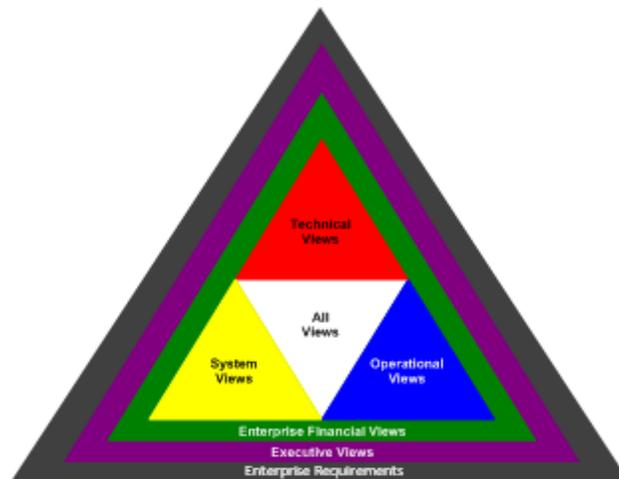




**Integrated Systems Engineering Framework  
Federal Aviation Administration  
National Airspace System  
(NAS ISEF)**

**Office of NextGen (ANG)**



**Appendix C: NAS ISEF Metamodel**

**Version 2.2**

**Final**

**21<sup>st</sup> June 2016**

## Version History

Version	Date	Description of Change
Draft v1.0	31 May 2011	Original draft version of the NAS ISEF Metamodel
Draft v2.0	01 June 2014	Numerous extensions to the model including the NSIP and Strategic subject areas.
Baseline 2.0	30 September 2014	Modified to reflect all accepted comments during review/comment period
Draft 2.1	05 March 2015	<ul style="list-style-type: none"> <li>• Updated model with numerous definition and association enhancements</li> <li>• Created a simplified high-level MM Diagram.</li> <li>• Added new Safety/Hazard subject area</li> <li>• Changes to the Standards view to coordinate with EuroControl work</li> <li>• Please refer to Appendix C for more details regarding changes made to this version.</li> </ul>
Baseline Version 2.1	15 July 2015	Modified to reflect all accepted comments during review/comment period
Draft Version 2.2	21 June 2016	<ul style="list-style-type: none"> <li>• Addressed V2.1 Comments</li> <li>• Renamed “Roadmap” subject area to “Planning”. Moved NSIP classes from “Strategic” subject area to “Planning” subject area</li> <li>• Incorporated Functional Analysis Document</li> <li>• Fixed issues related to modeling inconsistencies</li> <li>• Modified Safety/Hazard diagrams</li> </ul>



# Table of Contents

Version History .....	i
1 Product Description.....	1
1.1 Introduction.....	1
1.2 Document Overview.....	1
1.3 Metamodel Stakeholders.....	1
2 What is the NAS ISEF Metamodel .....	3
2.1 Definition .....	3
2.2 Purpose .....	3
2.3 Notation .....	4
2.4 Product Management .....	4
3 The NAS ISEF Metamodel.....	5
3.1 Architecture Subject Area.....	9
3.2 Program Investment Subject Area.....	18
3.3 Requirements Subject Area.....	20
3.4 Planning Subject Area .....	22
3.5 Strategic Subject Area .....	27
3.6 Safety Subject Area .....	30
4 NAS ISEF Metamodel Definitions.....	32
4.1 Class Definitions .....	32
4.2 Attribute Definitions.....	41
4.3 Reference Class Definitions and Valid Values .....	60
Appendix A: Acronyms .....	71
Appendix B: UML Class Diagram Reader’s Guide .....	72
Appendix C: Change Logs .....	77

## List of Figures

Figure 1: NAS ISEF Metamodel High Level Overview .....	6
Figure 2: Architecture Artifact Class Diagram .....	10
Figure 3: Architecture Operational Views Class Diagram.....	11
Figure 4: Architecture Other Views Class Diagram.....	12
Figure 5: Architecture System/Service Views Class Diagram.....	13
Figure 6: Enterprise Data Diagram.....	14
Figure 7: OV-6c Diagram Detail View Class Diagram .....	15
Figure 8: Standards Class Diagram .....	16
Figure 9: System/Service Class Diagram.....	17
Figure 10: Program Investment Class Diagram .....	19
Figure 11: Requirements Class Diagram .....	21
Figure 12: Decision Points Class Diagram .....	23
Figure 13: Infrastructure Roadmap Class Diagram .....	24
Figure 14: Service Roadmap Class Diagram .....	25
Figure 15: Support Activity Class Diagram.....	26
Figure 16: NSIP Class Diagram .....	27
Figure 17: Strategic View Class Diagram.....	29
Figure 18: Safety Hazard Class Diagram.....	31
Figure 19: UML Class & Attribute Example .....	73
Figure 20: Class Association Example .....	73
Figure 21: Class Supertype/Subtype Example .....	75
Figure 22: Association Class Example .....	76

## List of Tables

Table 1: Metamodel Stakeholders and Value.....	1
Table 2: NAS ISEF Metamodel Subject Area Descriptions .....	7
Table 3: Class Color Legend.....	8
Table 4: Data Types.....	8
Table 5: Class Definitions .....	32
Table 6: Attribute Definition.....	41
Table 7: Reference Class Definitions .....	60
Table 8: Cardinality Meaning.....	74
Table 9 Summary of Changes Applied to this Version of the ISEF Metamodel.....	77
Table 10 Details of Changes in this Version of the NAS ISEF Metamodel .....	78

# 1 Product Description

## 1.1 Introduction

The NAS ISEF Metamodel describes the logical structure of NAS ISEF objects and the business rules that govern them. It provides a definition of the data types, their attributes and their associations that support the form and structure of the NAS Integrated Systems Engineering Framework (ISEF). The metamodel supports the enterprise's ISEF data requirements, and does so in a way that is independent of implementation or product-specific concerns. Because the metamodel defines the semantics (meanings) that are the basis for shared understanding, it is a critical enabler of semantic interoperability. Semantic interoperability is what enables computers, or even humans, to exchange data and information without ambiguity or the need for translation.

Additionally, the ISEF Metamodel is the logical structure that drives the development of the NAS Systems Engineering Portal. This online portal provides data and information concerning NAS Architecture items, NAS Operational Improvements, Projects, Systems, and much more. <https://sep.faa.gov/>

## 1.2 Document Overview

This document presents the following aspects of the NAS ISEF Metamodel.

- An overview of the metamodel including its definition, purpose, and general description of the notation employed
- Details concerning the consumers and stakeholders of the metamodel and the value they could derive
- Details on the metamodel subject areas
- The metamodel diagrams and accompanying definitions
- A reader's guide to Unified Modeling Language (UML) Class diagram notation.

## 1.3 Metamodel Stakeholders

Table 1 provides information concerning the various stakeholders/consumers of the NAS ISEF Metamodel and the value they should find in its usage.

**Table 1: Metamodel Stakeholders and Value**

Stakeholder	Use	Value
<b>Analysts</b>	To understand and influence the way enterprise objects and their underlying business rules are identified, defined, and associated with other objects. To create a planning environment that enables best practice analyses based on business rule consensus.	<ul style="list-style-type: none"><li>• Supports analyses and planning exercises using these objects and associations</li></ul>

Stakeholder	Use	Value
<b>Decision Makers</b>	Understands the way enterprise objects and their underlying business rules are identified, defined, and associated with other objects to support financial decisions based on sound data and associations.	<ul style="list-style-type: none"> <li>• Supports financial decisions based upon sound data and associations via quality analyses.</li> </ul>
<b>Enterprise &amp; Program level Architects</b>	Supports identifying objects within an architect's domain that impact or are impacted by other objects within other domains. These other objects may be horizontally related (i.e., Program to Program) or vertically associated (i.e., Enterprise to Program)	<ul style="list-style-type: none"> <li>• Establishes a clear understanding of the associations between architecture objects across Programs which gives insight into Program to Program dependencies.</li> <li>• Creates consistency among Program architectures as they link to Enterprise objects. This supports analyses focusing on overlaps and gaps between Programs.</li> </ul>
<b>NAS SEP Portal Database Administrator</b>	Defines the logical structures for the physical database supporting the NAS SEP Portal.	<ul style="list-style-type: none"> <li>• Serves as the logical representation of the physical structures implemented in the Portal. The Metamodel was developed in conjunction with the building of the Portal, and all new work first involves logical data model (metamodel) development before physical design. This results in cost savings and higher satisfaction as the data requirements are designed in and not added on.</li> <li>• Enables database impact analysis of Portal change requests to be accomplished in an effective manner, saving resources and helping to scope the work to be done.</li> </ul>
<b>IBM System Architect Administrators</b>	Aligns the IBM System Architect (SA) User Properties and SA Metamodel with the NAS ISEF Metamodel	<ul style="list-style-type: none"> <li>• Assures consistency across all SA instances increasing shareability of models and reduction in conflicts</li> </ul>
<b>Architecture Developers</b>	Use the Metamodel (MM) as a guide or education tool to establish content in the Enterprise Architecture (EA) artifacts they develop, in terms of associations and dependencies on other objects.	<ul style="list-style-type: none"> <li>• Ensures that the content and attributes of objects are captured during EA artifacts development.</li> </ul>

## 2 What is the NAS ISEF Metamodel

This section presents information about the metamodel including its purpose and how it will be configuration managed.

### 2.1 Definition

The NAS Integrated Systems Engineering Framework (NAS ISEF) describes the structure and products that apply to the development of integrated architecture products and requirements documents at the Enterprise and Program-levels. The NAS ISEF establishes a common lexicon and defines a structure for organizing and relating architecture and requirement information in a coherent, consistent manner.<sup>1</sup> Appendix C of the NAS ISEF contains the Metamodel, which provides the underlying rules, constraints, and object types useful for managing the architectures developed by Programs that follow the NAS ISEF.

The NAS ISEF Metamodel is a representation of the objects denoted in the models, documents, architecture artifacts, and plans that are critical to the integrated systems engineering, architecture and planning of the future of the NAS. The object types include architecture diagrams, FAA Strategic Plan, the NSIP, roadmaps, and more, as shown in detail in table 2. The metamodel is depicted as a logical data model authored in the Unified Modeling Language (UML) Class diagramming notation. For further information on the UML Class notation, see section 2.3 and Appendix B.

### 2.2 Purpose

The NAS ISEF Metamodel structure and content enables:

- Standardization of terminology and definitions that removes overlapping or inconsistent data or information that can be impediments to improving the integrity, fidelity, and/or efficiency of NAS decision making, planning, and analyses.
- Drawing associations between NAS ISEF objects to facilitate understanding the impacts of potential modifications to schedule, funding, and/or benefits realization. By identifying the associations, consumers are able to traverse through the metamodel, and any subsequent implementations of the metamodel, to discover impacts from strategic level goals down to system function deployments.
  - Although the metamodel by itself is insufficient to do the analyses, it does depict the objects and associations necessary to achieve the analyses. The task of capturing the data and ‘populating’ a metamodel implementation is required to fully realize the benefits of impact analyses.
- Consistent management of data and information as part of the NAS governance structure, ensuring the interoperability of data derived, acquired, and exchanged between activities and systems managed from an enterprise perspective.
- Insights into methods for increasing shared understanding and harmonization with national and international FAA partners on the various object types within the metamodel.

---

<sup>1</sup> [FAA NAS System Integrated Systems Engineering Framework \(NAS ISEF\) V3.3, November 2014](#)

## 2.3 Notation

The NAS ISEF Metamodel is constructed using the Unified Modeling Language (UML)<sup>2</sup> convention for Class diagrams and modeling. As such, these diagrams are explicit about the objects of interest (Classes), their properties (Attributes), and the connections between the objects (Associations). Information about how to read and understand UML Class diagrams may be found in [Appendix B](#) of this document.

**Data Class:** Classes describe real world entities (e.g., people, places, things, events, concepts) and the fundamental information we need to know to support business activities. A class may represent things that are concrete and tangible (such as an Aircraft or a Facility), or abstract and conceptual (e.g., an Air Route), and whose instances may change over time.

**Class Attribute:** Attributes are properties or characteristics of the class that describe or portray information about the class's instances. Attributes are the containers for data values and apply to all instances of the class.

**Class Association:** Class Associations depict a semantic relationship or business rule between two classes. Class Associations capture dependencies between two classes.

## 2.4 Product Management

It is anticipated that existing diagrams will be refined, existing requirements modified, new requirements discovered, and previously un-developed and/or non-existent subject areas will be modeled. Applying configuration management best practices to the NAS ISEF Metamodel will result in stabilization and consistency of FAA data definitions for ISEF elements, across all timeframes. Even as the metamodel evolves and expands, the relative stability of the core data ensures consistency for the future. All proposed changes to the NAS ISEF Metamodel will be considered and processed through the configuration management process, as described in Appendix B (Governance Overview) of the NAS ISEF document. All proposed changes to Version 2.1 of the metamodel are detailed in [Appendix C](#) (Change Logs) of this document.

---

<sup>2</sup> For more on UML, please see <http://www.uml.org/>

### **3 The NAS ISEF Metamodel**

This section presents a high level overview of the class diagrams followed by a complete set of UML Class diagrams that comprise the current version of the metamodel. The model itself is divided into subject areas. A subject area represents a reasonable segmentation of the entire model that has a specific focus and contains closely related classes.

The high level overview of the metamodel in Figure 1 demonstrates a selected number of key classes from each subject area and how these key classes are associated to one another within the subject area they belong to or across different subject areas.

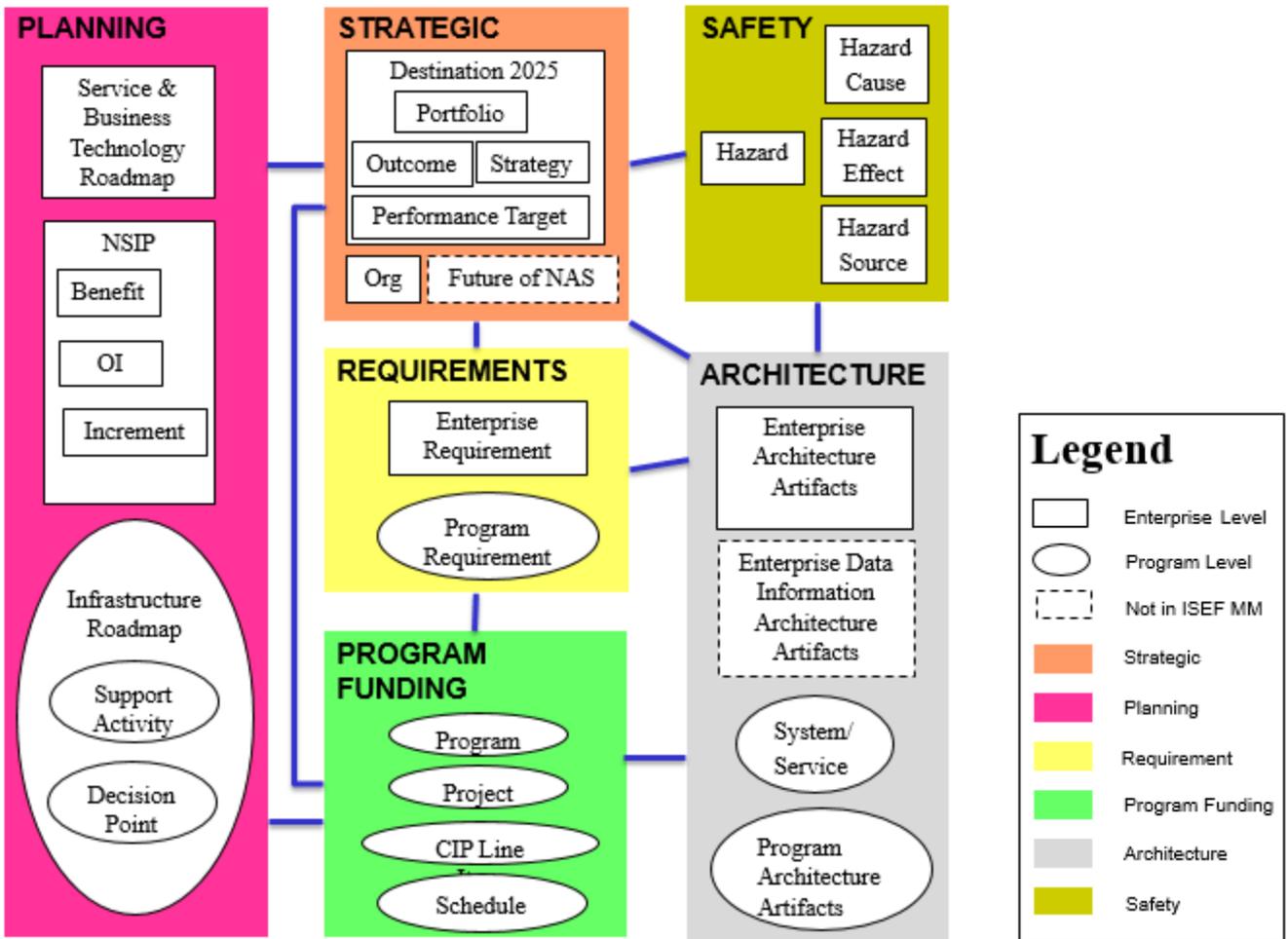


Figure 1: NAS ISEF Metamodel High Level Overview

A class is defined once, but it may be associated with many other classes that appear on multiple class diagrams. For example, organization is associated with both project and increment. The class ORGANIZATION is unique and is only defined once, however the class ORGANIZATION appears on multiple class diagrams that contain either or both PROJECT and INCREMENT.

**Table 2: NAS ISEF Metamodel Subject Area Descriptions**

Subject Area	Description	Diagrams
<b>Architecture</b>	Contains the classes defined to support the products and components that comprise the NAS architecture. The diagrams in this subject area are applicable at the Enterprise as well as the Program levels.	<ul style="list-style-type: none"> <li>• Architecture Artifacts</li> <li>• Architecture Operational Views</li> <li>• Architecture Other Views</li> <li>• Architecture System/Service Views</li> <li>• OV-6c Diagram Detail View (Different than other system artifacts, OV-6c was developed using BPMN notation standards, which has its own distinguished set of data elements)</li> <li>• System/Service</li> <li>• Technical Standards</li> </ul>
<b>Program Funding</b>	Contains diagrams depicting the Program and Investment parts of the metamodel.	<ul style="list-style-type: none"> <li>• Program Investment</li> </ul>
<b>Requirements</b>	Diagrams that describe NAS Requirements (Enterprise and Program level) and the impactful associations with objects in other subject areas.	<ul style="list-style-type: none"> <li>• Requirements</li> </ul>
<b>Planning</b>	Contains diagrams describing the contents of Service and Infrastructure Roadmaps. Although Roadmaps are technically a part of the Architecture, they are broken out into a separate subject area for clarity. In addition, it contains diagrams that expose the classes involved in the NAS Segment Implementation Plan (NSIP). The NSIP represents the plan for the successful implementation of improvements to the NAS over the Alpha and Bravo timeframes.	<ul style="list-style-type: none"> <li>• Decision Points</li> <li>• Infrastructure Roadmap</li> <li>• Service Roadmap</li> <li>• Support Activity</li> <li>• NSIP</li> </ul>
<b>Safety</b>	Contains diagrams that describes hazards in NAS environment and its cause, effect and sources.	<ul style="list-style-type: none"> <li>• Safety Hazard</li> </ul>
<b>Strategic</b>	Contains diagrams that describe the highest level vision for the NAS and presents the goals and objectives that must be met to realize that vision.	<ul style="list-style-type: none"> <li>• Strategy View</li> </ul>

As stated, each of the classes in the diagrams is aligned to one native subject area. In the diagrams you will see classes with various fill colors. The following table indicates the meaning of the fill colors.

**Table 3: Class Color Legend**

Class Color	Meaning
	Represent classes that belong to the Strategic Subject Area
	Represent classes that belong to the Planning Subject Area
	Represent classes that belong to the Program – Funding Subject Area
	Represent classes that belong to the Architecture Subject Area
	Represent classes that belong to the Requirements Subject Area
	Represent classes that belongs to the Safety Subject Area
	Represents Association Classes
	Represents Reference Classes

Each attribute in a class has an assigned simple data type. The data type depicts a general type of value that is expected to be valid for the attribute, once implemented. Note that it is not specific to any implementation or platform, but is a general statement of a data category. The following table presents those data types and what each represents.

**Table 4: Data Types**

Data Type	Meaning
Boolean	Indicates that the attribute has only two possible values, 'True' or 'False'.
Char	Represents that the attribute may be filled with any character string, without specifically limiting the number of characters.
Date	Indicates that the attribute will contain only a valid calendar date and optionally, a time.
Number	Indicates that the attribute contains numeric data, but does specialize it as integer, decimal, float, etc.
Reference	Depicts that the attribute has a set of valid values and that those values may be found in the named Reference class. Reference class is a type of class that stores a list of enumerated valid values aka code list. It is assigned as a data type for attribute to indicate the attribute has a list of enumerated valid value.

There are 16 diagrams within the metamodel and they are presented in Section 4, arranged by subject area.

## 3.1 Architecture Subject Area

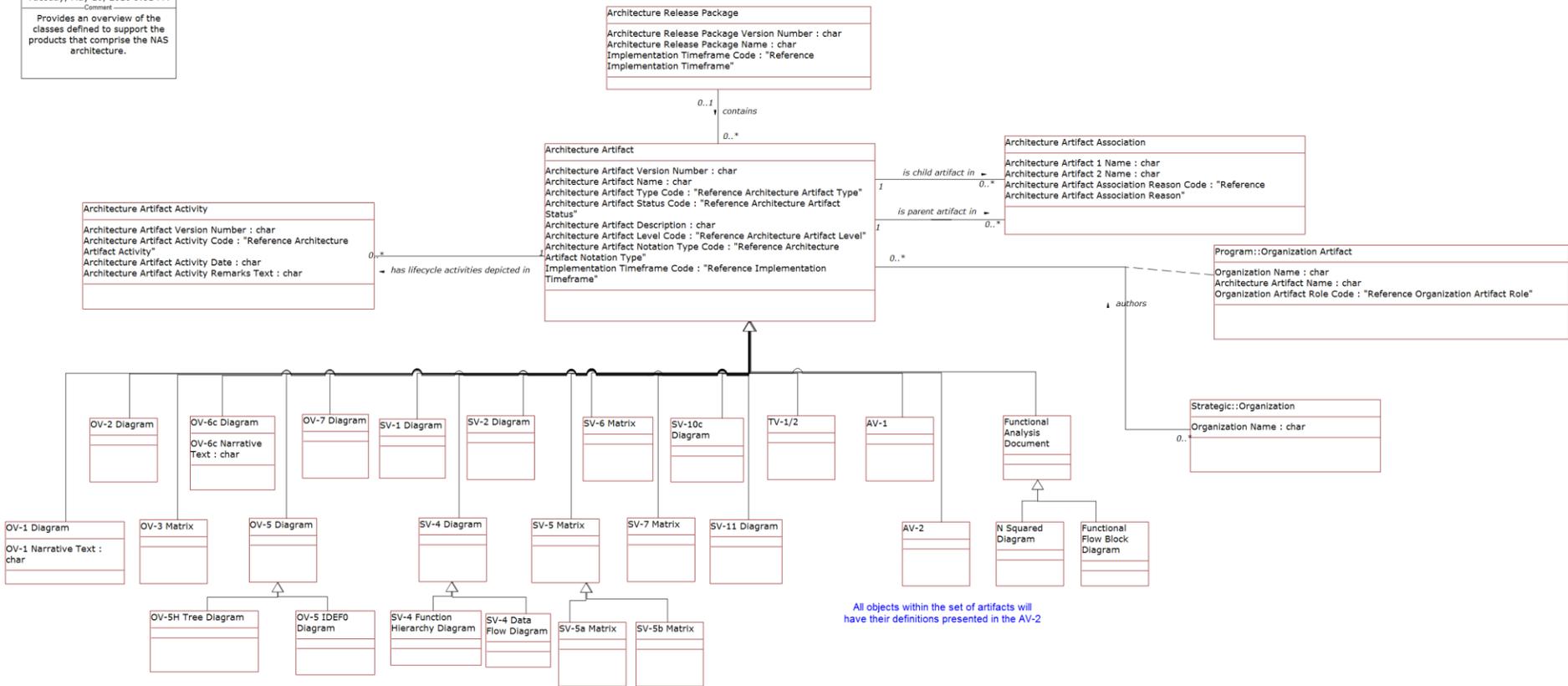
The Architecture subject area diagrams follow. They are:

- **Architecture Artifacts** – This diagram depicts the high level data and associations for architecture products.
- **Architecture Operational Views** – This diagram presents the OV (Operational View) artifacts with the associated components for each. The diagram also shows how the components are associated with each other.
- **Architecture Other Views** – This diagram depicts the TV (Technical View) and the AV (All View) artifacts plus their components. The TVs are associated with Standards for the present and the future. The AVs represent the Architecture Data Dictionary (AV2) and the overall project description (AV1).
- **Architecture System/Service Views** - This diagram presents the SV (System View) artifacts with the associated components for each. The diagram also shows how the components are associated with each other
- **Enterprise Data** – This diagram presents the data-related components of the architecture products arrayed on one page. This helps to tell the architectural data story without going to multiple other diagrams
- **OV-6c Diagram Detail View** – This diagram presents the data classes, attributes, & associations for a Business Process Modeling Notation (BPMN) version of an OV-6c (Event Trace) diagram.
- **Standards** – This diagram shows the associations between technical standards and many other objects within the architecture realm.
- **System/Service** – This diagram shows the associations between systems & services, and other objects within the architecture realm.

21  
22

# Architecture Artifacts

Architecture Artifacts (Class)  
System Architect  
Tuesday, May 10, 2016 5:31 PM  
Comment  
Provides an overview of the classes defined to support the products that comprise the NAS architecture.



23  
24  
25  
26

Figure 2: Architecture Artifact Class Diagram

Architecture Operational Views (Class)  
 System Architect  
 Wednesday, May 11, 2016 5:05 PM  
 Provides an overview of the classes defined to support the operational view diagrams that comprise the NAS architecture

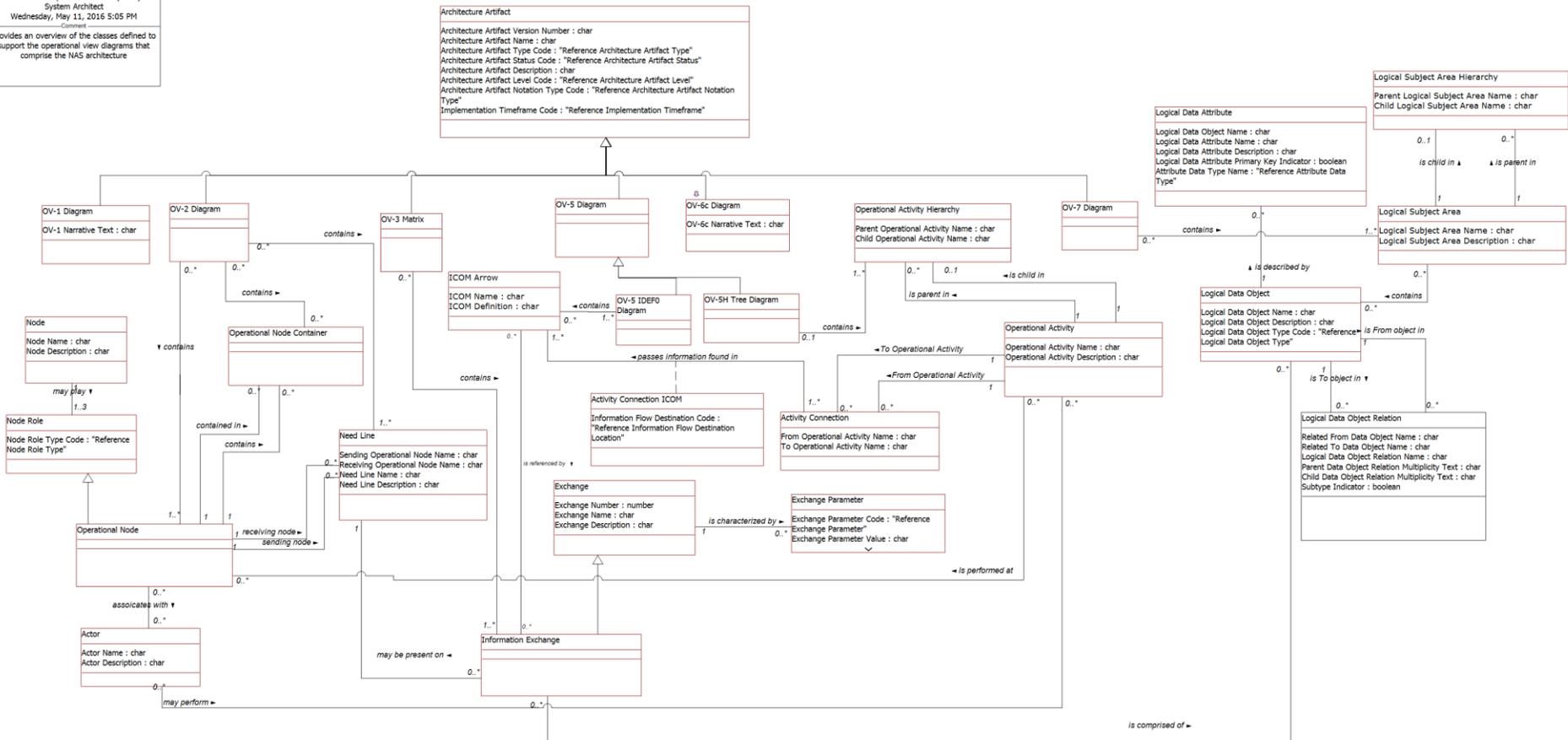
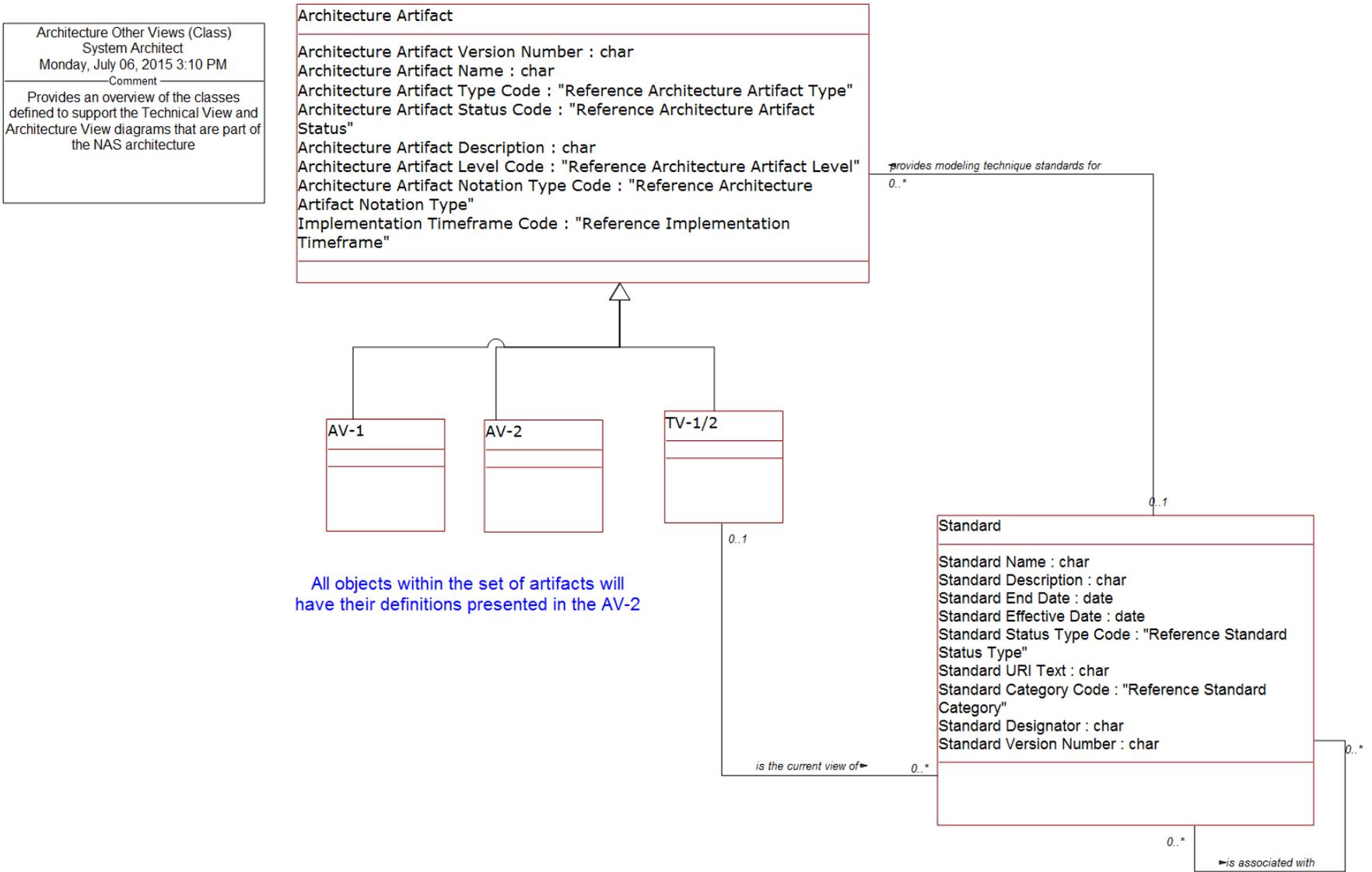


Figure 3: Architecture Operational Views Class Diagram

33  
34

### Architecture Other Views



35  
36  
37  
38  
39

Figure 4: Architecture Other Views Class Diagram

40  
41

# Architecture System/Service Views

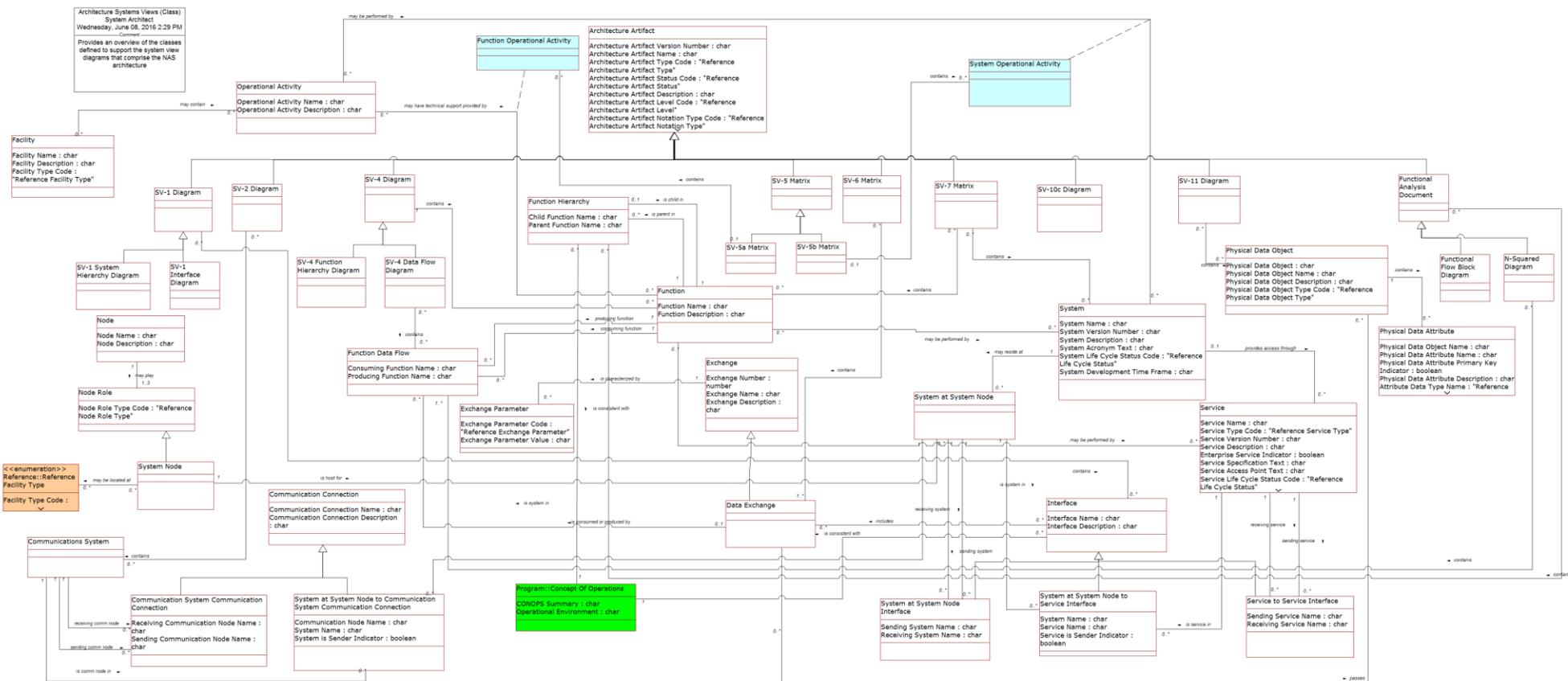


Figure 5: Architecture System/Service Views Class Diagram

42  
43  
44  
45

Enterprise Data (Class)  
 System Architect  
 Monday, July 06, 2015 3:19 PM  
 Comment  
 Information about the various types of data objects in the Metamodel brought together in one diagram.

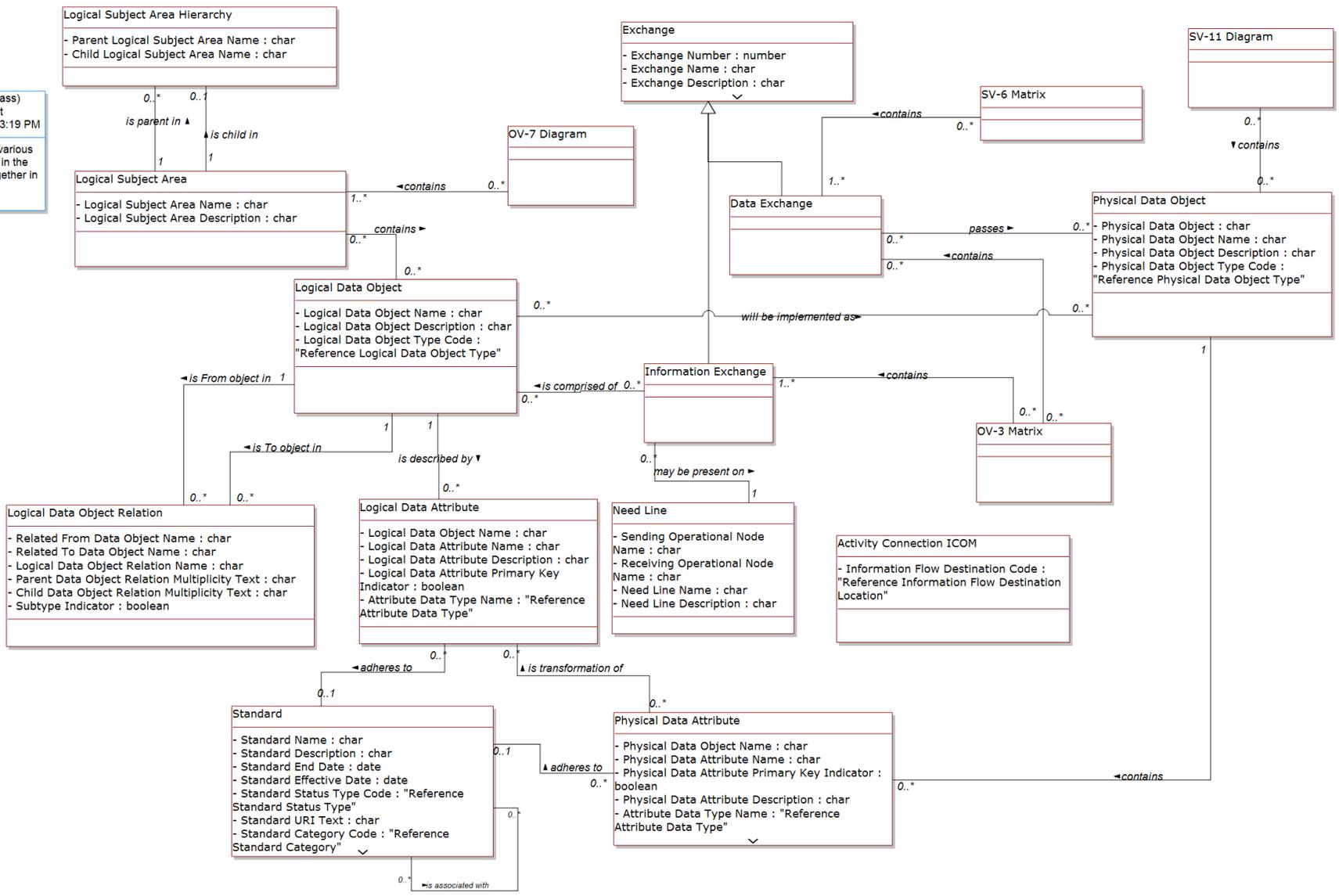
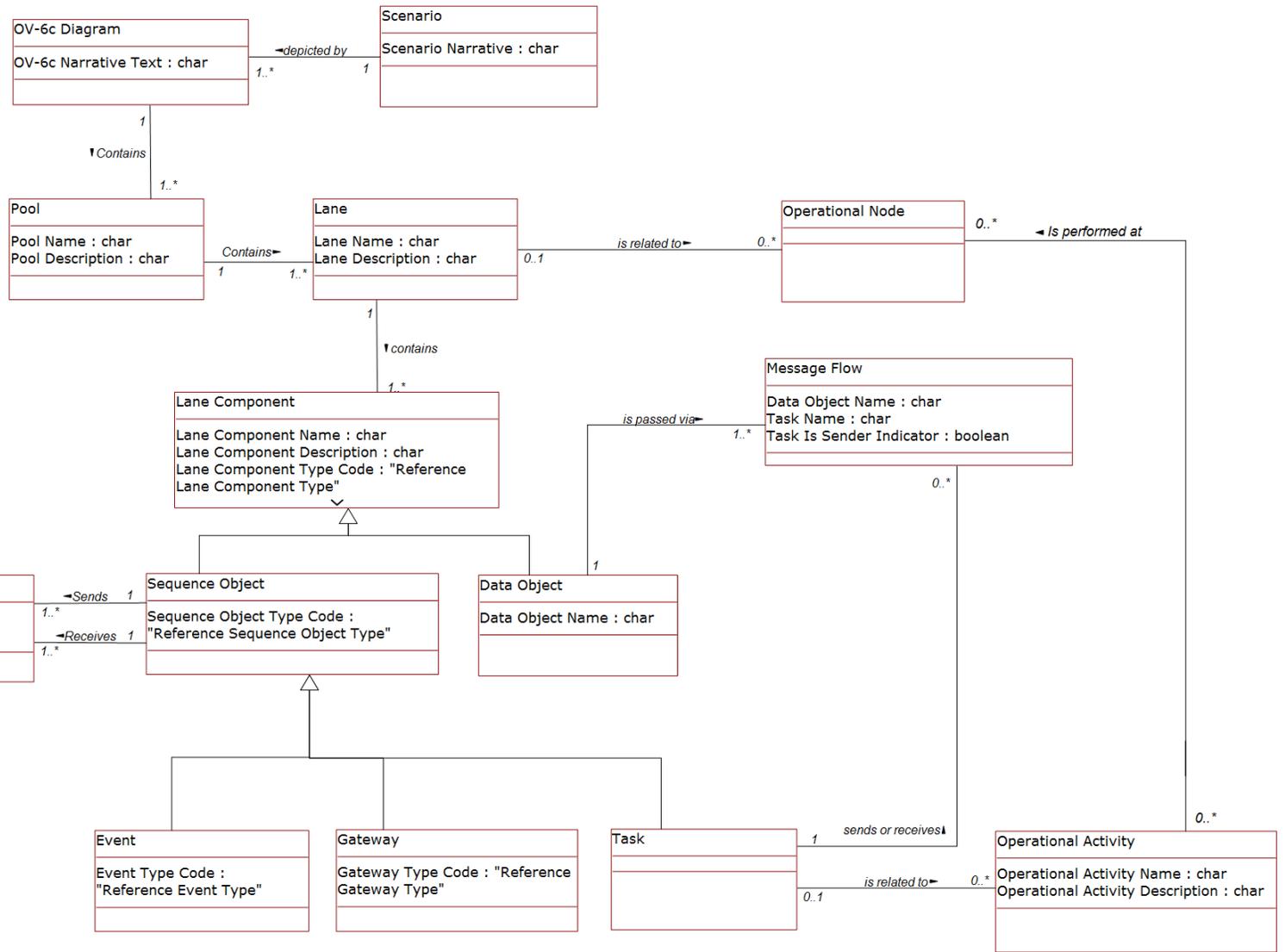


Figure 6: Enterprise Data Diagram

OV-6c Diagram Detail View (Class)  
 System Architect  
 Monday, July 06, 2015 3:43 PM  
 -Comment-  
 Provides an overview of the classes and their associations defined to support the OV-6c BPMN diagram as part of NAS architecture.



**Figure 7: OV-6c Diagram Detail View Class Diagram**



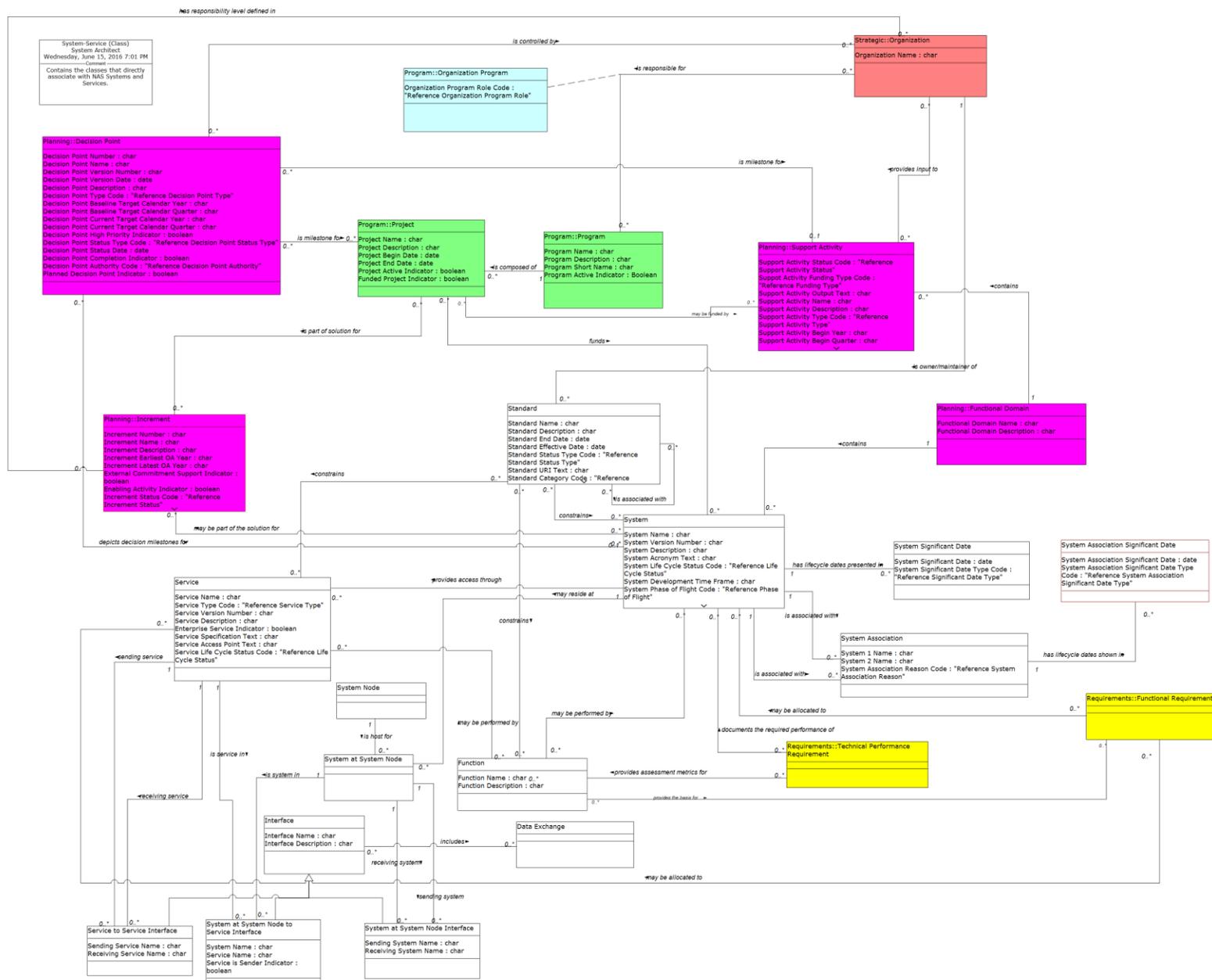


Figure 9: System/Service Class Diagram

67 **3.2 Program Investment Subject Area**

68

69 The Program Investment subject area diagram follows.

70

71 **Program Investment** - This diagram presents the associations between Programs, Projects, and funding vehicles like the Capital Improvement Plan

# Program Investment

Program Investment (Class) System Architect Wednesday, June 08, 2016 2:27 PM Comment Provides an overview of the classes and their associations defined to support Program Investment as part of Program subject area.
--

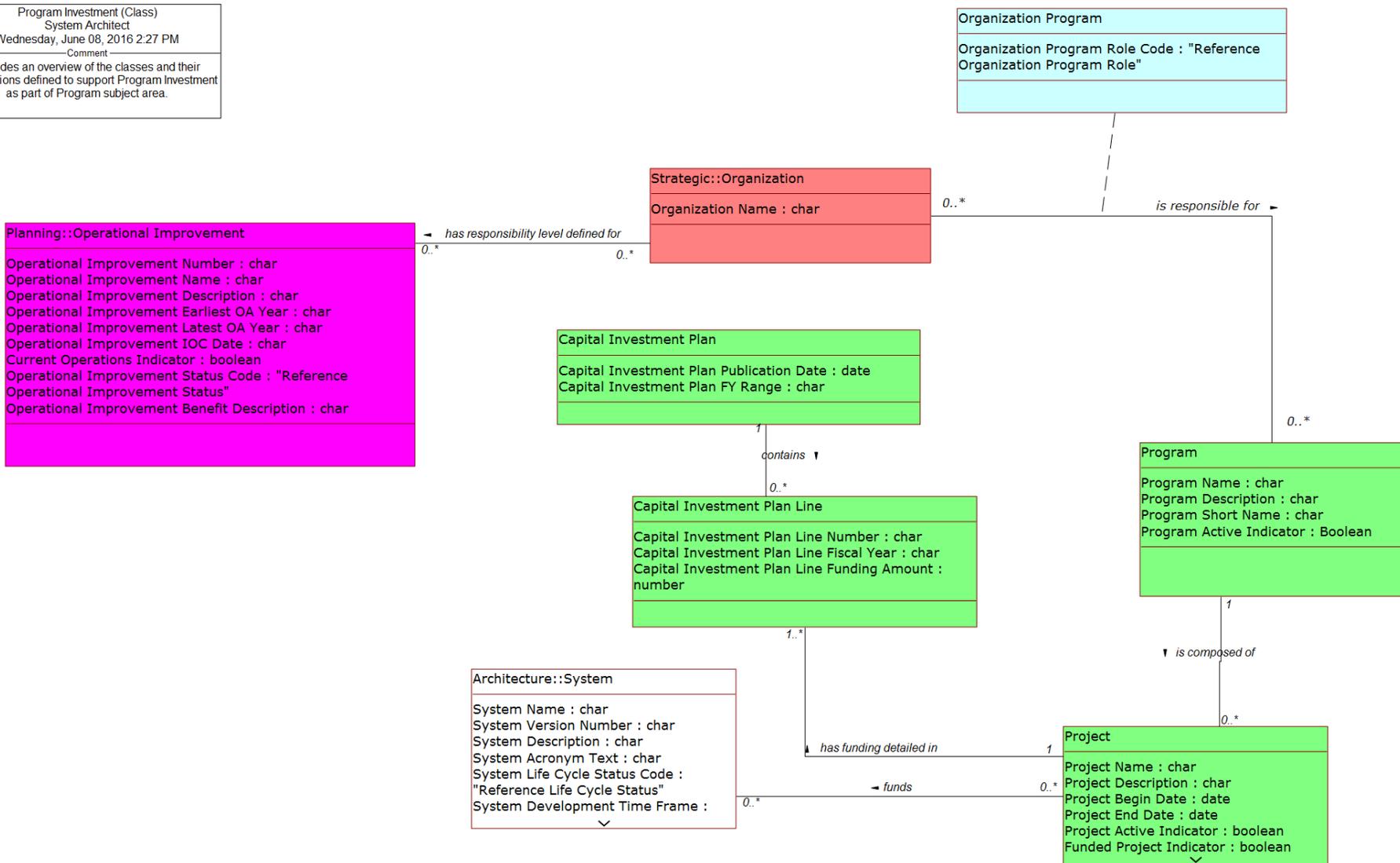


Figure 10: Program Investment Class Diagram

### 76 3.3 Requirements Subject Area

77

78 The Requirements subject area diagram follows.

79

- 80 • **Requirements** – Requirements are the essential characteristics, conditions, or capabilities that shall be met or exceeded by a system or a component to  
81 satisfy a contract, standard, specification, or other formally imposed document. This diagram depicts Requirements, their various types, and how they  
82 associate with many other data classes in the Metamodel.  
83

# Requirements

Requirements (Class)  
System Architect  
Wednesday, June 08, 2016 3:13 PM  
Comment  
Provides an overview of the classes and their associations defined to support Requirements subject area

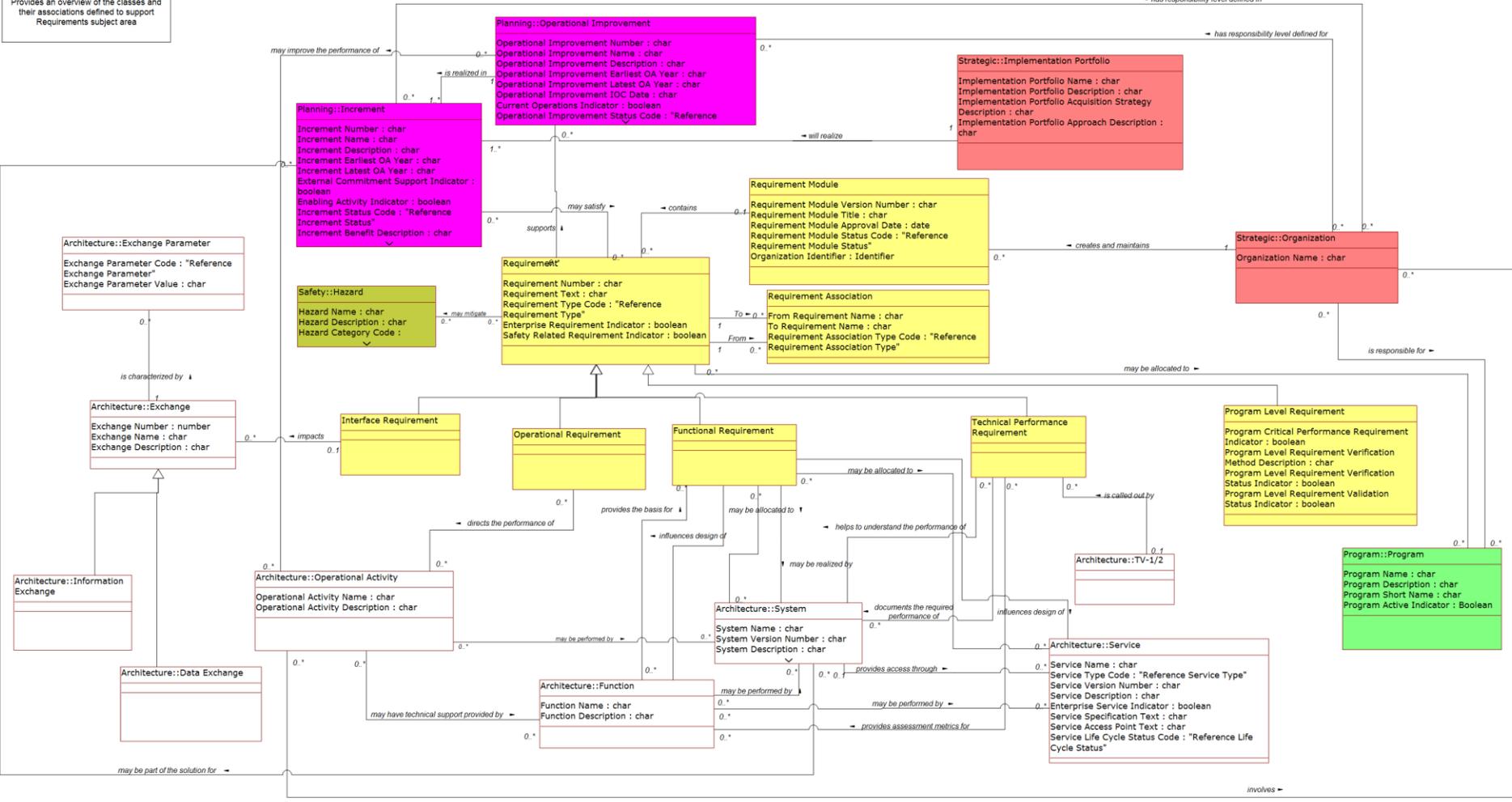


Figure 11: Requirements Class Diagram

## 3.4 Planning Subject Area

The Planning subject area diagrams follow. Although the Roadmaps are technically part of the Architecture, the diagrams are broken out into their own subject area for clarity.

- **Decision Points** – A Decision point is a milestone for a decision that is made by a governing body that further shapes the direction of NAS and NextGen strategic activities. This diagram depicts these milestones and how they are applied to the other data classes in the Metamodel.
- **Infrastructure Roadmap** – The Infrastructure Roadmap diagram contains information about the Projects, Support Activities, Decision Points, and other items that appear on Infrastructure Roadmaps.
- **Service Roadmap** - The FAA Service Roadmaps lay out the current operations and strategic activities for service delivery to improve NAS operations and move towards the Next Generation Air Transportation System (NextGen) vision for select FAA services. They graphically show Current Operations (COs) and the evolution of Operational Improvements (OIs) and Support Activities to today's FAA services to meet future demand.
- **Support Activity** – A Support Activity is defined as an initiative that supports/informs the development of capability, policies, procedures, etc. This diagram depicts the various associations that a Support Activity enjoys within the NAS EA
- **NSIP** – The NSIP diagram presents the Operational Improvements, Increments, success Criteria, Benefits, and more of the components that make up the NSIP document.

Decision Points (Class)  
 System Architect  
 Tuesday, July 07, 2015 4:16 PM  
 Comment  
 Provides an overview of the classes and their associations defined to support Decision Point as part of Roadmap subject area.

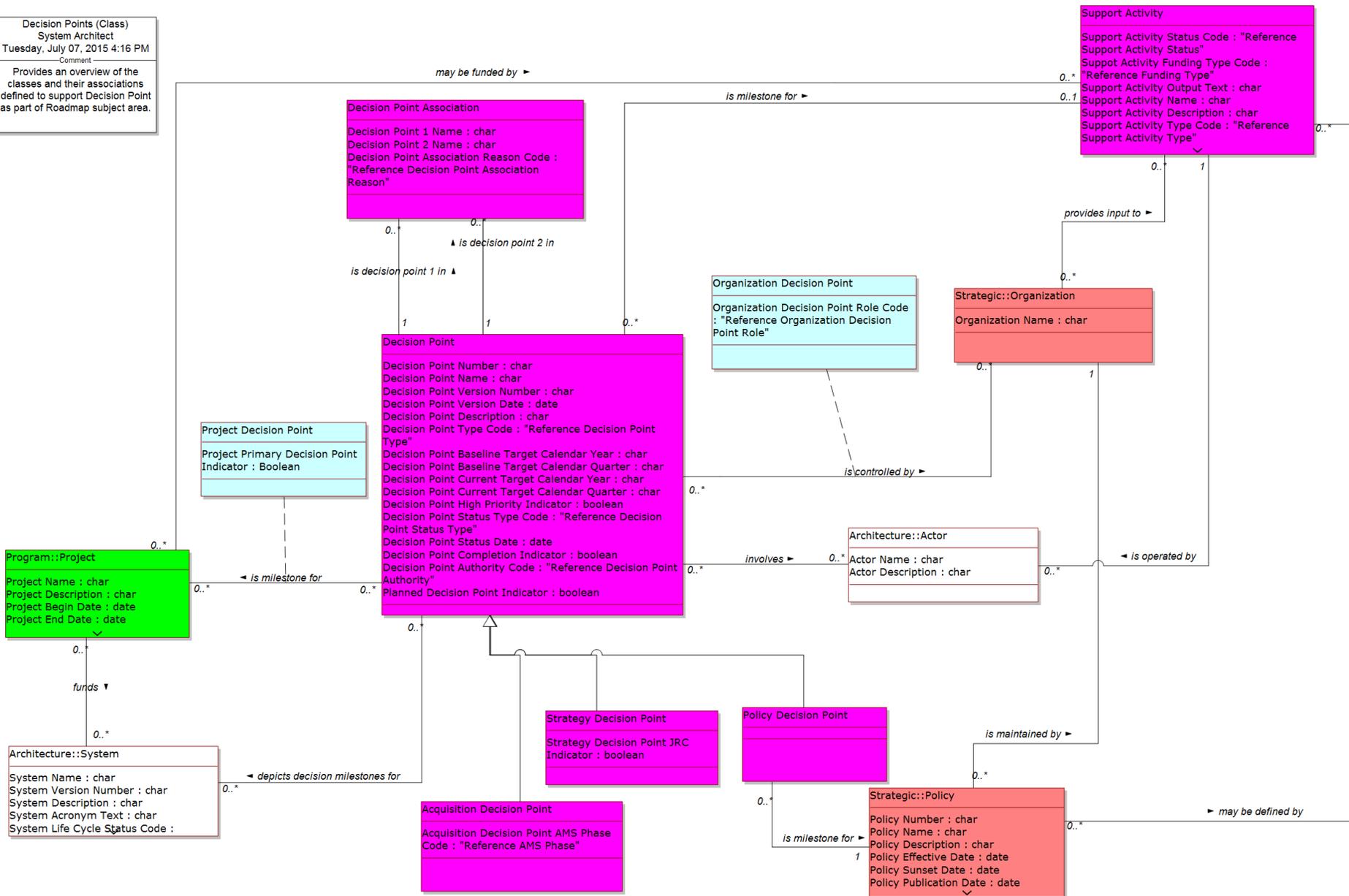


Figure 12: Decision Points Class Diagram

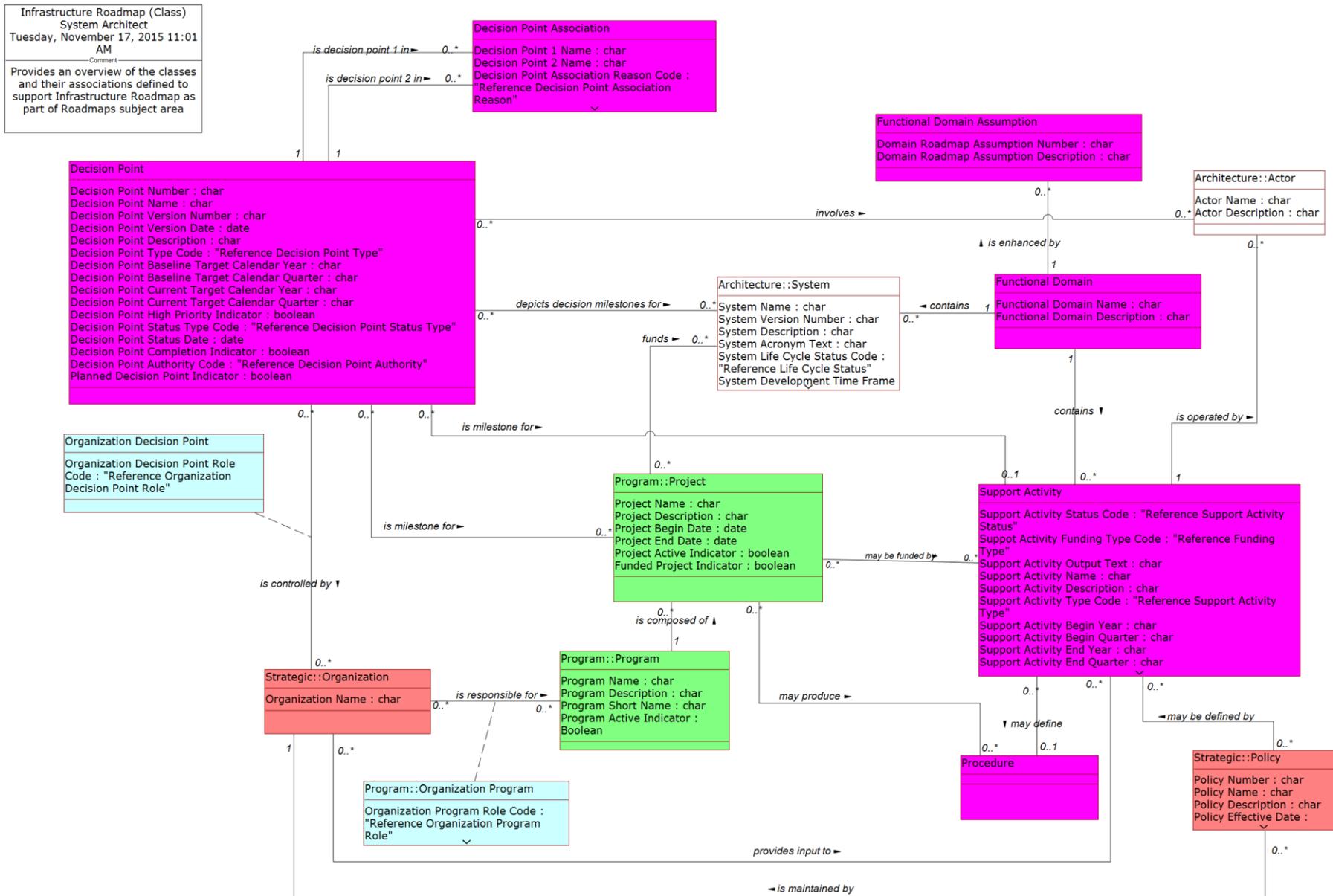


Figure 13: Infrastructure Roadmap Class Diagram

Service Roadmap (Class)  
 System Architect  
 Wednesday, June 15, 2016 5:34 PM  
 Comment  
 Provides an overview of the classes and their associations defined to support Service Roadmap as part of the Roadmap subject area

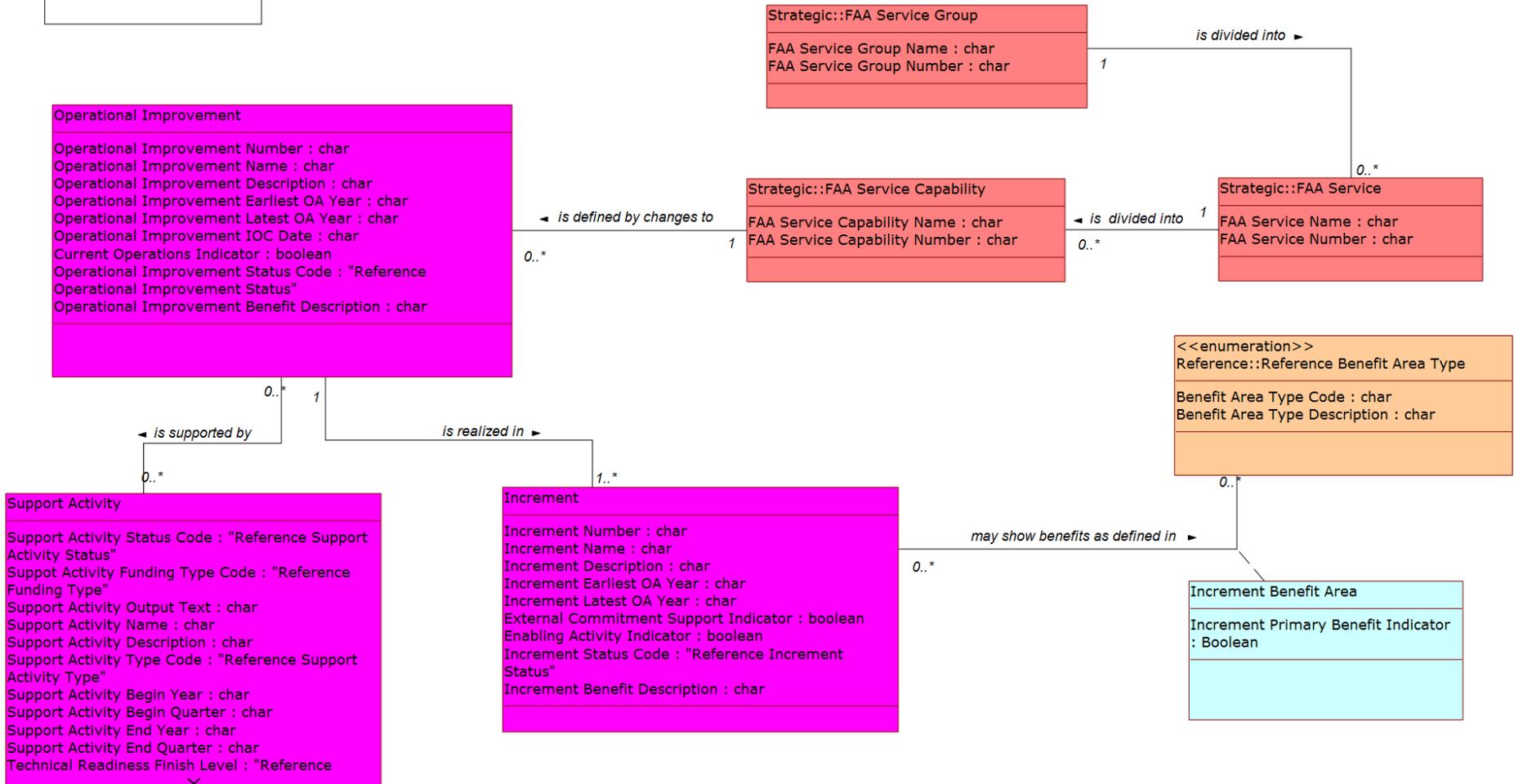
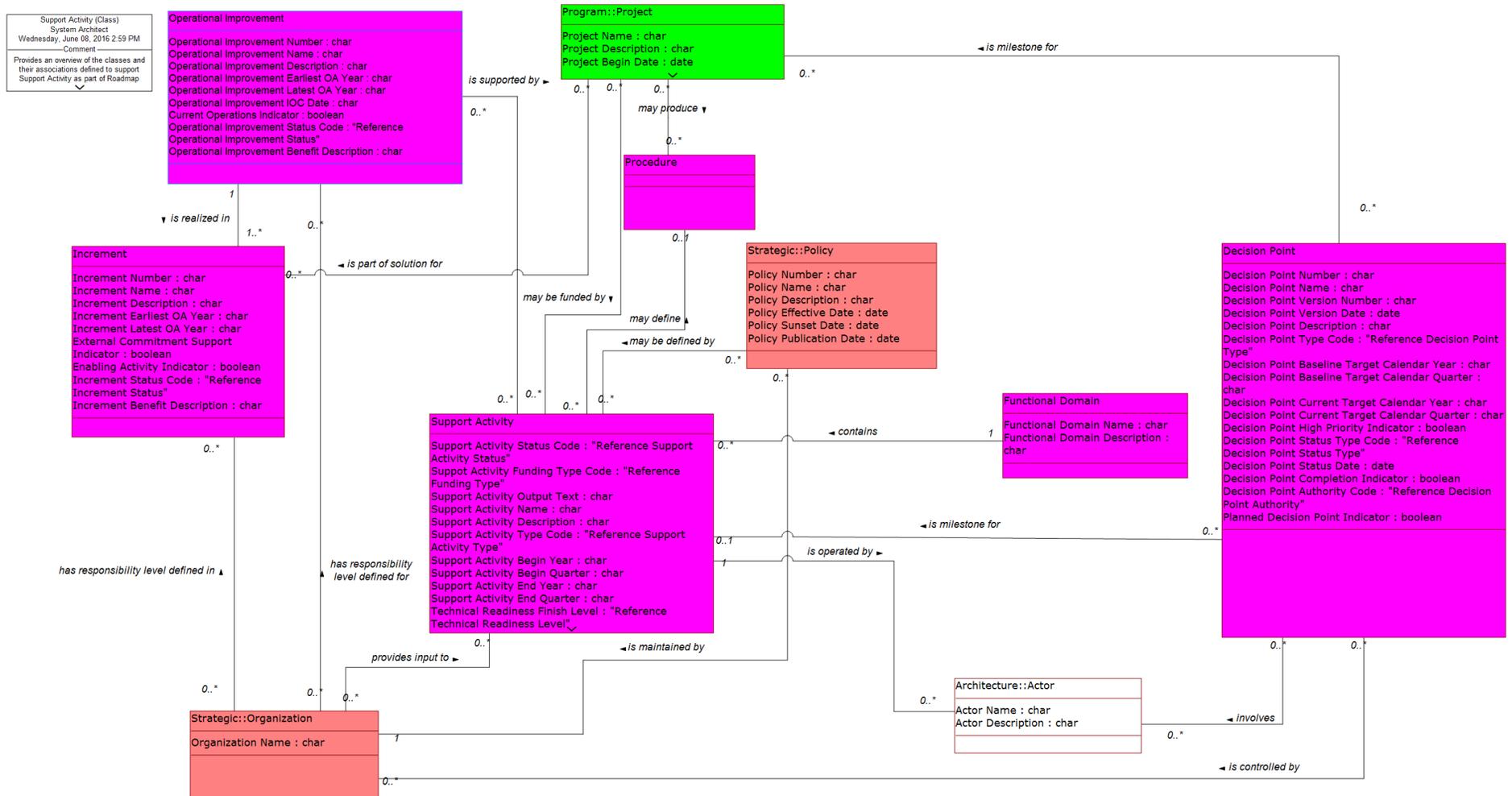


Figure 14: Service Roadmap Class Diagram

122  
123

# Support Activity



124  
125  
126  
127  
128

Figure 15: Support Activity Class Diagram

NSIP (Class)  
System Architect  
Wednesday, June 15, 2016 8:01 PM  
---Comment---  
Provides an overview of the classes and their associations defined to support the NSIP components and those associated components outside of NSIP scope.

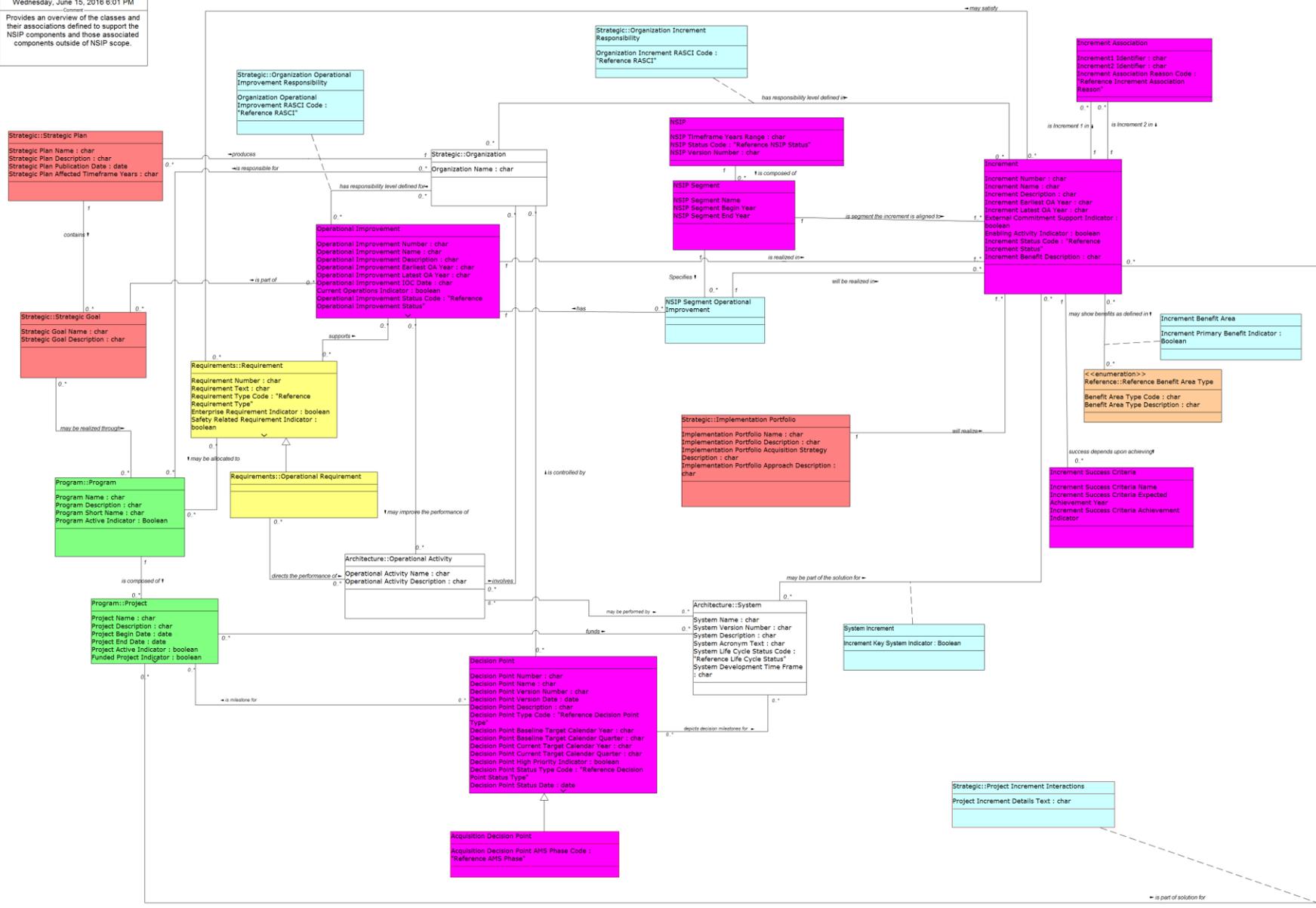


Figure 16: NSIP Class Diagram

133

## 134 3.6 Strategic Subject Area

135

136 The Strategic subject area diagrams follow. They are:

137

- 138 • **Strategic View** – This diagram provides a linkage between the strategic level components (Goals, Objectives, Metrics, Strategies) and other items within  
139 the NAS promoting a means for top to bottom analysis.

140

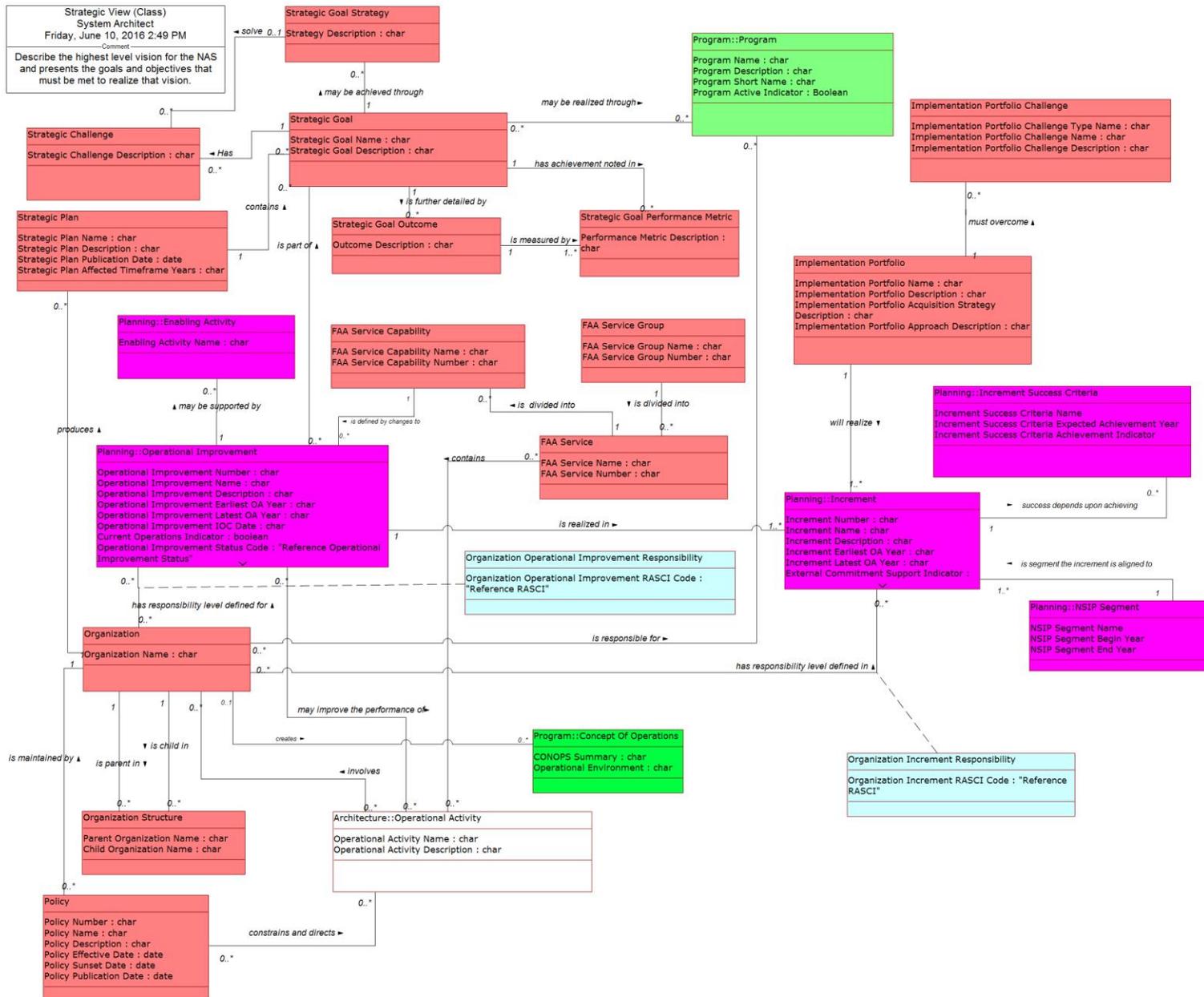


Figure 17: Strategic View Class Diagram

145

### 146 3.7 Safety Subject Area

147

148 The safety Subject Area diagrams follows and contains 1 diagram.

149 **Safety Hazards** – This diagram depicts the various components necessary to construct the Hazards Traceability View. The components of this diagram include  
150 Hazard, Hazard Source, Hazard Source, and Hazard Effects. It also associates these classes with other NAS EA items that are impacted by a Hazard and its  
151 mitigation.

152

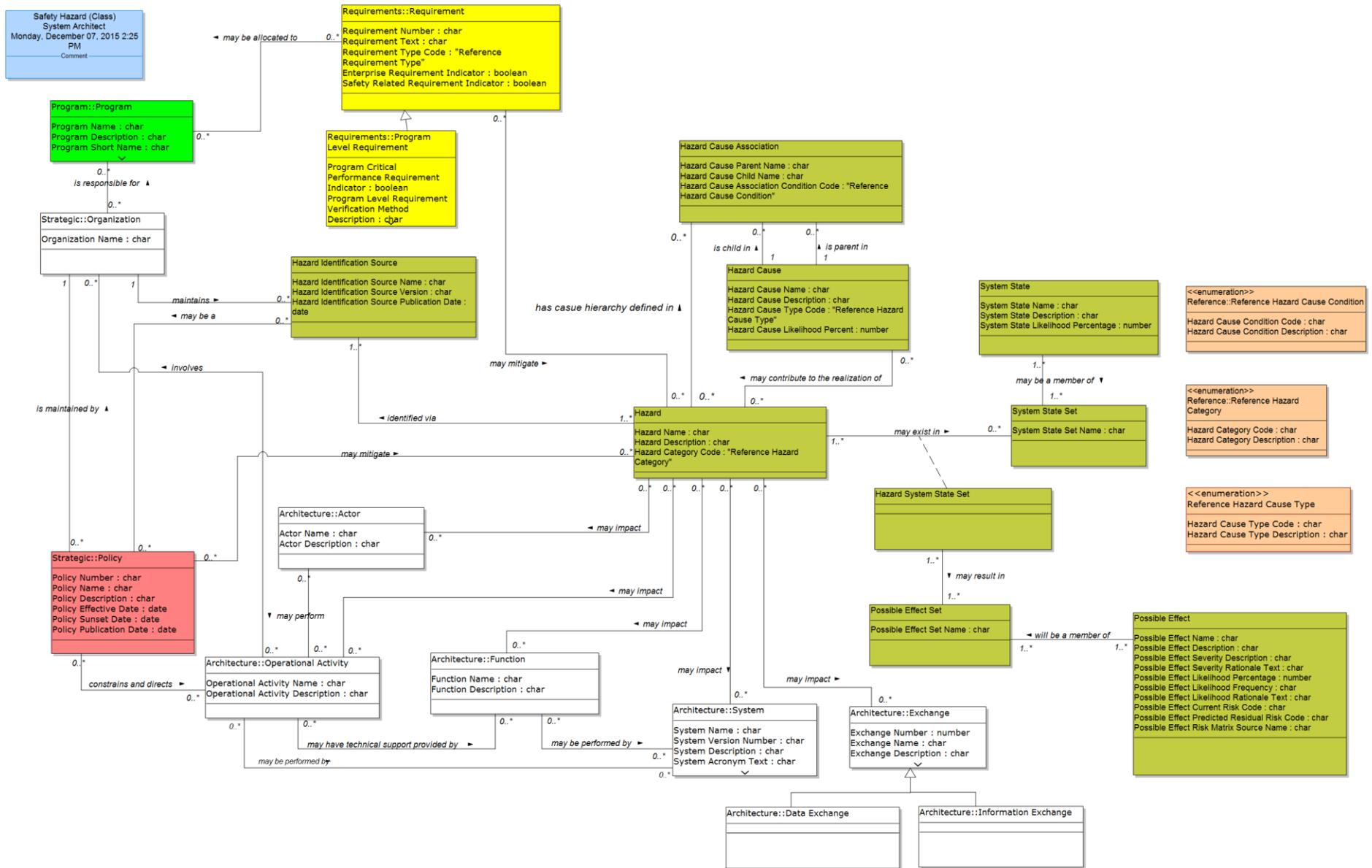


Figure 18: Safety Hazard Class Diagram

## 4 NAS ISEF Metamodel Definitions

This section provides the definitions to the Classes, Attributes, and Reference values within the NAS ISEF Metamodel.

### 4.1 Class Definitions

This table provides the definitions for all of the Classes that appear in one or more NAS ISEF Metamodel diagrams

**Table 5: Class Definitions**

Class Name	Class Description
Acquisition Decision Point	A type of Decision Point that reflects an acquisition milestone.
Activity Connection	The association of two Operational Activities in order to pass information between them.
Activity Connection ICOM	The association of an ICOM Arrow (Information Flow) and the Activities that produce and consume it.
Actor	A human role or organization that performs activities within the architecture.
Architecture Artifact	A generalized class that contains Information about an Architecture product.
Architecture Artifact Activity	Important Architecture Artifact lifecycle activities and their related dates.
Architecture Artifact Association	The association between two Architecture Artifacts and the purpose/reason for that association
Architecture Release Package	A collecting class that pulls together all of the individual artifacts that are released within one package
AV-1	Provides the scope, purpose, intended users, environment depicted, analytical findings (if applicable) for the subject area of the enterprise Architecture
AV-2	Provides the dictionary for all the important terms used within the architecture.
Capital Investment Plan	Describes the investments that the FAA plans to make for 5 consecutive Fiscal Years. The CIP is used to assist in the modernization of existing systems, begin the transformation of NextGen, and is a valuable tool for meeting the internal need for managing the complex modernization of the NAS.
Capital Investment Plan Line	A particular entry found within a Capital Investment Plan that details the funding for a related Project by Fiscal Year.
Communication Connection	A single, bidirectional association between Systems at System Node and/or Communication Node depicting a physical connection.
Communication System Communication Connection	A single, bidirectional association between Communication Systems depicting a physical connection.
Communications System	A system whose primary function is to control the transfer and movement of system/service data as opposed to performing the application processing.
Concept Of Operations	An operationally oriented description of user's needs, including qualitative and quantitative characteristics, that communicates how the system is expected to operate in its environment.  IEEE Standard 1362 - 1998
Data Exchange	Information flowing between system nodes in an architecture and the relevant attributes of that exchange such as media, quality, quantity, and the level of interoperability required.
Data Object	A mechanism to show what data is required or produced by activities.

Class Name	Class Description
Decision Point	A milestone for a decision that is made by a governing body that further shapes the direction of NAS and NextGen strategic activities.
Decision Point Association	The association between two Decision Points
Enabling Activity	Activities other than Operational Improvements that will support the goals of NextGen
Event	A triggering situation or scenario that initiates activities.
Exchange	A generalization class that includes Data Exchanges and Information Exchanges
Exchange Parameter	Information about the various parameters, or characteristics, of an Exchange. These are additional columns in an Information Exchange Matrix that provide crucial data about an Information Exchange. Examples include 'Sensitivity', 'Frequency', 'Size', and 'Criticality'.
FAA Service	The invariant processes by which services are provided to FAA customers and stakeholders
FAA Service Capability	An invariant function or activity that is necessary to deliver a service
FAA Service Group	The classification of services by organizational construct
Facility	A real property entity consisting of underlying land and one or more of the following: a building, a structure (including linear structure), a utility system, or pavement. (DoDAF 2.0 Vol 1 App B)
Function	<p>A transformation of data performed by a system or service that supports the automation of activities or information exchanges. (DODAF 2.0)</p> <p>A function itself describes the desired capability, but the implementation of the capability is instantiated in a Service and/or a System. (note: This definition in the context of DODAF is only in relationship to NAS ISEF. Definition of the term “function” is different in System Engineering or other context.)</p>
Functional Analysis Document	A document that captures Functional Analysis (FA) processes and outcomes. FA provides the basis for the decomposition of an operational concept (as documented in the solution CONOPS) into preliminary top-level functions and data needs. It is a required document for programs currently going through Acquisition Management Process (AMS).
Functional Flow Block Diagram	<p>A multi-tier, time-sequenced, step-by-step diagram of the solution’s functional flow. An FFBD usually defines the detailed, step-by-step operational and support sequences for systems, but one may also be used effectively to define processes when developing and producing solutions.</p> <p>Source: NAS System Engineering Manual V1.1</p>
Function Data Flow	Associates two Functions as they exchange one or more data flows
Function Hierarchy	Depicts the hierarchy of system Functions as they are decomposed into more granular parts.
Function Operational Activity	An association between an Operational Activity and the Functions that support them.
Functional Domain	<p>A Functional Domain is a segment of the NAS that contains Projects and Systems that support related functions for the NAS.</p> <p>Within the Infrastructure Roadmaps, they are a collection of milestone charts within a NAS Domain that depict some of the systems and programs that are part of the NextGen initiative</p>

Class Name	Class Description
Functional Domain Assumption	An assertion made about a Functional Domain that provides insights into the presentation of the Projects on a Functional Domain Roadmap.
Functional Requirement	A condition or capability needed by one or more NAS stakeholders to solve a problem or achieve an objective, that may result in the development of one or more System Functions or Services
Gateway	A controlling mechanism that dictates the flow of activities and events.
Hazard	Represents a condition that could foreseeably cause or contribute to an accident. Source:FAA Order 8040.4A
Hazard Cause	An event occurring independently or in combination with other events that results in a hazard or failure.
Hazard Cause Association	The association of two Hazard Causes and the conditional nature of that association
Hazard Identification Source	Represents the source of an identified hazard. Examples include Safety Risk Management Documents, Incident/Accident Investigations, hazard analyses, voluntary reports.
Hazard System State Set	The association between a Hazard and the Set of System States that might be present for that Hazard.
ICOM Arrow	Information lines drawn into or out of the function or activity symbols on IDEFO diagrams.
Implementation Portfolio	A set of capabilities that share a common benefits pool within a common operational space, and often have more than one FAA organization responsible for implementing those capabilities.
Implementation Portfolio Challenge	Information about the types of challenges that could be encountered in the implementation of the portfolio.
Increment	A portion of an Operational Improvement that will deliver an incremental benefit.
Increment Association	Presents the association of two Increments and the nature/reason for that association.
Increment Benefit Area	The association between an Increment and the Benefit Area(s) that the achievement of that Increment will bring to the NAS.
Increment Success Criteria	Success Criteria provide focus on the key activities necessary to deliver these new capabilities while enabling the FAA to measure the progress of NextGen.
Information Exchange	The peer to peer association of two Operational Activities and the information that flows between them.
Interface	An association of Services and/or Systems at System Node depicting their need to share data. (Note: This definition is only in relationship to NAS ISEF. Definition of the term "interface" is different in System Engineering or other context.)
Interface Requirement	A requirement that defines the need for data to be exchanged across an interface as well as the data and the characteristics of that data.
Lane	A sub-partition within a pool, used to organize and categorize activities within a pool; typically an operational node of actor.
Lane Component	OV-6c components that reside in a lane.
Logical Data Attribute	A property or descriptor for a Logical Data Object. Data Attributes are the mechanism to carry the values for a class instance.
Logical Data Object	A logical representation of something in the real world. It may be a tangible (person, places, thing) or intangible (concept, event) object. Not related to any specific technology or implementation scheme.
Logical Data Object Relation	The association of two Logical Data Objects.

Class Name	Class Description
Logical Subject Area	Information about a division of the OV-7 that represents a set of related classes.
Logical Subject Area Hierarchy	The parent - child association between subject areas that depicts the decomposition of higher level subjects into more discrete subjects.
Message Flow	A directed movement of data used to show the flow of messages between two entities that are prepared to send and receive them.
N-Squared Diagram	A matrix structure that depicts the inputs, outputs, and functions of a system. This system engineering tool is used for tabulating, defining, analyzing, and describing functional interfaces and interactions among system components.  Source: NAS System Engineering Manual V1.0
Need Line	Expresses the requirement by one operational node for services or information from another node.
Node	A generalized class that includes System Nodes, Operational Nodes, and Communication Nodes.
Node Role	Describes the nature of the Node – Operational or System or Communication.
NSIP	The National Airspace System Segment Implementation Plan, which depicts the details concerning the Mid-Term NextGen operational improvements. The NSIP identifies the steps necessary to develop, integrate, and implement NextGen in the mid-term.
NSIP Segment	A defined portion of the NextGen Segment Implementation Plan. The FAA's internal management plan to implement the operational improvements in specific timeframes.
NSIP Segment Operational Improvement	The association of an NSIP Segment with the Operational Improvements that it contains.
Operational Activity	An action performed in conducting the business of an enterprise that either produces or consumes an information exchange. It is used to portray operational actions not hardware/software system functions.
Operational Activity Hierarchy	The parent-child decomposition of Operational Activities.
Operational Improvement	A discrete strategic activity for service and/or capability delivery to improve NAS operations. They are expressed as cross-domain statements comprising sets of anticipated benefits to be realized at some future date.
Operational Node	Represents a logical or physical entity (a worker, system, facility, or subsystem), operating in an environment that produces, consumes, or processes data, and whose role is to interact in some manner with one or more elements of the enterprise.
Operational Node Container	Associates two Operational Nodes in a Contains/Container In association.
Operational Requirement	A condition or capability needed by one or more NAS stakeholders to solve a problem or achieve an objective that is associated with operational activities.
Organization	A business or administrative structure united and created to achieve a mission or particular end.
Organization Artifact	The association of an Organization and its role in regard to a particular Architecture Artifact.

Class Name	Class Description
Organization Decision Point	The association between an Organization and the Decision Points for which they are responsible.
Organization Increment Responsibility	Defines the level of responsibility/involvement of an FAA Organization with an Increment.
Organization Operational Improvement Responsibility	Describes the level of responsibility/involvement for an FAA Organization and an Operational Improvement.
Organization Program	The association between an Organization and the Programs they control/manage
Organization Structure	the association of two Organizations, usually hierarchical, and a description of the nature of that association
OV-1 Diagram	High-level Operational Concept Graphic (OV-1): The high-level graphical/textual description of the operational concept
OV-2 Diagram	A description of the Resource Flows exchanged between operational activities.
OV-3 Matrix	A description of the resources exchanged and the relevant attributes of the exchanges.
OV-5 Diagram	Operational Activity Hierarchy Model (OV-5): A description of the capabilities and activities (operational activities)
OV-5 IDEF0 Diagram	Depicts the connected nature of peer level Operational Activities as they send messages (information flows) from one to another.  The context of operational activities and their relationships among activities, inputs, and outputs; Additional data can show cost, performers or other pertinent information.
OV-5H Tree Diagram	A hierarchical depiction of the operational activities in a particular business area.  The capabilities and activities (operational activities) organized in a hierarchal structure.
OV-6c Diagram	Operational Event-Trace Description (OV-6c): One of three models used to describe activity (operational activity). It traces actions in a scenario or sequence of events.
OV-7 Diagram	A representation of the data objects, associations and attributes that are critical to the NAS.
Physical Data Attribute	A characteristic or property of a Physical Data Object that may be used for sharing and/or persisting facts.
Physical Data Object	A part of a physical schema that is a (mostly) persistent realization of a logical data object.
Policy	A document, formally defining certain rules regarding the business or mission.
Policy Decision Point	A Decision Point that reflects a milestone in Policy development.
Pool	Represents a grouping of operational entities involved in a process of set of activities.
Possible Effect	A real or credible harmful outcome(s) that can be expected if the associated hazard occurs in the defined system state. Source: ATO SMS Manual 4.0 Final Draft (Section 3.5.2)
Possible Effect Set	A collection of Possible Effects that might be realized when a Hazard occurs in a System State Set.

Class Name	Class Description
Procedure	The plan of operations an aircraft has to follow while in the vicinity of an airport, in order to depart or land.
Program	A group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually. Programs may include elements of related work outside the scope of the discrete projects in the program. PMBOK 1.3.
Program Level Requirement	A Requirement that is allocated to an individual Program.
Project	A temporary endeavor undertaken to create a unique product, service, or specific result and is specified as a Budget Line Item in the FAA Capital Investment Plan.
Project Decision Point	The association of a Project and Decision Points that are milestones in its design, development, and deployment.
Project Increment Interactions	The association between an Increment and the Projects (and associated Systems) that support it.
Requirement	An essential characteristic, condition or capability that shall be met or exceeded by a system or a component to satisfy a contract, standard, specification, or other formally imposed document (FAA SEM 4.3)
Requirement Association	The association of one Requirement with another and the reason/purpose for that connection.
Requirement Module	A DOORS module that contains a set of Requirements.
Scenario	A realistic projected sequence of operational events depicting any of several detailed plans or possibilities that may occur normally within the NAS.
Sequence Flow	An arrow used to show the flow of messages between two entities that are prepared to send and receive them.
Sequence Object	Components connected by sequence flows.
Service	<p>Capabilities that are implemented using design principles that support interoperability, sharing and the reuse of functions across the enterprise. They exist as operationally oriented processes, applications, infrastructure, or any combination.</p> <p>A mechanism to enable access to a set of one or more capabilities, where the access is provided using a prescribed interface and is exercised consistent with constraints and policies as specified by the service description. (DODAF 2.0)</p>
Service to Service Interface	An association of Services depicting their need to share data.
Standard	Rules that govern and sometimes constrain the choices that can be made in the design, implementation, and operation of a selected architecture. The standards generally govern what hardware and software may be implemented and what system data formats may be used (i.e. the profile delineates which standards may be used to implement the systems, system hardware/software items, communications protocols, and system data formats).
Standard Association	Information about the association of a standard with another.
Strategic Challenge	A narrative that describes the potential difficulties/risks in achieving the Strategic Goal.
Strategic Goal	A statement about a part of the future environment that is expressed within a Strategic Plan.

Class Name	Class Description
Strategic Goal Outcome	Assertions made to help describe what the future environment will appear like to stakeholders within the FAA.
Strategic Goal Performance Metric	Details the metrics that are used to determine the progress made towards achieving the Strategic Goal.
Strategic Goal Strategy	Information concerning the various actions and strategies to be undertaken in order to achieve the Strategic Goal.
Strategic Plan	A forward looking document that lays out the vision and high level path to achieve that vision, for a particular organization.
Strategy Decision Point	A Decision Point that reflects a JRC or Other strategy milestone.
Support Activity	An initiative that supports/informs the development of capability, policies, procedures, etc.
SV-1 Diagram	System/Service Interface Description (SV-1): Depicts systems nodes and the systems resident at these nodes to support organizations/human roles represented by operational nodes of the OV-2. SV-1 also identifies the interfaces between systems and systems nodes.
SV-1 Interface Diagram	An Architecture Artifact that depicts the interface between Systems and system nodes.
SV-1 System Hierarchy Diagram	A parent-child relationship depiction of systems and systems nodes.
SV-10c Diagram	System/Service Event-Trace Description (SV-10c): Provides a time-ordered examination of the system data elements exchanged between participating systems (external and internal), system functions, services, and/or human roles as a result of a particular scenario.
SV-11 Diagram	Physical Schema (SV-11): A physical (system focused and platform dependent) data structure that describes the persistent storage (e.g., database) or electronic interchange (e.g., XML schema) data requirements to support NAS functions.
SV-2 Diagram	System/Service Communications Description (SV-2): Depicts pertinent information about communications systems, communications links, and communications networks. SV-2 documents the kinds of communications media that support the systems and implements their interfaces as described in SV-1. Thus, SV-2 shows the communications details of SV-1 interfaces that automate aspects of the needlines represented in OV-2.
SV-4 Data Flow Diagram	An Architecture Artifact that depicts the flow of information between System Functions and Services (in any combination).
SV-4 Diagram	System/Service Functional Hierarchy Model (SV-4): documents system functional hierarchies and system functions, and the system data flows between them.
SV-4 Function Hierarchy Diagram	A parent-child depiction of functions.
SV-5 Matrix	A specification of the relationships between the set of operational activities applicable to an architecture and the set of system functions applicable to that architecture
SV-5a Matrix	The System View (SV)-5a Operational Activity to Systems Function Traceability Matrix addresses the linkage between System Functions described in SV-4 and Operational Activities specified in OV-5. The SV-5a depicts the mapping of system functions and, optionally, the capabilities and performers that provide them to operational activities. The SV-5a identifies the transformation of an operational need into a purposeful action performed by a system or solution.

Class Name	Class Description
SV-5b Matrix	The System View (SV)-5b Operational Activity to Systems Traceability Matrix addresses the linkage between systems described in SV-1 and operational activities in OV-5. The SV-5b depicts the mapping of systems and, optionally, the capabilities and performers that provide them to operational activities. The SV-5b identifies the transformation of an operational need into a purposeful action performed by a system or solution.
SV-6 Matrix	System/Service Data Exchange Matrix (SV-6): Specifies the characteristics of the system data exchanged between systems. This product focuses on automated information exchanges (from OV-3) that are implemented in systems.
SV-7 Matrix	System/Service Performance Parameters Matrix (SV-7): Specifies the quantitative characteristics of systems and system hardware/software items, their interfaces (system data carried by the interface as well as communications link details that implement the interface), and their functions. It specifies the current performance parameters of each system, interface, or system function, and the expected or required performance parameters at specified times in the future.
System	Any organized assembly of resources and procedures united and regulated by interaction or interdependence to accomplish a set of specific functions.
System Association	The relationship of two Systems to each other for some particular reason, but not as an Interface.
System Association Significant Date	Significant Dates in the lifecycle of the association of two Systems.
System at System Node	Associates the System Nodes and the Systems that reside at those Nodes.
System at System Node Interface	An association of Systems at System Nodes depicting their need to share data.
System at System Node to Communication System Communication Connection	A single, bidirectional association between Systems at System Node and Communication System depicting a physical connection.
System at System Node to Service Interface	An association of Services and Systems at System Node depicting their need to share data.
System Increment	An association between an Increment of an Operational Improvement and a System.
System Node	Represents a configuration (location) to which Systems are allocated or deployed at Nodes.
System Operational Activity	An association between operational activity and the system that performs them.
System Significant Date	All significant dates in the lifecycle of a System.
System State	The expression of the various conditions (characterized by quantities or qualities) in which a system can exist at the time a hazard is realized. Source: ATO SMS Manual 4.0 Final Draft (Appendix E).
System State Set	A collection of System State characteristics that are aggregated together for particular Hazards.
Task	Operational activity (tasks or processes that transforms information).
Technical Performance Requirement	A description of a technical standards and performance metrics that should be employed by services or system functions.

Class Name	Class Description
TV-1/2	A depiction of technical standards that apply to a given (as-is TV-1) or future (TV-2) architecture.

## 4.2 Attribute Definitions

Most classes in the NAS ISEF Metamodel contain attributes that are the descriptors or properties of the class. This table lists all of the attributes, their definitions, and the data type for the attribute.

**Table 6: Attribute Definition**

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Acquisition Decision Point	Acquisition Decision Point AMS Phase Code	"Reference AMS Phase"	The code that depicts the particular Acquisition Management System phase for the decision point.
Activity Connection	From Operational Activity Name	char	The name for the From Operational Activity.
Activity Connection	To Operational Activity Name	char	The name for the From Operational Activity.
Activity Connection ICOM	Information Flow Destination Code	"Reference Information Flow Destination Location"	The location on the 'To' Operational Activity where the Information Element lands.
Actor	Actor Description	char	A full textual definition for the Actor.
Actor	Actor Name	char	The full name of the Actor.
Architecture Artifact	Architecture Artifact Description	char	A full textual definition for the Architecture Artifact.
Architecture Artifact	Architecture Artifact Level Code	"Reference Architecture Artifact Level"	The code that designates the level of the creation of the Architecture Artifact; i.e., Enterprise, Service Level, Program.
Architecture Artifact	Architecture Artifact Name	char	The full name for the Architecture Artifact.
Architecture Artifact	Architecture Artifact Notation Type Code	"Reference Architecture Artifact Notation Type"	The code that specifies the technique, or technical notation, employed in constructing the artifact.
Architecture Artifact	Architecture Artifact Status Code	"Reference Architecture Artifact Status"	The lifecycle status of the Architecture Artifact, which also designates its vetting/approval for the NAS.
Architecture Artifact	Architecture Artifact Type Code	"Reference Architecture Artifact Type"	Designates the category of the Architecture Artifact.
Architecture Artifact	Architecture Artifact Version Number	char	A mechanism used to differentiate between versions of an artifact.
Architecture Artifact	Implementation Timeframe Code	"Reference Implementation Timeframe"	A code that depicts the timeframe for the implementation of the related object.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Architecture Artifact Activity	Architecture Artifact Activity Code	"Reference Architecture Artifact Activity"	Designates the category of Activity for the Architecture Artifact.
Architecture Artifact Activity	Architecture Artifact Activity Date	char	The date that the Architecture Artifact Activity took place.
Architecture Artifact Activity	Architecture Artifact Activity Remarks Text	char	Additional information about activity for an Architecture Artifact.
Architecture Artifact Activity	Architecture Artifact Version Number	char	A mechanism used to differentiate between versions of an artifact.
Architecture Artifact Association	Architecture Artifact 1 Name	char	The name of the parent Architecture Artifact in the artifact association.
Architecture Artifact Association	Architecture Artifact 2 Name	char	The name of the child Architecture Artifact in the artifact association.
Architecture Artifact Association	Architecture Artifact Association Reason Code	"Reference Architecture Artifact Association Reason"	The purpose or reason that two Architecture Artifacts are related.
Architecture Release Package	Architecture Release Package Name	char	The title of the Architecture Release Package.
Architecture Release Package	Architecture Release Package Version Number	char	A mechanism used to differentiate one version of an Architecture Release Package from another.
Architecture Release Package	Implementation Timeframe Code	"Reference Implementation Timeframe"	A code that depicts the timeframe for the implementation of the related object.
Capital Investment Plan	Capital Investment Plan FY Range	char	The range of fiscal years that apply to this edition of the Capital Investment Plan.
Capital Investment Plan	Capital Investment Plan Publication Date	date	The date that the Capital Investment Plan was formally published.
Capital Investment Plan Line	Capital Investment Plan Line Fiscal Year	char	The fiscal year for the amount listed on the Capital Plan Line Item.
Capital Investment Plan Line	Capital Investment Plan Line Funding Amount	number	An incremental amount of money that is put in place as planned money for a particular investment, for a particular fiscal year. This planned amount only pertains to Facilities and Equipment (F&E) investments and it has not been appropriated until the investment (project) has been baselined.
Capital Investment Plan Line	Capital Investment Plan Line Number	char	The number that identifies a unique entry within a particular Capital Investment Plan.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Communication Connection	Communication Connection Description	char	The full textual description of the Communication Connection.
Communication Connection	Communication Connection Name	char	The full name of the Communication Connection.
Communication System Communication Connection	Receiving Communication Node Name	char	The name for the receiving Communication Node.
Communication System Communication Connection	Sending Communication Node Name	char	The name for the sending Communication Node.
Concept Of Operations	CONOPS Summary	char	A textual description that summarizes all the proposed operations described in the programs LEVEL 4 Solution ConOps, and how those operations fit within the NAS Air Traffic Management system or the Non-NAS operations.  Source: NAS Functional Analysis Document Template
Concept Of Operations	Operational Environment	char	A textual description of the environment in which the program will be operating. The operating environment for NAS programs could include traffic density, traffic complexity, aircraft equipage, and weather conditions.  Source: NAS Functional Analysis Document Template.
Data Object	Data Object Name	char	The name of the data object.
Decision Point	Decision Point Authority Code	"Reference Decision Point Authority"	the code that designates the decision authority for a Decision Point
Decision Point	Decision Point Baseline Target Calendar Quarter	char	The baseline for the quarter when the Decision Point is expected to be reached, or has been reached
Decision Point	Decision Point Baseline Target Calendar Year	char	The baseline for the calendar year when the Decision Point is expected to be reached, or has been reached
Decision Point	Decision Point Completion Indicator	boolean	Denotes whether or not this Decision Point for a Project has been completed or not.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Decision Point	Decision Point Current Target Calendar Quarter	char	The current calendar year when the Decision Point is expected to be reached, or has been reached.
Decision Point	Decision Point Current Target Calendar Year	char	The current calendar quarter when the Decision Point is expected to be reached, or has been reached.
Decision Point	Decision Point Description	char	Textual description of the Decision Point.
Decision Point	Decision Point High Priority Indicator	boolean	Indicates if the Decision Point is a high priority according to a set of pre-defined parameters.
Decision Point	Decision Point Name	char	The formal name for the decision Point.
Decision Point	Decision Point Number	char	The identifying number for the Decision Point.
Decision Point	Decision Point Status Date	date	The date that the related status for the Decision Point was established.
Decision Point	Decision Point Status Type Code	"Reference Decision Point Status Type"	The category of the Decision Point Status.
Decision Point	Decision Point Type Code	"Reference Decision Point Type"	The category for the Decision Point.
Decision Point	Decision Point Version Date	date	The create/modification date for this version of the Decision Point.
Decision Point	Decision Point Version Number	char	A number that issued to differentiate different version of the same Decision Point.
Decision Point	Planned Decision Point Indicator	boolean	Indicates whether the Decision Point is planned or not.
Decision Point Association	Decision Point 1 Name	char	The name of the first Decision Point in the Decision Point Association.
Decision Point Association	Decision Point 2 Name	char	The name of the second Decision Point in the Decision Point Association.
Decision Point Association	Decision Point Association Reason Code	"Reference Decision Point Association Reason"	Designates the nature or reason for the two Decision Points to be related.
Enabling Activity	Enabling Activity Name	char	The formal name for the Enabling Activity.
Event	Event Type Code	"Reference Event Type"	Describes the types of event.
Exchange	Exchange Description	char	A full textual definition for the Exchange.
Exchange	Exchange Name	char	The full name of the exchange.
Exchange	Exchange Number	number	The unique numerical identifier for the Exchange.
Exchange Parameter	Exchange Parameter Code	"Reference Exchange Parameter"	The name of the parameter that characterizes an exchange of data or information.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Exchange Parameter	Exchange Parameter Value	char	The value of the exchange parameter.
FAA Service	FAA Service Name	char	The full name of the FAA Service.
FAA Service	FAA Service Number	char	The identifying number for the FAA service.
FAA Service Capability	FAA Service Capability Name	char	The formal name for the FAA Service Capability.
FAA Service Capability	FAA Service Capability Number	char	The identifying number for the FAA Service Capability.
FAA Service Group	FAA Service Group Name	char	The formal name for the Service Group.
FAA Service Group	FAA Service Group Number	char	The identifying number for the Service Group.
Facility	Facility Description	char	A full textual definition for the Facility.
Facility	Facility Name	char	The full name for the Facility.
Facility	Facility Type Code	"Reference Facility Type"	The category of Facilities supporting aviation activities.
Function	Function Description	char	The full textual description for the System Function.
Function	Function Name	char	The formal name for the System Function.
Function Data Flow	Consuming Function Name	char	The name of the function that consumes data.
Function Data Flow	Producing Function Name	char	The name of the function that produces data.
Function Hierarchy	Child Function Name	char	The name for the child System Function in the hierarchy.
Function Hierarchy	Parent Function Name	char	The name for the parent System Function in the hierarchy.
Functional Domain	Functional Domain Description	char	A description of the Functional Domain.
Functional Domain	Functional Domain Name	char	The formal name for the Functional Domain.
Functional Domain Assumption	Domain Roadmap Assumption Description	char	The full textual description for the Roadmap Assumption.
Functional Domain Assumption	Domain Roadmap Assumption Number	char	The sequential number assigned to a Functional Domain Assumption within an Infrastructure Roadmap.
Gateway	Gateway Type Code	"Reference Gateway Type"	Describes the types of gateway.
Hazard	Hazard Category Code	"Reference Hazard Category"	The category for the identified hazard (e.g., Environmental, Technical, Organizational, Human).
Hazard	Hazard Description	char	A textual narrative describing the Hazard.
Hazard	Hazard Name	char	A unique name for the hazard.
Hazard Cause	Hazard Cause Description	char	A textual narrative describing the cause.
Hazard Cause	Hazard Cause Likelihood Percent	number	The measure of the likeliness that the causal event will occur.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Hazard Cause	Hazard Cause Name	char	A unique name for the Hazard Cause.
Hazard Cause	Hazard Cause Type Code	"Reference Hazard Cause Type"	The code that represents the category for the identified hazard cause.
Hazard Cause Association	Hazard Cause Association Condition Code	"Reference Hazard Cause Condition"	The code that depicts that particular condition for the association of two Hazard Causes.
Hazard Cause Association	Hazard Cause Child Name	char	The name of the child Hazard Cause in this association.
Hazard Cause Association	Hazard Cause Parent Name	char	The name of the parent Hazard Cause in this association.
Hazard Identification Source	Hazard Identification Source Name	char	The title of the source documentation (e.g., title of the Safety Risk Management Document, incident report title, etc.) that identified the hazard.
Hazard Identification Source	Hazard Identification Source Publication Date	date	The date the current version of the Hazard Identification Source was published.
Hazard Identification Source	Hazard Identification Source Version	char	The sequential number for the current published version of the Hazard Identification Source.
ICOM Arrow	ICOM Definition	char	A full textual description of ICOM.
ICOM Arrow	ICOM Name	char	The formal name of ICOM.
Implementation Portfolio	Implementation Portfolio Acquisition Strategy Description	char	A description of the methods to be employed in any acquisition activities in support of the Implementation Portfolio.
Implementation Portfolio	Implementation Portfolio Approach Description	char	A full description of the steps, methods, and considerations for the implementation of a Portfolio.
Implementation Portfolio	Implementation Portfolio Description	char	A full textual description for the Portfolio.
Implementation Portfolio	Implementation Portfolio Name	char	The formal name for the Portfolio.
Implementation Portfolio Challenge	Implementation Portfolio Challenge Description	char	A description of the Implementation Portfolio Challenge.
Implementation Portfolio Challenge	Implementation Portfolio Challenge Name	char	The name of the Implementation Portfolio Challenge.
Implementation Portfolio Challenge	Implementation Portfolio Challenge Type Name	char	The name of the category of Implementation Portfolio Challenge.
Increment	Enabling Activity Indicator	boolean	Designates if this Increment represents an Enabling Activity.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Increment	External Commitment Support Indicator	boolean	Indicates if this Increment supports an external commitment such as the FAA Action Plan response to the RTCA Task Force 5 Tier 1 recommendations.
Increment	Increment Benefit Description	char	A generalized description of the benefits that will be derived from the full implementation of the Increment.
Increment	Increment Description	char	A description of the Increment.
Increment	Increment Earliest OA Year	char	The earliest operational availability year that the Increment will first provide benefit to the NAS.
Increment	Increment Latest OA Year	char	The latest operational availability year that the Increment will first provide benefit to the NAS.
Increment	Increment Name	char	The formal name for the Increment.
Increment	Increment Number	char	The unique identifier for the Increment.
Increment	Increment Status Code	"Reference Increment Status"	A code that designates the state of the Increment along its implementation lifecycle.
Increment Association	Increment Association Reason Code	"Reference Increment Association Reason"	The reason or nature of the association between two Increments.
Increment Association	Increment1 Identifier	char	The identifier for the first Increment within the association.
Increment Association	Increment2 Identifier	char	The identifier for the second Increment within the association.
Increment Benefit Area	Increment Primary Benefit Indicator	Boolean	Indicates if the Benefit area assigned to this increment is the primary benefit or not.
Increment Success Criteria	Increment Success Criteria Achievement Indicator	boolean	Denotes whether or not the Success Criteria established for the Increment has been achieved.
Increment Success Criteria	Increment Success Criteria Expected Achievement Year	number	The fiscal year in which the Increment's assigned success criteria is expected to be achieved.
Increment Success Criteria	Increment Success Criteria Name	char	The formal name of the Success Criteria assigned to the Increment.
Interface	Interface Description	char	The full textual description of the Interface.
Interface	Interface Name	char	The full name of the Interface.
Lane	Lane Description	char	The full textual description of the lane.
Lane	Lane Name	char	The full name of the lane.
Lane Component	Lane Component Description	char	The full textual description of the lane component.
Lane Component	Lane Component Name	char	The full name of the lane component.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Lane Component	Lane Component Type Code	"Reference Lane Component Type"	The type of the lane component.
Logical Data Attribute	Attribute Data Type Name	"Reference Attribute Data Type"	The name of the data type that defines the categories of values for logical or physical data attributes.
Logical Data Attribute	Logical Data Attribute Description	char	A full textual description for the data attribute.
Logical Data Attribute	Logical Data Attribute Name	char	The full logical name for the data attribute
Logical Data Attribute	Logical Data Attribute Primary Key Indicator	boolean	Designates whether this Logical Data Attribute is part of the primary key for the data object.
Logical Data Attribute	Logical Data Object Name	char	The formal name for the Logical Data Object where this attribute resides
Logical Data Object	Logical Data Object Description	char	A full textual definition for the Logical Data Object
Logical Data Object	Logical Data Object Name	char	The formal name for the Logical Data Object
Logical Data Object	Logical Data Object Type Code	"Reference Logical Data Object Type"	Specifies the category of Logical data object. May be a Class, an Entity or another logical construct.
Logical Data Object Relation	Child Data Object Relation Multiplicity Text	char	The cardinality of the child LDO in the relationship.
Logical Data Object Relation	Logical Data Object Relation Name	char	The verb phrase for the relationship between two Logical Data Objects.
Logical Data Object Relation	Parent Data Object Relation Multiplicity Text	char	The cardinality of the parent LDO in the relationship.
Logical Data Object Relation	Related From Data Object Name	char	The name for the parent Logical Data Object.
Logical Data Object Relation	Related To Data Object Name	char	The name for the child Logical Data Object.
Logical Data Object Relation	Subtype Indicator	boolean	A flag that designates whether the relationship is a super-type/subtype relationship.
Logical Subject Area	Logical Subject Area Description	char	The full textual description of the OV-7 division that represents a set of related classes.
Logical Subject Area	Logical Subject Area Name	char	The name of the OV-7 division that represents a set of related classes.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Logical Subject Area Hierarchy	Child Logical Subject Area Name	char	The name of the child logical subject area in the hierarchy.
Logical Subject Area Hierarchy	Parent Logical Subject Area Name	char	The name of the parent logical subject area in the hierarchy.
Message Flow	Data Object Name	char	The name of the data object passed on the message flow.
Message Flow	Task Is Sender Indicator	boolean	Indicator of whether the task is receiving or sending the data object.
Message Flow	Task Name	char	The name of the sending task or receiving task.
Need Line	Need Line Description	char	A full textual definition for the Need Line
Need Line	Need Line Name	char	The full name of the need line
Need Line	Receiving Operational Node Name	char	The name for the sending Operational Node.
Need Line	Sending Operational Node Name	char	The unique identifier for the receiving Operational Node.
Node	Node Description	char	A full textual definition for the Node.
Node	Node Name	char	The full name for the Node.
Node Role	Node Role Type Code	"Reference Node Role Type"	Describes the nature of the Node - Operational or System or Communication.
NSIP	NSIP Status Code	"Reference NSIP Status"	The state of the version of the NSIP.
NSIP	NSIP Timeframe Years Range	char	The range of years for which this version of the NSIP applies.
NSIP	NSIP Version Number	char	The published version of the NSIP.
NSIP Segment	NSIP Segment Begin Year	number	The earliest year for the NSIP Segment.
NSIP Segment	NSIP Segment End Year	number	The latest year of the NSIP Segment.
NSIP Segment	NSIP Segment Name	char	The identifier for a particular Segment within the NSIP.
Operational Activity	Operational Activity Description	char	The full textual definition for the Operational Activity.
Operational Activity	Operational Activity Name	char	The full name for the Operational Activity.
Operational Activity Hierarchy	Child Operational Activity Name	char	The name for the child Operational Activity in this Parent-Child pair.
Operational Activity Hierarchy	Parent Operational Activity Name	char	The name for the parent Operational Activity in this Parent-Child pair.
Operational Improvement	Current Operations Indicator	boolean	Designates whether or not the Operational Improvement is in Current Operations state.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Operational Improvement	Operational Improvement Benefit Description	char	A textual description of the anticipated benefits that may be realized when the Operational Improvement is fully implemented.
Operational Improvement	Operational Improvement Description	char	The full textual definition for the Operational Improvement.
Operational Improvement	Operational Improvement Earliest OA Year	char	The earliest calendar year when the Operational Improvement could be Operationally Available.
Operational Improvement	Operational Improvement IOC Date	char	The year and quarter when the Initial Operating Capability was realized for the Operational Improvement.
Operational Improvement	Operational Improvement Latest OA Year	char	The latest calendar year when the Initial Operating Capability of the Operational Improvement could be Operationally Available.
Operational Improvement	Operational Improvement Name	char	The full name for the Operational Improvement.
Operational Improvement	Operational Improvement Number	char	The unique identifier for an Operational Improvement.
Operational Improvement	Operational Improvement Status Code	"Reference Operational Improvement Status"	The code that depicts the status of the Operational Improvement.
Organization	Organization Name	char	The formal name for the Organization
Organization Artifact	Architecture Artifact Name	char	The name for an Architecture Artifact
Organization Artifact	Organization Artifact Role Code	"Reference Organization Artifact Role"	The role that a particular Organization plays in regards to an Architecture Artifact
Organization Artifact	Organization Name	char	The name for the Organization
Organization Decision Point	Organization Decision Point Role Code	"Reference Organization Decision Point Role"	The code that depicts the role that an Organization plays in regards to a Decision Point.
Organization Increment Responsibility	Organization Increment RASCI Code	"Reference RASCI"	Designates the involvement level that an Organization will have in regards to an Increment.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Organization Operational Improvement Responsibility	Organization Operational Improvement RASCI Code	"Reference RASCI"	Designates the involvement level that an Organization will have in regards to an Operational Improvement.
Organization Program	Organization Program Role Code	"Reference Organization Program Role"	The code that depicts the role that an Organization plays in regards to a Program.
Organization Structure	Child Organization Name	char	The name for the child Organization in the parent - child hierarchy.
Organization Structure	Parent Organization Name	char	The name for the parent Organization in the Organization Structure.
OV-1 Diagram	OV-1 Narrative Text	char	The full textual description or story that accompanies and explains the high-level graphic.
OV-6c Diagram	OV-6c Narrative Text	char	The full textual description of the diagram.
Physical Data Attribute	Attribute Data Type Name	"Reference Attribute Data Type"	The name of the data type that defines the categories of values for logical or physical data attributes.
Physical Data Attribute	Physical Data Attribute Description	char	The full textual description of the Physical Data Attribute.
Physical Data Attribute	Physical Data Attribute Name	char	The full name of the Physical Data Attribute.
Physical Data Attribute	Physical Data Attribute Primary Key Indicator	boolean	Indicates if the Physical Data Attribute is a primary key indicator for the Physical Data Element.
Physical Data Attribute	Physical Data Object Name	char	The full name of the Physical Data Object Name.
Physical Data Object	Physical Data Object	char	The name for the Physical Data Object.
Physical Data Object	Physical Data Object Description	char	A full textual description for the Physical Data Object.
Physical Data Object	Physical Data Object Name	char	The name for the Physical Data Object.
Physical Data Object	Physical Data Object Type Code	"Reference Physical Data Object Type"	Depicts the category of Physical Data Object.
Policy	Policy Description	char	The full textual description of the Policy.
Policy	Policy Effective Date	date	The date when the Policy was first in force.
Policy	Policy Name	char	The full textual name for the Policy
Policy	Policy Number	char	The unique identifier for the policy.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Policy	Policy Publication Date	date	The date the current version of the Policy was Published.
Policy	Policy Sunset Date	date	The date when the Policy was no longer in force.
Pool	Pool Description	char	The full textual description of the pool.
Pool	Pool Name	char	The full name of the Pool.
Possible Effect	Possible Effect Current Risk Code	char	The predicted severity and likelihood at the current time. Expressed as either High, Medium, or Low.
Possible Effect	Possible Effect Description	char	A summary representation of the real or credible harmful outcome that could occur if the hazard is realized in a defined system state.
Possible Effect	Possible Effect Likelihood Frequency	char	An expression of how often a given effect occurs.
Possible Effect	Possible Effect Likelihood Percentage	number	The measure of the likeliness that the harmful outcome will occur.
Possible Effect	Possible Effect Likelihood Rationale Text	char	The logical basis for the measure given for the possible effect likelihood percentage.
Possible Effect	Possible Effect Name	char	A short title given to summarize the possible effect.
Possible Effect	Possible Effect Predicted Residual Risk Code	char	The predicted severity and likelihood estimated to exist after the safety requirements are implemented, or after all avenues of risk mitigation have been explored. Expressed as either High, Medium, or Low.
Possible Effect	Possible Effect Risk Matrix Source Name	char	The name of the source document that contains the risk matrix and associated likelihood and severity definitions used to set the risk level (e.g., ATO SMS Manual).
Possible Effect	Possible Effect Severity Description	char	The consequence or impact of a hazard's effect or outcome in terms of degree of loss or harm.
Possible Effect	Possible Effect Severity Rationale Text	char	The logical basis for the severity level given for the possible effect (i.e., hazardous outcome).
Possible Effect Set	Possible Effect Set Name	char	The full name of the collected set of Possible Effects.
Program	Program Active Indicator	Boolean	Designates whether the Program is currently active or not.
Program	Program Description	char	The full textual description for the Program.
Program	Program Name	char	The formal name for the Program.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Program	Program Short Name	char	A short label, or abbreviated name, for a Program.
Program Level Requirement	Program Critical Performance Requirement Indicator	boolean	Designates if this Requirement is a critical element for the related Program.
Program Level Requirement	Program Level Requirement Validation Status Indicator	boolean	Designates whether or not the program level requirement has been validated.
Program Level Requirement	Program Level Requirement Verification Method Description	char	Describes how the satisfaction of a Program Level Requirement will be verified.
Program Level Requirement	Program Level Requirement Verification Status Indicator	boolean	Designates whether or not the program level requirement has been verified.
Project	Funded Project Indicator	boolean	Indicates whether the project is funded or not.
Project	Project Active Indicator	boolean	Identifies whether or not the Project is currently active.
Project	Project Begin Date	date	The date that the Project is expected to begin/has begun.
Project	Project Description	char	A formal description for the nature of the Project, including its purpose and functionality.
Project	Project End Date	date	The date that the Project is expected to complete/has completed.
Project	Project Name	char	The formal name for a Project.
Project Decision Point	Project Primary Decision Point Indicator	Boolean	A flag that denotes if Project related to this Decision Point is the primary Project for the Decision Point
Project Increment Interactions	Project Increment Details Text	char	Additional information about the support that a Project-System will provide to the related Increment
Requirement	Enterprise Requirement Indicator	boolean	Indicates whether the Requirement is either at the Enterprise Level or at the Program Level.
Requirement	Requirement Number	char	An identifier for a Requirement that is unique within the Requirements Module in which it is published. Indicates the hierarchical position for the Requirement through the use of 'dot' notation. E.g., 3.1.2 is a child of 3.1.
Requirement	Requirement Text	char	The full text that describes the assertions of the Requirement.
Requirement	Requirement Type Code	"Reference Requirement Type"	Reflects the exclusive category of the Requirement.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Requirement	Safety Related Requirement Indicator	boolean	Indicates if this Requirement is for a safety related issue.
Requirement Association	From Requirement Name	char	The name for the parent Requirement in the Requirement Association.
Requirement Association	Requirement Association Type Code	"Reference Requirement Association Type"	The code for the reason or purpose for associating two Requirements.
Requirement Association	To Requirement Name	char	The name for the child Requirement in the Requirement Association.
Requirement Module	Organization Identifier	Identifier	The unique identifier for the Organization.
Requirement Module	Requirement Module Approval Date	date	The date that the Requirements Module is approved.
Requirement Module	Requirement Module Status Code	"Reference Requirement Module Status"	Designates the life cycle status for the Requirements Module.
Requirement Module	Requirement Module Title	char	The formal name, or title, for the Requirements Module.
Requirement Module	Requirement Module Version Number	char	A mechanism used to differentiate one version of a Requirement Module from another.
Scenario	Scenario Narrative	char	The full textual description of the scenario.
Sequence Flow	Receiving Sequence Object Name	char	The name for the receiving object.
Sequence Flow	Sending Sequence Object Name	char	The name for the sending sequence object.
Sequence Object	Sequence Object Type Code	"Reference Sequence Object Type"	The type of the sequence object.
Service	Enterprise Service Indicator	boolean	Designates if the Service is at the Enterprise level.
Service	Service Access Point Text	char	The electronic address (URI) for the Service Endpoint.
Service	Service Description	char	A description of the Service.
Service	Service Life Cycle Status Code	"Reference Life Cycle Status"	The state of the Service as it progresses through the development life cycle.
Service	Service Name	char	The full textual name for the Service.
Service	Service Specification Text	char	A full technical description of the service including identification of inputs, outputs and processing.
Service	Service Type Code	"Reference Service Type"	The code that designates the category of the Service.
Service	Service Version Number	char	The sequential number for the version of a Service

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Service to Service Interface	Receiving Service Name	char	The name of the receiving service.
Service to Service Interface	Sending Service Name	char	The name of the sending service.
Standard	Standard Category Code	"Reference Standard Category"	Code that designates the classification for Standards that helps to group standards that apply to similar type of things.
Standard	Standard Description	char	The full textual description for the Standard.
Standard	Standard Designator	char	The unique designator as for the standards as defined by the maintaining organization. May also be a short name for the standard.
Standard	Standard Effective Date	date	The first date of effectivity for the Standard.
Standard	Standard End Date	date	The last date that a Standard is in force.
Standard	Standard Name	char	The formal name for the Standard.
Standard	Standard Status Type Code	"Reference Standard Status Type"	Designates the current state of the Standard.
Standard	Standard URI Text	char	An electronic address where the Standard may be located and accessed.
Standard	Standard Version Number	char	The number that identifies the version of the standard.
Standard Association	Standard Association Type Code	"Reference Standard Association Type"	Code that describes the association types of standards.
Strategic Challenge	Strategic Challenge Description	char	The description of the strategic challenge.
Strategic Goal	Strategic Goal Description	char	The description of the Strategic Goal.
Strategic Goal	Strategic Goal Name	char	The formal title of the Strategic Goal.
Strategic Goal Outcome	Outcome Description	char	Text that describes the Outcome for the Strategic Goal.
Strategic Goal Performance Metric	Performance Metric Description	char	A full description of the Performance Measure applied for a specific Strategic Goal.
Strategic Goal Strategy	Strategy Description	char	A full description of the Strategy to be employed in order to achieve the Strategic Goal.
Strategic Plan	Strategic Plan Affected Timeframe Years	char	The designated period of time that is the focus of the Strategic Plan.
Strategic Plan	Strategic Plan Description	char	A full description of the Strategic Plan.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
Strategic Plan	Strategic Plan Name	char	The formal name for the Strategic Plan.
Strategic Plan	Strategic Plan Publication Date	date	The date that the Strategic Plan is initially published.
Strategy Decision Point	Strategy Decision Point JRC Indicator	boolean	Indicates if the Strategy Decision Point is for the JRC.
Support Activity	Support Activity Begin Quarter	char	The calendar quarter when the Support Activity begins.
Support Activity	Support Activity Begin Year	char	The calendar year when the Support Activity begins.
Support Activity	Support Activity Description	char	The textual description for the Support Activity.
Support Activity	Support Activity End Quarter	char	The calendar quarter when the Support Activity ends.
Support Activity	Support Activity End Year	char	The calendar year when the Support Activity ends.
Support Activity	Support Activity Name	char	The formal name for the Support Activity.
Support Activity	Support Activity Output Text	char	A textual description of what will be produced when the Support Activity completes.
Support Activity	Support Activity Status Code	"Reference Support Activity Status"	Describes the current state of a Support Activity.
Support Activity	Support Activity Type Code	"Reference Support Activity Type"	The code for the category of the Support Activity.
Support Activity	Support Activity Funding Type Code	"Reference Funding Type"	Describes the category of Funding sources or types for activities (e.g., Projects, Support Activity, etc.) within the NAS
Support Activity	Technical Readiness Finish Level	"Reference Technical Readiness Level"	The ending level for the Support Activity's Technical Readiness.
Support Activity	Technical Readiness Start Level	"Reference Technical Readiness Level"	The beginning level for the Support Activity's Technical Readiness.
System	System Acronym Text	char	A short name or initial letters comprising the System's name.
System	System Description	char	A description of the System.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
System	System Development Time Frame	char	The developmental timeframe for which the operations and functions are valid, including mapping to the appropriate Infrastructure Roadmap. This time frame must be consistent with time frame identified in the Solution Conops.  Example of timeframe: IOC FY15, FOC CY17, etc.  Source: NAS Functional Analysis Document Template.
System	System Life Cycle Status Code	"Reference Life Cycle Status"	The state of the System as it progresses through the development life cycle.
System	System Name	char	The full textual name for the System.
System	System Version Number	char	The sequential number for the version of a System.
System Association	System 1 Name	char	The name for the Parent System in the association.
System Association	System 2 Name	char	The name for the Child System in the association.
System Association	System Association Reason Code	"Reference System Association Reason"	The reason or purpose for associating two Systems.
System Association Significant Date	System Association Significant Date	date	Significant date in the lifecycle of a System Association.
System Association Significant Date	System Association Significant Date Type Code	"Reference System Association Significant Date Type"	Code that designates the types of significant dates in the lifecycle of a System Association.
System at System Node Interface	Receiving System Name	char	The name of the receiving service.
System at System Node Interface	Sending System Name	char	The name of the sending System.

Class Name	Attribute Name	Attribute Data Type	Attribute Description
System at System Node to Communication System Communication Connection	Communication Node Name	char	The name for the Communication Node involved in the association.
System at System Node to Communication System Communication Connection	System is Sender Indicator	boolean	Designates if the related System is the Sending System in the connection.
System at System Node to Communication System Communication Connection	System Name	char	The name for the System that is attached to the interface.
System at System Node to Service Interface	Service is Sender Indicator	boolean	Indicates if the Service is the sending technical element of the interface.
System at System Node to Service Interface	Service Name	char	The name for the Service that is attached to the interface.
System at System Node to Service Interface	System Name	char	The name for the System that is attached to the interface.
System Increment	Increment Key System Indicator	Boolean	Designates whether this System is critical to the successful realization of this Increment.
System Significant Date	System Significant Date	date	A milestone date for a System.
System Significant Date	System Significant Date Type Code	"Reference Significant Date Type"	The code that specifies a significant date in the lifecycle of a System.
System State	System State Description	char	An expression of the various conditions, characterized by quantities or qualities, in which a system can exist.

<b>Class Name</b>	<b>Attribute Name</b>	<b>Attribute Data Type</b>	<b>Attribute Description</b>
System State	System State Likelihood Percentage	number	The estimated probability for a given system state.
System State	System State Name	char	A short title given to summarize the system state.
System State Set	System State Set Name	char	A short title that best represents the collection of system states that are aggregated together to represent a path that leads to a potential hazardous outcome.

### 4.3 Reference Class Definitions and Valid Values

A Reference Class contains the enumerated values (i.e., the valid value list) for coded attributes in the metamodel.

**Table 7: Reference Class Definitions**

Name	Description	Value List
Reference AMS Phase	Reference information for the Acquisition Management System (AMS) Phase.	CRDR - Concept and Requirements Definition Readiness Decision IARD - Investment Analysis Readiness Decision IID - Initial Investment Decision FID - Final Investment Decision BCD - Baseline Change Decision ISD - In-Service Decision
Reference Architecture Artifact Activity	The valid set of actions for architecture artifacts as each progresses through its life cycle.	Published Draft Published Final Approval Established Deprecation Established Review Period Begin Review Period End
Reference Architecture Artifact Association Reason	Describes the valid values for the reason that two architecture artifacts are related.	Enterprise - Program Map Parent is New Version Logical to Physical Map
Reference Architecture Artifact Level	Designates which level in the enterprise developed the artifact.	Enterprise Level Program Level
Reference Architecture Artifact Notation Type	Depicts the type of architectural notation employed in constructing an architecture product.	IDEF0 IDEF1x UML Class Diagram UML Activity Diagram BPMN Data Flow Diagram
Reference Architecture Artifact Status	Describes the valid values for the status of an Architecture Artifact	Draft Final Superseded Deprecated

Name	Description	Value List
Reference Architecture Artifact Type	Reference values that identify the category of architecture artifact.	OV-1 OV-2 OV-3 OV-5 OV6c OV-7 SV-1 SV-2 SV-4 SV-5 SV-6 SV-11 Functional Analysis Document
Reference Attribute Data Type	The valid data types defining the categories of values for logical and physical data attributes	Boolean Char Date
Reference Benefit Area Type	International Civil Aviation Organization's Key Performance Areas, also known as the general enhancement areas in future NAS operations that will be delivered within NextGen. The Benefit Areas selected by the NAS/FAA are a subset of the full set defined by the ICAO.	Access and equity capacity efficiency environment flexibility predictability safety
Reference Decision Point Association Reason	the set of values that depict the reason that two Decision Points are related	Technical Schedule Cost
Reference Decision Point Authority	Reference values that designate the decision authority for a Decision Point	Service Unit / EAB Executive Council Joint Resource Council NextGen Management Board Service Unit VP Service Director Enterprise Architecture Board

Name	Description	Value List
Reference Decision Point Status Type	Designates the status of a Decision Point, indicating if it is red, yellow or green	Red Yellow Green
Reference Decision Point Type	Reference information about the category of Decision Points.	Acquisition Executive Level FAA Policy FAA Strategy Legacy
Reference Event Type	Reference values that identify the category of Event	Start End Intermediate
Reference Exchange Parameter	Reference information concerning the various parameters that characterize an exchange of data or information	Reference: Integrated Systems Engineering Framework (ISEF) Appendix A, version 3.2 found at <a href="https://nasea.faa.gov/">https://nasea.faa.gov/</a>  For Information Exchange Parameters reference pg. A-15 to A-16  For Data Exchange Parameters reference pg. A-37 to A-39.

Name	Description	Value List
Reference Facility Type	Reference values describing the category of Facility	AOC Flight Operations Center ARTCC Air Route Traffic Control Center ATCT Airport Traffic Control Tower TRACON TRACONs Aircraft Aircraft Airport Airport FAA HQ FAA Headquarters SURVEILLANCE Surveillance Facility Weather Facility Weather Facility FSS Flight Service Station NWS National Weather Service Operations ATCSCC Air Traffic Control System Command Center AGC Communications Facility MMAC Mike Monroney Aeronautical Center WJHTC William J. Hughes Technical Center NEMC National Enterprise Management Center Military ATC Facilities Honolulu CERAP Honolulu Center Radar Approach Control CERAP Combined Center and Radar Approach Control AFSS Automated Flight Service Station NAVAID Navigation Facility Non-FAA ATC Facility International Air Navigation Service Provider Non-ATC DoD Facility Department of Defense Operations Governmental Proponent Governmental Proponent Lincoln Labs Lincoln Labs National Aeronautical Charting Office National Aeronautical Charting Office
Reference Funding Type	reference information about the categories of Funding sources or types for activities (e.g., Projects, Support Activity, etc.) within the NAS	F&E - Facilities and equipment RE&D - Research and Development O&M - Operations and Maintenance External - External Funding Source

Name	Description	Value List
Reference Gateway Type	Describes the types of logical gateway.	Exclusive Event-based Parallel Inclusive Complex Exclusive Event-based Parallel Event-based
Reference Hazard Category	Reference information concerning the type of Hazards that may occur	Environmental Technical Organizational Human
Reference Hazard Cause Condition	Reference information concerning the condition(s) by which two Causes for Hazards are associated	OR AND PRIORITY AND EXCLUSIVE OR INHIBIT
Reference Hazard Cause Type	Reference information that identifies the category Hazard Cause (i.e., what type of Fault Tree Event)	basic conditioning external intermediate undeveloped
Reference Implementation Timeframe	A reference class that contains the enumerated values for the three timeframes within the NextGen initiative:	As Is Mid Term Far Term
Reference Increment Association Reason	The valid reasons that an Increment, or Enabling Activity, is associated with another Increment, or Enabling Activity.	Increment 1 is predecessor for Increment 2 Increment 1 is dependent on Increment 2

Name	Description	Value List
Reference Increment Status	Reference data that designates the state of the Increment along its implementation lifecycle	<p>Planned = Where no related Projects are in financial analysis, In Progress, or Completed, if any Projects exist for the Increment</p> <p>Pre-Implementation = Where one or more related Projects are in the "Pre-Implementation" state and no related Projects are in the "In Progress" or "Completed" state</p> <p>In Progress = Increment where one or more related Projects are in the "Implementation" state</p> <p>Completed = Where all Increment Success Criteria have been met</p>
Reference Information Flow Destination Location	Depicts the valid values for where an ICOM can land on the target Operational Activity	Control Input Mechanism
Reference Lane Component Type	Describes the types of lane components.	Sequence Flow Sequence Object Data Object
Reference Life Cycle Status	A reference class that contains the enumerated values for life cycle phases	Planning In Development In Service Retired
Reference Logical Data Object Type	Depicts the valid types of Logical Data objects	Class Data Entity Data Object
Reference Node Role Type	Describes the nature of the Node - Operational or System or Communication.	Operational Node System Node

Name	Description	Value List
Reference NSIP Status	Reference values that designate the state of the NAS Segment Implementation Plan (NSIP)	Draft In Review Approved/Baseline Deprecated
Reference Operational Improvement Status	Reference information concerning the status of an Operational Improvement	Planned = a conceptual OI, that has no child Increments in an "In Progress" or later state, if there are any related Increments.  In Progress = An OI that has one or more child Increments in an "In Progress" State  Completed = An OI where each child Increment has a state of "Completed"
Reference Organization Artifact Role	Describes the valid values for the roles played by an Organization in regards to an Architecture artifact	Author Reviewer Configuration Manager Approver
Reference Organization Decision Point Role	Describes the role that an Organization plays in regards to a Decision Point.	Strategy Development Policy Change Funding Request Other Material Development
Reference Organization Program Role	Describes the valid roles that an Organization may enjoy in regards to a Program	Manages Funds

Name	Description	Value List
Reference Phase of Flight	Refers to a period within a flight. In the case of a manned aircraft, a flight begins when any person boards the aircraft with the intention of flight and continues until such time as all such persons have disembarked. In the case of an unmanned aircraft, a flight begins at the time the aircraft is ready to move with the purpose of flight and continues until such time it comes to rest at the end of the flight and the primary propulsion system is shut down. [Annex 13 to the Convention on ICA]	Flight Planning Push Back Taxi Takeoff Climb Domestic Oceanic Cruise Descent Approach Landing Taxi Flight Closing
Reference Physical Data Object Type	Depicts the category of Physical Data Object.	Class Table XML Element File

Name	Description	Value List
Reference RASCI	Reference information concerning the valid values for a RASCI matrix, where an organization's involvement in achieving an OI or Increment is identified.	<p>R: Responsible for the successful completion of NextGen capability or a critical component of the capability. This office is responsible to the Accountable office.</p> <p>A/R: Accountable for the completion of NextGen capability as well as Responsible for its implementation.</p> <p>S: Supports the Responsible office in the implementation of NextGen capability. Typically, this support is in the form of subject matter expertise, procedural guidance, or training activities.</p> <p>C: Consulted for input during the implementation of NextGen capability. Provides input on a specific aspect in the development and implementation of a capability, such as safety analysis or approval. Input may or may not be used as determined by the Responsible and Accountable offices.</p> <p>I: Informed about the progress of implementation.</p>
Reference Requirement Association Type	The reason or purpose for associating two Requirements	Parent is Enterprise for Program Level Child Parent Supersedes Child Is Technical Performance Requirement for Parent Requirement for Child Requirement
Reference Requirement Module Status	Designates the life cycle status for the Requirements Module.	In Progress Review Draft Baseline Superseded
Reference Requirement Type	Depicts the valid types of Requirements	Technical Performance Functional Interface

Name	Description	Value List
Reference Sequence Object Type	Describes the types of the sequence objects.	Event Gateway Task
Reference Service Type	Captures the valid service types	Discovery Service Collaboration Service Messaging Service Data Access Service User Identification Service Security Service
Reference Significant Date Type	A reference class that captures the valid values for significant dates in the lifecycle of a System	Initial Operating Capability Final Operating Capability End of Service Decommission Start Decommission End
Reference Standard Association Type	Describes the valid values for the association types of standard.	Candidate replacement for, Replaced by, Prior version of,
Reference Standard Category	A classification for Standards that helps to group standards that apply to similar type of things.	<see list on NAS SEP Portal>
Reference Standard Status Type	Reference information about the current state of a Standard	Active Retired Candidate Emerging
Reference Support Activity Status	Reference information about the current state of a Support Activity	Active Planned Completed Removed

Name	Description	Value List
Reference Support Activity Type	Describes the categories of Support Activities.	Operational Concept Exploration Concept Demonstration Concept Development Major Training Operational Concept Validation Operational Research Policy Assessment/Development Standards/Certification Dev. Technical Concept Validation Technology Demonstration and Prototyping Technology Opportunity Investigation
Reference System Association Reason	The set of codes that indicates why two Systems are related	System 1 is Functionally Dependent on System 2 System 2 is Functionally Dependent on System 1 System 1 Supersedes System 2 System 1 Converges into System 2 System 1 provides Benefits to System 2
Reference System Association Significant Date Type	A reference class that captures the valid values for significant date types in the lifecycle of a System Association	Functionality Replacement Start Date Functionality Replacement End Date
Reference Technical Readiness Level	Describes the categories of Technical Readiness to be applied against a Support Activity	Concept Exploration Research Planning Feasibility Assessment Simulation and Demonstration Prototype Development Acceptability Testing Technology Transfer Capability Implementation In Service Decision

## Appendix A: Acronyms

<b>Acronym</b>	<b>Definition</b>
AKA	Also Known As
ATP	Authorization To Proceed
AV	All View
BCD	Baseline Change Decision
BPMN	Business Process Modeling Notation
CIP	Capital Investment Plan
CRDR	Concept and Requirements Definition Readiness Decision
EA	Enterprise Architecture
EAB	Enterprise Architecture Board
FAA	Federal Aviation Administration
FID	Final Investment Decision
FY	Fiscal Year
IARD	Investment Analysis Readiness Decision
ICAO	International Civil Aviation Organization
IID	Initial Investment Decision
IOC	Initial Operating Capability
ISD	In-Service Decision
ISEF	Integrated Systems Engineering Framework
JRC	Joint Resources Council
LDO	Logical Data Object
MM	Metamodel
NAS	National Airspace System
NSDMCG	NAS SESAR Data Model Coordination Group
NSIP	NAS Segment Implementation Plan
OA	Operational Availability
OI	Operational Improvement
OV	Operational View
PMBOK	Project Management Body of Knowledge
RASCI	Responsible, Accountable, Supports ,Consulted, Informed
RTCA	Radio Technical Commission for Aeronautics
SA	System Architect
SV	System View
TBD	To Be Determined
TV	Technical View
UML	Unified Modeling Language
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
VP	Vice President
XML	eXtensible Markup Language

## Appendix B: UML Class Diagram Reader's Guide

This appendix presents a reader's guide to understanding a UML Class Diagram. It is not intended as a model developer's guide, but should serve as an aid to those unfamiliar with the notation as they review/critique class diagrams.

### UML Class Diagrams

A UML Class Diagram is a static structure diagram that presents the objects (known as classes), their properties (attributes), relationships (associations) and other characteristics for a business area. Class diagrams may be used to present the logical (i.e., platform independent) view of a business area or the physical (i.e., platform specific) view of an implementation of the business area. A UML class diagram may employ numerous constructs to represent the various assertions to be made, and the class diagrams for the NSDMCG will only use a subset of all possible constructs. Fewer constructs promotes simplicity in the models and enhances reader's understanding.

### Class Diagram Components and Definitions

The following definitions apply to the major components of a class diagram.

- Data Class - Classes describe real world entities (e.g., people, places, things, events, concepts) and the fundamental information we need to know to support business activities. A class may represent things that are concrete and tangible (such as an Aircraft or a Facility), or abstract and conceptual (e.g., an Air Route), and whose instances may change over time.
- Reference Class - A reference class is a class into which an enumerated set of valid values of a certain data attribute is depicted and stored. A data attribute that has an enumerated list of valid values, such as status, type, role, code or category, can be stored in a reference class.
- Class Attribute – Attributes are properties or characteristics of the class that describe or portray information about the class' instances. Instances of a class contain the same attribute types with potentially different attribute data values. Please note that sometimes attributes depicted in the diagrams within a class box are shown with a leading '-' and sometimes without. The minus sign before an attribute denotes (according to the UML standard) that its scope is private. The use of the '-' in the metamodel is not intended to convey any meaning about the private or public nature of the attribute. The metamodel is a logical data model and is not used to convey assertions that are more appropriately assigned to a physical data model.
- Class Association - An Association specifies a semantic relationship that can occur between typed instances (of two data classes). Each association is described by the cardinality (aka multiplicity) that depicts the number of instances of Class A that may/must be related to an instance of Class B. The inverse is also depicted; how many instances of Class B may/must exist for each instance of Class A. Additionally, an association also contains a text phrase that allows the modeler to describe the nature/purpose of the relationship.
- Class Supertype & Subtype (AKA Inheritance or Generalization) - Inheritance refers to the fact that one class (the child class or Subtype) inherits the identical attribution of another class (generalized or Supertype). Types and data values of attributes of the Supertype class apply to all of its Subtype classes. This means that any instance of the subtype is also an instance of the Supertype. For example, an Oak tree is a type of tree. Additionally, the child class may then add new functionality, associations, and specialized attribution of its own. This structure is an excellent way to depict a hierarchical breakdown.

- Association Class Type – A special type of class that is used to resolve a many to many (M:M) association between two other classes and is used to capture certain characteristics (attributes) of the association between the two classes. These characteristics do not belong to the classes being associated but instead belong to the relationship between the classes. M:M associations must be resolved because in an M:M association, you cannot identify which instances of each class are aligned with instances of the other class.
- Class Instance – An occurrence or member of the set of items that are identified as constituents in a class. Instances are not depicted on the model diagram, but are often used as a means for understanding the nature of the class.

### Class and Attributes

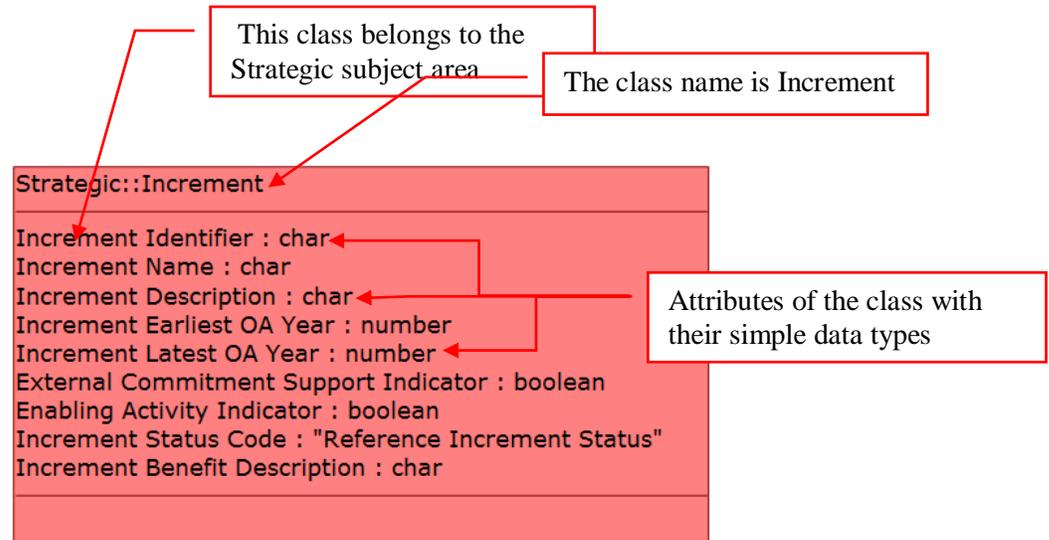


Figure 19: UML Class & Attribute Example

### Class Association

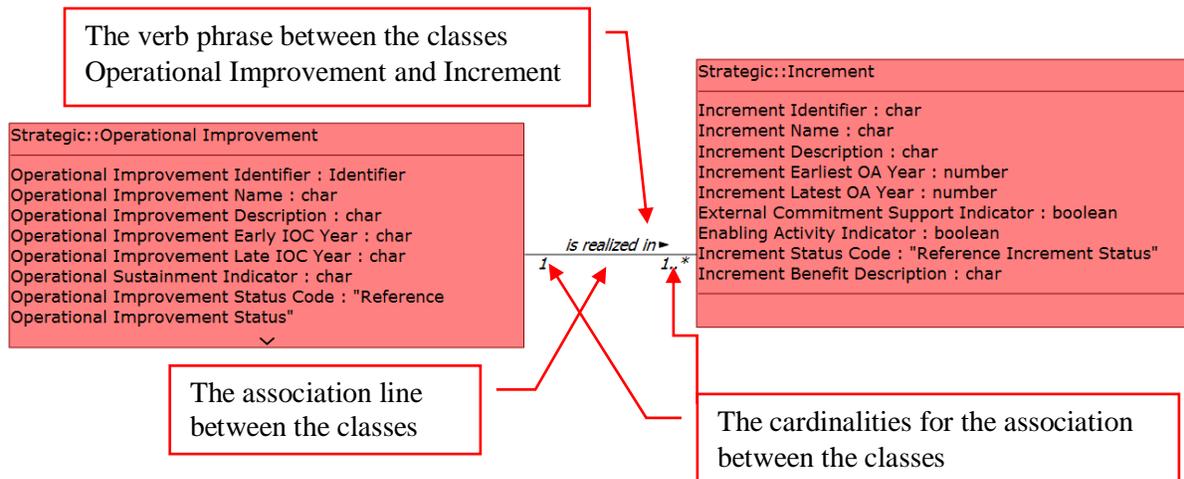
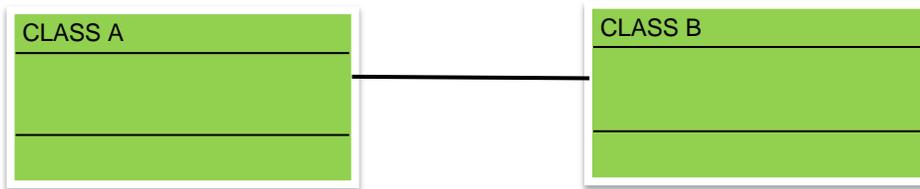


Figure 20: Class Association Example

Association lines depict a relationship or business rule between two classes. Associations also show the cardinality (AKA multiplicity) between two classes as explained in the definitions section above, and Table 7 below. A class association may be read as an assertion or business statement. The example above forms the assertion: “Each Operational Improvement is realized in one or more Increments.”

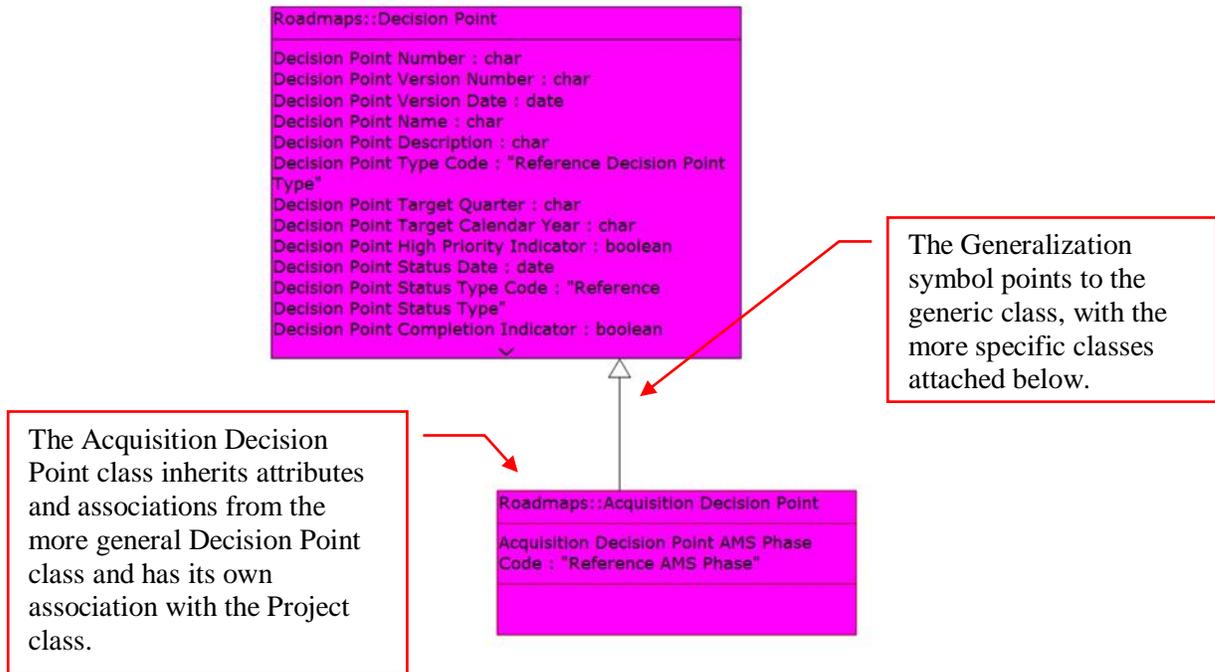


The variety of cardinalities are as follows: \_\_\_\_\_

**Table 8:** Cardinality Meaning

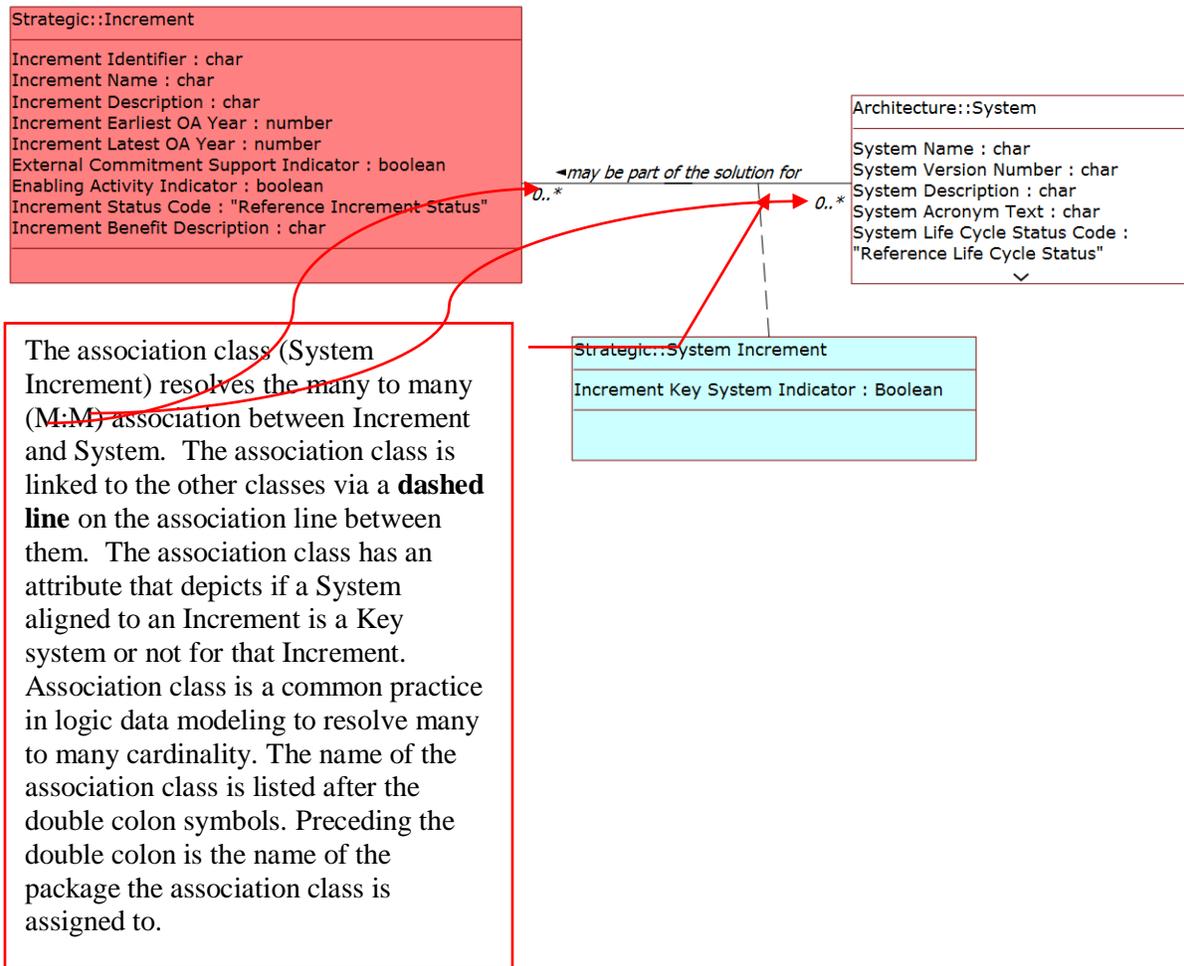
Cardinality	Meaning	<u>A</u> Notation	<u>B</u>
1	For each instance of Class A there must be exactly one instance of Class B		
0..1	For each instance of Class A there may be zero or one instance of Class B		
0..*	For each instance of Class A there may be zero, one, or many instances of Class B		
0..n	For each instance of Class A there may be zero instances of Class B, but no more than 5 (can be any number n) instances of Class B		
1..*	For each instance of Class A there must be at least one instance of Class B		
1..n	For each instance of Class A there must be at least one instance of Class B, but no more than 5 (can be any number n) instances of Class B		
n	For each instance of Class A there must be exactly 4 (can be any number n) instances of Class B		

## Class Supertype & Subtype



**Figure 21:** Class Supertype/Subtype Example

## Association Class



**Figure 22:** Association Class Example

# Appendix C: Change Logs

## Summary of Changes made since release of the Baseline Version 2.2

Table 9 Summary of Changes Applied to this Version of the ISEF Metamodel

Diagram Name	Change Summary
Architecture Operational View	<ul style="list-style-type: none"> <li>Renamed a class to “ICOM ARROW” and modified related associations to represent IDEF0 in the MM</li> <li>Modified association name between “Operational Activity” and “Activity Connection”</li> </ul>
Architecture Artifacts	<ul style="list-style-type: none"> <li>Added new classes to capture “Functional Analysis Document”, “Functional Flow Block Diagram” and “N-Squared Diagram” as architect artifacts</li> </ul>
Architecture System View	<ul style="list-style-type: none"> <li>Added a new attribute to System</li> <li>Added a new association between “Function Data Flow” and “N-Squared Diagram</li> <li>Added a new association between “Functional Analysis Document” and “Function Hierarchy”</li> <li>Added new attributes to “CONOPS Summary” class</li> </ul>
Infrastructure Roadmap	<ul style="list-style-type: none"> <li>Removed class “Support Activity Actor”</li> </ul>
NSIP	<ul style="list-style-type: none"> <li>Removed two association classes to address modeling inconsistency issues: there exists no attribute in those two classes nor are those two classes associated to any other data object in the MM</li> <li>Reassigned this class diagram to package “Planning”. ( “Planning” became the new name for the original “Roadmap” package)</li> </ul>
Safety Hazard	<ul style="list-style-type: none"> <li>Modified cardinality on class “Hazard Cause” to “Hazard” association</li> <li>Add new association between classes “Hazard” and “Hazard Cause Association”</li> </ul>
Requirement	<ul style="list-style-type: none"> <li>Removed three association classes to address the modeling inconsistency issues.</li> </ul>
System-Service	<ul style="list-style-type: none"> <li>Removed two association classes to address the modeling inconsistency issues.</li> </ul>
Support Activity	<ul style="list-style-type: none"> <li>Removed one association classes to address the modeling inconsistency issues.</li> </ul>
Strategic View	<ul style="list-style-type: none"> <li>Removed one association classes to address the modeling inconsistency issues.</li> </ul>

## Change Details

Table 10 Details of Changes in this Version of the NAS ISEF Metamodel

Diagram	Object Type	Change Type	Object Name	Portal CR#	Change Description	Change Rationale
Architecture Artifacts	Class	Addition	Functional Analysis Document	N	Add a new architect artifact class: Functional Analysis Document	Based on the latest version of NAS Functional Analysis Template
Architecture Artifacts	Class	Addition	N-Squared Diagram	N	Add a new architect artifact class: N-Squared Diagram. Make Functional Analysis Document its parent class	Based on the latest version of NAS Functional Analysis Template
Architecture Artifacts	Class	Addition	Functional Flow Block Diagram	N	Add a new architect artifact class: Functional Flow Block Diagram. Make Functional Analysis Document its parent class	Based on the latest version of NAS Functional Analysis Template
Architecture Operational View	Class	Addition	Activity Connection ICOM	N	Add new association class between ICOM Arrow and Activity Connection	Results of modifying the way we represent IDEF0 in the metamodel
Architecture Operational View	Class	Rename	ICOM Arrow	N	renamed from Activity Connection Information Flow	results of modifying the way we represent IDEF0 in the metamodel
Architecture Operational View	Association	Other (describe in Notes)	Between Activity Connection and ICOM Arrow	N	Cardinality change to: 1..* on both ends.	results of modifying the way we represent IDEF0 in the metamodel
Architecture Operational View	Association	Other (describe in Notes)	between ICOM Arrow and Information Exchange	N	Cardinality change to: 0..* on both ends.	results of modifying the way we represent IDEF0 in the metamodel
Architecture Operational View	Association	Rename	Between "Operational Activity" and "Activity Connection"	N	Rename to "From Operational Activity" and "To Operational Activity"	Ambiguous name.

Diagram	Object Type	Change Type	Object Name	Portal CR#	Change Description	Change Rationale
Architecture System Views	Attribute	Addition	CONOPS Summary	N	Add a new attribute to Concept of Operations class.	Based on the latest version of NAS Functional Analysis Template
Architecture System Views	Association	Addition	Interface to CONOPS association	N	Add a new one to many association between Interface and CONOPS classes	Based on the latest version of NAS Functional Analysis Template
Architecture System Views	Association	Addition	Function Hierarchy to CONOPS association	N	Add a new one to many association between Function Hierarchy and CONOPS classes	Based on the latest version of NAS Functional Analysis Template
Architecture System Views	Attribute	Addition	Operational Environment Attribute	N	Add a new attribute Operational Environment to CONOPS class	Based on the latest version of NAS Functional Analysis Template
Architecture System Views	Association	Addition	N-Squared Diagram to Function Data Flow Association	N	Add a new many to many association	Based on the latest version of NAS System Engineering Manual
Architecture Systems Views	Attribute	Addition	System Development Time Frame	N	Add a new attribute to System class	Based on the latest version of NAS Functional Analysis Template
Infrastructure Roadmap	class	Deletion	Support Activity Actor	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
Infrastructure Roadmap	class	Deletion	Support Activity Actor	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
not specific	Reference Class	Other (describe in Notes)	Reference Support Activity Type	Y	Replaced old list of values with new set	New materials from Cynthia Morris

Diagram	Object Type	Change Type	Object Name	Portal CR#	Change Description	Change Rationale
NSIP	class	Deletion	Operational Activity Operational Improvement	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
NSIP	class	Deletion	Operational Requirement Operational Activity	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
NSIP	class	Deletion	Operational Activity Operational Improvement	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
NSIP	class	Deletion	Operational Requirement Operational Activity	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
NSIP	Package	Reassign	Strategic	N	Reassign NSIP diagram and classes from package "Strategic" to "Planning"	Requested by Mike H. NSIP is a planning product, not a strategic product.
Requirement	class	Deletion	Operational Activity Operational Improvement	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
Requirement	class	Deletion	Functional Requirement Function	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
Requirement	class	Deletion	Functional Requirement Function	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.

Diagram	Object Type	Change Type	Object Name	Portal CR#	Change Description	Change Rationale
Requirement	class	Deletion	Operational Activity Operational Improvement	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
Requirement	class	Deletion	Functional Requirement Function	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
Requirement	class	Deletion	Functional Requirement Function	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
“Roadmap” Package	Package	Rename	Roadmap	N	Change the package name “Roadmap” to “Planning”	Request came from Mike H, for accuracy.
Safety Hazard	class	Deletion	Operational Node Activity	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
Safety Hazard	Association	Other (describe in Notes)	Hazard Cause to Hazard association	N	Change the municipality at Hazard from 1..* to 0..*	The current Safety MM forces each instance of a Hazard Cause to be associated directly to an instance of a Hazard. Since the MM was designed to support sub-causes to causes and sub-subcauses to sub-causes and etc..., I don't think we want to force a direct relationship between subcauses and hazards.
Safety Hazard	Association	Addition	Association	N	add a new many to many association between Hazard and Hazard Cause Association classes	Hazard can be the top node to two or more hazard causes defined in a hazard cause hierarchy. This needs to be captured.

Diagram	Object Type	Change Type	Object Name	Portal CR#	Change Description	Change Rationale
Safety Hazard	class	Deletion	Operational Node Activity	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
Service Roadmap	Association	Rename	Association	N	Rename "Operational Improvement" to "FAA Service Capability" to "is defined by changes to"	Requested by Mike H, for improved accuracy.
Strategic View	class	Deletion	Strategic Goal Program	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
Support Activity	class	Deletion	Support Activity Actor	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
Support Activity	class	Deletion	Support Activity Actor	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
system-service	class	Deletion	System Project	N	Purge this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.
system-service	class	Deletion	System Function	N	Removed (not purge, as this class is used in other diagrams currently in development)this association class from Architecture Operational Views diagram	There is no attribute in this association class. This class is not associated with other data object class.

Diagram	Object Type	Change Type	Object Name	Portal CR#	Change Description	Change Rationale
system-service	attribute	Addition	System	N	Added "System Phase of Flight Code" and assigned "Reference Phase of Flight" as its type. Removed the reference class from the diagram.	Compliant with logical modeling standards. Reference class should be removed from class diagram, instead assign reference class as the type for the attribute in the native class.