

COST/BENEFIT ANALYSIS

Project or System Name

Month, Year

Revision Sheet

Release No.	Date	Revision Description
Rev. 0	1/31/00	SEO&PMD Cost/Benefit Study
Rev. 1	5/9/00	Cost/Benefit Study Template and Checklist
Rev. 2	4/12/02	Conversion to WORD 2000 format

Cost/Benefit Analysis Authorization Memorandum

I have carefully assessed the Cost/Benefit Analysis for the (System Name). This document has been completed in accordance with the requirements of the HUD System Development Methodology.

MANAGEMENT CERTIFICATION - Please check the appropriate statement.

_____ The document is accepted.

_____ The document is accepted pending the changes noted.

_____ The document is not accepted.

We fully accept the changes as needed improvements and authorize initiation of work to proceed. Based on our authority and judgment, the continued operation of this system is authorized.

NAME
Project Leader

DATE

NAME
Operations Division Director

DATE

NAME
Program Area/Sponsor Representative

DATE

NAME
Program Area/Sponsor Director

DATE

COST/BENEFIT ANALYSIS

TABLE OF CONTENTS

	<u>Page #</u>
1.0 GENERAL INFORMATION	1-1
1.1 Purpose	1-1
1.2 Scope	1-1
1.3 System Overview	1-2
1.4 Project References	1-2
1.5 Acronyms and Abbreviations	1-2
1.6 Points of Contact	1-3
1.6.1 Information	1-3
1.6.2 Coordination	1-3
2.0 MANAGEMENT SUMMARY	2-1
2.1 Assumptions and Constraints	2-1
2.2 Methodology	2-1
2.3 Evaluation Criteria	2-1
2.4 Recommendations	2-1
3.0 DESCRIPTION OF ALTERNATIVES	3-1
3.1 Current System	3-1
3.2 Proposed System	3-1
3.x [Alternative System Name]	3-1
4.0 COSTS	4-1
4.1 Development Costs	4-1
4.2 Operational Costs	4-1
4.3 Non-Recurring Costs	4-1
4.3.1 Capital Investment Costs	4-1
4.3.2 Other Non-Recurring Costs	4-2
4.4 Recurring Costs	4-2
5.0 BENEFITS	5-1
5.1 Non-Recurring Benefits	5-1
5.1.1 Cost Reduction	5-1
5.1.2 Value Enhancement	5-1
5.1.3 Other	5-1
5.2 Recurring Benefits	5-2
5.3 Non-Quantifiable Benefits	5-2

6.0	COMPARATIVE COST/BENEFIT SUMMARY.....	6-1
6.1	Cost of Each Alternative Over the System Life.....	6-1
6.1.1	Non-Recurring Costs.....	6-1
6.1.2	Recurring Costs.....	6-1
6.1.3	Total Cost.....	6-1
6.1.4	System Life Costs	6-1
6.1.5	Present Value Cost.....	6-1
6.1.6	Residual Value Estimate	6-1
6.1.7	Adjusted Cost.....	6-2
6.2	Benefits	6-2
6.3	Net Present Value.....	6-2
6.4	Benefit/Cost Ratio.....	6-2
6.5	Payback Period.....	6-2

1.0 GENERAL INFORMATION

NOTE TO AUTHOR: *Highlighted, italicized text throughout this template is provided solely as background information to assist you in creating this document. Please delete all such text, as well as the instructions in each section, prior to submitting this document. ONLY YOUR PROJECT-SPECIFIC INFORMATION SHOULD APPEAR IN THE FINAL VERSION OF THIS DOCUMENT.*

The Cost/Benefit Analysis provides adequate cost and benefit information, including the impact of security, privacy, and internal control requirements to analyze and evaluate alternative approaches to meeting mission deficiencies.

1.0 GENERAL INFORMATION

1.1 Purpose

Describe the purpose of the Cost/Benefit Analysis.

1.2 Scope

Describe the scope of the Cost/Benefit Analysis as it relates to the project.

1.3 System Overview

Provide a brief system overview description as a point of reference for the remainder of the document. In addition, include the following:

- Responsible organization
- System name or title
- System code
- System category
 - *Major application*: performs clearly defined functions for which there is a readily identifiable security consideration and need
 - *General support system*: provides general ADP or network support for a variety of users and applications
- Operational status
 - Operational
 - Under development
 - Undergoing a major modification
- System environment or special conditions

1.4 Project References

Provide a list of the references that were used in preparation of this document. *Examples of references are:*

- *Previously developed documents relating to the project*
- *Documentation concerning related projects*
- *HUD standard procedures documents*

1.5 Acronyms and Abbreviations

Provide a list of the acronyms and abbreviations used in this document and the meaning of each.

1.6 Points of Contact

1.6.1 Information

Provide a list of the points of organizational contact (POC) that may be needed by the document user for informational and troubleshooting purposes. Include type of contact, contact name, department, telephone number, and e-mail address (if applicable). Points of contact may include but are not limited to helpdesk POC, development/maintenance POC, and operations POC.

1.6.2 Coordination

Provide a list of organizations that require coordination between the project and its specific support function (e.g., installation coordination, security, etc.). Include a schedule for coordination activities.

2.0 MANAGEMENT SUMMARY

2.0 MANAGEMENT SUMMARY

2.1 Assumptions and Constraints

State the assumptions and constraints under which the Cost/Benefit Analysis was conducted.

2.2 Methodology

Summarize the procedures for conducting the Cost/Benefit Analysis and the techniques used in estimating and computing costs. These techniques should be consistent with the SDM's *Project Estimation Guidelines*, and may be detailed in an appendix. *Document the results of the analyses and studies related to the costs and benefits of the various system options. Document the Benefit/Cost Analysis study in accordance with the HUD Benefit/Cost Analysis Methodology: Volume I, Methodology, and Volume II, Workbook, September 1995.*

2.3 Evaluation Criteria

State the criteria for evaluating alternatives, such as organizational objectives, operational efficiency, and reduced operating costs.

2.4 Recommendations

Summarize the recommendations for development and operation of the system.

3.0 DESCRIPTION OF ALTERNATIVES

3.0 DESCRIPTION OF ALTERNATIVES

This section identifies the alternative approaches for the development and operation of the system, as determined in the Feasibility Study, and provides a brief description of each. In addition, it provides a description of the current system if one exists.

3.1 Current System

Describe the technical and operational characteristics of the current system (if applicable) by summarizing its functions, identifying the hardware used, and identifying the system's input and output.

3.2 Proposed System

Describe the technical and operational characteristics of the proposed system.

3.x [Alternative System Name]

Each alternative system in this section should be under a separate section header. Generate new sections as necessary for each alternative system from 3.3 through 3.x. Describe the technical and operational characteristics of each alternative system.

4.0 COSTS

4.0 COSTS

This section will calculate all costs to develop and operate each alternative described in sections 3.3 through 3.x, including both one-time and recurring costs. This may be done in the form of a matrix or by listing out the specific category of costs for each alternative system under the appropriate section headings.

Multiply costs to be incurred in the future by a present value factor, an inflation index that defines future costs in present dollars. This index takes into account items such as vendor and potential salary increases. This calculation brings the cost into present dollars.

4.1 Development Costs

For each alternative system described in the Feasibility Study, estimate the cost of the Define, Design, and Build system phases. When determining the overall cost of development, include costs for personnel, equipment, developer training, and development tools.

4.2 Operational Costs

For each alternative system described in the Feasibility Study, estimate the installation, operation, and maintenance costs of the system. Include such costs as personnel, equipment, operational site upgrades or changes, and staff training.

4.3 Non-Recurring Costs

Present non-recurring costs of each alternative over the system life.

4.3.1 Capital Investment Costs

Include costs for acquiring, developing and installing:

- Site and Facility
- Automated data processing (ADP) equipment
- Data communication equipment
- Environmental conditioning equipment
- Security and privacy equipment
- ADP operations, multipurpose and applications software
- Database

4.3.2 Other Non-Recurring Costs

Include costs for:

- Studies (requirement and design studies)
- Procurement planning and benchmarking
- Database preparation
- Software conversion
- Reviews and other technical and management overhead
- Training, travel and other personnel-related costs of development and installation (except salaries and fringe benefits)
- Involuntary retirement, severance and relocation costs for personnel
- Contractual, interagency or other direct support services
- Incremental or additional overhead costs
- Parallel system costs
- Potential disruption to existing business operations

4.4 Recurring Costs

Present the monthly and/or quarterly recurring costs of operating and maintaining each alternative over the system life, including:

- Equipment lease, rental and in-house maintenance
- Software lease, rental and in-house maintenance
- Data communications lease, rental and in-house maintenance
- Personnel salaries and fringe benefits
- Direct support services (intra-agency services)
- Travel and training
- Space occupancy
- Supplies and utilities
- Security and privacy
- Contractual and interagency services, (e.g., ADP services, data communications, software, technical and other support)
- Overhead. Include overhead expenses that represent additional or incremental expenses attributable to the alternative

5.0 BENEFITS

5.0 BENEFITS

This section describes benefits that can be assigned dollar values for each alternative system described in sections 3.3 through 3.x. This may be done in the form of a matrix or by listing out the specific category of benefits for each alternative system under the appropriate section headings.

5.1 Non-Recurring Benefits

In the following subsections, describe non-recurring benefits for each alternative system.

5.1.1 Cost Reduction

Describe non-recurring cost reductions resulting from improved system operations, such as: reduction of resource requirements; improved storage and retrieval techniques; improved resource utilization; and reduced error rates.

5.1.2 Value Enhancement

Describe benefits that enhance the value of an application system, such as: improved resource utilization; improved administrative and operational effectiveness; and reduced error rates.

5.1.3 Other

Describe other benefits, for example, offsetting receipts. Include the value of excess equipment.

5.2 Recurring Benefits

Present the monthly and/or quarterly recurring benefits of operating and maintaining the alternative system over the system life, including:

- Equipment lease, rentals and in-house maintenance
- Software lease, rental and in-house maintenance
- Data communications lease, rental and in-house maintenance
- Personnel salaries and fringe benefits
- Direct support services (intra-agency services)
- Travel and training
- Space occupancy
- Supplies and utilities
- Security and privacy
- Contractual and interagency services, such as: information systems (IS) services, data communications, software, technical and other support
- Overhead. (Include overhead benefits that represent additional or incremental expenses attributable to the alternative.)
- Cost avoidance. (Describe avoidance of future costs that would be incurred if the best alternative were chosen from a set of alternatives, compared to maintaining current operations. Describe improvements in operational flexibility, information handling and response to anticipated requirements, as related to cost avoidance.)

5.3 Non-Quantifiable Benefits

Describe benefits that cannot be quantified in terms of direct dollar values (e.g., improved service, reduced risk of incorrect processing, improved information handling, enhanced organizational image) for the alternative system. Intangible benefits can sometimes be assigned values in terms of estimates and tradeoffs. When applicable, include:

- Boundary estimates (i.e., analysis of best case and worst-case estimates to justify the proposed alternative)
- Tradeoffs with tangible benefits (i.e., cases where an intangible benefit is gained at the expense of reduced potential tangible benefits)

6.0 COMPARATIVE COST/BENEFIT SUMMARY

6.0 COMPARATIVE COST/BENEFIT SUMMARY

This is a summarization of the cost and benefits identified in detail in the previous chapters. Present the elements below in a manner to facilitate comparison.

6.1 Cost of Each Alternative over the System Life

For each alternative described in sections 3.3 through 3.x, present costs in the period (year, quarter, month) in which they will be incurred.

6.1.1 Non-Recurring Costs

Total the non-recurring costs previously itemized.

6.1.2 Recurring Costs

Include recurring costs such as rental, maintenance, utilities, telecommunications and personnel. Total the recurring costs.

6.1.3 Total Cost

Total the non-recurring and recurring costs subtotals for each year of the system life.

6.1.4 System Life Costs

Calculate the total cost over system life by summing the total costs over the period of the system life.

6.1.5 Present Value Cost

Calculate present value cost over the entire system life using authorized present value factors. Calculations are to be based on discounting methods as set forth in Office of Management and Budget (OMB) Circular A-94.

6.1.6 Residual Value Estimate

Calculate the remaining economic value of ownership of all IS resources as of the last month of the system life, as established by Federal guidelines. Make the present value calculation to get the discounted residual value.

6.1.7 Adjusted Cost

Calculate the adjusted cost by subtracting the discounted residual value from the total present value cost.

6.2 Benefits

Identify the period of benefits. Enter the quantifiable dollar benefits for the period in which they are accrued, and make present value calculations.

6.3 Net Present Value

Calculate the net present value by subtracting the adjusted cost from the total present value of benefits.

6.4 Benefit/Cost Ratio

Calculate the benefit/cost ratio by dividing the total present value of benefits by the adjusted cost.

6.5 Payback Period

Calculate the year or month in which the sum of benefits first exceeds the sum of the costs expressed in current dollars.