



# **Expeditionary Site Selection Tool (ESST)- Spiral 1:**

## *Research & Requirements*

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### **1.0 Introduction**

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This document contains the user and technical requirements for Expeditionary Site Selection (ESS) Tool Spiral 1. The user requirements have been derived from several sources, including *HQ AF/A9/A5/A4/A3, AMC/A3/A4/A6/A7, and ACC/A4 (Global Force Management/WRM)*. The technical requirements have been derived from official data sources, data providers, systems, and technical service providers (COTS and GOTS)

#### **1.1 Purpose of This Document**

This document is intended to guide development of *ESSTool* Spiral 1. It will go through several stages during the course of the project:

1. Draft: The draft is a version that is compiled as requirements have been discovered, recorded, classified, and prioritized.
2. Proposed: The draft document is then proposed as a potential requirements specification for the project. The proposed document should be reviewed by several parties, who may comment on any requirements and any priorities, either to agree, to disagree, or to identify missing requirements. Readers include end-users, developers, project managers, and any other stakeholders. The document may be amended and re-proposed several times before moving to the next stage.
3. Approved: The document is accepted by representatives of each party of stakeholders as an appropriate statement of requirements for the project. The developers then use the requirements document as a guide to implementation and to check the progress of the project as it develops.

#### **1.2 How to Use This Document**

The intended end-users of the ESS Tool should be able to read this document and have an understanding of the direction of the capability. This document should be used to determine the requirements of users with diverse skill sets both functional and technical while in parallel use it to determine different levels of stakeholders and sponsors requirements throughout the AF C2 constellation.

#### **1.3 Scope of the Product**

Air Force operational planners and force structure/development analysts currently rely on planning and analysis processes to provide decision quality data. A critical gap for both functional domains is the need for an integrated tool set to determine the feasibility of a Course of Action (COA) for Combat Support. Feasibility is the matching of mission requirements to site and support capability, as defined by JP 1-02 is "the joint operation plan review criterion for assessing whether the assigned mission can be accomplished using available resources within the time contemplated by the plan." The Expeditionary Site Selection Tool (ESS) Spiral 1 will focus on filling the critical gap for Air Force Combat Support to provide operational planners and force structure/development analysts an integrated tool to determine feasibility of a COA.

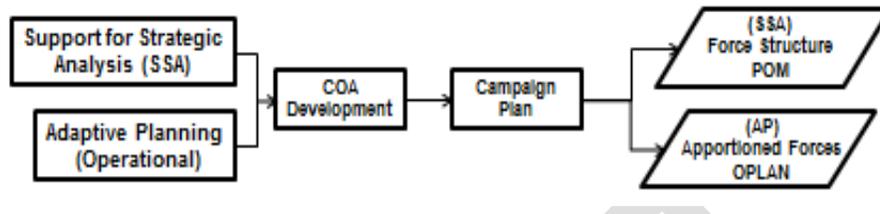
The diagram in Figure 1 depicts: *One planning process used by two different domains and their methodologies to produce decision quality information.*



## **Expeditionary Site Selection Tool (ESST)- Spiral 1:** *Research & Requirements*

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- *Support for Strategic Analysis (SSA): Operational need drives force structure analysis and POM*
- *Adaptive Planning: Operational need drives apportionment of forces and COA/OPLAN development*



**Figure 1: Planning Process Methodology**

As the planning processes occur differently at each echelon of organization (strategic, operational, and tactical), they are driven by different parameters for time to decision, as well as granularity of detail. The integrated tool set will support several related, but separate planning and analysis processes by imitating sequential, parallel, independent, interdependent, and iterative characteristics of the processes and their component parts.

Examples of COA planning process for:

- Operational plans can be time sensitive and needed in as quick as hours or as long as months.
- Strategic planners often make decisions based on high level aggregated data with low granularity of detail.
- Operational and Tactical level planners require greater granularity of detail before decision making is possible.
- The timelines for the decision making is within the context of the application of the process (contingency operations or analysis).

The critical component in making the feasibility to operate in the “go-no-go” decision for force beddown planning is site selection. Feasibility to operate entails aircraft parking, along with the ability to satisfy and support the mission requirements for any tasked operation at that site for the Mobility (MAF) and Combat (CAF) Air Forces, as well as Special Operations Forces (SOF). These mission requirements can be independent or interdependent upon the other.

The initial scope is to develop an interactive web-based Expeditionary Site Selection decision-support tool for HAF A3. This tool will enable combat and strategic planners to begin to view and rapidly develop COA that are Logistically Feasible. The Expeditionary Site Selection (ESS) tool will be a web-based DoD .MIL and GCSS-AF (NIPRnet and SIPRnet) service environment decision-support tool that provides a geospatial-enabled Enterprise visualization and analysis tool (geospatial and tabular data), which includes server side application management tools to support AF in accomplishing and supporting the Global mission.

The scope of ESSSpiral 1 is to use a set of processes, to define the functions and features in developing an integrated tool set. The tool set is used by planners within



## **Expeditionary Site Selection Tool (ESST)- Spiral 1:**

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different domains, operating at distinctly different echelons of organizations, driven by varying degrees of granularity of data, and differing time-to-decision parameters.

The Core objectives are:

- (1) Develop a web-based DoD .MIL and GCSS-AF (NIPRnet and SIPRnet) accessible capability, that dramatically reduces the time from requirement to delivery (insight to decision) of verifiable and repeatable COA options; the current target time is a strategic level campaign analysis, decision ready, in at least two hours from start time.
- (2) Shorter planning phases will be the result of the integrated tool set due to the fidelity of information is more accurate and reliable. Rapidly provide combat and strategic planners with a more complete picture of airfield and logistical feasibility derived from “cross-functionally” integrated capabilities, authoritative geospatial and tabular mission data, and established AF planning algorithms;
- (3) Leverage multi-functional and cross-service geospatial and tabular mission data sources;
- (4) Operate as an extension tool within the existing ACC GeoBase web-based Map Viewer. The Map Viewer was built using ArcGIS API Version 2.8 for JavaScript which uses Dojo Version 1.6.1. The ACC GeoBase Map Viewer shall be upgraded to ArcGIS API Version 2.9 for JavaScript using Dojo Version 1.7.x. The ESS tool shall be built off this upgraded version of the Map Viewer;
- (5) Reproduce the current functionalities and features of Capability Based Logistics Planner (CBLP), with specific integration of the capabilities resident in the current Expeditionary Site Mapping (ESM) tool set for geospatial visualization, analysis and tabular data, produce several enhancements in terms of requirements determination within CBLP and how they are displayed and reported, and add a WRM requirements determination capability for BEAR.

### **1.4 Business Case for the Product**

Figure 2 below represents the intended potential integration of the two distinct planning domains: Operations and Combat Support. These processes are defined by distinct series of planning directives within each of the Air Force domains. Several of these processes are supported by domain specific systems and tools, and unfortunately the integration of either the processes or tools is not well defined in theory or practice. The diagram seeks to describe the notion of integrating processes and tools across the Air Force functional domains. Examples include the operations areas of MAF, CAF, and SOF, as well as the 26 distinct functional areas within AF logistics.



## Expeditionary Site Selection Tool (ESST)- Spiral 1: Research & Requirements

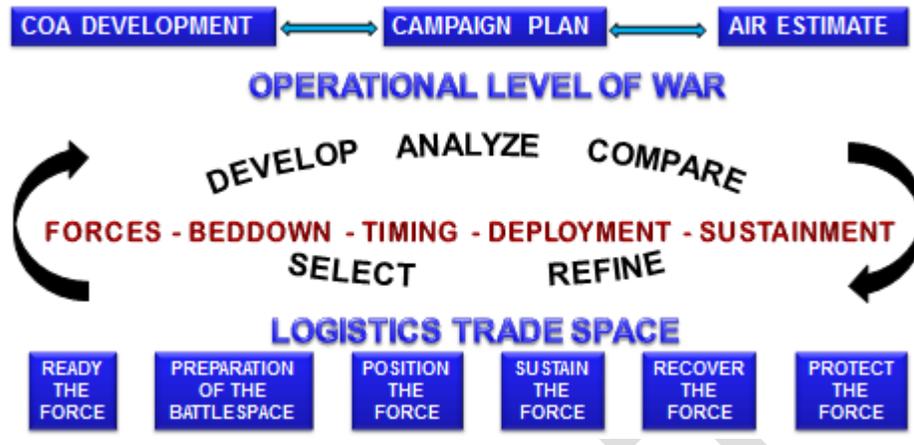


Figure 2: Integration of Planning Domains

With the expeditionary nature of operations today and in the foreseeable future, the demand for a solution is paramount. The envisioned end state of the ESS tool will enable shorter planning phases because the fidelity of the information is more accurate and reliable. The user skills will be developed because the technology is based on processes, and the advancement of technology will allow the improvement to the processes. COCOM requirements will be systematically defined and provide all planning domains with common requirements. AF planners, regardless of domain, mission data matching the requirements to force projection and deployment sites. The AF may or may not have the luxury of using familiar locations, and will require decision quality data on locations not previously used. Given the nature of expeditionary operations as quick responses and short fights, the need for a tool such as ESS is critical. It is mandatory that the six primary operations domains of MAF, CAF, SOF, C2ISR, CSAR, and EW that are supported by the 26 logistics domains, plan from a common map and use the same tabular information to project and beddown a force.

This Air Force enterprise wide strategic planning tool at Spiral 1 may drive other spiral development efforts to initiate improvements and standardization in the force beddown planning processes, along with improved data stewardship that will provide an equally valued solution set to another longstanding AF deficiency.

### 1.5 Findings from ESS Spiral 1 Stakeholder Interviews

#### 1.5.1 HQ Air Forces

##### 1.5.1.2 AF/A9FC

HAF/A9FC is the Air Force analysis directorate and as such conducts strategic analysis using operational scenarios. The analytical results are produced for multiple organizations to include OSD, JCS, and all HAF organizations requiring this type of support. The tool functionality HAF/A9FC requires is the ability to model and analyze force projection and beddown to determine operational feasibility. The tool must be able to determine operational feasibility for all Air Force weapon systems across the spectrum of operations. Operational feasibility is used to determine future force structure, force size, and cost/tradeoff and risk analyses.