

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7					R-1 ITEM NOMENCLATURE 0204229N Tomahawk Weapons System (TWS)			
COST (\$ in Millions)	FY 2002	FY 2003*	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	72.585	97.448	71.385	36.143	18.821	13.975	13.626	13.874
A0545 Tomahawk	72.585	97.448	71.385	36.143	18.821	13.975	13.626	13.874
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: *FY 2003 includes a Congressional add of \$5.6 million for Precision Terrain Aided Navigation less undistributed Congressional Reductions.								
The Tomahawk Weapons System (TWS) provides the Tomahawk cruise missile attack capability against targets on land (Tomahawk Land Attack Missile (TLAM)). The TLAM can be fitted with either Conventional unitary warhead (TLAM/C), nuclear warhead (TLAM/N) or submunition dispenser (TLAM/D). This program ensures that the TWS exploits state-of-the-art technology to preserve the efficiency of this proven weapon system, and includes all missile development, mission planning system development, and submarine and surface ship weapons control system development:								
The Tactical Tomahawk (TACTOM) All-Up-Round missile development is a comprehensive baseline upgrade to the TWS that provides the tactical commander a quick reaction response capability as well as improved flexibility, accuracy, and lethality. The essential elements of TACTOM are upgrades to the guidance, navigation, control, and mission computer systems of the missile along with the associated Command and Control (C2) systems and weapons control systems upgrades. TACTOM will provide a UHF Satcom data link to enable the missile to receive in-flight mission modification messages, to transfer health and status messages, and to broadcast Battle Damage Indication (BDI) messages. TACTOM also includes a high anti-jam GPS receiver, navigation improvements, associated antenna systems, and Cruise Missile Real Time Retargeting. The Tomahawk program (A0545) also includes development of Torpedo Tube Launch (TTL) capability for submarines, the development of a penetration capability of Tactical Tomahawk and Mission Responsive Ordnance.								
Tomahawk Command and Control System (TC2S) Theater Mission Planning Center (TMPC) and Afloat Planning System (APS) (a shipboard version of TMPC) provide mission planning and employment support information for both the nuclear (TMPC only) and conventional TLAM, including the distribution of mission data and command information essential to TLAM employment via the Mission Distribution System (MDS) and associated communications infrastructure. Development of Tactical Tomahawk capabilities in TMPC/APS/MDS includes software development, integration, test, and delivery, including support for TECHEVAL and OPEVAL, training development, installation planning, and simulation/model development required by COMOPTEVFOR to offset live missile flights in TECHEVAL and OPEVAL. This project also includes development related to national and tactical imagery architectures, as well as software development to decrease mission planning time and increase the quality and accuracy of each mission for Block II and III TLAM.								
Tomahawk Weapons Control System provides launch capability for surface and submarine platforms. Development of the Tactical Tomahawk Weapons Control System (TTWCS) provides a common architecture to launch the Tactical Tomahawk and all variants in inventory. These efforts provide battle-group tactical flexibility and responsiveness while maximizing TWS wartime capability. TTWCS entered Engineering and Manufacturing Development (EMD) in FY99, with Phase A IOC (BLK III) planned for FY03, and Phase B IOC (TACTOM) planned to coincide with the AUR IOC in FY 2004.								

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 11)

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0204229N Tomahawk Weapons System (TWS)			PROJECT NUMBER AND NAME A0545 TOMAHAWK			
COST (\$ in Millions)	FY 2002	FY 2003*	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	72.585	97.448	71.385	36.143	18.821	13.975	13.626	13.874
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

*FY 2003 includes a Congressional add of \$5.6 million for Precision Terrain Aided Navigation less Congressional Undistributed Reductions.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 3 of 11)

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																
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<div style="border: 1px solid black; padding: 5px;"><p>FY02 Accomplishments: Completed Phase 1A land based tests of weapons control system. Initiated TECHEVAL/OPEVAL for Phase 1A. Conducted Phase 1B Land Based and Sea Based System Integration Testing.</p><p>FY03 Plans: Complete OPEVAL for Phase 1A of Weapons Control System. Continue Phase 1B Land Based and Sea Based System Testing. Initiate TECHEVAL/OPEVAL for Phase 1B.</p><p>FY04 Plans: Complete Phase 1B Land Based and Sea Based System Testing of Weapons Control System. Complete TECHEVAL/OPEVAL. Initiate development of Integrated Training Architecture for TTWS.</p><p>FY05 Plans: Continue development of Tactical Tomahawk Weapons System Integrated Training Architecture.</p></div>																			
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Exhibit R-2a, RDTEN Project Justification
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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 5 of 11)

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EXHIBIT R-2a, RDT&E Project Justification	DATE:
	February 2003

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204229N Tomahawk Weapons System (TWS)	A0545 TOMAHAWK

(U) D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>To Complete</u>	<u>Total Cost</u>
WPN BLI 210100 Tomahawk	73.021	244.054	277.588	192.026	346.862	377.403	439.999	426.877	0.000	2377.830
OPN BLI 525000 Surface Tomahawk	60.218	52.487	63.423	70.294	68.700	44.695	35.180	35.444	450.369	880.810
Support Equipment										
OPN BLI 525500 Submarine Tomahawk	2.981	5.153	5.786	5.495	7.151	8.266	8.760	9.278	60.000	112.870
Support Equipment										
OPN Spares BLI 902010 Initial Spares	0.726	0.624	3.945	3.781	3.354	2.281	0.783	0.790		16.284
OPN Spares BLI 902090 Vendor Direct Spare	0.790	0.647	0.780	0.969	0.724	0.931	0.949	0.967		6.757
Related RDT&E,N: Not Applicable										

(U) E. ACQUISITION STRATEGY:

(U) D. ACQUISITION STRATEGY: In 1998, the Tomahawk Baseline Improvement Program (TBIP) transitioned to the Tactical Tomahawk program. This program is outlined in the Class Justification and Approval (CJ&A No AIR-22448) signed by the Under Secretary of the Navy on 29 May 1998. The acquisition strategy was to transition the Tomahawk Baseline Improvement Program (TBIP) to Tactical Tomahawk. The Tactical Tomahawk development program is a cost sharing contract between the Government and the Contractor to add capability to the missile. The department is pursuing obtaining a multi-year procurement for the full rate production years FY04 through FY08.

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0204229N Tomahawk Weapons System (TWS)			A0545 TOMAHAWK						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development												
Primary Hardware Development												
Tactical Tomahawk Program												
All Up Round	C/CPFF	Raytheon, Tucson, AZ	200.008	12.220	11/02						212.228	212.228
TTPV	SS/CPAF	Raytheon, Tucson, AZ				2.000	11/03	2.831	11/04		4.831	4.831
TTL	SS/CPAF	Raytheon, Tucson, AZ		0.905	11/02	10.651	11/03	1.782	11/04	15.456	28.794	28.794
Mission Planning System	SS/CPFF	ComGlobal, San Jose, CA	16.841	11.527	12/02	3.953	12/03	2.843	12/04		35.164	35.164
	SS/CPFF	Boeing, St. Louis, MO	0.650	2.190	12/02	2.123	12/03	0.500	12/04		5.463	5.463
	SS/CPFF	BAE Systems, San Diego, CA	0.929	0.640	12/02	0.500	12/03	0.926	12/04	0.273	3.268	3.268
Weapons Control System	C/CPAF	Lockheed, Valley Forge, PA	89.043	5.790	12/02	7.883	12/03	6.608	12/04	2.000	111.324	111.324
Ship Integration												
Launcher Integration	SS/CPAF	NAVSEA, Washington, DC	20.043	0.545	12/02	4.289	12/03	0.914	12/04	2.300	28.091	28.091
Systems Engineering												
All Up Round	C/FP	Raytheon, Tucson, AZ	9.000	3.017	11/02	2.419	11/03	0.825	11/04		15.261	15.261
	SS/CPFF	UARC APL, Laurel, MD	18.887	3.048	01/03	3.797	01/04	2.182	01/05		27.914	27.914
	C/FP	Boeing, St. Louis, MO	3.000								3.000	3.000
Weapons Control System	SS/CPFF	URAC APL, Laurel, MD	0.804	0.389	12/02	1.735	01/04	0.683	01/05	0.369	3.980	3.980
All Product Development Costs, 1974 through TBIP Costs in 1998			2,176.447								2,176.447	2,176.447
Subtotal Product Development			2,535.652	40.271		39.350		20.094		20.398	2,655.765	
Remarks:												

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Exhibit R-3, Project Cost Analysis
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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0204229N Tomahawk Weapons System (TWS)			A0545 TOMAHAWK						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Support (Development)												
Development Support												
All-Up-Round	WR	NSWC, Dahlgren VA	10.765	1.271	11/02	0.820	11/03	0.967	11/04	Continuing	Continuing	
	WR	NAWC-WD, China Lake, CA	9.291	3.107	11/02	1.200	11/03	0.516	11/04	Continuing	Continuing	
	WR	NSWC, Pt Hueneme, CA	3.476	0.437	11/02	0.283	11/03	0.120	11/04	Continuing	Continuing	
	WR	NAWC-AD, Pax River, MD	4.177	0.679	11/02	0.662	11/03	0.334	11/04	Continuing	Continuing	
	WR	NWAD, Corona	1.278	0.000	11/02	0.000	11/03	0.082	11/04	Continuing	Continuing	
	WR	NUWC, Newport, RI	4.481	0.725	11/02	2.931	11/03	0.712	11/04	Continuing	Continuing	
	SS/CPFF	SAIC, Arlington, VA	6.557	1.006	12/02	2.086	12/03	1.144	12/04		10.793	10.793
	WR	NSWC, Indian Head, MD	5.765	0.573	11/02	0.442	11/03	0.547	11/04	Continuing	Continuing	
	WR	NSWC, Carderock, MD	1.263	0.460	11/02	0.100	11/03			Continuing	Continuing	
	C/CPFF	Honeywell, Minneapolis, MN	1.538	2.196							3.734	3.734
	Various	Various	16.161	0.277	04/03	0.601	12/03	0.079	12/04	Continuing	Continuing	
Weapons Control Systems	WR	NUWC, Newport, RI	12.498	2.606	12/02	0.629	11/03				15.733	
Software Development												
Mission Planning Systems	SS/CPFF	Raytheon, Arlington, VA	5.100								5.100	5.100
	SS/CPFF	Lockheed, Valley Forge, PA	2.015	1.929	12/02	2.200	12/03	1.431	12/04	1.530	9.105	9.105
	SS/CPFF	SAIC, Arlington, VA	8.492	4.776	12/02	1.300	12/03	0.946	12/04	0.679	16.193	16.193
	SS/CPFF	URAC APL, Laurel, MD	8.546	4.523	12/02	2.449	01/04	0.678	01/05	2.965	19.161	19.161
Weapons Control Systems	WR	NSWC, Dahlgren VA	19.627	4.918	12/02	2.976	12/03	0.991	12/04	Continuing	Continuing	
Subtotal Support			121.030	29.483		18.679		8.547		Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-7			PROGRAM ELEMENT 0204229N Tomahawk Weapons System (TWS)			PROJECT NUMBER AND NAME A0545 TOMAHAWK						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	SS/CPFF	Raytheon, Tucson, AZ	23.457	17.468	11/02	6.356	11/03	1.946	11/04	3.834	53.061	53.061
	WR	COMOPTEVFOR, VA	2.233	0.579	12/02	0.434	12/03	0.525	12/04	Continuing	Continuing	
	WR	NAWC, Pt Mugu Test Ctr, CA	12.360	7.270	11/02	4.000	11/03	3.375	11/04	Continuing	Continuing	
	WR	NOSC, San Diego CA	1.275	0.575	11/02						1.850	
	WR	NUWC, Newport RI	0.440	0.508	11/02	1.182	11/03	1.150	11/04	Continuing	Continuing	
	SS/CPFF	URAC APL, Laurel MD	0.692	0.690	12/02	0.320	12/03	0.251	12/04		1.953	1.953
	WR	NSWC, Dahlgren, VA	0.807	0.554	11/02	0.672	11/03	0.125	11/04	Continuing	Continuing	
	WR	NSWC, Port Hueneme				0.352	11/03				0.352	
		Various	3.541	0.050	11/02	0.040	11/03	0.130	11/04	Continuing	Continuing	
Subtotal T&E			44.805	27.694		13.356		7.502		Continuing	Continuing	
Remarks:												
Management												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			2,701.487	97.448		71.385		36.143		Continuing	Continuing	
Remarks:												

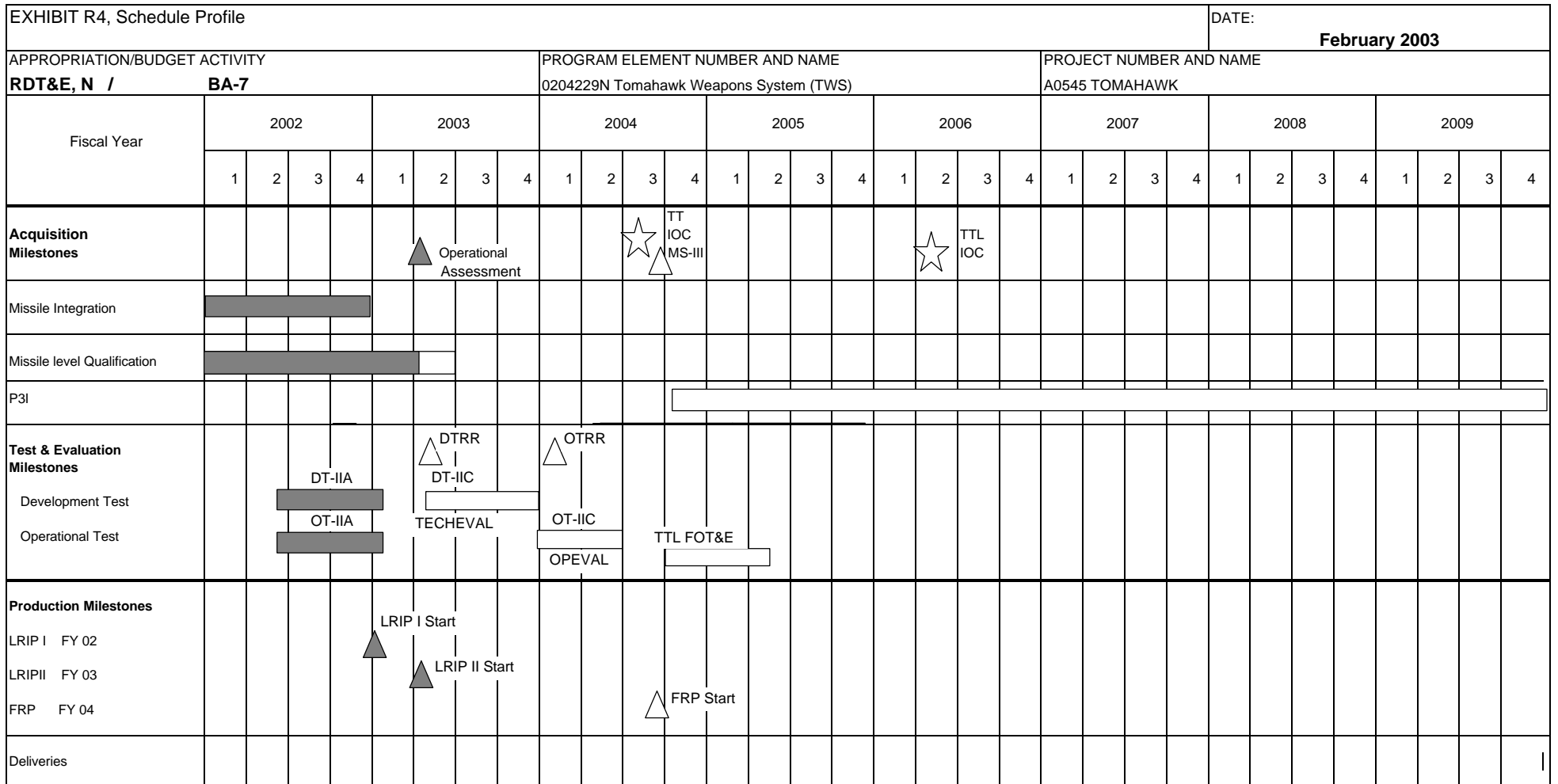
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Exhibit R-4, Schedule Profile
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Exhibit R-4a, Schedule Detail
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