

CHAPTER 5

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION APPROPRIATIONS

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CHAPTER 5

★June 2002

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION APPROPRIATIONS**0501 GENERAL****050101 Purpose**

This chapter provides instructions on budget formulation and congressional justification for Research, Development, Test, and Evaluation (RDT&E) appropriations. The following appropriations are included in RDT&E:

- RDT&E, Army (2040A)
- RDT&E, Navy (1319N)
- RDT&E, Air Force (3600F)
- RDT&E, Defense-Wide (0400D)
- Operational Test and Evaluation, Defense (0460D)

050102 Submission Requirements

General guidance on submission requirements is in Chapter 1. Chapter 5 provides additional specific requirements on justification material for the above appropriations. Other chapters in the FMR require additional exhibits. The Components will also submit any exhibits required by OMB Circular A-11, Preparation and Submission of Budget Estimates.

050103 Not Used**050104 Preparation of Material**

General guidance on format and preparation of material is presented in Chapter 1. Chapter 5 provides additional specific requirements on justification material required for RDT&E appropriations.

050105 References

Section 010210 provides policies and definitions concerning costs that are to be financed in RDT&E.

0502 UNIFORM BUDGET AND FISCAL ACCOUNTING CLASSIFICATION**050201 RDT&E Budget Activities**

The RDT&E budget activities are broad categories reflecting different types of RDT&E efforts. The definitions are provided below.

Budget Activity 1, Basic Research. Basic research is systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind. It includes all scientific study and experimentation directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs. It is farsighted high payoff research that provides the basis for technological progress. Basic research may lead to: (a) subsequent applied research and advanced technology developments in Defense-related technologies, and (b) new and improved military functional capabilities in areas such as communications, detection, tracking, surveillance, propulsion, mobility, guidance and control, navigation, energy conversion, materials and structures, and personnel support. *Program elements in this category involve pre-Milestone A efforts.*

Budget Activity 2, Applied Research. Applied research is systematic study to understand the means to meet a recognized and specific national security requirement. It is a systematic application of knowledge to develop useful materials, devices, and systems or methods. It may include design, development, and improvement of prototypes and new processes to meet general mission area requirements. Applied research translates promising basic research into solutions for broadly defined military needs, short of system development. This type of effort may vary from systematic mission-directed research beyond that in Budget Activity 1 to sophisticated breadboard hardware, study, programming and planning efforts that establish the initial feasibility and practicality of proposed solutions to technological challenges. It includes studies, investigations, and non-system specific technology efforts. The dominant characteristic is that applied research is directed toward general military needs with a view toward developing and evaluating the feasibility and practicality of proposed solutions and determining their parameters. Applied Research precedes system specific research. Program control of the Applied Research program element is normally exercised by general level of effort. *Program elements in this category involve pre-Milestone B efforts, also known as Concept and Technology Development phase tasks, such as concept exploration efforts and paper studies of alternative concepts for meeting a mission need.*

Budget Activity 3, Advanced Technology Development (ATD). *This budget activity includes development of subsystems and components and efforts to integrate subsystems and components into system prototypes for field experiments and/or tests in a simulated environment. ATD includes concept and technology demonstrations of components and subsystems or system models. The models may be form, fit and function prototypes or scaled models that serve the same demonstration purpose.* The results of this type of effort are proof of technological feasibility and assessment of subsystem and component operability and producibility rather than the development of hardware for service use. Projects in this category have a direct relevance to identified military needs. Advanced Technology Development demonstrates the general military utility or cost reduction potential of technology when applied to different types of military equipment or techniques. *Program elements in this category involve pre-Milestone B efforts, such as system concept demonstration, joint and Service-specific experiments or Technology Demonstrations.* Projects in this category do not necessarily lead to subsequent development or procurement phases.

Budget Activity 4, Advanced Component Development and Prototypes (ACD&P). Efforts necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment are funded in this budget activity. The ACD&P phase includes system specific efforts that help expedite technology transition from the laboratory to operational use. Emphasis is on proving component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives. *Program elements in this category involve efforts prior to Milestone B and are referred to as advanced component development activities and include technology demonstrations. Completion of Technology Readiness Levels 6 and 7*

should be achieved for major programs. Program control is exercised at the program and project level. A logical progression of program phases and development and/or production funding must be evident in the FYDP.

Budget Activity 5, System Development and Demonstration (SDD). *SDD programs have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production.* This budget activity is characterized by major line item projects and program control is exercised by review of individual programs and projects. Prototype performance is near or at planned operational system levels. *Characteristics of this budget activity involve mature system development, integration and demonstration to support Milestone C decisions, and conducting live fire test and evaluation (LFT&E) and initial operational test and evaluation (IOT&E) of production representative articles.* A logical progression of program phases and development and production funding must be evident in the FYDP consistent with the Department's full funding policy.

Budget Activity 6, RDT&E Management Support. This budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation. Test ranges, military construction, maintenance support of laboratories, operation and maintenance of test aircraft and ships, and studies and analyses in support of the RDT&E program are funded in this budget activity. Costs of laboratory personnel, either in-house or contractor operated, would be assigned to appropriate projects or as a line item in the Basic Research, Applied Research, or Advanced Technology Development program areas, as appropriate. Military construction costs directly related to major development programs are included.

Budget Activity 7, Operational System Development. This budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year. All items are major line item projects that appear as RDT&E Costs of Weapon System Elements in other programs. Program control is exercised by review of individual projects. *Programs in this category involve systems that have received Milestone C approval.* A logical progression of program phases and development and production funding must be evident in the FYDP, consistent with the Department's full funding policy.

050202 Establishing RDT&E Program Elements

A. The program element is the primary data element in the Future Years Defense Program (FYDP) and is the major aggregation, at which RDT&E efforts are organized, budgeted and reviewed. All funding associated with a major system new start should be identified in a unique program element. Requests to establish program elements should be forwarded to OSD Program Analysis and Evaluation for coordination and approval. Instructions are contained in DoD 7045.7-H, "The FYDP Program Structure Handbook."

B. In general, the coding symbology identifies the RDT&E budget activity for the program element. Program elements in RDT&E budget activities 1 through 6 will have "06" in the first two positions; "06" indicates it is part of Major Force Program 6, Research and Development. The third and fourth position will identify the specific budget activity (e.g., 0602 is an RDT&E budget activity 2 program element). Program elements in RDT&E budget activity 7 reflect the Major Program of the fielded system in the first two positions (e.g., "01" indicates a strategic system).

0503 PROGRAM AND BUDGET REVIEW SUBMISSION**050301 Purpose**

This section prescribes instructions for the preparation and submission of the budget estimates for the RDT&E appropriations. Unless otherwise specified, these instructions apply to all RDT&E appropriations and to all budgets. See Chapter 1, Section 0104, for specific printing requirements.

050302 Submission Requirements

A. Administrative Requirements.

1. Classification. Information contained in the budget requests should be unclassified. Where classified information is required in order to explain the program, the classified material will be provided under separate cover and appropriately marked.

2. Exhibits will display the actual fiscal years (i.e., PYs, FY 2002, FY 2003, FY 2004, FY 2005, FY 2006, FY 2007, FY 2008, and FY 2009.) rather than the template entries (i.e., PY, CY, BY1, BY2, BY2+1, BY2+2, BY2+3, and BY2+4).

3. If an amended budget is submitted, identify the revised budget exhibits accordingly.

4. All pages will be annotated with the applicable R-1 line item number and page number within the line item (Item 1-1 of 5, 1-2 of 5, 2-1 of 1, 3-1 of 20, etc.) at the bottom center or bottom right of each page. Be consistent for all pages of the backup book.

5. If printing the RDT&E material in one volume is impractical, the justification material can be submitted by budget activity with the Science and Technology budget activities (BA 1 through BA 3) printed in one volume and the remaining budget activities printed in a separate volume or in individual volumes. Each volume should include an R-1 listing and a table of contents indicating the volume and page where the applicable program element can be found. The justification material will be entitled

Fiscal Year 20BY1/20BY2 Program and Budget Review Submission
RDT&E Descriptive Summaries, Volume I
Month/Year (of Submission)

B. Component-generated exhibits can be used in lieu of the following exhibits as long as they include all the information required by the exhibits in a usable format. The exhibits will be aggregated in the following order for each R-1 line item and submitted in R-1 line item order. The required exhibits shall be packaged in the following order, as applicable: R-2 (PE 1), R-2a (PE 1, Project or Future Naval Capability A), R-3 (PE 1, Project or Future Naval Capability A), R-4 (PE 1, Project or Future Naval Capability A), R-2a (PE 1, Project or Future Naval Capability B), R-3 (PE 1, Project or Future Naval Capability B), R-4 (PE 1, Project or Future Naval Capability B), etc.

Arrangement of Exhibits - General

R-1	RDT&E Program
R-1C	RDT&E Program - Comparison Report
R-2	RDT&E Budget Item Justification
R-2a	RDT&E Project Justification
R-3	RDT&E Project Cost Analysis
R-4	<i>RDT&E Program Schedule Profile</i>
R-4A	<i>RDT&E Program Schedule Detail</i>
DD 1391	Military Construction Project Data

C. Facilities Exhibit. For improvements to and construction of government-owned facilities funded in RDT&E, a DD Form 1391, Military Construction Project Data, will be provided separately for each budget year project and any PY or CY projects not previously reported. These exhibits will be included with the program element justification. In addition, a copy of all DD Forms 1391 should be packaged together and a copy provided to the OUSD(C) P/B Investment Directorate (4B915) and to the Military Construction Directorate (3D840). A copy of the form and the instructions are in Chapter 6.

D. MAX Schedule C. OMB Circular No. A-11 has incorporated the requirements for this research and development exhibit into the automated MAX schedule C. *Subsequent instructions will be provided by the Director, Defense Research and Engineering (POC: Mr. Stanley Trice, 703-695-0005) regarding the specific requirements for this submission to OMB's MAX system.*

0504 CONGRESSIONAL JUSTIFICATION/PRESENTATION**050401 Purpose**

This section presents the justification book organization and the exhibit requirement for submission to Congress. Preferred budget exhibit formats can be found in Section 0505. See Chapter 1, Section 0104, for specific printing requirements.

050402 Organization of Justification Books**A. Administrative Requirements.**

1. Classification. Information contained in the budget requests should be unclassified. Where classified information is required in order to explain the program, the classified material will be provided under separate cover and appropriately marked.

2. Exhibits will display the actual fiscal years (i.e., PYs, FY 2002, FY 2003, FY 2004, FY 2005, FY 2006, FY 2007, FY 2008, and FY 2009.) rather than the template entries (i.e., PYs, PY, CY, BY1, BY2, BY2+1, BY2+2, BY2+3, and BY2+4).

3. All pages will be annotated with the applicable R-1 line item number and page number within the line item (Item 1-1 of 5, 1-2 of 5, 2-1 of 1, 3-1 of 20, etc.) at the bottom center or bottom right of each page. Be consistent for all pages of the backup book.

4. If printing the RDT&E material in one volume is impractical, the justification material can be submitted by budget activity with the Science and Technology budget activities (BA 1 through BA 3) printed in one volume and the remaining budget activities printed in a separate volume or in individual volumes. Each volume should include an R-1 listing and a table of contents indicating the volume and page where the applicable program element can be found.

B. Justification material will be entitled:

RDT&E Descriptive Summaries for
Fiscal Year 20BY1/20BY2 President's Budget
February 2003
Volume I

C. Service-generated and Defense Agency-generated exhibits can be used in lieu of the following exhibits as long as they include all the information required by the exhibits in a usable format. The exhibits will be aggregated in the following order for each R-1 line item and submitted in R-1 line item order. The required exhibits shall be packaged in the following order, as applicable: R-2 (PE 1), R-2a (PE 1, Project or Future Naval Capability A), R-3 (PE 1, Project or Future Naval Capability A), R-4, (PE 1, Project or Future Naval Capability A), R-2a (PE 1, Project or Future Naval Capability B), R-3 (PE 1, Project or Future Naval Capability B), R-4 (PE 1, Project or Future Naval Capability B), etc.

Arrangement of Exhibits - General

R-1	RDT&E Program (OSD Generated) (Include in the backup book, if available.)
R-2	RDT&E Budget Item Justification
R-2a	RDT&E Project Justification
R-3	RDT&E Project Cost Analysis
R-4	<i>RDT&E Program Schedule Profile</i>
R-4a	<i>RDT&E Program Schedule Detail</i>
DD 1391	Military Construction Project Data

D. Facilities Exhibit. For improvements to and construction of government-owned facilities funded in RDT&E, a DD Form 1391, Military Construction Project Data, will be provided separately for each budget year project and any PY or CY projects not previously reported. These exhibits will be included with the program element justification. In addition, a copy of all DD Forms 1391 should be packaged together and a copy provided to the Military Construction Directorate (3D840). A copy of the form and the instructions are in Chapter 6.

E. MAX Schedule C. OMB Circular No. A-11 has incorporated the requirements for this research and development exhibit into the automated MAX schedule C. *Subsequent instructions will be provided by the Director, Defense Research and Engineering (POC: Mr. Stanley Trice, 703-695-0005) regarding the specific requirements for this submission to OMB's MAX system.*

0505 RDT&E APPROPRIATION SUBMISSION FORMATS**050501 Purpose**

The formats provided on the following pages reflect requirements presented in previous sections of this chapter. Formats currently being used within each Service and Defense Agency may be used in lieu of the formats contained in Section 050502 as long as all of the information required by the exhibits in Section 050502 is provided in a usable format. With this exception and unless modified in an Office of the Under Secretary of Defense (Comptroller) budget submission memorandum, the formats in these exhibits shall be used.

050502 Exhibits in Support of Section 0503 – Program and Budget Review Submission

R-1, RDT&E Programs..... 11
R-1C, RDT&E Programs - Comparison Report..... 12
R-2, RDT&E Budget Item Justification..... 13
R-2a, RDT&E Project Justification 14
R-3, Project Cost Analysis..... 17
R-4, Schedule Profile..... 21
R-4a, Schedule Detail 22

050503 Exhibits in Support of Section 0504 - Congressional Justification

R-1, RDT&E Programs..... 11
R-2, RDT&E Budget Item Justification..... 13
R-2a, RDT&E Project Justification 14
R-3, Project Cost Analysis..... 17
R-4, Schedule Profile..... 21
R-4a, Schedule Detail 22

Exhibit R-1, RDT&E Programs

Department of the _____

Appropriation: _____

Date: _____

R-1 Line <u>Item No</u>	Program Element <u>Number</u>	<u>Item</u>	Budget <u>Activity</u>	Past Year <u>Cost</u>	<u>TOA, \$ in Millions</u>		
					Current Year <u>Cost</u>	Budget Year 1 <u>Cost</u>	Budget Year 2 <u>Cost</u>

Exhibit R-1, RDT&E Programs
(Exhibit R-1, page 1 of 2)

Instructions - Exhibit R-1, RDT&E Programs

I. General.

A. Unless otherwise specified, this format will be used to present the Research, Development, Test and Evaluation (RDT&E) program to:

1. The Office of the Under Secretary of Defense (Comptroller) in support of the OSD/OMB budget review and,
2. The Congress in support of the President's budget request.

II. RDT&E Line Item Content.

A. The basic document for presenting RDT&E requirements is the Exhibit R-1, RDT&E Programs. The R-1 line items are program elements, which define a development effort with specific design, cost, schedule and capability parameters. All costs of basic and applied scientific research, development, test, and evaluation, including maintenance, rehabilitation, and lease/operation of facilities and equipment will be included in appropriate R-1 line items.

B. The R-1 exhibit will contain the following information:

1. Program element title and number. Appropriate security classification coding should be included as part of each program element title listed. All classified material should be bracketed.
2. Line items will be arranged in ascending program element order within each budget activity.
3. Approved funding for the past year (PY), the current year (CY), budget year 1 (BY1), and BY2.
4. Summaries by (1) Budget Activities and (2) FYDP Programs.

Exhibit R-1C, RDT&E Programs - Comparison Report

The R-1C Comparison Report will provide a comparison between the last President's budget request and the current program budget review submission. The comparison should identify the changes for each RDT&E appropriation by R-1 line item. The report should also identify appropriation and budget activity totals for each fiscal year for the PY through BY2+4 timeframe. If it is necessary to submit classified data, then it should be submitted in a separate report. The unclassified report must match the total for the appropriation/account being submitted. This report will not be included in the justification material provided to the Congress.

Exhibit R-2, RDT&E Budget Item Justification							Date: Month/Year																																																																																										
Appropriation/Budget Activity RDT&E.A BA #				R-1 Item Nomenclature: Program Element (PE) Name and Number																																																																																													
Cost (\$ in millions)	FY PY	FY CY	FY BY ¹	FY BY ²	FY BY ²⁺¹	FY BY ²⁺²	FY BY ²⁺³	FY BY ²⁺⁴																																																																																									
Total PE Cost																																																																																																	
Project A or Future Naval Capability Name/No./Subtotal Cost																																																																																																	
Project B or Future Naval Capability Name/No./Subtotal Cost																																																																																																	
<p>A. Mission Description and Budget Item Justification: Provide a description and justification. Identify the military requirement(s) that this program will meet. Identify new start efforts for the budget year(s) within the program element and new start efforts since the previous President's budget. New start information can be displayed on the R-2a rather than the R-2.</p> <p>B. Program Change Summary: (Show total funding, schedule, and technical changes for the program element that have occurred since the previous President's Budget Submission)</p> <table style="margin-left: 40px; border: none;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY PY</u></th> <th style="text-align: center;"><u>FY CY</u></th> <th style="text-align: center;"><u>FY BY¹</u></th> <th style="text-align: center;"><u>FY BY²</u></th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Current BES/President's Budget</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total Adjustments</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional program reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional increases</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Reprogrammings</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> SBIR/STTR Transfer</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>C. Other Program Funding Summary: (use only when single project PE; otherwise display on R-2a)</p> <table style="margin-left: 40px; border: none;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>PY</u></th> <th style="text-align: center;"><u>CY</u></th> <th style="text-align: center;"><u>BY¹</u></th> <th style="text-align: center;"><u>BY²</u></th> <th style="text-align: center;"><u>BY²⁺¹</u></th> <th style="text-align: center;"><u>BY²⁺²</u></th> <th style="text-align: center;"><u>BY²⁺³</u></th> <th style="text-align: center;"><u>BY²⁺⁴</u></th> <th style="text-align: center;"><u>To Complete</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>P-1 Procurement Line Item No., Name:</td> <td colspan="10">Provide related funding detail as indicated, Use a continuation page as necessary.</td> </tr> <tr> <td>C-1 MilCon Project No., Name:</td> <td colspan="10">Provide related funding detail as indicated, Use a continuation page as necessary.</td> </tr> <tr> <td>Related RDT&E:</td> <td colspan="10">List PE numbers and names. It is not necessary to include the related RDT&E funding profile unless there is a funding dependency between the RDT&E programs.</td> </tr> </tbody> </table> <p>D. Acquisition Strategy. * * Not required for Budget Activities 1, 2, 3, and 6. If an Exhibit R-2a is required, complete only section A and B on the R-2 (summarize for the program element). With the exception of the program change summary, all sections are required on the R-2a for each project.</p>										<u>FY PY</u>	<u>FY CY</u>	<u>FY BY¹</u>	<u>FY BY²</u>	Previous President's Budget					Current BES/President's Budget					Total Adjustments					Congressional program reductions					Congressional rescissions					Congressional increases					Reprogrammings					SBIR/STTR Transfer						<u>PY</u>	<u>CY</u>	<u>BY¹</u>	<u>BY²</u>	<u>BY²⁺¹</u>	<u>BY²⁺²</u>	<u>BY²⁺³</u>	<u>BY²⁺⁴</u>	<u>To Complete</u>	<u>Total Cost</u>	P-1 Procurement Line Item No., Name:	Provide related funding detail as indicated, Use a continuation page as necessary.										C-1 MilCon Project No., Name:	Provide related funding detail as indicated, Use a continuation page as necessary.										Related RDT&E:	List PE numbers and names. It is not necessary to include the related RDT&E funding profile unless there is a funding dependency between the RDT&E programs.									
	<u>FY PY</u>	<u>FY CY</u>	<u>FY BY¹</u>	<u>FY BY²</u>																																																																																													
Previous President's Budget																																																																																																	
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Exhibit R-2a, RDT&E Project Justification							Date: Month/Year			
Appropriation/Budget Activity RDT&E.A BA #				Project Name and Number						
Cost (\$ in millions)	FY PY	FY CY	FY BY ¹	FY BY ²	FY BY ²⁺¹	FY BY ²⁺²	FY BY ²⁺³	FY BY ²⁺⁴		
Project Name or Future Naval Capability /No./Subtotal Cost										
RDT&E Articles Quantity * (as applicable)										
<p>C. Mission Description and Budget Item Justification: Provide a project overview. For BAs 1, 2 and 3, specify the technology area as defined in annual budget guidance.</p>										
B. Accomplishments/Planned Program										
	FY PY	FY CY	FY BY ¹	FY BY ²						
Accomplishment/ Effort/Subtotal Cost										
RDT&E Articles Quantity *(as applicable)										
<p>Provide a brief description using key terms of the accomplishment and/or planned program. Include objectives, output or end product, and specific program name or major technology effort. For BAs 1, 2, and 3 also include specific technology terms as defined in budget guidance or provided by the DDR&E. Identify new start efforts for the budget year(s) within the project and those since the previous President's Budget</p>										
	FY PY	FY CY	FY BY ¹	FY BY ²						
Accomplishment/ Effort/Subtotal Cost										
RDT&E Articles Quantity *(as applicable)										
<p>Provide a brief description using key terms of the accomplishment and/or planned program. Include specifics, objectives, output or end product, and specific program name or major technology effort. For BAs 1, 2, and 3 also include specific technology terms as defined in budget guidance or provided by DDR&E. Identify new start efforts for the budget year(s) within the project and those since the previous President's Budget.</p>										
C. Other Program Funding Summary:										
	<u>PY</u>	<u>CY</u>	<u>BY¹</u>	<u>BY²</u>	<u>BY²⁺¹</u>	<u>BY²⁺²</u>	<u>BY²⁺³</u>	<u>To</u> <u>BY²⁺⁴</u>	<u>Total</u> <u>Complete</u>	<u>Cost</u>
P-1 Procurement Line Item No., Name:	Provide related funding detail as indicated, Use a continuation page as necessary.									
C-1 MilCon Project No., Name:	Provide related funding detail as indicated, Use a continuation page as necessary.									
Related RDT&E:	List PE numbers and names. It is not necessary to include the related RDT&E funding profile unless there is a funding dependency between the RDT&E programs.									
D. Acquisition Strategy. *										
E. Major Performers: List major contractors, universities, colleges, government facilities, federally funded research and development centers, laboratories, centers, or other organizations contributing to this effort through BY 2. Only list those who were primary recipients of funds (e.g., received 15% or over \$10 million, whichever is less). Include name or titles, locations, and brief description of work performed. Include actual or projected award date (month/year).										
* Not required for Budget Activities 1, 2, 3, and 6.										

R-1 Shopping List - Item No. 20-2 of 20-4

Instructions
Exhibit R-2, RDT&E Budget Item Justification
Exhibit R-2a, RDT&E Budget Item Justification (Project)

General. An Exhibit R-2 shall be prepared for each program element. For budget activities 1, 2 and 3, an Exhibit R-2a shall be prepared for each project even if there is only one project. An Exhibit R-2a shall be prepared for each project that has funding greater than \$1 million in budget year 1 or budget year 2. *An exception to this criterion would be that projects with funding less than \$1 million that contain a new start effort beginning in the budget year. Exhibits must be prepared for new start project.* Care should be taken to see that exhibits are clear and concise. Abbreviations shall be identified on the page on which they occur.

These pages shall be printed on 8 1/2 by 11-inch paper in landscape format. Classified material shall be submitted separately so that the RDT&E backup book can be submitted in an unclassified version.

Date. Include the month and year of submission of the exhibit. If an Amended Budget is submitted, identify the date of the revised submission.

Appropriation (Treasury) Code Budget Activity. Identify the appropriation and budget activity. The budget activity must match the RDT&E service annex and data base lock position.

R-1 Item Nomenclature. Identify the name of the R-1 line item.

Program Element Number. Identify the program element.

Project Number and Nomenclature. Identify the project number and nomenclature.

Resource Summary. The Exhibit R-2 shall include a fiscal resource summary total for the total program element and, if there is more than one project in that program element, a fiscal resource summary for each project in that program element. Ensure the funding matches the RDT&E service annex and data base lock position and that total costs for Acquisition Category 1 programs are consistent with Selected Acquisition Reports. *Identify Defense Emergency Response Funds (DERF) funds provided for the program/project by either inserting a resource line or by using a footnote immediately below the resource summary*

Mission Description and Budget Item Justification. The R-2 shall include a description and justification of the efforts included in the program element. The R-2a shall include a description and justification of the efforts included in the specific project. The justification narratives shall be included for the past year (PY), the current year (CY), and the budget year 1 (BY1) and BY2 in a bullet format. Typically at least three separate activities and associated funding shall be identified for each program element (or project if on the R-2a) in each fiscal year. The total funding reflected in the bullet narratives should match the total of program element (or project) funding. *Identify Defense Emergency Response Funds (DERF) funds provided for the program/project by either inserting a resource line or by using a footnote immediately below the resource summary.* Identify when a program element or a project was previously funded in a different program element. If program element restructuring and project realignment diminish the value of cumulative fiscal resource information for FY PY, this column shall be footnoted with an explanation of the program elements that were restructured and realigned. Identify the test articles (engineering development models, test articles, low rate initial production test articles, government furnished equipment articles, etc.) that are being procured and why.

Program Change Summary. If there have been changes to the total funding, schedule, or technical parameters since the previous President's budget submission, the Exhibit R-2 shall include a concise narrative summary explaining the changes in the total program element.

(Exhibit R-2, page 3 of 4)

Instructions - Exhibits R-2 and R-2a (Continued)

Other Program Funding Summary. Development projects often lead to subsequent development phases, production, and military construction. Also, some projects may depend on concurrent development in other projects. These related efforts and the funding profiles for other appropriation efforts shall be identified by appropriation, budget activity, R-1 line item and program element, and P-1 line item title and number. If there are funding dependencies among related research, development, test, and evaluation programs, then the funding profiles for these related programs shall be included.

Acquisition Strategy. An explanation of acquisition, management, and contracting strategies shall be provided for each project. This section is not required for Program Elements in Budget Activities 1,2, and 3.

Major Performers. This data is required for the program budget review submission only.

Formats currently being used within each Service and Defense Agency may be used and as long as they include all the information required in a usable format.

(Exhibit R-2, page 4 of 4)

Exhibit R-3 Cost Analysis										Date:			
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT					PROJECT NAME AND NUMBER			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	CY Cost	CY Award Date	BY1 Cost	BY1 Award Date	BY2 Cost	BY2 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Primary Hardware Development													
Ancillary Hardware Development													
Systems Engineering													
Licenses													
Tooling													
GFE													
Award Fees													
Subtotal Product Development													
Remarks:													
Development Support													
Software Development													
Training Development													
Integrated Logistics Support													
Configuration Management													
Technical Data													
GFE													
Subtotal Support													
Remarks													

R-1 Shopping List - Item No 20-3 of 20-4

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 1 of 4)

Exhibit R-3 Cost Analysis (page 2)										Date:			
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT					PROJECT NAME AND NUMBER			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	CY Cost	CY Award Date	BY1 Cost	BY1 Award Date	BY2 Cost	BY2 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation													
Operational Test & Evaluation													
Tooling													
GFE													
Subtotal T&E													
Remarks													
Contractor Engineering Support													
Government Engineering Support													
Program Management Support													
Program Management Personnel													
Travel													
Labor (Research Personnel)													
Overhead													
Subtotal Management													
Remarks													
Total Cost													
Remarks													

R-1 Shopping List - Item No 20-4 of 20-4

(Exhibit R-3, page 2 of 4)

Instructions - Exhibit R-3, RDT&E Project Cost Analysis

General: The R-3 exhibit is required only for projects with funding greater than \$1 million in budget year 1 or budget year 2 for programs funded *in budget activities 4, 5, and 7 only*. A separate R-3 exhibit shall be prepared for each project in an applicable R-1 line item. These exhibits shall be printed on 8 1/2 by 11 inch paper in landscape format. If a program element is not divided into projects, then the program element itself is defined as a project for purposes of submitting an R-3 exhibit and the R-3 exhibit and instructions apply to the entire program element. Classified material shall be submitted separately.

Date: Identify the month and year of submission of the exhibit. If an Amended Budget is submitted, identify the date of the revised submission.

Appropriation/Budget Activity. Identify the appropriation and budget activity. The budget activity must match the RDT&E service annex and data base lock position.

R-1 Item Nomenclature: Identify the name of the R-1 line item.

Program Element Number: Identify the number of the program element.

Project Number and Nomenclature: Identify the project number and nomenclature on each R-3 page.

Project Cost Categories. Cost information shall be provided for each project with funding greater than \$1 million in budget year 1 or budget year 2, with project costs broken down into cost categories. Sample cost categories shown are typical of various types of defense research and development efforts. Costs shall be distributed among categories in accordance with the project work breakdown structure (WBS) or other categories used by the project office in project execution. The illustrated sample cost categories may be used if these correspond to the project's structure; however, there is no requirement to use cost categories other than those used by the project office in project execution. Sample cost categories not used in project execution need not be included in the exhibit for that project. If the program office tracks efforts by major contract, then display the information accordingly. The cost categories shall be separated into 4 information categories as follows:

Product Development. Efforts associated with the delivery of a fully integrated system that are in direct support of the system and essential to the development, training, operation, and maintenance of the system. Include all efforts directly supporting system development and delivery to include primary contracts, major component contracts, contracted services, in-house support, and government furnished property. Contracts or government efforts greater than \$1 million in any displayed budget year shall be reported individually.

Support Costs. Efforts not directly associated with the delivery of the primary product, including technical engineering services, research studies, and technical support not related directly to product development or to testing and evaluation. Contracts or government efforts greater than \$1 million in any displayed budget year shall be reported individually.

Test and Evaluation. Efforts (other than those included within contracts or government efforts included above) associated with engineering or support activities to determine the acceptability of a system, subsystem, or component. Contracts or government efforts greater than \$1 million in any displayed budget year shall be reported individually.

Management Services. Efforts associated with services provided in support of program office management and administration processes such as: program oversight, resource justification, budget and programming, milestone and schedule tracking. Federally Funded Research and Development Centers (FFRDCs) are in this category. Contracts or government efforts greater than \$1 million in any displayed budget year shall be reported individually.

(Exhibit R-3, page 3 of 4)

Instructions - Exhibit R-3, RDT&E Project Cost Analysis (Continued)

Government Furnished Property. Property, such as hardware, software, or information, which the government is contractually obligated to furnish a contractor or government performing activity shall be identified. Provide a brief identification of the item to be provided, and the contractor or government activity providing the item. Provide estimated date that the government furnished property will be provided to the requiring contractor or activity. Provide the name of the requiring contractor or activity.

Award Fees. Identify amounts budgeted for award fees and indicate contractor performance and percentage of award fees actually awarded in past award fee periods.

Contract Method/Type or Funding Vehicle. The following codes shall be used to identify the contract method, contract type, and funding vehicle:

<u>Contract Type</u>	<u>Contract Method</u>
FP - Fixed Price	SS - Sole Source
CPIF - Cost Plus Incentive Fee	C- Competitive
FPI - Fixed Price Incentive	
CPAF - Cost Plus Award Fee	
CPFF - Cost Plus Fixed Fee	
FFP - Firm Fixed Price	

Funding Vehicle (when a government agency is the performing activity)

MIPR - Military Interdepartmental Purchase Request
PO - Project Order
WR - Work Request
Allot - Allotment
Reqn - Requisition

Performing Organizations. Identify each contractor and government or performing activity and the location for each effort greater than \$1 million in any of the displayed years.

Total PY Cost. Provide actual amounts for the total of all years before the current year (CY).

CY - BY2. Provide actual or budget amounts for each year for current year (CY), budget year (BY1), and BY2.

Award or Obligation Date. Provide actual or estimated date of contract award or the estimated date that funds will be obligated to government performing activities.

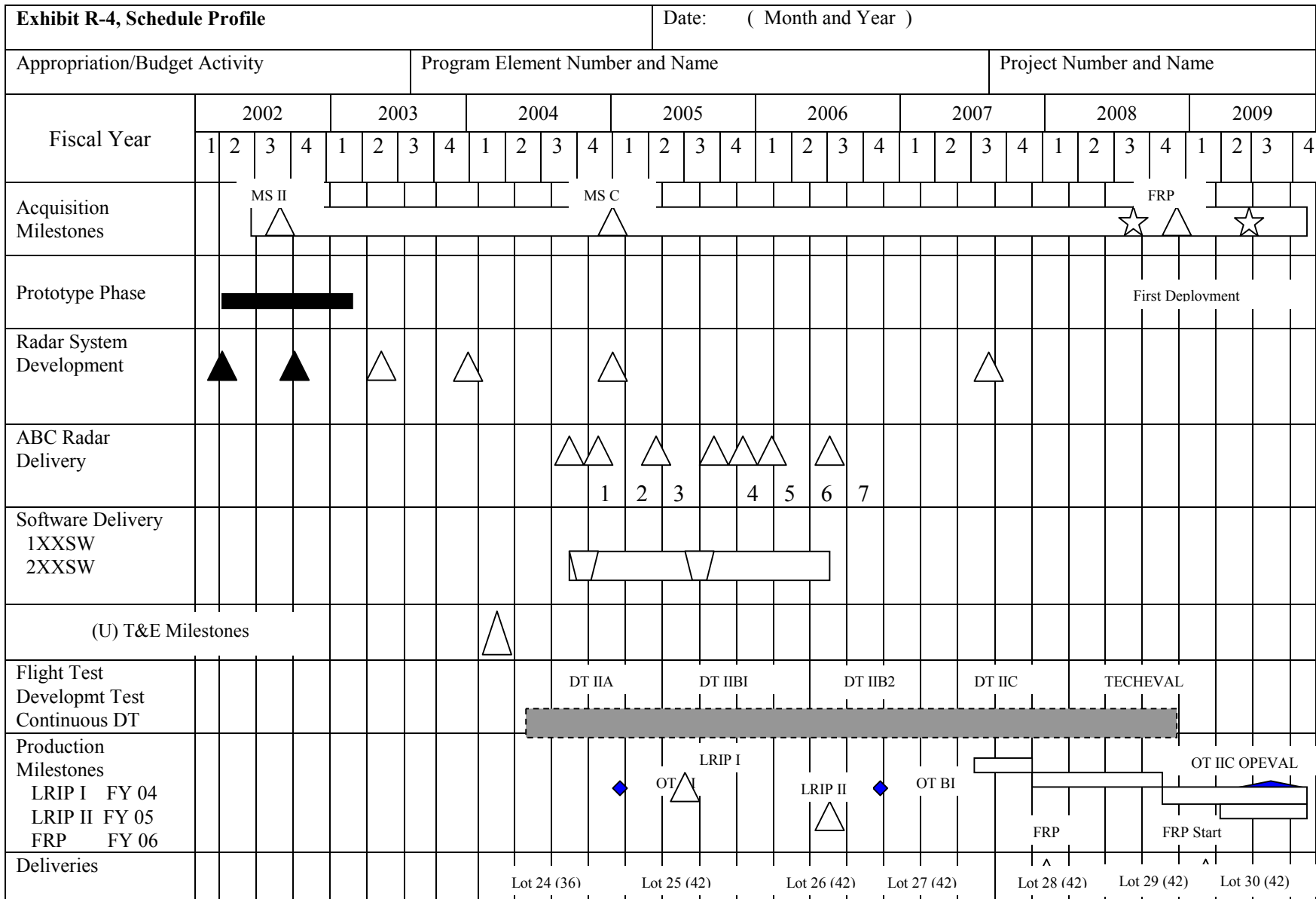
To Complete. Provide the amount required to complete this effort beyond BY2.

Total Program. Provide the cumulative total of all budgeted funds for the program (including funds obligated/budgeted for PYs, CY, BY1, BY2, and to complete). Provide a comment in the Remarks section when the Project Office Estimate at Completion (EAC) differs from the total cost. Also provide a comment when the Performing Activity EAC differs from the Project Office EAC.

Target Value of Contract. Identify the target value of the contract and explain those cases where total cost differs significantly. For example, if the budget is at ceiling value of the contract vice target value or if budget is "program manager's best estimate" vice target value, then explain.

Formats currently being used within each Service and Defense Agency may be used in lieu of this format.

(Exhibit R-3, page 4 of 4)



R-4 Schedule Profile - Item No. 20-3 of 20-4

Exhibit R-4a, Schedule Detail				Date: (month/year)					
Appropriation/Budget Activity	Program Element Number and Name			Project Number and Name					
Schedule Profile	FY 2001	FY 2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	
Contract Preparation	3Q								
System Development		1-2Q							
Quality Design and Build		3-4Q	1-4Q	1-4Q					
Developmental Technical Testing				1-4Q					
Developmental Evaluation				3-4Q					
Etc.									

R-4a Schedule Profile - Item No. 20-4 of 20-4

Instructions -
Exhibit R-4, RDT&E Schedule Profile
Exhibit R-4a, RDT&E Schedule Detail

*General: The R-4 and R-4a exhibits are required only for all programs or projects with funding greater than \$1 million in budget year 1 or budget year 2 for programs funded **in budget activities 4, 5, and 7 only**. Separate R-4 and R-4a exhibits shall be prepared for each project in an applicable R-1 line item. These exhibits shall be printed on 8 1/2 by 11 inch paper in landscape format. If a program element is not divided into projects, then the program element itself is defined as a project for purposes of submitting R-4 and R-4a exhibits, and the exhibits and instructions apply to the entire program element. Classified material shall be submitted separately so that the RDT&E backup book can be submitted in an unclassified version.*

Date: Identify the month and year of submission of the exhibit. If an Amended Budget is submitted, identify the date of the revised submission.

Appropriation/Budget Activity. Identify the appropriation and budget activity. The budget activity must match the RDT&E service annex and data base lock position.

R-1 Item Nomenclature: Identify the name of the R-1 line item.

Program Element Number and Name: Identify the number and nomenclature of the program element.

Project Number and Nomenclature: Identify the project number and nomenclature on each page.

For the R-4, Schedule Profile, provide a schematic display of major program milestones that reflect engineering milestones, acquisition approvals, test and evaluation events, and other key milestones for the program events. Cover the program years not just the budget year. The example provided is a sample only. Stub entries should be tailed to the events and activities of the reported program. Congressional 'staffer day' briefing formats are acceptable. Software for this display should be embedded for web site formatting. Due to software development issues, the R-4 is strongly encouraged but will not be required for the FY 2004 program and budget review submission. It will be required for justifying the FY 2005 budget.

For the R-4a, Schedule Detail, provide a tabular display of the major program milestones identified on the R-4 as well as any additional programmatic events that contribute to and support the schedule profile identified on the R-4.