

# **U.S. Railroad Retirement Board**



## **Enterprise Architecture Governance**

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## Introduction

The Clinger-Cohen Act and the Office of Management and Budget mandate that only capital projects in compliance with a Federal agency's enterprise architecture will be funded. To successfully ensure that projects are in compliance to the enterprise architecture (EA), there needs to be a *governance* process.

On a broad level, the purpose of *governance* is to develop and manage EA activities, and control and monitor progress. The Railroad Retirement Board (RRB) has adopted Meta Group's Enterprise Architecture Strategy (EAS) model in designing the overall Enterprise Architecture. On a more detailed project level, *governance* is the basic principles and policies to follow to ensure Information Technology (IT) projects are in compliance with EA. It institutes a method for corrective and adaptive action. The Architecture and Planning Group (APG) provides the coordination, assistance and training on enterprise architectural compliance.

This document represents the RRB's governance process. The governance process supplements the existing processes for new projects, contracts, and revisions to existing systems. It is an overview of the organizational structures, roles and processes that guide and monitor the compliance of projects to the RRB's Enterprise Architecture. In addition, governance establishes an architectural approval process and how compliance processes are integrated within the agency's System Development Life Cycle (SDLC), Procurement, and Capital Planning Investment Control (CPIC) processes. Specific instructions for completing the necessary life cycle and compliance forms are detailed in the IT Standards and Procedures manual.

## Compliance to EA

Adherence to Enterprise Architecture will be phased in beginning January 2002. The Architecture and Planning Group will initially select projects as pilots for architectural review. Experience gained from these pilot projects will be used to refine the compliance process. Eventually all new projects at the RRB, regardless of size, will be required to comply with the enterprise architecture unless a variance is sought and approved.

Adherence applies to all new projects except those projects requested on a reoccurring basis that require minimum programming changes, e.g. the annual Cost of Living increase, or are subsequent phases of projects initiated prior to January 2002. These type of projects are still encouraged to follow the principles and guidelines of the architecture whenever possible.

### New projects

For the purposes of compliance to enterprise architecture, a new project is defined as any project for in-house development and purchases of IT hardware and software. This applies to projects requested through the G-436a or as an omnibus project assigned by, for example, the IT Steering Committee. Specific guidance on initiating new projects can be found in the Capital Planning

Investment Control Guide, the Project Guide and by following the Information Technology Project Business Case Planning Checklist.<sup>1</sup>

### **Enforcing New Project Compliance**

The Architecture and Planning Group will receive a copy of every new project request at the RRB. It is impractical, however, for APG to review and monitor each of these new projects for compliance to the EA. Three types of architectural reviews ensure compliance:

- Standard review
- Project review
- Post review

#### ***Standard review***

A *Standard review* is an assessment by APG of a project's compliance to EA at the Project Definition, Design, and Post Implementation phases of the Project Life Cycle. The Project Life Cycle comprises all the tasks (e.g. analysis, requirements definition, procurement, testing, etc.) that are needed to implement a particular IT solution and integrates the phases of the agency's existing Systems Development Life Cycle (SDLC), Procurement, and Capital Planning and Investment Control (CPIC) processes. The lifecycle applies to both in-house development and purchased solutions.

Projects subject to a Standard review meet one or more of the following criteria:

- require IT Steering Committee approval,
- are of high visibility for the agency<sup>2</sup>, or
- require sensitive handling<sup>3</sup>

APG will work with the IT managers and project leaders to obtain the necessary information in as expeditious a manner as possible as the project proceeds through the Project Life Cycle. Assessments beyond the Project Definition, Design, and Post Implementation phases may be necessary depending on the type and scope of the project. APG will determine on a project-by-project basis if a more thorough architectural assessment of a project is needed.

#### ***Project review***

A *Project review* applies to projects not subject to a Standard Review. The Project Review requires the IT managers and project leaders ensure that their project is compliant with the architecture. An APG representative will provide guidance to the team, as needed, but will not review the project. The IT managers and project leaders are required to consider and follow the Conceptual Architecture Principles, the Domain Principles, and the Industry and Product standards adopted by the agency. The IT managers and project leaders are to use the principles and standards when planning, acquiring, designing, building or implementing requirements for a new project. To aid the IT managers and project leaders, a number of

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<sup>1</sup> An optional form, see the Capital Planning and Investment Control Guide for information on use.

<sup>2</sup> As determined by the Chief Information Officer

<sup>3</sup> As determined by the Chief Information Officer

decision points have been integrated into the project life cycle for determining when and what aspect of the architecture should be reviewed during the project life cycle. The decision points and specific instructions for completing the compliance forms are detailed in the IT Standards and Procedures.

### ***Post review***

An *Post Review* is an architectural assessment of projects after the project is completed and implemented. APG will perform a Post review on all projects that receive a Standard review, and a percentage of the remaining projects will receive random reviews. Thirty-three percent (33%) of the projects not subject to a Standard review will be subject to Post reviews. The review will be based upon the documentation developed through the Project Life Cycle. The purpose of the post review is to evaluate the projects adherence to the EA and target recurring non-compliance issues and the architectures effectiveness and practicality. Maturity of the governance process and the APG review criteria will be based upon experience gained from the post reviews.

## **Variances**

A variance is a proposed project or an IT related product, standard and/or principle that is contrary to the existing enterprise architecture. Approval to modify the enterprise architecture is obtained by submitting a request for variance through the *Variance Approval Process*.

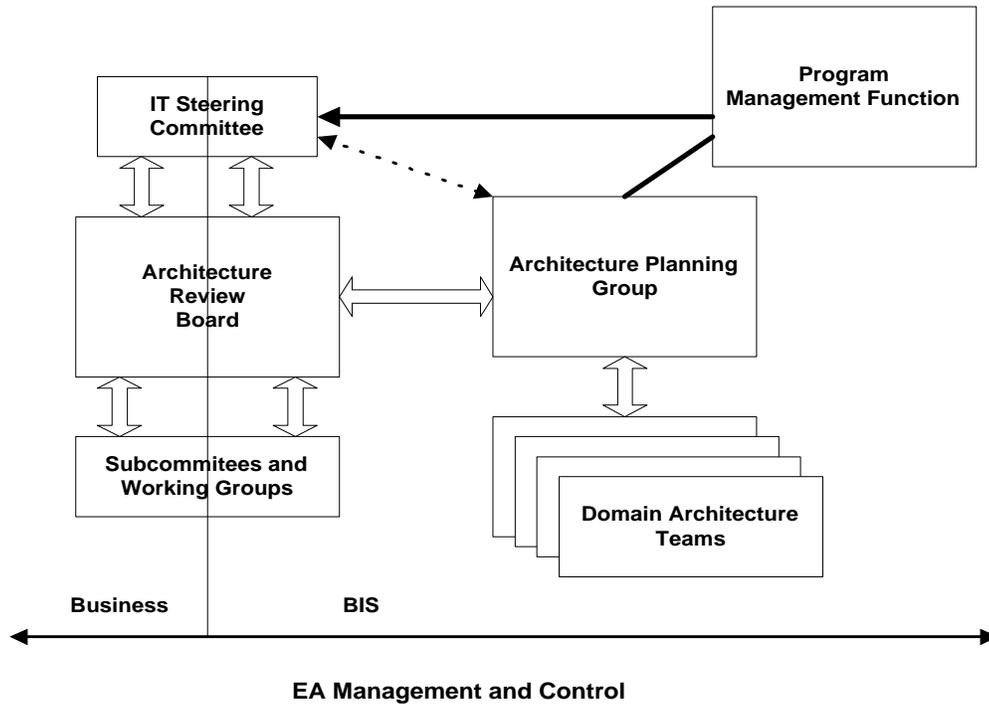
Figure 1 illustrates the organizational structure of the overall Variance Approval Process. A request for variance begins with a Project leader submitting a variance through APG. APG forwards the request to the appropriate approval body depending on what the variance requests.

The flowcharts in Appendix D, E and F provide, at a more detailed level, the various decision points, variance granting authorities within the Architecture Approval Process, and, if a request is denied, the escalation steps for an appeal of the decision.

APG coordinates the interaction between the IT Steering Committee (Architecture Review Board), Domain Groups and an Enterprise Program Management function. Descriptions of each role and responsibility within the structure and the groups who provide information to the organizational units within the structure are provided for in Appendix A.

Figure 1 - Organizational Structure to facilitate the Variance Approval Process

## Organizational Relationships Variance Approval Process



### Types of Variances

There are two types of variances -- a change to the existing or proposed architecture or a request for a one-time-only exception. A change or exception differ as follows:

- *Changes* focus on permanent, long-term changes to the architecture. Changes can be project initiated, or identified by APG or domain teams during the recurring architecture review process.
- *Exceptions* focus on temporary, short-term exceptions to the architecture. Exceptions are generally caused by gaps in the architecture and are temporary measures acting as bridges

between the current and future IT state.

### **G-1300 Request Form**

A variance is initiated by the submission of Form G-1300<sup>4</sup> to APG. APG will review all G-1300 variance requests for clarity and completeness before forwarding the requests to the appropriate approval authority. APG will also record, coordinate and monitor any appeals of denied variances through the variance approval process. Such information will be documented using the Form G-1301<sup>5</sup>.

### **Circumstances for Requesting a Variance**

- Project based - A decision will need to be made by the Project Sponsor<sup>6</sup>, with input from the IT managers and the technical project leader(s) whether to modify the project to align it with the architecture, or seek a variance to the EA through the Variance Approval Process. The decision is dependent upon the change's impact in dollars, scope, time, etc. A decision to proceed with a project contrary to the enterprise architecture must have approval. A variance for IT projects is initiated by the submission of Form G-1300 to APG.
- Product, standard and/or principle based - Variances sought by Domain chairs, line of business representatives or subject matter experts due to changes because of legislative changes, shift in business direction or technological developments, are also submitted to APG through the Form G-1300. Subject matter experts should, however, submit request for variance through a Domain Chair or a Project technical leader if the change is directly or indirectly related to a specific project.

### **Appeals to Variance Denials**

Variance requests can be appealed through progressively higher levels within the process. The Architecture Review Board, however, is the final authority in the approval process. The Architecture Approval Process validates exceptions to the agency's business strategies and technical requirements, and helps control the deployment of non-standard software and equipment into the environment.

**Example:** The following is an example of how a variance might be pursued.

A director wants a software purchased and installed that will help her section do work more efficiently. A project team is assigned to lead the purchase and implementation of the software. The project meets the compliance requirements for a Project Review. After a preliminary draft of the requirements is written, the project team determines that the project is not in compliance with at least one of

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<sup>4</sup> See example of Form G-1300 in Appendix B.

<sup>5</sup> See example of Form G-1301 in Appendix C.

<sup>6</sup> The role of "Project Sponsor" is defined in the Capital Planning and Investment Control Guide.

the domain architecture principles. The director does not want to change the scope of the project. The project team submits a variance request to APG to change the EA. APG reviews the request and forwards the request to the appropriate Domain Team(s) for their review and recommendation. Because the project is contrary to a very important principle, the domain team recommends that the variance be denied. The project team has the option of stopping the project or requesting an appeal of the variance denial. The project team chooses to pursue an appeal. Such an appeal is reviewed by APG and forwarded to the CIO for consideration. The CIO, after reviewing the project, decides also to deny the variance. The project team uses their last appeal option and appeals the denial to the Architecture Review Board. The CIO adds the variance request as an Architecture Review Board agenda item to the next IT Steering Committee Meeting. The Architecture Review Board will decide whether to adopt or reject the change request.

## **Time Restrictions**

A decision and/or review must be accomplished in as expeditious a manner as possible. If a decision and/or review cannot be made within two business days of when the request is received, the reviewing or approving organization must provide the requestor with an estimate as to how long it will take to resolve the issue. This time restriction rule does not apply, however, to the Architecture Review Board.

## **'Rules of Conduct'**

The success of governance relies not only in the 'process' but also on the participation and cooperation of APG, LOB, IT Managers, Supervisors, and Project Leaders, and an Enterprise Program Management function/office. The reality is that disagreements will arise within the architecture approval process. All participants are to respect each other's views when utilizing the architecture approval process.

The following are some rules of conduct as they apply to EA and the governance process:

- Comments will be made in a professional manner, meaning no sarcasm, insults, profanity, or demeaning remarks.
- No one person will monopolize the discussion or process.
- Individuals will stick to the issues/facts and not the personalities or emotions surrounding the issues.
- Each person will make comments and/or decisions based upon the guidelines of the Enterprise Architecture.
- Each person will make comments and/or base decisions for the good of the enterprise of the RRB.

## Managing the Enterprise Architecture

The *Architecture Process Definition* is the primary roadmap for APG to accomplish the goals of the enterprise architecture, and implementation plans to achieve those goals. The Architecture Process Definition ensures that the broad scope of governance is achieved and followed.

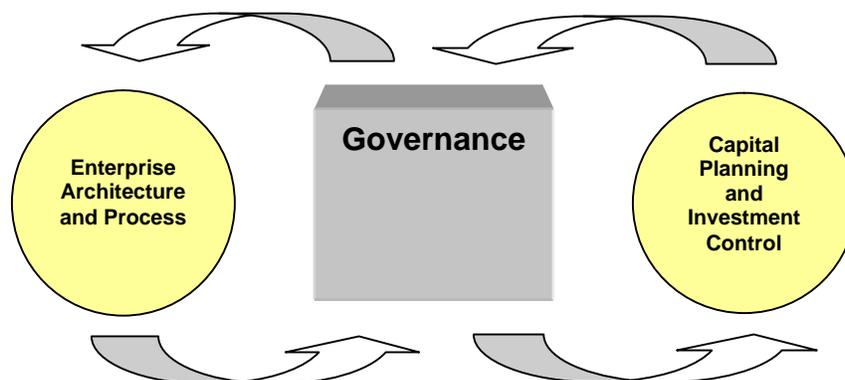
The Architecture Process Definition is comprised of plans and a set of actions to develop, use, and maintain the EA that will allow effective EA management, control, and oversight. Additional oversight and control procedures are documented as part of the Capital Planning and Investment Control process.

## Integrating EA into the RRB's IT Investment and Project Approval Processes

APG is responsible for assessing how well potential major investments adhere to the RRB's EA, and provides recommendations to the IT Investment Review Board (ITIRB). Linking the RRB's Enterprise Architecture review with the agency's Capital Planning and Investment Control (CPIC) process is necessary to achieve the full benefits of both the EA and Information Technology investments. Investment proposals often reflect changes in the organization's program/business functions as well as providing a window to technology advancements. This type of information is valuable as a feedback loop to the EA planning and development function because the architecture must be changed to reflect current lines of business (LOB) functions and advances in technology must be considered when updating the EA.

As Figure 2 illustrates, the RRB's governance is the mechanism that synchronizes the IT investments with the enterprise architecture. From a capital planning and investment control perspective, compliance to EA ensures costly and inconvenient out-of-cycle capital expenditure requests are minimized. In turn, business cases for approved project variances provide valuable, near-real-time updates to the EA.

*Figure 2 - Integrating EA and the Investment Review Process*



## **Appendix A – Governance Roles**

The following are the primary roles and responsibilities of each of the RRB’s organizational groups in governance:

<b>Roles Involved With Governance</b>	
Information Technology Steering Committee (ITSC)	<p>The IT Steering Committee oversees all IT organization and budgetary decisions, with the specific intent to attain enterprisewide optimization through an enterprisewide business focus. The ITSC makes decisions with the intent to meet business requirements.</p> <p><i>Mission:</i> To ensure that all IT strategies and plans are aligned with the organization’s business strategies and plans. The ITSC further ensures realization of specific IT strategies and plans as well as the attainment and optimal utilization of IT resources in the execution of strategies and plans, and forms an integral part of the organization’s governance structure.</p>
Architecture Review Board	<p>The ARB is a function of the IT Steering Committee. The ARB reviews and approves Enterprise Architecture (EA) deliverables (e.g. conceptual and component architectures, including product standards). It ensures compliance with the architecture process and agreed-on practices, and ensures the appropriate sharing of pertinent information and knowledge.</p> <p><i>Mission:</i> To ensure that Domain teams delivers agreed-on architectures on time and within the agreed set of conceptual architecture principles. It also acts as the final authority for all programs/projects that want to deviate from agreed principles. It is a part of the overall architecture governance structure and process.</p>
Domain architecture teams	<p>Teams are made up of various technology specialists, with cross-functional skills and supported by LOB staff members to direct technology decisions and processes.</p> <p><i>Mission:</i> To develop either a basic or applied domain architecture that is consistent with the overall set of conceptual architecture principles, and is in line with a list of business and technical requirements.</p>
Domain Chair	<p>The Domain Chair is the technical overseer of a related group of technologies. Chairs have an understanding of the current business and technical environment and the strategic business objectives envisioned in the EA. Their role includes periodically assembling and participating as a member of the <i>Domain Team</i> to update their domain specific technical architecture. They also act as a liaison to all existing domain groups to insure consistency and interoperability as well as to resolve conflicts across domains. The Domain Chairs serve as the first-line arbitrators between APG and project leads to clarify whether a project is in compliance with their domain specific architecture.</p>

<b>Roles Involved With Governance</b>	
	<p><i>Mission:</i> to coordinate LOB representative and subject matter experts to maintain the technical architecture. To continually assess the state of their domain specific technologies and processes and staying abreast of evolving technologies that may impact future purchases or use of products or services at the agency. An additional function of the Chairs is to make an initial assessment as to whether a project is compliant with their domain specific architecture when a conflict arises between APG's assessment and that of the Project Lead.</p>
Project leader	<p>The Project Leader is the single most important role in the governance process. Project leads determine whether a project is in compliance with their domain specific architecture throughout the project's lifecycle. The APG will guide and/or support the project leader through the process.</p> <p><i>Mission:</i> to ensure, for most projects, the project's compliance through the project lifecycle to the architecture and report back to the APG.</p>
Enterprise program management function	<p>The primary purpose of an enterprise program management function is to manage, monitor and control the prioritization and utilization of IT resources assigned to major projects, in-house and outside contractor work, as well as their progress relative to project objectives and milestones.</p> <p><i>Mission:</i> So that the IT steering committee can knowledgeably make decisions, the EPM function must provide adequate information to the decision process including project charters, budgets, schedules, assigned resources, and interdependencies with other projects as well as purchase orders or requisitions for information technology spending.</p>
IT Investment Review Board (ITIRB)	<p>The IT Steering Committee also performs the Investment Review Board function to insure informed decision making regarding costs, benefits, risks of alternative investment options and architectural alignment. The goal of this activity is to ensure enterprise and application architecture projects are feasible from a cost-benefit standpoint.</p> <p><i>Mission:</i> The Committee reviews proposed IT investments and make the final investment decision.</p>

**Appendix B –  
Form G-1300, Request for Variance to Enterprise Architecture**

<b>Request for Variance to Enterprise Architecture</b>	1. Date
2. Name of Requestor(s)	3. Project Name
4. Type of Request <input type="checkbox"/> Change <input type="checkbox"/> Exception	
5. Description of Request	
6. Explain the business/technological reasons for the request.	
7. Describe the EA requirements/principles you are requesting a variance from or to.	
8. Are you aware of any other requirements/principles that may be impacted by the request? If so, which?	
9. Additional Information/Attachments.	
<b>For Architecture and Planning Group Use Only</b>	
APG Recommendation	
Date of Final Approval/Denial	Compliance decided by:
Notes of Action	

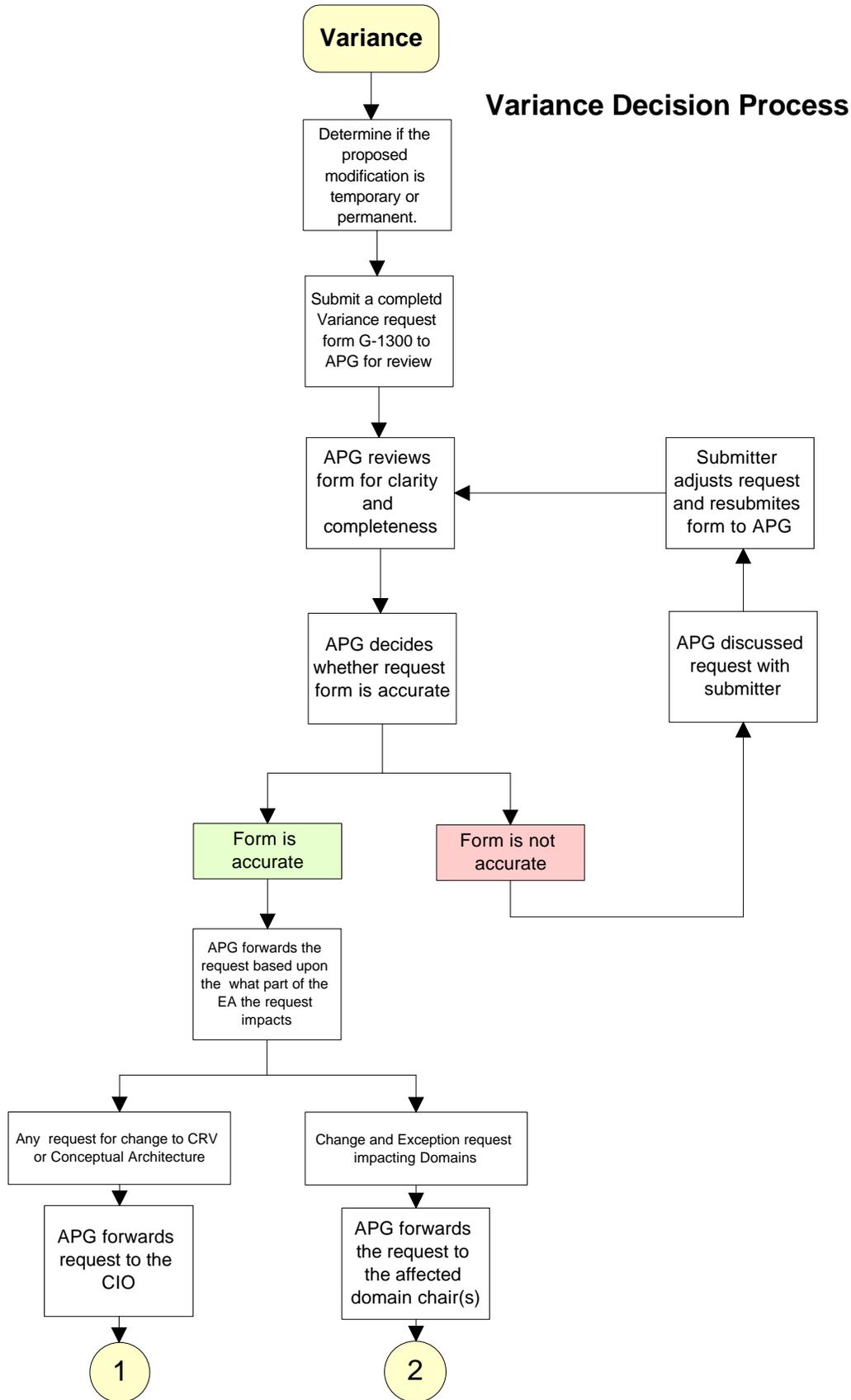
Form G-1300 (01-02)

**Appendix C –  
Form G-1301, Variance to Enterprise Architecture Supplemental Documentation**

<b>Variance to Enterprise Architecture Supplemental Documentation</b> For Architecture and Planning Group Use	
1. Name of Requestor(s)	2. Project Name
3. Domain Workgroup Recommendation <input type="checkbox"/> Concur with request <input type="checkbox"/> Deny request	
4. Domain Workgroup Basis	
5. Date of Approval/Denial	6. Domain Chair(s) Signature:
7. Over-site Advisor(s) Signature:	
8. CIO Recommendation/Decision <input type="checkbox"/> Concur with request <input type="checkbox"/> Deny request	9. Date of Approval/Denial
10. CIO Basis	
11. Architecture Review Board Decision <input type="checkbox"/> Concur with request <input type="checkbox"/> Deny request	
12. Architecture Review Board Basis	
13. Additional Information/Attachments.	

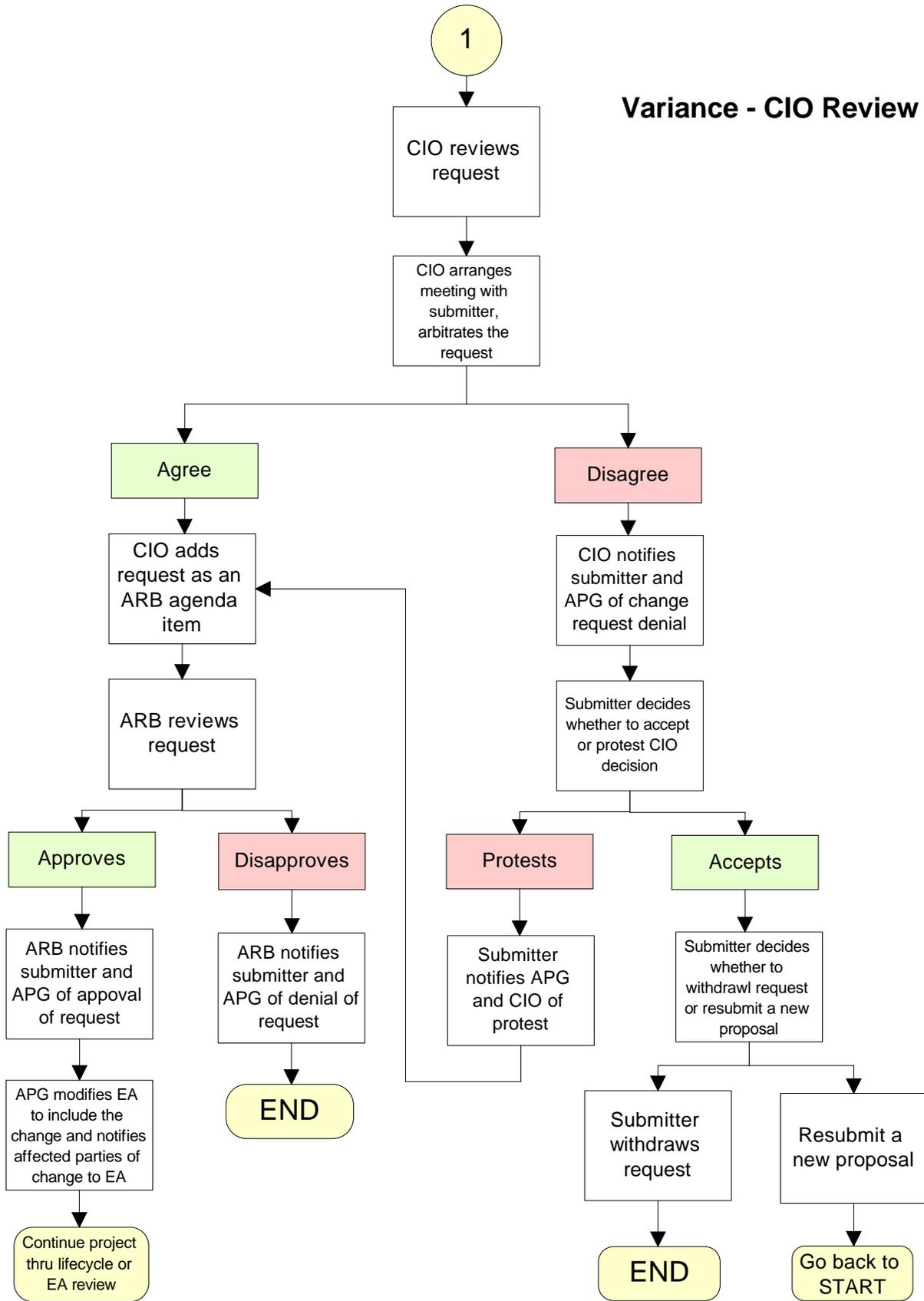
Form G -1301 (01-02)

## Appendix D – Variance Decision Process



**Appendix E – Variance – CIO Review**

**Variance - CIO Review**



**Appendix F – Variance Domain Chair(s)**

**Variance - Domain Chair(s) Review**

