

**AWIPS Evolution**

**Project Organization and Management**

**V1.0**

**4 January 2008**

## Internal Management Plan

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## **Internal Management Plan**

**Purpose:** This plan defines the internal management structure of the AWIPS Evolution Project. It does not replace the Management Plan, dated 9 Feb 2006, which defines AWIPS Evolution with respect to external organizations and processes

The internal management plan is needed because the AWIPS Evolution project has grown in scope and complexity. AWIPS Evolution is a matrixed project and, as such, requires a defined management structure for the subtasks, their relationships and outputs.

### **2.0 Overview**

The AWIPS Evolution Project is composed of three distinct phases as shown in the Figure 1.1

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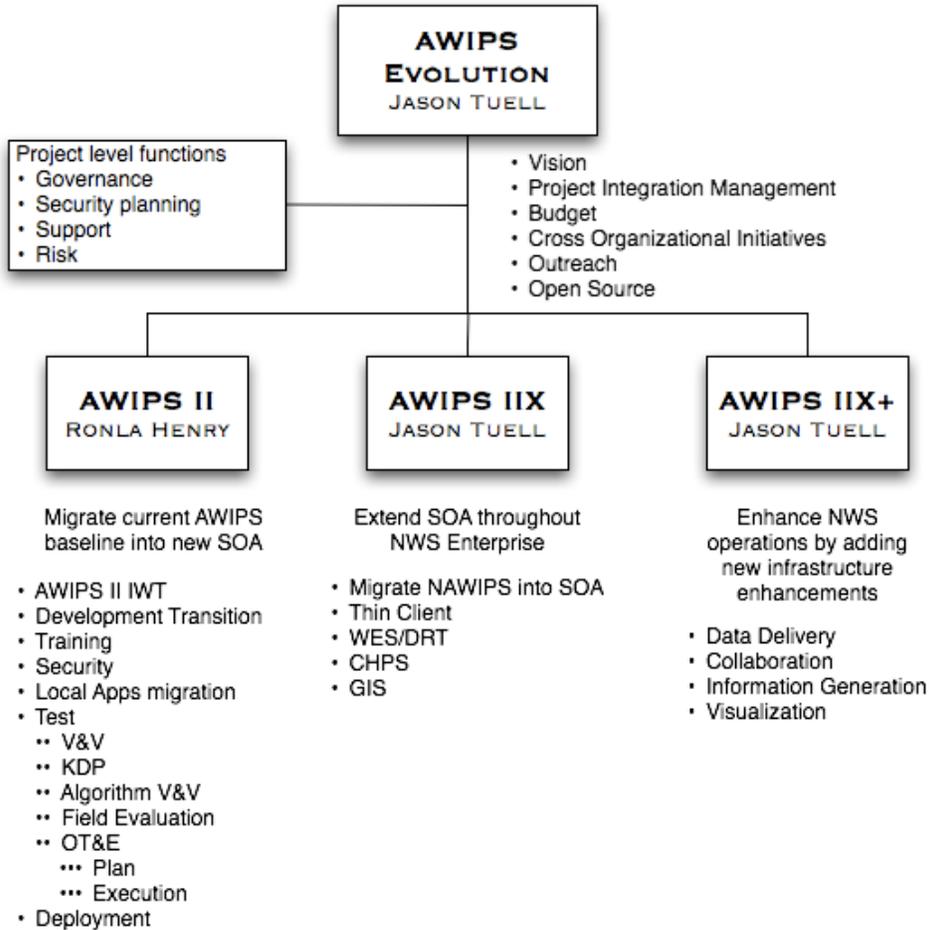


Figure 1.1 AWIPS Evolution Structure and Components

AWIPS Evolution is executed in three distinct phases. The first and most critical phase of the AWIPS Evolution project is the delivery of AWIPS-II. AWIPS-II consists of the current baseline functionality, through OB9, migrated into the new service oriented architecture (SOA).

The second phase of the AWIPS Evolution project is the extension of the AWIPS-II architecture to all levels of NWS operations. This extension consists of four separate components:

- National Center AWIPS (NAWIPS) Migration
- Thin Client

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- Weather Event Simulator (WES) migration
- Community Hydrological Prediction System (CHPS)

The objective of this phase is to extend the AWIPS-II architecture throughout the weather enterprise infrastructure that enables meteorological and hydrological operations for all components of the National Weather Service (NWS) (national centers, river forecast centers, weather forecast offices to weather service offices) and the training and case development to support operations.

The third and final phase of AWIPS Evolution builds upon the new enterprise infrastructure by delivering new system wide functionality to enhance all levels of NWS operations. These enhancements include:

- Data delivery (“smart push – smart pull”)
- Collaboration (“integrated visual collaboration”)
- Information generation (“re-architecture of the infrastructure for generating products and service”)
- Visualization (developing new user interface standards and three dimensional visualization)

The first phase of the project is authorized by Operational Services Improvement Process (OSIP) Statement of Need (SON) 04-005, AWIPS Evolution.

### 3.0 Matrix Management

The AWIPS Evolution project has no dedicated resources. It is a matrixed project, one that uses resources taken from throughout the entire NWS organization.

The overall project is led by the Systems Engineering Center within the Office of Science and Technology. The project is executed by small teams that carry out the necessary functions critical to the project. Team leads have the responsibility for the planning and execution of their functional areas, but receive technical direction from the AWIPS Evolution project management. Administrative and organizational support is provided by their respective host organizations.

Coordination and managing the outputs of these teams is the responsibility of AWIPS Evolution Project Management.

The following terms are used throughout this document and are defined here.

<b>Key</b>	<b>Role</b>
A	Accountable
a	Organizationally accountable
L	Lead
P	Participant
O	Observer
I	Input

Table 1-1 Definition of Roles

Accountable (A) – This office and/or individual holds overall accountability for the execution of the project.

Organizationally accountable (a) – This is used to designate the supervisor of an individual who is designated as the lead for a particular activity. The rationale is that the supervisor is responsible for the training and skill of the person designated to carry out the lead on a task. If the designated lead is no longer available, we will look to the person organizationally accountable to provide a replacement in consultation with the overall area lead.

Lead (L) – This is used to designate the lead which responsible for overall execution of an assigned activity. The Lead of an activity is responsible for the following:

- Planning all tasks associated with this activity.
- Capturing these tasks along with associated resources required within a Work Breakdown Structure
- Attend appropriate meetings including status and risk meetings.

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- Coordinating with other activity leads as necessary via the overall sub-project lead (e.g., AWIPS-II or AWIPS-II Extended)

Participant (P) – This is used to designate those who support the execution of a particular activity. The Participant is responsible for the following:

- Assisting the leader of the activity in the definition and execution of the tasks

Observer (O) – This is used to designate those who are not actively engaged in a particular activity. These individuals are monitoring the progress of the activity.

Input (I) – This is used to designate those who provide input into the particular activity.

*The LACI diagram is shown in Appendix 2.*

## 4.0 AWIPS Evolution

The AWIPS Evolution Project has a number of over-arching project level activities that support the overall project and sub projects. These overarching activities include Governance, Security, Administrative Support, and Risk Management.

### 4.1 Governance

Purpose: The purpose of the Governance activity is to define a new Governance model for the AWIPS-II era and beyond. The Governance model should accommodate the capability and flexibility introduced by the new architecture. The Governance model will define how processes for developing local applications, the path to the baseline, how requirements are managed and are scheduled for development in the builds.

Outputs: Governance model

Lead: Edwin Welles

### 4.2 Security

Purpose: The overarching security function is to anticipate emerging security requirements that follow on capabilities will require.

Output: Security requirements, guidelines and concept that enables the follow on infrastructure enhancements

Lead: John Gordon

### 4.3 Risk

Purpose: The overall project will have a robust risk management function. The risk management team will consist of all AWIPS Evolution team leads and Raytheon.

Outputs: Risk register and risk mitigation plans

Lead: Jason Tuell

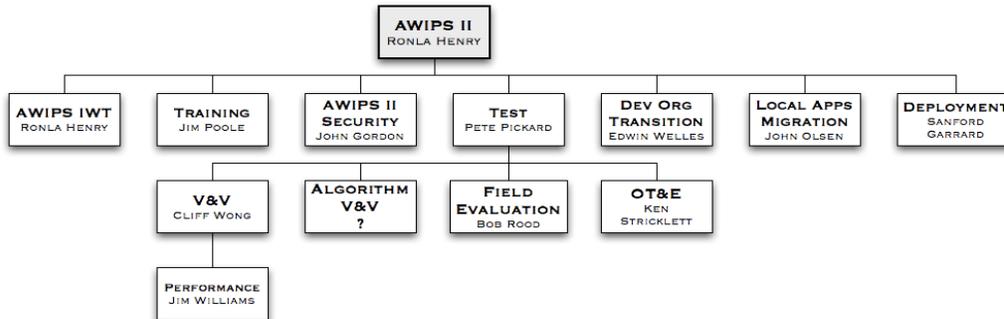
### 4.4 Project Administration

Purpose: To provide administrative, coordination and documentation support to the AWIPS Evolution project.

Lead: Fran Curnow

## 5.0 AWIPS-II

This section describes the tasks and activities necessary to deliver AWIPS-II. AWIPS-II is defined as the output of the initial Raytheon software Continuous Technology Refresh (CTR) activity.



**Figure 5.1 AWIPS-II Organizational Structure**

The AWIPS-II organizational structure is shown in Figure 5.1. AWIPS-II is organized into the following teams and management functions:

- AWIPS-II Integrated Work Team (IWT)
- Training
- AWIPS II Security
  - Algorithm verification and validation
  - Verification and validation
  - Performance validation
  - Acceptance and Key Decision Point testing
  - Risk reduction testing
  - Operational Test and Evaluation (OT&E)
- Security
- Development Organization Transition
- Deployment

### 5.1 AWIPS-II Overall

Purpose: This represents the integration of the tasks that compose the AWIPS-II sub-project. In addition, this organization serves to provide the structure and coordination necessary to review contractual proposals and deliverables. Those involved depend on the exact nature of the deliverable. This part of the AWIPS

Evolution organization is responsible for coordinating the various KDP reviews. These reviews take into account all aspect of this sub-project.

Outputs: Reviews of proposals and/or deliverables in accordance with the schedule; Various KDP review reports and/or briefings

Lead: Ronla Henry

## 5.2 AWIPS-II IWT

Purpose: The AWIPS-II IWT provides the core of the OSIP support. This team develops and reviews the necessary OSIP documents. This team is the primary interface with the regions and field organizations.

Outputs: OSIP documentation (e.g., the concept of operations) needed to support each OSIP Stage.

Lead: Ronla Henry.

Reference: OSIP 04-005, SON, AWIPS Evolution.

## 5.3 Test

The overall responsibility of the test function is to test the AWIPS-II system (1) to insure that it duplicates the functionality of the current baseline system, through OB9, (2) to insure the scientific and technical algorithms are accurately implemented, (3) to insure that acceptance and Key Decision Point testing is conducted as defined and agreed upon between Raytheon and Government, (4) to conduct risk reduction testing, and (5) to conduct an operational test and evaluation.

### 5.3.1 Algorithm Verification and Validation (V&V)

Purpose: The algorithm V&V function has two separate and distinct tasks. The first is to provide technical assistance to Raytheon when multiple algorithms for the same function exist within the baseline software. Raytheon has asked the Government to provide recommendations as to which algorithm should be migrated into the AWIPS-II baseline when there are multiple algorithms for the same calculation within the current baseline. The second task is to validate that the algorithms have been migrated into the new architecture correctly, within the precision and limitations of the underlying scientific libraries supporting such calculations. Note that the second function is a subset of our overall V&V function which requires a team with unique technical subject matter expertise.

Outputs: Algorithm recommendations and reconciliation to Raytheon;  
V&V of migrated algorithms.

Lead: TBD

### 5.3.2 Verification and Validation (V&V)

Purpose: The overall purpose of the V&V function is to provide a formal and independent assessment of the output of each Raytheon software task order. The V&V activities are specifically designed to push the Task Order (TO) deliverables. Problems are expected to be found as a result, this activity must coordinate with Raytheon on the information exchange.

Outputs: V&V plan applicable to the Task Orders, V&V Test Report

Lead: Cliff Wong

#### 5.3.2.1 Performance testing

Purpose: This function represents the component of the V&V activity responsible for providing analysis of the performance aspects of AWIPS-II. This includes defining metrics and performance measures, system, capturing baseline data from the existing system (AWIPS I), and running equivalent tests on AWIPS-II.

Outputs: Baseline measures against the existing system;  
Comparison measures against AWIPS-II

Lead: Jim Williams

### 5.3.3 Field Evaluation

Purpose: This activity is responsible for the testing of AWIPS-II at operational sites and test facilities prior to OT&E. This activity is composed of two distinct activities: side by side testing of AWIPS I and II in a lab or controlled setting and testing of AWIPS II at a limited number of operational sites. The side by side testing will be conducted in a controlled environment and will be used to identify differences in functionality between AWIPS I and II. The testing at operational sites will expose the system to use in an operational setting. This activity is conducted in such a manner as not to impact existing operations but provide the necessary feedback to the Government and Raytheon as to the implementation of the “look and feel” portion of the baseline application migration.

Outputs: Field Evaluation Plan, Trouble Ticket Reports

Lead: Bob Rood

### 5.3.4 Operational test and Evaluation (OT&E)

Purpose: This function plans and executes the OT&E for AWIPS-II.  
Deployment is dependent on the several execution of OT&E.

Outputs: OT&E Plan and test cases, Trouble Ticket Reports, deployment recommendation

Lead: Ken Stricklett

Reference: **Put NWSI for OT&E here.**

**Comment [JPT1]:** Pete – insert the policy number and title here.

### 5.4 Local Applications Migration Team

Purpose: This activity plans, assists and provides oversight for the migration of local applications into AWIPS-II.

Outputs: Local Application Migration Plan; Techniques and examples for the migration of local application; Clearing house of examples and help

Lead: John Olsen

### 5.5 Development Organization Transition

Purpose: This activity prepares the development organizations for the transition to developing new science and applications within the new architecture. Define training requirements

Outputs: Trained developers capable of working in the new environment.

Lead: Ed Mandel

### 5.6 Security

Purpose: This activity ensures that AWIPS-II has the necessary security capabilities. This activity ultimately oversees the C&A process for AWIPS-II. The C&A of AWIPS-II will be an update to the existing C&A for AWIPS.

Outputs: List of Technical Controls impacted by AWIPS-II; C&A Test Plan; C&A Report.

Lead: John Gordon

#### 5.7 Training

Purpose: This activity provides the necessary training to field personnel prior to the deployment of AWIPS-II. This training includes Local Application Migration, Application Focal Point training, and System Administration Training. This activity must work closely with NSTEP in order to ensure the necessary resources are applied to this effort.

Outputs: Strategic Training Plan; Web-based and Residence training modules/class as determined by the Strategic Training Plan

Lead: Jim Poole/Thuy Tran

#### 5.8 Deployment

Purpose: This activity provides the necessary structure to ensure a successful deployment of AWIPS-II.

Outputs: Deployment Plan and schedule (developed by Raytheon, coordinated with the Government)

Lead: Neal DiPasquale.

## 6.0 AWIPS-II Extension Teams

### 6.1 NAWIPS Migration

Purpose: This task is responsible for the planning and execution of the migration of NAWIPS functionality and applications into the AWIPS II SOA architecture.

Outputs: NAWIPS migration plan, and integrated functionality in the AWIPS II architecture.

Lead: Dave Plummer

Reference: OSIP SON 08-xxx

### 6.2 Thin Client

Purpose: This task is responsible for the planning and execution of the definition, development and deployment of a thin client capability. The thin client capability provides operational support to:

- Weather Service Offices (WSOs) in Alaska region and Pacific region
- IMETs and the fire weather mission, and,
- Center Weather Support Unit

Outputs: Thin client project plan, OSIP documentation, thin client functionality integrated into the AWIPS II SOA.

Lead: TBD

Reference: OSIP SON 07-xxx

### 6.3 WES/DRT

### 6.4 Community Hydrological Prediction System (CHPS)

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## 7.0 AWIPS-II Extension Plus

### 7.1 Data Delivery

Purpose: This task is responsible for the planning and execution of the definition, development and deployment of an enhanced mechanism to provide data and information to AWIPS sites. This project supports both the point-to-multi-point distribution paradigm used by the current Satellite Broadcast Network (SBN) and a more flexible “smart push-smart pull” paradigm.

Outputs: Data delivery Project Plan, Concept of Operations, and other supporting documentation as required, with end result, an implemented capability.

Lead: Not known at this time

Reference: OSIP SON 05-040.

### 7.2 Collaboration

Purpose: This task is responsible for the planning and execution of the definition, development and deployment of an integrated visual collaboration capability. This capability is intended to be implemented in three phases:

- Phase 1 – Collaboration within all levels of NWS
- Phase 2 – Collaboration between NWS and select NOAA organizations
- Phase 3 – Collaboration between NWS and trusted external partners (e.g., Emergency Managers)

Outputs: Collaboration Project Plan, Concept of Operations, and other supporting documentation as required, with end result, an implemented capability.

Lead: Not known at this time

Reference: OSIP SON 05-042

### 7.3 Information Generation

Purpose: This task is responsible for the planning and execution of the definition, development and deployment of a re-architecture of the generation of NWS products and services.

Outputs: Information Generation Project Plan, Concept of Operations, and other supporting documentation as required, with end result, an implemented capability.

Lead: Not known at this time

Reference: OSIP SON 05-041

#### 7.4 Visualization

Purpose: This task is responsible for the planning and execution of the definition, development and deployment of updated visualization services and capabilities.

Outputs: Information Generation Project Plan, Concept of Operations, and other supporting documentation as required, with end result, an implemented capability.

Lead: Not known at this time

Reference: OSIP SON 05-021

## 8.0 Communications

This section defines internal organization communications within the project. Clear lines of communications are critical to the overall success of this project. This is especially true given the matrixed nature of this project.

Here are the guidelines for communications within the AWIPS Evolution project. The goal of communications is to keep everyone informed as especially task and sub-project leads.

- All team members within a task are encouraged to copy all other task members on matters relating to the task. The task lead must be copied on all e-mail communications pertaining to the task.
- When communication with a supervisor on matters related to a particular task, insure that the task lead is copied as well.
- Make sure that task leads and/or the next level lead on the organizational chart are copied on all external communications. This will prevent any “surprises” from occurring during status meetings and other similar forums.

The goal is to have open communications, but to also insure that the task and project leads are aware of critical issues so they can be worked.

## 9.0 References

OSIP 04-005

## 10.0 Appendices

Appendix 1 – Acronyms

- ADE – AWIPS Development Environment
- API Manager– AWIPS Product Improvement Manager
- AWIPS – Advanced Weather Interactive Processing System
- COTR – Contracting Officer's Technical Representative
- CTR – Continuous Technology Refresh
- GSD – Global Systems Division
- IPT – Integrated Product Team (same as IWT in the context of this document)
- IWT – Integrated Work Team (same as IPT in the context of this document)
- MDL – Meteorological Development Laboratory
- N-AWIPS – National Centers AWIPS
- NC – National Centers
- NCEP – National Centers for Environmental Prediction
- NWS – NOAA National Weather Service
- OHD – Office of Hydrological Development
- OSIP – Operations and Service Improvement Process
- OT&E – Operational Test and Evaluation
- PIP – Product Improvement Plan
- RAM – Responsibility Assignment Matrices
- RFC – River Forecast Centers
- ROM – Rough Order of Magnitude
- SBN – Satellite Broadcast Network
- SEC – System Engineering Center
- SDK – Software Development Kit
- SOA – Service Oriented Architecture
- SON – Statement of Need
- SREC – Software Recommendation and Evaluation Committee
- WFO – Weather Forecast Offices
- WSO – Weather Service Office

Appendix 2 – LACI Diagram