"Project Management Using Earned Value"
Case Study Solution 18.1

18.1

CASE STUDY

Schedule Traceability

© Humphreys & Associates, Inc. 2014

Schedule Traceability

SOLUTION

1. The milestones for System Requirements Review (SRR), Integrated Baseline Review (IBR), Preliminary Design Review (PDR) Engineering Prototype Available, and System Software Review (SSR) trace between the Master and Intermediate levels and between the Intermediate and Detail levels. In addition, milestones 1, 5 and 8 trace from the Intermediate to the Master Schedule, and are also on the Detail Schedule; therefore they trace from the Detail to the Intermediate Schedule.

Time spans trace within the Master Schedule; within the Intermediate Schedule and between the Master and Intermediate Schedules.

Time spans do not trace within the Detail Schedule or between the Intermediate and Detail Schedules. The Control Account start date is 15 July Year 01 but the first two tasks are scheduled to start on 1 July Year 01 on the Detail Schedule. (We do not even know if we are looking at current or baseline schedule information on the Detail Schedule).

2. The Major Interface Milestones are meaningful on the Master, Intermediate and Detail Schedules. The Program Milestones are not defined: we do not know what Program Milestones 1, 5 and 8 are. There should be a milestone dictionary describing completion/exit criteria for each milestone. In addition, we would also expect to see some control account level milestones for the other work packages on the Detail Schedule. The completion/exit criteria should be defined for these control account level milestones also. (See page 3 of solution).

3. Work progress cannot be traced without statusing the Detail Schedule and determining BCWP. There is no progress evident at the detail level; based on the control account start date, we would expect to see some progress. Progress is evident at the Intermediate Schedule level, but not at the Master Schedule level. (See page 6 of the solution for one way to status the work progress on the CAP.)

4. Work Package #5 shows 180 Requirements @ 5 hours per requirement (900 hours), while the total BCWS reflects only 750 hours (or 150 Requirements @ 5 hours per requirement).

5. a. Generate all tiers of schedules from the same schedule database so the symbology is consistent. In addition, this will yield accurate time span traces if rolled up via the WBS structure.

b. Reflect current status at all schedule levels.

c. Signature blocks should be on the appropriate schedules.

d. Legends should be on all schedules.

e. Both current and baseline schedules should be shown at all levels.

© Humphreys & Associates, Inc. 2014

SOLUTION

(Continued)

There are other areas of consideration when reviewing a scheduling system. The following questions should be answered:

♦ Does the baseline support the program/project objectives?

♦ Is all of the scope included in the schedule?

♦ How will changes be controlled?

♦ If resource loaded, is the schedule achievable? Are the resources available when scheduled? Is the time phased budget consistent with the scheduled resources?

♦ Schedule procedures should be reviewed for completeness including verification that those responsible for the work develop the schedule.

♦ Does the overall system successfully address the dual reporting considerations of physical percent complete status to support earned value determination and accurate remaining duration forecasting for schedule analysis?

♦ Is the scheduling system being abused? (e.g., are directed dates being used improperly?)

These questions cannot be answered relative to this particular case study as all of the information required is not available; however, they should be answered when conducting a review on a program.

© Humphreys & Associates, Inc. 2014

Milestone Definition Addendum

Control Account: 1040ADC Date: 7/14/01 WBS No.: 1010501 CAM: Thad Baker

Work Package No.: 003

Milestone No.: 1

Description/Completion Criteria: 1st System Software risk list update, review with functional manager and coordination with Company Program Office.

Work Package No.: 003

Milestone No.: 2

Description/Completion Criteria: Complete working session with Program Office scheduler to provide network constraining relationships and probability distributions for each risk list item, root cause/analysis 1st level and development of mitigating alternative actions.

Work Package No.: 003

Milestone No.: 3

Description/Completion Criteria: Review automated schedule risk outputs and modify network / distributions for quarterly report to the Program Office.

Work Package No.: 003

Milestone No.: 4

Description/Completion Criteria: Complete further detail root cause/analysis (2nd/3rd level analysis), where appropriate, finalize selection of mitigating action items and review with functional manager.

Work Package No.: 003

Milestone No.: 5

Description/Completion Criteria: Complete quarterly report update to risk list and risk plan for the System Software risks to the Program Office.

Work Package No.: 003

Milestone No.: 6

Description/Completion Criteria: Status Program Office on progress of assigned risk plan action items, update schedule risk network logic and changes in probability due to realization of actual completions and problems and identify any new risk items.

Work Package No.: 003

Milestone No.: 7

Description/Completion Criteria: Status Program Office on progress of assigned risk plan action items, update schedule risk network logic and changes in probability due to realization of actual completions and problems and identify any new risk items.

Work Package No.: 003

Milestone No.: 8

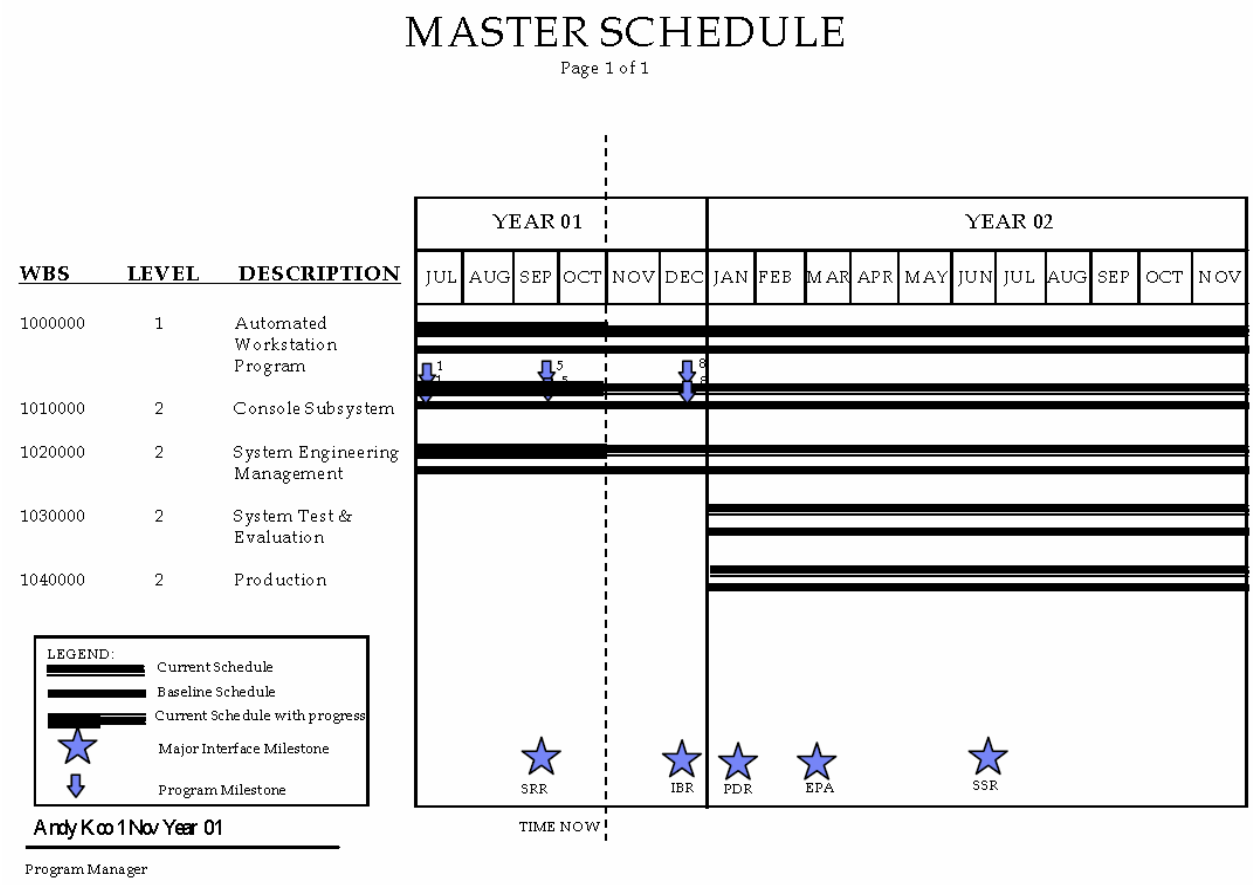
Description/Completion Criteria: Complete quarterly report update to risk list and risk plan for the System Software risks to the Program Office.

© Humphreys & Associates, Inc. 2014

Work Package No.: 003

Milestone No.: 9

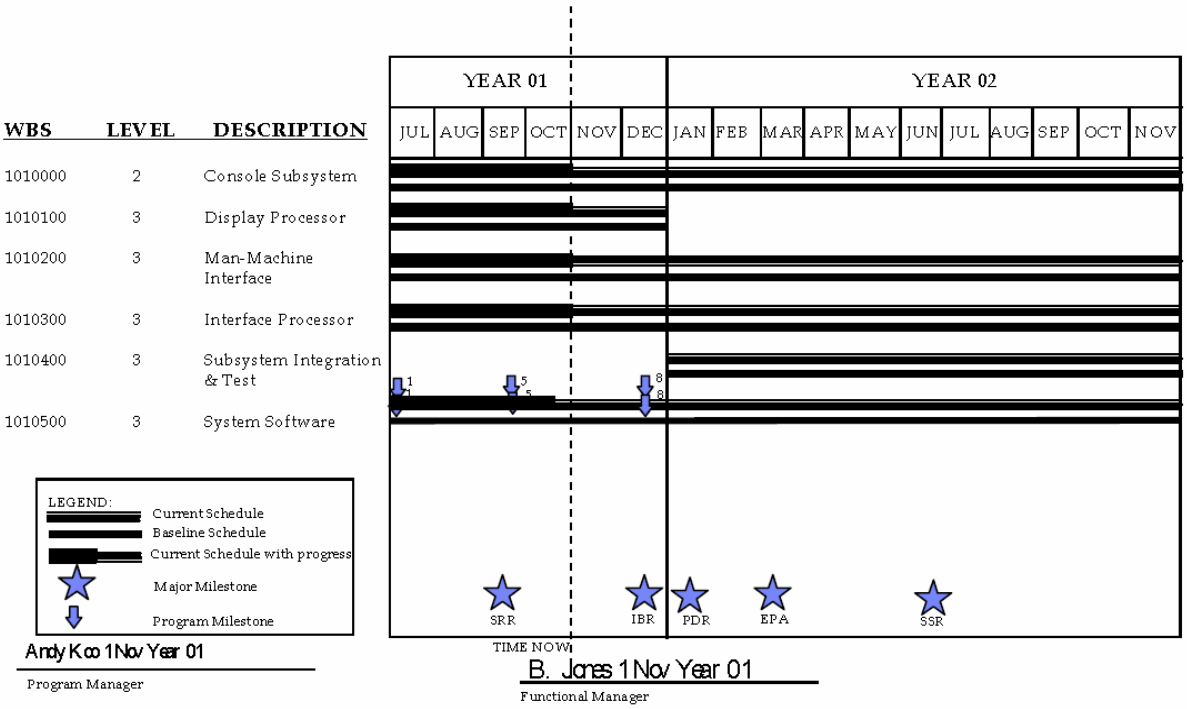
Description/Completion Criteria: Status Program Office on progress of assigned risk plan action items, update schedule risk network logic and changes in probability due to realization of actual completions and problems and identify any new risk items.



© Humphreys & Associates, Inc. 2014

INTERMEDIATE SCHEDULE: Console Subsystem

Page 1 of 1



TIME NOW

CONTROL ACCOUNT PLAN

PROGRAM: Automated Workstation | DATE: 7/15/Yr1 | REV NO. Orig. | CONTROL ACCOUNT TITLE/NO.: 104DADC PRE-SRR SYSTEM SOFTWARE DEVELOPMENT | PAGE: 1 OF 1

CAM: THAD BAKER | PROGRAM MGR: S. SMITH

WBS REFERENCE: 101DS01
SCHEDULE REFERENCE: ADA LVL1 001 R0

Element of Cost (EOC): L-Labor, M-Mat'l, S-Sub Ktr, O-ODC

REFERENCE MILESTONES: System Requirements Review; Integrated Baseline Review; Preliminary Design Review; Engineering Prototype Available; System Software Review

WORK TASK NO./EOC	WORK TASK DESCRIPTION	EV METHOD	CWA NO.	YEAR 01 JUL	AUG	SEP	OCT	NOV	DEC	YEAR 02 JAN	FEB	MAR	APR	MAY	JUN	TOTAL 12 MOS.
1	Management/administration of developing system software	1 LOE	A3G01													
		BCWS-HRS		23	30	35	20	20	20	20	20	20	20	20	35	283
		BCWS-$		$1,650	$2,153	$2,511	$1,435	$1,435	$1,435	$1,435	$1,435	$1,435	$1,435	$1,435	$2,511	$20,305
		BCWP-HRS		23	30	35	20									
EOC: L		BCWP-$		$1,650	$2,153	$2,511	$1,435									
2	Requirements Definition & Analysis to support SRR	5 % Complete	A3G01 % WS % WP	31% 31%	43% 43%	26% 26%										
		BCWS-HRS		57	80	50										187
		BCWS-$		$4,090	$5,740	$3,588										$13,418
		BCWP-HRS		57	80	50										
EOC: L		BCWP-$		$4,090	$5,740	$3,588										
3	Support Risk Identification & Assessment	2 Milestone	A3G01	1	2 3	4 5	6	7	8	9						
		BCWS-HRS		20	40	40	10	10	10	10						140
		BCWS-$		$1,435	$2,870	$2,870	$718	$718	$718	$718						$10,047
		BCWP-HRS		20	40	40	10									
EOC: L		BCWP-$		$1,435	$2,870	$2,870	$718									
4	Software Integration Testing & Software/Hardware Interface Testing	6 Units	A3G01													
		BCWS-HRS										50	160	250	260	720
		BCWS-$										$3,588	$11,480	$17,938	$18,655	$51,661
		BCWP-HRS														
EOC: L		BCWP-$														
5	Test Planning 180 Requirements (5 hrs per requirement)	5 % Complete	A3G01 % WS % WP			1% 0%	11% 8%	13%	13%	26%	20%	13%	3%			
		BCWS-HRS				10	80	100	100	190	150	100	20			750
		BCWS-$				718	5,740	7,175	7,175	13,633	10,763	7,175	1,435			$53,814
		BCWP-HRS				0	60									
EOC: L		BCWP-$				$0	$4,305									
6	Design, Code & Unit Test	5 % Complete	A3G01 % WS % WP			1% 1%	4% 2%	7%	7%	15%	15%	14%	14%	12%	11%	
		BCWS-HRS				59	173	336	336	709	709	664	664	600	550	4800
		BCWS-$				$4,233	$12,413	$24,108	$24,108	$50,871	$50,871	$47,642	$47,642	$43,050	$39,463	$344,401
		BCWP-HRS				59	86									
EOC: L		BCWP-$				$4,233	$6,171									
7	Software Input - Preliminary Documentation & Release	3 50/50	A3G01													
		BCWS-HRS											70	70		140
		BCWS-$											$5,023	$5,023		$10,046
		BCWP-HRS														
EOC: L		BCWP-$														
8	Interpret, analyze & coordinate system software design with System Engineering & Other Subsystems (10% of WP #6)	7 Apportioned	A3G01													
		BCWS-HRS				6	17	34	34	71	71	66	66	60	55	480
		BCWS-$				$431	$1,220	$2,440	$2,440	$5,094	$5,094	$4,736	$4,736	$4,305	$3,946	$34,442
		BCWP-HRS				6	9									
EOC: L		BCWP-$				$431	$646									
9	Purchase of compilers, research materials, DNA specialists, etc. supporting design	5 % Complete	A3G01													
		BCWS-HRS														0
		BCWS-$						$2,500	$5,000	$5,000	$5,000	$3,000				$20,500
		BCWP-HRS														
EOC: M		BCWP-$														
PAGE TOTALS	MONTHLY BCWS		HOURS	100	150	200	300	500	500	1000	950	900	1000	1000	900	7500
			DOLLARS	$7,175	$10,763	$14,351	$21,526	$38,376	$40,876	$76,751	$73,163	$67,576	$71,751	$71,751	$64,575	$558,634
	CUM BCWS		HOURS	100	250	450	750	1,250	1,750	2,750	3,700	4,600	5,600	6,600	7,500	
			DOLLARS	$7,175	$17,938	$32,289	$53,815	$92,191	$133,067	$209,818	$282,981	$350,557	$422,308	$494,059	$558,634	
	MONTHLY BCWP		HOURS	100	150	190	185									
			DOLLARS	$7,175	$10,763	$13,633	$13,275									
	CUM BCWP		HOURS	100	250	440	625									
			DOLLARS	$7,175	$17,938	$31,571	$44,846									
	MONTHLY ACWP		HOURS	117	160	215	197									
			DOLLARS	$9,360	$13,600	$17,200	$15,760									

Earned Value (EV) Codes:
1. Level of Effort 4. 0/100 7. Apportioned
2. Milestone 5. % Complete
3. 50/50 6. Units Complete

LEGEND:
△ = Start Activity - Plan
⇧ = Complete Activity - Plan
◇ = Delayed Activity - Revised Plan
Filled in symbol indicates completed activity - actual

TIME NOW

APPROVALS:
CAM: Thad Baker
PROGRAM MGR.: Susan Smith

DATE: 7/14/Yr1
7/14/Yr1