

CHAPTER 5
RESEARCH, DEVELOPMENT, TEST AND EVALUATION APPROPRIATIONS
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CHAPTER 5

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

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

- RDT&E, Army (2040A)
- RDT&E, Navy (1319N)
- RDT&E, Air Force (3600F)
- RDT&E, Defense-Wide (0400D)
- Developmental Test and Evaluation, Defense (0450D)
- 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 and accounts. The above appropriations and accounts shall also submit applicable exhibits required by other chapters in the FMR. The Components will also submit any exhibits required by OMB Circular A-11, Preparation and Submission of Budget Estimates.

050103 Major Defense Acquisition Programs (MDAP)

MDAP Automated Submission. In order to provide consolidated funding information on DoD's major acquisition programs, automated data submissions are required to provide the approved funding level for each MDAP. These programs include all Acquisition Category (ACAT) ID, ACAT IC, and pre-MDAP designated programs. For joint programs, the lead service/agency is to coordinate the reporting effort, but each Service and Defense Agency involved in the program is responsible for reporting the portion of the program that it funds. In an annual memorandum (usually published in mid-summer), the USD(A&T) will identify the MDAPs required for submission. Specific data format instructions are included in Section 050502. These are similar to the automated submissions currently required by the Program Objective Management (POM) Preparation Instructions (PPI) for the POM submission. The required automated submissions should be on a 3 1/2 inch floppy, high or double density disks and delivered directly to OUSD(A&T), Room 1E474 (POC: Mr. Steve Dratter, telephone (703) 697-8020). The submission should agree with data submitted to the OUSD(Comptroller) for the FYDP and associated annexes. The final submission must agree with the supporting justification material that is submitted to the Congress.

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. All funding associated with each major system new start shall be identified in a unique program element.

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**

Definitions for RDT&E budget activities are contained in OMB Circular A-11, paragraph 25.4.

Budget Activity 1, Basic Research. Basic research is defined as 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. Program elements in this category involve pre-Milestone 0 efforts. Explanation: Basic research includes all effort of 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 provides farsighted, high payoff research that provides the basis for technological progress. It forms a part of the base for: (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 0 efforts.

Budget Activity 2, Applied Research. Applied research is defined as systematic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met. It is a systematic application of knowledge toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements. Explanation: This activity translates promising basic research into solutions for broadly defined military needs, short of development projects. This type of effort may vary from systematic mission-directed research beyond that in Budget Activity 1 to sophisticated bread-board 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 of this category of effort is that it be pointed toward specific military needs with a view toward developing and evaluating the feasibility and practicability of proposed solutions and determining their parameters. Applied Research precedes the system specific research described in DoDD 5000.1. Program control of the Applied Research program element will normally be exercised by general level of effort. Program elements in this category involve pre-Milestone 0 efforts, but not all pre-Milestone 0 efforts are funded in Budget Activity 2. Some efforts are introduced by field activities.

Budget Activity 3, Advanced Technology Development. Includes all efforts that have moved into the development and integration of hardware for field experiments and tests. The results of this type of effort are proof of technological feasibility and assessment of 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 is used to demonstrate the general military utility or cost reduction potential of technology when applied to different types of military equipment or techniques. Advanced Technology Development also includes evaluation and synthetic environment and proof-of-principle demonstrations in field exercises to evaluate system upgrades or provide new operational capabilities. Program elements in this category involve pre-Milestone I efforts, *but not all pre-Milestone I efforts are funded in Budget Activity 3.* Some efforts are introduced by field activities. Projects in this category do not necessarily lead to subsequent development or procurement phases.

Budget Activity 4, Demonstration and Validation. The demonstration and validation (Dem/Val) phase includes all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology. The Dem/Val phase is system specific and also includes advanced technology demonstrations that help expedite technology transition from the laboratory to operational use. Program elements in this category involve efforts between Milestone I and Milestone II. A logical progression of program phases and (development and/or production) funding must be evident in the FYDP.

Budget Activity 5, Engineering and Manufacturing Development (EMD). Includes those projects in engineering and manufacturing development for Service use but which have not received approval for full-rate

production. This area is characterized by major line item projects and program control will be exercised by review of individual projects. Engineering Development includes engineering and manufacturing development projects consistent with the definitions within DoDD 5000.1. Program elements in this category involve efforts between Milestone II and Milestone III. A logical progression of program phases and (development and/or production) funding must be evident in the FYDP consistent with the Department's full funding policy.

Budget Activity 6, RDT&E Management Support. Includes research and development effort directed toward support of installations or operations required for general research and development use. Included would be test ranges, military construction, maintenance support of laboratories, operation and maintenance of test aircraft and ships, and studies and analyses in support of the R&D program. 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 a major development program will be included in the appropriate element.

Budget Activity 7, Operational System Development. Includes those development projects in support of development acquisition programs or upgrades still in engineering and manufacturing development, but which have received Defense Acquisition Board (DAB) or other approval for production, or production funds have been included in the DoD budget submission for the budget or subsequent fiscal year. All items in this area are major line item projects that appear as RDT&E Costs of Weapon System Elements in other programs. Program control will be exercised by review of individual projects. Program Elements in this category involve efforts that involve post-Milestone III. A logical progression of program phases and (development and/or production) funding must be evident in the FYDP, consistent with the Department's full funding policy.

0503 BUDGET ESTIMATES 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 1997, FY 1998, FY 1999, FY 2000, FY 2001, FY 2002, FY 2003, and FY 2004.) rather than the template entries (i.e., PYs, 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 RD&TE 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 which volume and page the applicable program element can be found. The justification material will be entitled

Fiscal Year 19BY1/19BY2 Budget Estimate Submission
RDT&E Descriptive Summaries, Volume I
February 1999

B. 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. 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 A), R-3 (PE 1, Project A), R-2a (PE 1, Project B), R-3 (PE 1, Project B), etc.

Arrangement of Exhibits - General

R-33	Introduction and Explanation of Contents
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-32	RDT&E Purchases from DWCF
MDAP	Major Defense Acquisition Programs RDT&E Project Level Data
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 for Investment, OUSD(C) 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 1997, FY 1998, FY 1999, FY 2000, FY 2001, FY 2002, FY 2003, and FY 2004.) 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 RD&TE 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 which volume and page the applicable program element can be found.

B. Justification material will be entitled:

RDT&E Descriptive Summaries for
Fiscal Year 19BY1/19BY2 President's Budget
February 1999
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. 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 A), R-3 (PE 1, Project A), R-2a (PE 1, Project B), R-3 (PE 1, Project B), etc.

Arrangement of Exhibits - General

R-33	Introduction and Explanation of Contents
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
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 for Investment, OUSD(C) 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. 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 adhered to.

050502 Exhibits in Support of Section 0503 - Budget Estimates Submission

R-33, Program Element Comparison Summary 10
R-1, RDT&E Programs 12
R-1C, RDT&E Programs - Comparison Report 13
R-2, RDT&E Budget Item Justification 14
R-2a, RDT&E Project Justification 15
R-3, Project Cost Analysis 18
R-32, RDT&E Purchases from DWCF 22
MDAP RDT&E Project Level (PL) Data 25

050503 Exhibits in Support of Section 0504 - Congressional Justification

R-33, Program Element Comparison Summary 10
R-1, RDT&E Programs 12
R-2, RDT&E Budget Item Justification 14
R-2a, RDT&E Project Justification 15
R-3, Project Cost Analysis 18
MDAP RDT&E Project Level (PL) Data 25

INTRODUCTION AND EXPLANATION OF CONTENTS

1. General. This document provides summary information on RDT&E programs for the (Component/Defense Agency Research, Development, Test and Evaluation (RDT&E) program elements and projects in the) FY 19BY1/19BY2 budget. The R-2, R-2a, and R-3 exhibits provide narrative information on all RDT&E program elements and projects.
2. Comparison of FY 19PY and 19CY Data. A direct comparison of FY 19PY and FY 19CY data in the R-1 exhibit dated (a year previous) will reveal significant differences. Many of the differences are attributable to the following factors:
 - a. FY 19CY reductions as a result of Congressional action on the appropriation (if applicable).
 - b. FY 19PY funding changes subsequent to October 1, 19CY, including RDT&E Reprogramming Actions and a Supplemental Appropriation (if applicable).
 - c. Reclassification of FY 19PY and FY 19CY data to achieve comparability with the program structure for FY 19BY1/19BY2. (If applicable, add short explanation.)
3. Relationship of FY 19BY1/19BY2 Budget Structure to the FY 19CY Budget Approved by Congress.
 - a. Provide a list explaining the origin of all program elements that do not appear on the Base for Reprogramming Action (DD 1414) for RDT&E (DoD Component) which was prepared pursuant to final Congressional action of the FY 19CY DoD Budget Submission to Congress.
 - b. Provide a list of all new starts, identified at the project level.
 - c. Provide a list explaining any program terminations or anticipated terminations.
4. Classification. Classified information is identified by use of brackets as []. It is preferred that this information be unclassified. If it is necessary to provide classified information, then it should be submitted separately. Identify the program elements that contain classified information to be submitted separately.
5. Table of Contents. The Table of Contents is presented in two different formats - by R-1 line item order and alphabetically. Each of these listings must include the program element number, program element title, R-1 line item number, the appropriate page number, and volume.

Exhibit R-33, Program Element Comparison Summary
(Exhibit R-33, page 1 of 2)

INTRODUCTION AND EXPLANATION OF CONTENTS

<u>Program Element</u>	<u>Remarks</u>
<u>Budget Activity 3: Advanced Technology Development</u>	
0603710N Man-Machine Technology	Provide the PE number and title of the previous PE(s). Example: New program element for effort previously included in Program Elements 0603707N, Acoustics, 0603720N, Communications, and 0603727N, Training.
<u>Budget Activity 4: Demonstration and Validation</u>	
0603209N Underwater Weapons	New program proposed for FY 19BY1 Acceptance Testing
0603382N Battle Group Anti-Air Warfare Coordination	New program element for Project S0324, Battle Group Anti-Air Warfare Coordination, previously included in Program Element 0604303N.
0603506N Surface Ship Torpedo Defense	Existing program element for effort last funded in FY 19PY
0603576N CHALK EAGLE	New program proposed for FY 19BY2
0603590N Wide Aperture Array (Advanced) 0603504N	New program element for Project S0222, Wide Aperture Array previously included in PE
0604228N SH-60 Carrier Variant	New program proposed for FY 19BY1

(Exhibit R-33, page 2 of 2)

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.
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, provided to the Congress as supporting justification for budget requests. 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

In addition to the instructions for the R-1, the R-1C Comparison Report will provide a comparison between the last President's budget request and the budget estimate submission (BES) for the BES and between the last President's budget (PB) request and the current PB request for the PB. The comparison should identify the changes for each RDT&E appropriation by R-1 line item and by project. If a line item has more than one project, then a comparison total should be provided at the project level, the R-1 line item, the budget activity total level, and the appropriation level. 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. The R-1C replaces the project listing.

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

(Exhibit R-1, page 2 of 2)

Exhibit R-2, RDT&E Budget Item Justification									Date: Month/Year	
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE Program Element (PE) Name and No.					
COST (\$ in Millions)	FY PY	FY CY	FY BY1	FY BY2	FY BY2 +1	FY BY2 +2	FY BY2 + 3	FY BY2 + 4	Cost to Complete	Total Cost
Total PE Cost										
Project A Name/No. & subtotal cost										
Project B Name/No. & subtotal cost										
Project C Name/No. & subtotal cost										
Quantity of RDT&E Articles										
A. Mission Description and Budget Item Justification					[The software should be embedded for web site formatting.]					
Provide a description of the program and narrative justification.										
Identify the military requirement(s) that this program is being designed to meet.										
Identify new start efforts for the budget year(s) within the program element. Also identify new start efforts since the previous President's budget. This information can be displayed on the R-2a, if one is submitted, rather than on the R-2.										
B. Program Change Summary: (show total funding, schedule, and technical changes for the program element that have occurred since the last submission).										
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>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.										
D. Acquisition Strategy: *										
E. Schedule Profile. Include the program milestone chart that reflects Engineering Milestones, T&E Milestones, and Other Program Events for all years of the program, not just through BY2. *										
*Not required for Budget Activities 1, 2, 3, and 6.										
If an Exhibit R-2a is required, complete only sections 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.										

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

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 1 of 4)

Exhibit R-2a, RDT&E Project Justification									Date: Month/Year																															
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER																																		
Cost (\$ in Millions)	FY PY	FY CY	FY BY1	FY BY2	FY BY2 +1	FY BY2 +2	FY BY2 + 3	FYBY2 + 4	Cost to Complete	Total Cost																														
Project Cost																																								
RDT&E Articles Qty																																								
<p>A. Mission Description and Budget Item Justification Provide a description of the project and narrative justification. Identify new start efforts for the budget year(s) within the project. Also identify new start efforts since the previous President's budget.</p> <p>B. Other Program Funding Summary</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="width: 10%;"></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> </tr> </thead> <tbody> <tr> <td>P-1 Procurement Line Item No, Name. Provide related funding detail as indicated. Use a continuation page as necessary.</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>C-1 Milcon Project No, Name. Provide related funding detail as indicated. Use a continuation page as necessary.</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>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.</p> <p>C. Acquisition Strategy:</p> <p>D. Schedule Profile. Include the program milestone chart that reflects Engineering Milestones, T&E Milestones, and Other Program Events for the entire program, not just through BY2. The software should be embedded for web site formatting.</p> <p>An Exhibit R-2a is not required for Budget Activities 1, 2, 3, and 6.</p>												<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>	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.									
	<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>																															
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.																																								

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

Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2, page 2 of 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 4, 5, and 7, 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. 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. The Exhibit R-2a shall include a resource summary for each project with funding greater than \$1 million in budget year 1 or budget year 2. 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. If this program element represents continuing similar efforts without distinct program or project initiations and completions, the "To Complete" and "Total Program" columns shall be marked "Continuing."

Test Articles. Include the quantity of RDT&E test articles that is being procured each year. Show the quantity in the first year of funding for that quantity of end items. Identify in the description 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. *The cost, by fiscal year, associated with the procurement of the test articles, may also be shown as a non-add entry.*

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. At least three, and preferably more, activities, and the associated funding, shall be identified for each program element (or project if on the R-2a) in each fiscal year. The total of funding reflected in the bullet narratives should match the total of program element (or project) funding. Identify when a program element or a project was previously funded in a different program element and so annotate in the index/cross track. 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.

(Exhibit R-2, page 3 of 4)

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

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.

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.

Schedule Profile. A milestone chart shall be provided for each project shown on the R-2 exhibit. It is preferred that the milestone chart used by the program office be submitted. The chart should display all planned major milestones and test and evaluation events, such as LRIP approval, Milestone III, IOC, Developmental Test and Evaluation, and Operational Test and Evaluation for the total program. For non-acquisition programs, meaningful data should be provided. The software for the milestone chart should be embedded for web site formatting.

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

(Exhibit R-2, page 4 of 4)

Exhibit R-3 Cost Analysis (page 1)										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. 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 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: 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)

Exhibit R-32, RESEARCH, DEVELOPMENT, TEST & EVALUATION (RDT&E) Purchases from DWCF
(TOA, \$ in Millions)

Business Areas	Current Year	Budget Year 1					Budget Year 2				
	CY Program	Price Growth	%	Program Growth	%	BY1 Program	Price Growth	%	Program Growth	%	BY2 Program
Army											
411 Army Supply Management											
601 Army Depot Maint-Ord Arm Com											
602 Army Depot Maintenance-Other											
648 Army Information Services											
Navy											
412 Navy Supply Management											
615 Navy Information Services											
633 Defense Printing Service (FY 1996 only)											
Research and Development											
610 Naval Air Warfare Center											
611 Naval Surface Warfare Center											
612 Naval Undersea Warfare Center											
614 Naval Cmd, Ctrl & Ocean Surv Ctr											
630 Naval Research Laboratory											
631 Naval Facilities Engineering Service Ctr											
Depot Maintenance											
613 Depot Maintenance- Aircraft											
632 Depot Maintenance-Ordnance											
637 Depot Maintenance-Ships											
640 Depot Maintenance-Other (USMC)											
Transportation (Sealift Services):											
620 Fleet Auxiliary Force											
621 Afloat Prepositioning Ships											
623 Special Mission Supports											
624 Other Sealift Purchases											
Navy Base Support Services:											
634 Public Works - Utilities											
635 Public Works - Other											
639 Public Works (Composite Rate)											

R-1 Shopping List - Item No 20-10 of 11

Exhibit R-32, RDT&E Purchases from DWCF
(Exhibit R-32, page 1 of 3)

Exhibit R-32, RESEARCH, DEVELOPMENT, TEST & EVALUATION (RDT&E) Purchases from DWCF
(TOA, \$ in Millions)

Business Areas	Current Year	Budget Year 1					Budget Year 2				
	CY Program	Price Growth	%	Program Growth	%	BY1 Program	Price Growth	%	Program Growth	%	BY2 Program
<u>Air Force</u>											
414 Air Force Supply Management											
649 Air Force Information Services											
653 Transportation (Airlift Svcs (Training))											
<u>Air Force Depot Maintenance:</u>											
661 Organic Operations											
662 Contract											
<u>Defense</u>											
402 Fuel Purchases (DFSC)											
415 DLA Supply Management											
633 Defense Printing Services (beg FY 1997)											
647 Defense Megacenters (DISA)											
650 DLA Information Services											
651 DFAS Information Services											
670 Defense Automatic Addressing Systems											
671 Communications Services (DISA)											
672 Purchases from Pentagon Reservation Maintenance Revolving Fund											
673 Financial Operations (DFAS)											
674 Distribution Depots (DLA)											
675 Def Reutilization & Mktg Svcs (DRMS)											
676 Def Industrial Plant Eqpt (FY 1996 only)											
677 Joint Logistics Systems											
680 Purchases from the Bldg Maint Fund											
<u>USTRANSCOM</u>											
701 AMC Cargo/Passenger (Fund)											
702 AMC SAAM/TJS (Fund)											
711 MSC Cargo (Fund)											
721 MTMC Port Handling (Fund)											

R-1 Shopping List - Item No 20-11 of 11

(Exhibit R-32, page 2 of 3)

Instructions - Exhibit R-32, RDT&E Purchases from DWCF

1. Purpose. The purpose of this exhibit is to estimate the amount of new orders planned to be sent to the Defense Working Capital Funds (DWCF) business areas. The RDT&E appropriations will report estimates of funding for DWCF business areas on the Purchases from DWCF Exhibits. For each appropriation, the Component will estimate by DWCF business area the amount of new orders planned to be sent to DWCF business areas for the CY, BY1 and BY2. The amounts provided should reflect the amount shown by the DWCF activity on the Fund-11 exhibit. Price growth will reflect the amount of inflation used for each fiscal year so that the change in DWCF rates is clearly identified. Program growth will show the change in program absent the effect of inflation. For further guidance, see the instructions for completing the OP-32 exhibit (Chapter 030402). A copy of the R-32 exhibit will also be provided directly to the Revolving Funds Directorate, Rm 3B866, the Pentagon.

2. Specific Instructions:

In addition to the guidance above and in the OP-32 Exhibit instructions, the following provides by business area, the types of purchases reported on the R-32 exhibits:

- (1) Army, Navy and Air Force Supply Management: obligations for supply purchases from wholesale and retail supply organizations.
- (2) DLA Supply Management: obligations for purchases of consumable supplies.
- (3) Fuel Purchases (Defense Fuel Supply Center): obligations for fuel for purchases of fuel for aircraft, automobiles, non-nuclear ships, trucks, and heating fuel.
- (4) US Transportation Command: travel and transportation obligations for movement of people or goods by military air (Air Mobility Command owned C-17, C-5, or C-141 aircraft or leased commercial aircraft) and military sealift (through Military Traffic Management Command operated port facilities, in Military Sealift Command owned or operated ships).
- (5) Defense Finance and Accounting Service (DFAS): obligations for services rendered by DFAS.
- (6) Communications Services (DISA): obligations to pay for services provided by the for the Defense Switched Network (formerly AUTOVON, AUTODIN, Bulk Encrypted Communications, Defense Switched Network, Washington Area Wideband System, Defense Information Systems Network, and Defense Data Network) and for information processing, computer services, and software development support provided by the Defense Information Technology Services Organization (DITSO).
- (7) Fund Purchases not reported on R-32: Do not report purchases from the following Fund business areas: Defense Logistics Agency Distribution Depots; Navy Distribution Depots; Commissary Operations; and the Defense Reutilization and Marketing Services.

(Exhibit R-32, page 3 of 3)

MAJOR DEFENSE ACQUISITION PROGRAMS (MDAP)
RDT&E PROJECT LEVEL (PL) DATA

Each Component must submit for each designated MDAP/pre-MDAP an automated RDT&E Project Level Funding (PL) data base that reconciles to the RDT&E Annex and FYDP data bases and the supporting congressional justification material. The RDT&E PL data base should be submitted for past year (PY), current year (CY), budget years (BY1 and BY2), and FYDP years (BY2+1 through BY2+4), and should be formatted as specified below. The RDT&E Project Level funding data should be submitted as 2 flat ASCII files on either a 3 1/2 inch floppy, high or double density disk and submitted directly to OUSD(A&T), Mr. Steve Dratter, Room 1E474, telephone (703) 697-8020.

<u>DATA</u>	<u>PROJECT TITLE</u>	<u>COLUMNS</u>
PE: Major Force Program		1:2
PE: PE ID		3:7
PE: Service Code		8:10
Project Number		11:16
Project Title		17:76
Project Classification		77:77

	<u>PROJECT FUNDING</u>	
Budget Activity Code		1:2
PE: Major Force Program		3:4
PE: PE ID		5:9
PE: Service Code		10:12
Project Number		13:18
FY		19:22
Budget/Funding Request (in thousands)		23:32
Project Classification		33:33
Program Number (Identified on OUSD(A&T)'s MDAP listing).		34:36

Formatting Guidelines:

1. Left justify Service Code and Project Number.
2. Right justify Dollar Amounts and **DO NOT** use commas.
3. FY should be formatted as 1996, 1997, etc.
4. Data are requested for PY through BY2+4 (e.g. FY 1998 - FY 2005).
5. All alphanumeric characters are to be in UPPERCASE.

Old PE to New PE Crosswalk Data: A data file containing only those Program Elements (PEs) which have been renumbered since the last submission of the FYDP/RDT&E Annex must be submitted. It is to be submitted as a flat ASCII file on a 3 1/2 inch floppy, high or double density disk directly to OUSD(A&T), Mr. Steve Dratter, Room 1E474, telephone (703) 697-8020.

OLD TO NEW PE

<u>DATA</u>	<u>COLUMNS</u>
PE: Old Major Force Program	1:2
PE: Old PE Identifier	3:7
PE: Old Service Code	8:10
PE: Old PE Name	11:70
PE: New Major Force Program	71:72
PE: New PE Identifier	73:77
PE: New Service Code	78:79
PE: New PE Name	80:139

MDAP RDT&E Project Level (PL) Data