numerous Navy policy documents and manuals, including the Naval Aviation Enterprise (NAE) Global Shore Infrastructure Plan (GSIP) as well as, FCLP NATOPS manuals, and numerous home basing NEPA documents. All airports within 50 nm of Ault Field meet this requirement.
3. Runway Length. The minimum runway length considered for this analysis was 5,000 ft. OLF Coupeville's runway length is 5,400 ft. and is the shortest FCLP runway in the Navy. 5,000 ft. was selected as the screening criteria to capture runways that have the bare minimum length necessary to support EA-18G FCLPs without expansion while considering an acceptable margin of safety for pilot training. However, it should be noted that 5,000 ft. still assumes risk because an EA-18G may not be able to land on such a short runway should there be an emergency. This risk is acceptable at OLF Coupeville because NAS Whidbey Island is so close to the OLF. The farther any candidate FCLP runway is from NAS Whidbey Island, however, the greater the risk that an EA-18G may not be able to land if necessary on a short runway. Commander, Electronic Attack Wing Standard Operating Procedures requires a minimum 6,000 ft. runway if an EA-18G will

land at a civilian airfield. Use of a shorter runway for landing requires the Commander's approval. It should also be noted that Navy building criteria for class B runways generally requires 8,000 foot runways for jet aircraft (see NAVFAC P-80). Class B airfields are those designed for large and heavy aircraft, such as military tactical aircraft. An EA-18G requires a Class B runway (see Table 3-1 of UFC 3-260-01).

4. Runway Width. The minimum runway width considered was 150 ft. This is based on the runway width at NOLF Whitehouse near Jacksonville, FL where FA-18E/F/G occasionally conducts FCLPs. However, OLF Coupeville's runway width is 200 ft., which is the Navy's minimum standard for a Class B runway per Table 3-2 of UFC 3-260-01. Thus, operating at a runway width of 150 inherently assumes additional risk.
5. Distance to arresting gear. The maximum distance to a runway with arresting gear is 17 nm. This criterion is articulated in the Draft Shore Air Operations Manual NATOPS produced by CNIC and represents an increase in risk over the long held standard of having arresting gear at the FCLP field. Note that installation of arresting gear at a civil airport would impact civil operations and likely require small civil aircraft to avoid that portion of the runway with arresting gear. Therefore, it should not be assumed that arresting gear can be installed at smaller civilian airfields even if funds were to be made available.
6. Annual Airfield Operations. This criterion is intended to capture how busy the civil airfield is and potentially identifies underutilized airports. It also is intended to provide some indication of the potential impact EA-18G FCLPs would have on local civil operations airfields. Busier airports could be significantly adversely affected because an airfield would not be able to support any other flight operation during the conduct of FCLP. As there is no defined maximum acceptable number of existing civil airport operations, USFF staff relied on previous experience. Specifically, an east coast effort to support E-2/C-2 FCLP operations considered two airports each having less than 6,000 annual flight operations.
7. Under lateral limits of Class B/C airspace. This criterion is derived NAE GSIP, and previously established CNAF Growler siting criteria. Class B airspace represents the most congested airspace within the United States and is found around major commercial airports. Class C airspace is also congested and found around commercial airports although the level of congestion is less than that of Class B. Class B airspace is associated with only 37 airports in the U.S., with SEATAC being one.
8. Noise abatement/modified pattern. Published noise abatement procedures or a right-hand-only pattern indicates that there are already adverse community impacts resulting from airfield operations, and would therefore not be appropriate for FCLP of tactical jet aircraft. Additionally, FCLPs must conduct a left-hand pattern. If that pattern is restricted, then that airfield is not useable for FCLP. It should also be noted that existing noise abatement procedures at small civilian airfields represent existing community sensitivity to noise levels produced, as a general matter, by single engine propeller

aircraft. Thus, this serves as an indicator that the use of that airfield by tactical jet aircraft, which are exponentially louder, would likely receive a hostile response from the community.

9. Runway cost. This column displays a generalized assessment as to the potential relative cost that should be expected to expand existing runways to meet FCLP requirements. This column uses a simple color code that is based on the percentage of pavement area (length X width) that exists compared to the amount needed to meet the stated requirement of 5,000 ft. Actual costs are not currently attainable as it would require extensive study at that individual airfield to account for weight bearing capacity or impediments to expansion such as roads, structures, land purchases, and wetlands. To provide some context, recent runway extension proposals by civilian airfields were reviewed to obtain a sense of the potential cost of a runway extension. A recent proposed runway expansion at Rock County Airport in Wisconsin from 5,400 ft. to 7,300 ft. was estimated to cost $15M. Similarly, Erie International Airport in Pennsylvania is proposing to expand its 6,500 ft. runway by an additional 1,920 ft. at an estimated cost of $19.5M. Perhaps one of the closet comparisons, Roseburg Regional Airport in Oregon, which has a runway length of 4,602 ft., estimates that an extension of the runway by 900 feet would cost approximately $10M. The average cost of a runway expansion among these examples is roughly $10,000 per foot, or $10M for 1,000 feet of runway. This only accounts for runway length, not extending a runway's width or weight bearing capacity.

PACNORWEST FCLP Screening

Sort	Name	Geographic Characteristics				Runways						Operations						
		Distance from Ault Field	Meet Criteria (Y/N)	Field Elevation	Meet Criteria (Y/N)	RWY Length	Meet Criteria (Y/N)	Runway Width	Meet Criteria (Y/N)	Distance to Arresting Gear	Meet Criteria (Y/N)	Annual Airport Operations	Meet Criteria (Y/N)	Under Class B or C	Meet Criteria (Y/N)	Noise Abate/Mod Pattern	Meet Criteria (Y/N)	Runway cost (% pavement present) Red - 0-25% Orn - 26-75% Yel - 76-99%
PASS Overall		**Criteria** 50		**Criteria** 1,000		**Criteria** 5,000		**Criteria** 150		**Criteria** 17		**Criteria** 6000		**Criteria** No		**Criteria** No		
No	Anacortes	9	Yes	241	Yes	3,015	No	60	No	9	Yes	9,000	No	No	Yes	No	Yes	
No	Apex Airpark	42	Yes	525	Yes	2,500	No	28	No	33	No	21,000	No	No	Yes	No	Yes	
No	Arlington Muni	23	Yes	142	Yes	5,332	Yes	100	No	23	No	62,000	No	No	Yes	Yes	No	
No	Auburn Muni	64	No	63	Yes	3,400	No	75	No	15	Yes	162,000	No	No	Yes	Yes	No	
No	Bellingham Intl	27	Yes	170	Yes	6,701	Yes	150	Yes	27	No	62,000	No	No	Yes	Yes	No	N/A
No	Boeing Field	51	No	21	Yes	10,000	Yes	200	Yes	25	No	179,215	No	Yes	No	Yes	No	N/A
No	Bremerton National	52	No	444	Yes	6,000	Yes	150	Yes	24	No	66,000	No	No	Yes	Yes	No	N/A
No	Camano Island	11	Yes	145	Yes	1,750	No	24	No	11	Yes	1,300	Yes	No	Yes	Yes	No	
No	Darrington Muni	42	Yes	553	Yes	2,491	No	40	No	42	No	2,300	Yes	No	Yes	Yes	No	
No	Eisenberg (Oak Harbor)	6	Yes	193	Yes	3,265	No	25	No	6	Yes	17,500	No	No	Yes	Yes	No	
No	Fairchild Intl (Port Angeles)	37	Yes	291	Yes	6,347	Yes	150	Yes	37	No	56,500	No	No	Yes	Yes	No	N/A
No	Forks	74	No	299	Yes	2,400	No	75	No	74	No	13,500	No	No	Yes	Yes	No	
No	Firstair Field	39	Yes	50	Yes	2,087	No	34	No	39	No	18,300	No	No	Yes	Yes	No	
No	Friday Harbor	18	Yes	113	Yes	3,402	No	75	No	18	No	46,000	No	No	Yes	Yes	No	
No	Harvey Field	35	Yes	22	Yes	2,671	No	36	No	35	No	139,000	No	No	Yes	Yes	No	
No	Jefferson County	19	Yes	110	Yes	3,000	No	75	No	19	No	58,000	No	No	Yes	Yes	No	
No	Lopez Island	14	Yes	209	Yes	2,904	No	60	No	14	Yes	31,400	No	No	Yes	Yes	No	
No	Lynden	37	Yes	106	Yes	2,425	No	40	No	37	No	7,500	No	No	Yes	No	Yes	
No	Mears Field	37	Yes	267	Yes	2,609	No	60	No	37	No	5,000	Yes	No	Yes	Yes	No	
No	Orcas Island	24	Yes	35	Yes	2,901	No	60	No	24	No	41,600	No	No	Yes	Yes	No	
No	Pierce County	76	No	538	Yes	3,650	No	60	No	8	Yes	100,000	No	No	Yes	Yes	No	
No	Renton Muni	55	No	32	Yes	5,382	Yes	200	Yes	24	No	80,665	No	Yes	No	No	Yes	N/A
No	Sanderson Field	66	No	273	Yes	5,005	Yes	100	No	28	No	44,165	No	No	Yes	Yes	No	
No	SEATAC	56	No	433	Yes	11,901	Yes	150	Yes	20	No	340,180	No	Yes	No	No	Yes	N/A
No	Sekiu	66	No	355	Yes	2,997	No	50	No	66	No	504	Yes	No	Yes	No	Yes	
No	Sequim Valley	26	Yes	144	Yes	3,510	No	40	No	26	No	8,000	No	No	Yes	No	Yes	
No	Shady Acres	78	No	445	Yes	1,800	No	20	No	6	Yes	2,028	Yes	No	Yes	Yes	No	
No	Skagit Regional	11	Yes	145	Yes	5,478	Yes	100	No	11	Yes	61,700	No	No	Yes	No	Yes	
No	Snohomish Co	31	Yes	608	Yes	9,010	Yes	150	Yes	31	No	113,500	No	No	Yes	Yes	No	N/A
No	Spanaway	50	Yes	385	Yes	2,724	No	20	No	4	Yes	1,976	Yes	No	Yes	Yes	No	
No	Tacoma Narrows	65	No	295	Yes	5,002	Yes	100	No	9	Yes	53,290	No	Yes	No	Yes	No	
No	Whidbey Air Park	22	Yes	271	Yes	2,470	No	25	No	22	No	14,200	No	No	Yes	No	Yes	