SOFTWARE COST ESTIMATION STUDY
FINAL REPORT DOCUMENTATION SUMMARY

August, 1990

Prepared by:
Dr. Aaron N. Silver
FINAL REPORT

DOCUMENTATION SUMMARY

August, 1990

Prepared for

NAVAL CENTER FOR COST ANALYSIS
DEPARTMENT OF THE NAVY
WASHINGTON, D.C. 20350-1100

Under Contract N00014-85-C-0892
Delivery Order No. MCR-90-523
(office of naval research (onr))

FINAL REPORT DOCUMENTATION SUMMARY

by

Dr. Aaron N. Silver

MARTIN MARIETTA DENVER ASTRONAUTICS GROUP
P.O. BOX 179
Denver, Colorado 80201

STATEMENT "A" per Steven Gross
Naval Center for Cost Analysis/Code NCA-7
Crystal Gateway 4, Room 700
Washington, DC 20350-1100
TELECON 9/25/90 VG
DOCUMENTATION SUMMARY

INTRODUCTION

The documentation described in this summary refers to both reports and software products, i.e., computer prototype programs, generated during the entire "Software Cost Estimation Study." The period of performance covered is from 2 January 1986 to 31 August 1990. During this time frame, both the Naval Center for Cost Analysis (under the auspices of the office of Naval Research) and the Air Force Center for Cost Analysis funded several additional "enhancements" to the program, which resulted in producing the Software Architecture Sizing, and Estimating Tool (SASET). These specific enhancements along with the initial "Software Cost Estimation Study" comprise the overall scope of this investigation.

Several CDRL sequences were established by Martin Marietta Denver Astronautics (MMDA) contracts to monitor and track all contract deliverables. These were given the designation A00X, B00X, C00X, D00X and E00X and refer to both Air Force and Navy Enhancements. The basic chronological order for these software products and documentation is given in terms of the Contract Data Requirements List (CDRL).

CDRL - A001
Quarterly Status Reports, issues 1 through 9, covering the period 2/86 to 12/88.
(Transmittal letter references 1814, 2097, 2410, 1718, 1919, 2165, 1514, 1818, and final report including Revision 1.0 dated September, 1989).

CDRL - A002
Management plan, delivered prior to contract go-ahead on 12/13/85.
(Transmittal letter reference 0709).

CDRL's - A003 - A009
These CDRL items refer to the reports and software products generated during the performance period 1/8/86 to 8/5/88, and comprise the basic SASET methodology.
(Transmittal letter references 1813, 2020, 2411, 1719, 2045, 2312, and 1965).
(Transmittal letter references 2058 and 1635).

CDRL - A011  SASET Software, computer program prototype which included all demonstration and interim computer discs produced (source code).
(Transmittal letter reference 1521).

(Transmittal letter references 1637 and 1809).

CDRL - A013  SASET Calibration Enhancement (for Air Force)
(Transmittal letter reference 1638).

CDRL - B001  SASET Tutorial Enhancement (for Navy). Quarterly Status Reports, issues 1 through 5 (included in A001 during period 11/88 to 3/89).

CDRL - B011  SASET Tutorial Software (Computer Program Prototype delivered 1/17/89)
(Transmittal letter reference 1521).

CDRL - B012  SASET Tutorial Internal Review

(Transmittal letter reference 1809).

CDRL - B014  Modified Source Code (to be submitted with final report).

CDRL - C001  SASET Multiple CPCI Enhancement (for Air Force), Quarterly Status Reports, issues 1 through 4, covering the performance period 8/10 to 2/22/90.
(Transmittal letter references 1956, 2078, 2217, 1599).
| CDRL - C002 | SASET Multiple CPCI Software (Computer Program Prototype)  
(Transmittal letter reference 1601). |
| CDRL - C003 | SASET User's Manual for Multiple CPCI Enhancement  
(Transmittal letter reference 1506). |
| CDRL - C004 | Final Report for Multiple CPCI Enhancement  
(Transmittal letter reference 1098). |
| CDRL - D001 | SASET Performance Measurement Enhancement (for Air Force), Quarterly Status Report issues 1 through 5, covering period of performance 12/15/89 to 8/21/90. |
| CDRL - D002 | SASET Performance Measurement Software (Computer Program Prototype) delivered 8/31/90  
(Transmittal letter reference 1824). |
| CDRL - D003 | SASET User's Manual Update  
(update to include performance measurement). |
| CDRL - E001 | SASET Risk Assessment Enhancement (for Navy), Quarterly Status Reports, issues 1 through 5, covering period of performance 11/20/89 to 7/20/90.  
(Transmittal letter references 1598, 1625, 1637). |
| CDRL - E002 | Risk Assessment Software (Computer Program Prototype) delivered 3/20/90  
(Transmittal letter reference 1637). |
| CDRL - E003 | SASET User's Manual Update (updated to include risk assessment and all prior enhancements). |
II. DOCUMENT LISTING

In accordance with the CDRL sequence established in the previous section, the following reports and software products generated during the entire "Software Cost Estimation Study" (including all enhancements) provide the essential basis for understanding the SASET model and methodology.

A. Series A00X CDRL Sequence Documents


The following SASET "Requirements Document" was not specified as a CDRL item. However, it is included in the total SASET documentation for the sake of completeness.

B. Series B00X CDRL Sequence Documents and Software

The following documents comprise the "Tutorial Enhancement" funded by the Naval Center for Cost Analysis and encompasses the performance period from December, 1988 through February, 1989.

(13) SASET Tutorial Software (Computer program prototype), Software Cost Estimation Study, Naval Center for Cost Analysis, Contract No. N00014-85-C-0892, Delivery Order No. MCR-88-632, CDRL Item No. B011, January, 1989. (This software was considered part of the SASET Software Model, referenced in CDRL Item No. A011).

(14) SASET Tutorial Software Review (computer program prototype) was conducted on 12/1/88, and formally specified as CDRL Item No. B012.


(16) SASET Modification Source Code (computer program prototype) to be submitted with the final contract CDRL Item, as Delivery order No. MCR-90-541.

C. Series C00X CDRL Sequence Documents and Software

The following documents and software prototype computer program deliverables comprise the "Multiple CPCI Enhancement" funded by the Air Force Cost Center, and encompass the performance period from August 1989 through February 1990.

(The Quarterly Status reports for the Multiple CPCI Enhancement are designated as CDRL Item C001, issues 1 through 4, Delivery Order No. MCR-89-582).


D. Series D00X CDRL Sequence Documents and Software

The following documents and software prototype computer program deliverables comprise the "Performance Measurement Enhancement," funded by the Air Force Cost Center, and encompasses the performance period from December 1989 through August, 1990.

(The Quarterly Status Reports for the Performance Measurement Enhancement are designated as CDRL Item D001, issues 1 through 4, Delivery Order No. MCR-90-514).


E  Series E00X CDRL Sequence Documents and Software

The following documents and software prototype computer program deliverables comprise the "Risk Assessment Enhancement," funded by the Naval Center for Cost Analysis, and encompasses the performance period from July 1989 through August, 1990.

(The Quarterly Status Reports for the Risk Assessment Enhancement are designated as CDRL Item E001, issues 1 through 4, Delivery Order No. MCR-90-520).
