|  |  |  |  |
| --- | --- | --- | --- |
| ***Acquisition Management System Guidance*** |  |  | |
|  |  |  | |
|  |  |  | |
| **Business Case for**  **(Name of Proposed Facility Investment)**    Enterprise Architecture Roadmap Statement # | | |  |

**July 2017**

Federal Aviation Administration

800 Independence Avenue SW

Washington, DC 20591

Approvals

***Submitted By: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

*[Name], Manager, Terminal Facilities Planning* Date:

|  |  |  |  |
| --- | --- | --- | --- |
| ***Approved By:*** | ***Date*** | | ***Decision:*** |
|  Approved | | | |
| *[Name], Director, Terminal Planning* | |  Disapproved | |
|  Approved | | | |
| *[Name], Director, Terminal Finance* | |  Disapproved | |
|  Approved | | | |
| *[Name], Director, Terminal Program Operations* | |  Disapproved | |
|  Approved | | | |
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|  Approved | | | |
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|  Approved | | | |
| *[Name], Director, Terminal Central Operations* | |  Disapproved | |
|  Approved | | | |
| *[Name], Director, Terminal Eastern Operations* | |  Disapproved | |
|  Approved | | | |
| *[Name], Director, Terminal Western Operations* | |  Disapproved | |
|  Approved | | | |
| *[Name], Director, Eastern/Central/Western Technical Operations* | |  Disapproved | |

Note: If enroute or other facility initiatives use this template, signature blocks should be amended as appropriate.

**TABLE OF CONTENTS**

**EXECUTIVE SUMMARY**

[1.0 INVESTMENT Description 1](#_Toc389560948)

[2.0 Problem Statement Error! Bookmark not defined.](#_Toc389560949)

[3.0 Assumptions 1](#_Toc389560951)

4[.0 COST / BENEFIT ANALYSIS OF Alternatives 1](#_Toc389560952)

[4.1 Alternative 1 (Reference Case): 2](#_Toc389560953)

[4.2 Alternative 2: (Modernize) 2](#_Toc389560954)

[4.3 Alternative 3: (New Construction) 3](#_Toc389560955)

[4.4 Alternative 4: 3](#_Toc389560956)

[4.5 Facity Operating Cost Savings of Alternatives Relative to Reference Case 3](#_Toc389560956)

[5.0 Economic Analysis 4](#_Toc389560957)

[5.1 Evaluation Criteria 4](#_Toc389560958)

[5.2 Alternative-To-Alternative Comparison Estimate 4](#_Toc389560959)

[6.0 Risk and Sensitivity Analysis 5](#_Toc389560960)

[6.1 Risk Analysis 6](#_Toc389560961)

[6.2 Issues and Opportunities 6](#_Toc389560962)

[6.3 Sensitivity Analysis 6](#_Toc389560963)

[7.0 Related Assessments 6](#_Toc389560964)

[8.0 Affordability Analysis 6](#_Toc389560965)

[9.0 Recommendation 7](#_Toc389560966)

**10.0 IMPACT IF NOT FUNDED OR DELAYE**D…………………………………………………………….…………………………7

**11.0 PROCUREMENT STRATEGY**…………………………………….…………………………….……………………… ….……….7

**APPENDICES**

Appendix A: Business Case Analysis Team Members

Appendix B: References

**SUPPORTING DOCUMENTS**

Life Cycle Cost Estimate

Facility Execution Plan – Project Level

Shortfall Analysis Report

Cost Basis of Estimate

*All guidance documents cited in this template can be found on the IP&A website at* [*www.ipa.faa.gov*](http://www.ipa.faa.gov) *or on the FAA Acquisition System Toolset website at http://fast.faa.gov.*

**EXECUTIVE SUMMARY**

*Summarize the key information in this document, highlighting those elements that are most relevant to the Joint Resources Council when making the final investment decision. Include the following: A brief summary of the operational shortfall or opportunity; a brief description of the proposed facility investment; a summary of the cost, schedule, and risk analyses; and the impact on FAA operational capability if the investment is delayed or not funded.*

# INVESTMENT Description

*Briefly summarize the proposed facility initiative including its operational mission, commissioning date, associated infrastructure, and the NAS systems it will house and support (e.g., equipment utilized).*

*Briefly summarize the key operational and functional capabilities the solution should provide. These capabilities should address the shortfalls or opportunities in Section 2: Problem Statement; for example, improved efficiency of facility operations, increased operational capacity, or reduced operational costs to alleviate the cited shortfall.*

# Problem Statement

*Note: The problem statement should be identical to the description in the Approved Analysis Scope for the same project, if this is a terminal facility initiative.*

*Briefly describe the operational shortfall or opportunity this facility initiative is addressing by updating the information in the Section 1 of the Final Shortfall Analysis Report produced during concept and requirements definition. Describe the impact the shortfall has on safety, security, capacity, cost, or organizational effectiveness. Break down the shortfalls to a level where trade-offs among them can be effectively considered.*

*Or*

*Briefly describe any potential opportunities stemming from the current or projected operational environment; for example, combined airspace to improve efficiency in airspace management.*

# Assumptions

*List the key assumptions, constraints, and conditions that have major influence on the business case analysis and its conclusions. The list should include as a minimum: the assumed remaining service life of the existing facility, the assumed required implementation data for the proposed solution, the assumed economic service life of the proposed solution, and the operational framework within which any new investment must function. See “Business Case Analysis Guidance, Appendix B” for a definition of assumptions, constraints, and ground rules.*

# COST / BENEFIT ANALYSIS OF Alternatives

*This section combines the alternative summaries with cost/benefits results.*

*1) List and briefly describe the alternatives analyzed for the business case.*

*2) Include a summary of the costs and benefits for each alternative in accordance with the template tables provided below. The cost analysis should reflect the high-confidence, risk-adjusted, lifecycle cost estimate for each alternative and the existing facility which represents the reference case or “baseline”. The costs are expressed as risk-adjusted then-year dollars. The benefits include lifecycle cost estimate for each alternative and the reference case. Note: The cost tables are to be completed by the Investment Analysis Team.*

## Alternative 1 (Reference Case):

**Alternative 1 Summary**

**Costs for Alternative 1 (Discounted $FYxx)**

|  |  |
| --- | --- |
| **Cost Elements** | **Cost** |
| **Solution Development** | $ |
| **Implementation** | $ |
| **In Service Management** | $ |
| **Staffing** | $ |
| **Total** | **$** |

**Benefits of Alternative 1**

|  |  |
| --- | --- |
| **Benefit Category** | **Results** |
| **FAA Benefits** |  |
| Reduced staffing costs |  |
| Reduced FAA operating costs |  |
| Improved efficiency/productivity gains |  |
| **User Benefits** |  |
| Improved safety (reduced accidents) |  |
| Reduced aircraft operator costs |  |
| Passenger Value of Time |  |

## Alternative 2: (Modernize)

**Alternative 2 Summary**:

**Costs for Alternative 2 (Discounted $FYxx)**

|  |  |
| --- | --- |
| **Cost Elements** | **Cost** |
| **Solution Development** | $ |
| **Implementation** | $ |
| **In Service Management** | $ |
| **Staffing** | $ |
| **Total** | **$** |

**Benefits of Alternative 2**

|  |  |
| --- | --- |
| **Benefit Category** | **Results** |
| **FAA Benefits** |  |
| Reduced staffing costs |  |
| Reduced FAA operating costs |  |
| Improved efficiency/productivity gains |  |
| **User Benefits** |  |
| Improved safety (reduced accidents) |  |
| Reduced aircraft operator costs |  |
| Passenger Value of Time |  |

## Alternative 3: (New Construction)

**Alternative 3 Summary**:

**Costs for Alternative 3 (Discounted $FYxx)**

|  |  |
| --- | --- |
| **Cost Elements** | **Cost** |
| **Solution Development** | $ |
| **Implementation** | $ |
| **In Service Management** | $ |
| **Staffing** | $ |
| **Total** | **$** |

**Benefits of Alternative 3**

|  |  |
| --- | --- |
| **Benefit Category** | **Results** |
| **FAA Benefits** |  |
| Reduced staffing costs |  |
| Reduced FAA operating costs |  |
| Improved efficiency/productivity gains |  |
| **User Benefits** |  |
| Improved safety (reduced accidents) |  |
| Reduced aircraft operator costs |  |
| Passenger Value of Time |  |

## Alternative 4:

**Alternative 4 Summary**:

**Costs for Alternative 4 (Discounted $FYxx)**

|  |  |
| --- | --- |
| **Cost Elements** | **Cost** |
| **Solution Development** | $ |
| **Implementation** | $ |
| **In Service Management** | $ |
| **Staffing** | $ |
| **Total** | **$** |

**Benefits of Alternative 4**

|  |  |
| --- | --- |
| **Benefit Category** | **Results** |
| **FAA Benefits** |  |
| Reduced staffing costs |  |
| Reduced FAA operating costs |  |
| Improved efficiency/productivity gains |  |
| **User Benefits** |  |
| Improved safety (reduced accidents) |  |
| Reduced aircraft operator costs |  |
| Passenger Value of Time |  |

**4.5 Facility Operating Cost Savings of Alternatives Relative to Reference Case**

*Summarize in the table below the labor and facility operating costs of each alternative.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Alternative 1 (Reference Case)** | **Alternative 2** | **Alternative 3** | **Alternative 4** |
| Labor | $ | $ | $ |
| Facility Operations | $ | $ | $ |
| Total | $ | $ | $ |

# Economic Analysis

*Summarize the economic analysis conducted for each alternative. Include the discount rate per the Office of Management and Budget (OMB) guidelines to calculate present-value costs and benefits. Include passenger value-of-time, net-present-value, and payback period as a minimum.* ***Refer to the Guide to Conducting Business Case Economic Evaluations on the IP&A website at*** [*www.ipa.faa.gov*](http://www.ipa.faa.gov)*.* ***.***

## Evaluation Criteria

*Briefly summarize the evaluation criteria and their relative weighting used in evaluating each alternative. Consider such items as payback periods, assumed lifecycle, cost and benefit ratio, risk/sensitivity analysis, and return on investment.*

## Alternative-To-Alternative Comparison Estimate

*Summarize the comparison of alternatives per the elements presented in the table below.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Category** | **Alternative 1 Reference Case** | **Alternative 2** | **Alternative 3** | **Alternative 4** |
| **Total Costs – Discounted** | **$** | **$** | **$** | **$** |
| **Benefits** |  |  |  |  |
| FAA - Cost Avoidance |  |  |  |  |
| FAA - Efficiency/Productivity |  |  |  |  |
| User – Safety |  |  |  |  |
| User - Operator Costs |  |  |  |  |
| User – Passenger Value of Time |  |  |  |  |

# Risk and Sensitivity Analysis

**6.1** **Risk Analysis**

*Risk analysis is an objective assessment to determine the probability of an undesirable event occurring during implementation and the significance of consequence of the occurrence. It is a process in which a group of programmatic, technical, and analytical specialists review the cost and benefit estimates, as well as supporting ground rules, assumptions, and basis of the estimates. If the analysis indicates an undesirable event may arise, the potential impact resulting from such an occurrence is evaluated. At a minimum, the areas of risk to be analyzed for each alternative are: costs, benefits, schedule, and technical. For identified risks, mitigation techniques are devised and their estimated costs are added to the appropriate WBS element. Reference the risk mitigation plan.*

*Evaluate the 13 risk facets of the FAA risk analysis process (see below) to determine overall risk for each alternative: High, Medium, or Low, supported by a 5 X 5 risk matrix. Identify and evaluate major risks and create mitigation strategies for each technical alternative. Summarize risk analysis results for each alternative in the table below.*

|  |  |  |
| --- | --- | --- |
| ***Risk Facets:*** | | |
| *Benefits Estimate Risk* | *Operability Risk* | *Schedule Risk* |
| *Cost Estimate Risk* | *Management Risk* | *Security Risk* |
| *Funding Risk* | *Producibility Risk* | *Stakeholder Risk* |
| *Human Factors Risk* | *Safety Risk* | *Supportability Risk* |
| *Technical Risk* | | |

*Introduce risk analysis results as follows:* nn of the 13 risk facets were identified as impacts to [Airport (Code), Type of Facility]. The risk analysis results are summarized below:

**Risk Analysis Results**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Risk**  **Facet** | **Alternative 1**  **Risk Description & Risk Level** | **Alternative 2**  **Risk Description & Risk Level** | **Alternative 3**  **Risk Description & Risk Level** | **Alternative 4**  **Risk Description & Risk Level** |
| *[Facet]* |  |  |  |  |
| *[Facet]* |  |  |  |  |
| *[Facet]* |  |  |  |  |
| *[Facet]* |  |  |  |  |

*Note: ATO Terminal Service Program Operations is responsible for performing a detailed risk analysis (including planned mitigation strategies) of the preferred alternative upon approval of the business case.*

See “*Guide to Conducting Business Case Risk Assessments*” *found at* [*www.ipa.faa.gov*](http://www.ipa.faa.gov)*.*

## Issues and Opportunities

## *Summarize the major issues that have been identified, analyzed, and incorporated into the business case, as well as any opportunities that would have a positive impact on the FAA operations or service delivery. For ATO initiatives, reference the PMO Risk, Issues, and Opportunities (RIO) Management Plan.*

## Sensitivity Analysis

*Sensitivity analysis involves changing key parameters in the cost model to test their effect on cost variation. In order for sensitivity analysis to reveal how the cost estimate is affected by a change to a single assumption, the cost estimator must examine the effect of changing one assumption or cost driver at a time while holding all other variables constant. Be sure to perform a sensitivity analysis on key cost-drivers to see the impact on cost. Sensitivity analysis includes:*

* *Testing the sensitivity of cost elements to changes in input values and key assumptions*
* *Identifying the effects of changing quantities or program schedule on the overall cost estimate*
* *Determining which assumptions are key cost drivers and which cost elements are affected most by changes*

*See GAO Cost Estimating and Assessment Guide, Chapter 13 on the IPA website for a discussion on sensitivity analysis.*

*Summarize the results of sensitivity analyses here.*

# Related Assessments

*Depending on the nature of the investment, all or some of the following assessments may be appropriate:*

* *Architecture Impact Assessment*
* *Human Engineering and Operability Assessment*
* *Information and System Security Assessment (see AMS Policy Section 4.11 on FAST)*
* *Environment and Occupational Safety and Health Assessment*
* *Other Specialty Engineering Assessments.*

*See the IP&A website at* [*www.ipa.faa.gov*](http://www.ipa.faa.gov) *for information on these assessments.*

*Summarize the results of these assessments here.*

# Affordability Analysis

*The investment analysis team forwards the estimate of lifecycle cost for each alternative to FAA Finance. This office assesses the budget impact and relative contribution to agency goals of each alternative against other ongoing and proposed investment programs in the FAA financial baseline. When an alternative solution cannot be funded within the financial baseline, FAA Finance may propose offsets from lower priority programs. The budget impact assessment shapes subsequent deliberations of the investment analysis team.*

*Summarize the findings and recommendations of the affordability assessment here.*

# Recommendation

*Identify the recommended alternative and summarize the rationale for the recommendation. For terminal facilities, introduce the recommendation as follows:*

Terminal Facilities Planning recommends Alternative \_\_\_\_\_\_\_.

11.0 IMPACT IF NOT FUNDED OR DELAYED

*Briefly state what will happen if this effort is delayed or not funded (Reference the Legacy Case Risk Assessment in the Shortfall Analysis Report). Summarize the impact on other initiatives or operational assets dependent on this initiative.*

12.0 PROCUREMENT/CONTRACTING STRATEGY

*Identify the recommended contract alternative, if any, and summarize the rationale for the recommendation.*

**APPENDICES**

**Appendix A: Business Case Analysis Team Members**

*Identify the organization and briefly define the role of each business case team member in the following table.*

|  |  |  |
| --- | --- | --- |
| **Name** | **Organization** | **Role** |
|  |  |  |
|  |  |  |

**Appendix B: References**

*Use the following table to list references and documents used in this business case analysis. Examples include basis of estimates for cost and schedule and related assessments.  Each reference should include the document title, originating organization, and date.*

|  |  |  |
| --- | --- | --- |
| **Document Title** | **Originating Organization** | **Approval Date** |
|  |  |  |
|  |  |  |

**Supporting Documents**

**Life Cycle Cost Estimate (LCCE)**

**Facility Execution Plan – Project Level**

Sub-ACAT F1 Facility projects are required to complete an Execution Plan at the project level. The Facility Execution Plan is a signed agreement between the project and executive management on agreed-upon costs, schedule baseline, and performance parameters.

**Shortfall Analysis Report**

**Cost Basis of Estimate**