



Co-operative Observer Network Modernization

Cost Analysis and Planning Methods

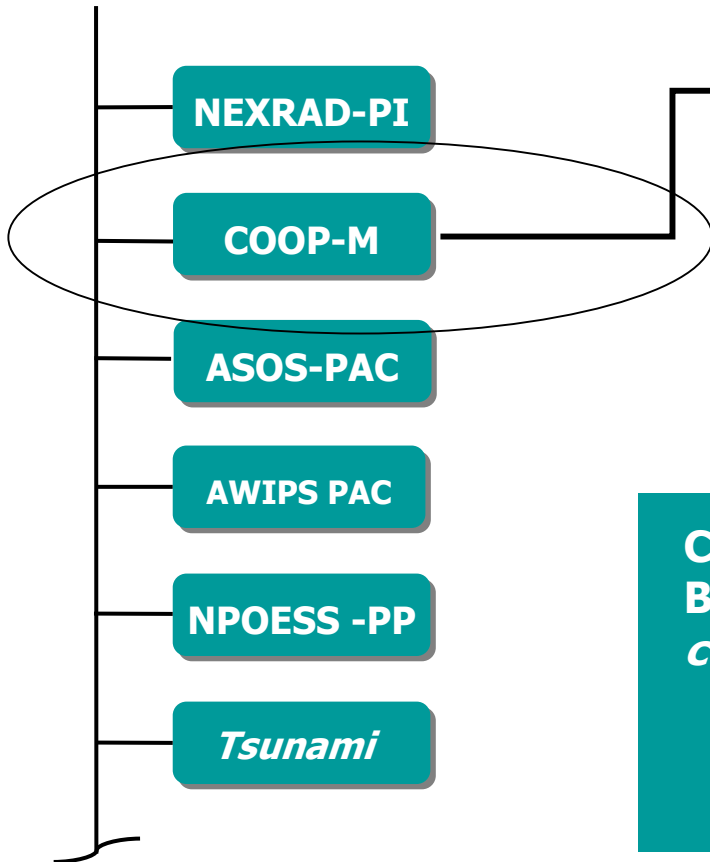


**PRICE support to NOAA's Weather & Water Mission and
NOAA's National Weather Service**



Enterprise Program Planning and Control Structure

NOAA's Weather & Water Science, Technology & Infusion Portfolio



Cost is represented in Program Work Breakdown Structure – *note full-life cycle cost capture*

- 1.0 Development
- 2.0 Procurement/Deployment
- 3.0 Operations & Maintenance

*Product Improvement (**PI**), Modernization (**M**); Procurement, Acquisitions and Construction (**PAC**), preparatory project (**PP**)



Integrated Surface Observing System (ISOS)

- **Climate Reference Network (CRN)**
- **NOAA's Environmental Real-time Observing Network (NERON)**
 - **Cooperative Observers (COOP) Current Network**
 - **COOP-Modernization**
 - **Mesonets**
- **Automated Surface Observing System ASOS [NOAA, FAA, DOD]**



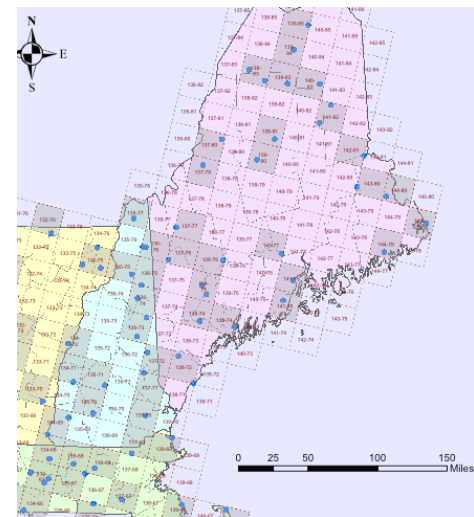


COOP-M Prototyping In-Progress Review (11/04)

- **New England Demonstration Phase EVM Reporting**
 - Examined Earned Value Data reported by PRISM Communications, Inc.

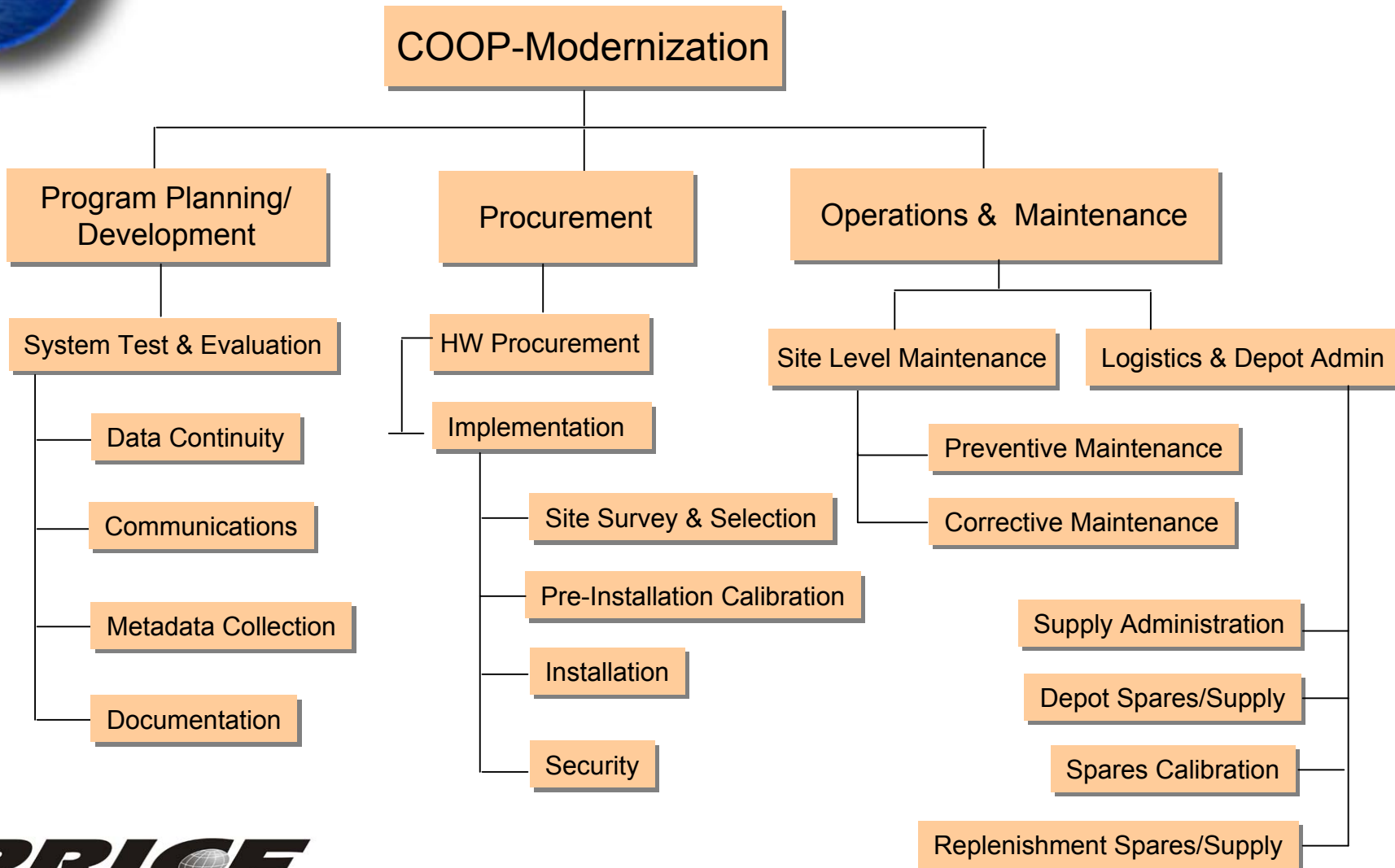
- **Reporting Formats**
 - Not formatted according to Cost Performance Reports

- **Program Integration**
 - EVM Reporting not integrated with Program Work Breakdown Structure
 - EVM Reporting not defined within Control Account Levels





COOP-Modernization Program WBS



True Program Success™

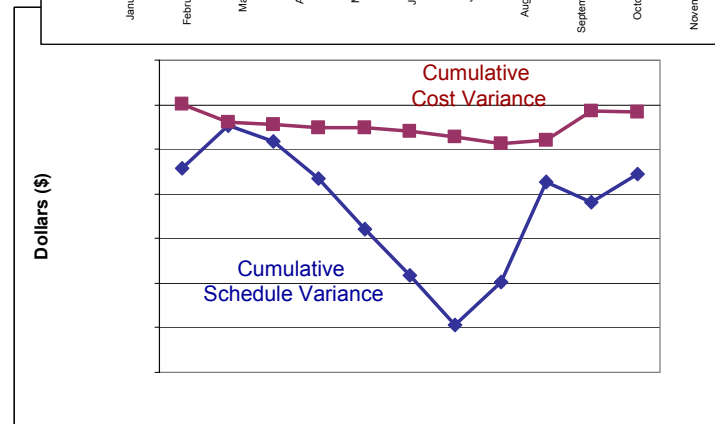
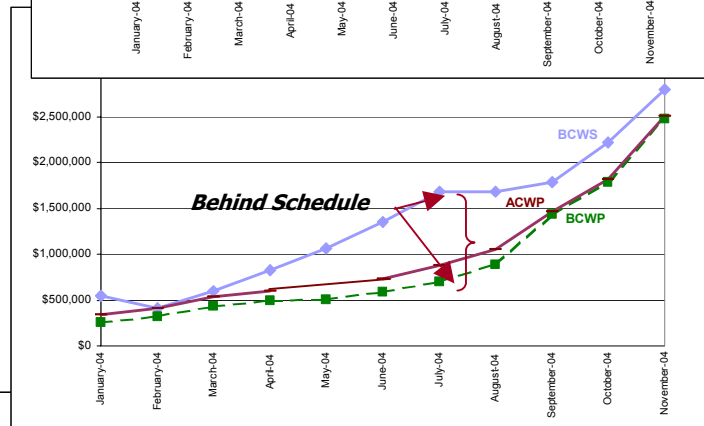
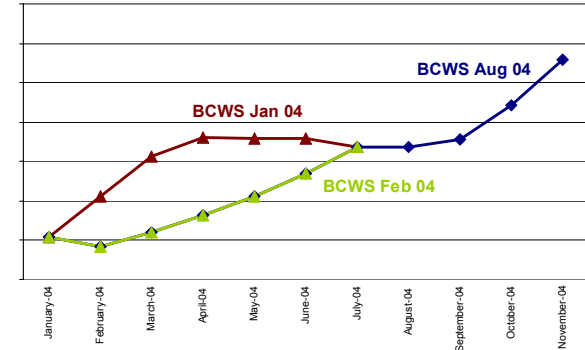


Price support for EVM COOP Modernization

- **Schedule the Work**
 - Define Performance Measurement Baseline
 - Assign work based on expected completion time periods

- **Allocate Budgets**
 - Control Accounts
 - Work Packages

Program Re-baselines: Jan 04, Feb 04, Aug 04



True Program Success™



Recommendations/Conclusions /Next Steps

■ **Recommendations**

- Continue EVM reports and data
- Capture EVM data in formatted EVM standard report (Cost Performance Report)
- Implement consistency between Work Breakdown Structure and EVM reporting
- Implement consistency between WBS and Budget Reporting

■ **Conclusions**

- Program was re-baselined several times. Thus making it hard to identify initial budgeted cost of work scheduled and measure performance accordingly
- New England Demonstration Phase will most likely finish significantly later than originally scheduled
- Estimated overrun

■ **Next Steps**

- Cost and Operational Effectiveness Analysis (COEA)



Summary of PRICE Activity

- **Initially tasked for pilot analysis for the NEXRAD Product Improvement**
- **Follow-on tasked to implement Affordability Management concepts for COOP-Modernization Program**
- **Provided On Site Support for COOP-Modernization Program Office in analysis of alternatives, budgeting activities, acquisition strategy cost estimation and EVM support for current procurements**



Results

- **NOAA's Weather & Water Goal Team and COOP-M Program Office used PRICE's analysis of alternatives and acquisition cost estimation**
 - ↳ **in support of ongoing acquisition strategies**
 - ↳ **in submittals to NOAA's Program Planning Analysis and Evaluation (PA&E) Organization – PPBES FY08-011 Programming**
 - ↳ **in support of preparation of OMB Exhibit 300**



Lesson's Learned

- **Projects required more resources to model the hardware portion of the program**
 - ▮ **Ongoing analysis must incorporate and extend True Planning (True-H and True-IT) to model all technology components related to this project**
 - ▮ **True Planning needs to address hardware estimation and schedule based costing (interface with Excel)**
 - ▮ **Accessibility to Subject Matter Experts for data collection and validation of assumptions was critical**
 - ▮ **Demonstrated capabilities with Earned Value Management by analyzing EVM data from current procurements, increased credibility for successful implementation of EVM Performance Baselines**



Information Flow to Knowledge Capture

Tools



Program Cost Data
Schedule Data
EVMS Data
Performance Data
Risk Analysis Data

Program Cost Information
Schedule Analysis
Critical Path Analysis
Earned Value Analysis
Performance Measurement
Risk Assessment

Project Status Stoplights
Schedule Data
Earned Value Charts
Risk & Issue Charts
Cost Status
Integrated Master Schedule
Task Order Cost Detail

Inputs



Processes



Outputs



NOAA Quad Charts

Quads include relevant information in 4 major categories:

- ☞ **Program Adjustment** – Describes the adjustment and identifies relevant performance measures
- ☞ **Funding** – Identifies funding profile **associated with adjustment and** changes in input & output capacities
- ☞ **Benefits and Risks** - Describes and quantify societal impact of adjustment; Identify risks/barriers to implementation **and identify dependencies of and on other programs**
- ☞ **Activity, Schedule & Milestones** - Demonstrates that there is a plan and that it is executable



ISOS Quad Chart



NOAA Integrated Surface Observing System Plan FY 06 and Beyond



PROGRAM ADJUSTMENT

- **GOALS:** Climate, C&T, W&W
- **PROGRAM:** Cross Goal Integration
- **CAPABILITY:** Integrated Surface Observations
- **REQUIREMENT:** Congress, GEOSS, Annual Guidance Memo, FY07 PDM, Corporate Best Business Practices.
- **DESCRIPTION OF ADJUSTMENT:** To support a process, including architecture, to enable interoperability of “stove-piped” NOAA surface observing systems and related observing systems.
- **PERFORMANCE MEASURES:**
Outcomes: 1. A surface observing system that most economically meets validated requirements for NOAA’s mandates and is capable of addressing multi-disciplinary societal issues. 2. More effective leverage of Agency investments in Observing and Data Management.
P.Ms:
 1. Number of interoperable Observing Systems, 2. Number of users

BENEFITS AND RISKS

- **IF FUNDED:** An interoperable surface observing system that is operating and serving cross discipline users in the most economic manner possible.
- **IF NOT FUNDED:** Continue to serve specialized users, but cross discipline problems difficult to address and unable to confidently assess over-all efficiency of stove-piped observing systems.
- **RISKS/BARRIERS:** Non-technical – but organizational culture of independence is a major barrier and related incentive to find alternative solutions.
- **DEPENDENCIES:** AA level, Goal Team Leaders, Program Managers collaboration & communication which involves executive level direction and a dedicated team to help NOAA plan, develop and implement integrated solutions.

3/21/2005

FUNDING

<i>\$ in Millions</i>	FY05	FY06	FY07	FY08	FY09	FY10	FY11
<i>All Goals</i>							
<i>Current Program</i>							
<i>Program Adjustment</i>							
<i>Proposed Program</i>							
<i>Integ. Data Management</i>							
<i>Input Cap Change</i>	FY05	FY06	FY07	FY08	FY09	FY10	FY11
<i>FTE</i>							
<i>Contractor</i>							
<i>Output Cap Change</i>	FY05	FY06	FY07	FY08	FY09	FY10	
<i>Inventory</i>							
<i>Plan</i>							
<i>Integrated Systems</i>							

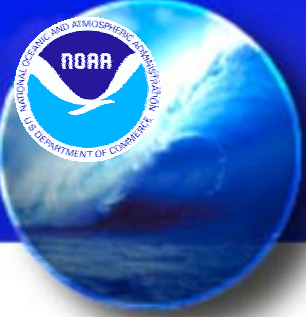
ACTIVITIES, SCHEDULE & MILESTONES

Activity	FY 05	FY 06	FY 07	FY 08	FY 9-11
Create management structure	█				
Flesh-out plan	█				
Identify specific requirements for integration		█			
Identify obstacles to integration and analyze standards that can help		█			
Inventory existing systems	█				
Identify commonalities			█		
Determine where integration is needed and analyze costs/benefits			█		
Build enabling components			█		
Identify Goal/Theme DM systems suitable for integration				█	
Develop integrating elements				█	
Expand to additional systems					█
Continue evaluation and integration					█

WelcomHome Dashboard



- Program Management Portal
- Web-based Collaboration
- Real-Time Reporting
- Customizable to show risk items



Affordability Management The Way Ahead

Raise Management Expectations

- **No NOAA program will be conceived without a credible Analysis of Alternatives**
- **No NOAA program will be initiated with insufficient funding due to inaccurate initial estimates and inaccurate quantification of program risks**
- **No NOAA program will be deterred from their mission because of lack of credible cost analysis within the Program's Management**
- **No NOAA program will be deterred from their mission because of lack of integration between Earned Value Management and Cost Estimating and Analysis**
- **No NOAA program will be deterred from their mission because knowledge of cost and productivity metrics is not being shared among Program teams and with other Programs.**
- **No NOAA program will be deterred from their mission because of surprise cost overruns and schedule delays**

Establish Performance Indicators

- **Ability to prioritize and select programs that best support organization's strategy**
- **Ability to produce more accurate and successful business cases; pass PART reviews**
- **Prevent stove-piped decision making and achieve end to end traceability of requirements and cost.**
- **Gain visibility into program performance through standard metrics development and measurement**