

**ORDER**

6560.25A

PROJECT IMPLEMENTATION PLAN  
FOR THE  
METEOROLOGIST WEATHER PROCESSOR



July 27, 1992

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION**

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FOREWORD

This order prescribes the Project Implementation Plan (PIP) for the acquisition, implementation, and support of the Meteorologist Weather Processor (MWP).

*Jeanne Rush*

Jeanne Rush  
Program Manager for Weather Processors, ANW-300

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## CHAPTER 1. GENERAL

1. PURPOSE. This order identifies the activities and schedules of the Project Implementation Plan (PIP) required to implement the Meteorologist Weather Processor (MWP) and provides guidance and direction to all levels of the Federal Aviation Administration (FAA) responsible for the implementation of the MWP. Project management information is presented in chapters 2 through 6 and project implementation guidance in chapters 7 through 10. The references provide further detailed technical information on the implementation of the MWP.

2. DISTRIBUTION. This order is being distributed to branch level in the office of the Program Director for Weather and Flight Service Systems, Systems Maintenance, NAS Systems Engineering, and Acquisition Support; director level in the Air Traffic Plans and Requirements, NAS Transition and Implementation, Flight Standards Services and the Offices of Budget, Training and Higher Education, and Air Traffic System Management; and branch level in the regional Airway Facilities and Air Traffic divisions.

3. CANCELLATION. This order cancels Order 6560.25, Project Implementation Plan for the Meteorologist Weather Processor, dated August 16, 1989.

4. BACKGROUND. The Central Weather Processor (CWP) is an important element of the overall National Airspace System (NAS) modernization effort and is intended to more expeditiously and more comprehensively provide aviation weather information to NAS users. The CWP will process weather data from a variety of sources (FAA, National Weather Service (NWS), and Department of Defense) and provide tailored weather products to other NAS systems as defined in Order 1812.7, System Requirements Statement for the Central Weather Processor. As originally envisioned, the CWP was to be a single, integrated hardware and software system. In 1987, the CWP was divided into two systems to meet the project's NAS goals. These systems are the Real-Time Weather Processor (RWP) and the MWP. The RWP will be an automated data processing system that will provide hazardous and other operationally significant weather information that is specifically tailored for use by the air traffic control (ATC) controllers, pilots, and traffic management personnel. The MWP is described in paragraph 20.

5. EXPLANATION OF CHANGE. This revision updates the order with MWP contractor specific information and a revised implementation schedule.

6. DEFINITIONS. An acronym list is provided in appendix 4.

7. AUTHORITY TO CHANGE THIS ORDER. Updates, revisions, and/or changes to this order may be authorized by the Program Manager for Weather Processors, ANW-300.

8.-19. RESERVED.

## CHAPTER 2. PROJECT OVERVIEW

20. SYNOPSIS. The MWP is an automated meteorological information processing system which will receive, process, and provide weather data and products to NWS meteorologists, assigned to Center Weather Service Units (CWSU) in the Air Route Traffic Control Centers (ARTCC) and the Central Flow Weather Service Unit (CFWSU) in the Air Traffic Control System Command Center (ATCSCC), traffic management (TM) personnel in the Traffic Management Units (TMU) and in the ATCSCC, and air traffic supervisory personnel in the ARTCC's. The MWP has been acquired as an "interim service" for a lease period of 3 years with two one-year options.

21. PURPOSE. The purpose of the MWP is to automate an information gathering, processing, and distribution process that is today, for the most part, done manually. The MWP will receive, process, store, and display alphanumeric, radar, satellite imagery, and graphic weather products. The MWP will also provide the capability for the creation, storage, and display of meteorologist generated alphanumeric and graphic products.

22.-29. RESERVED.

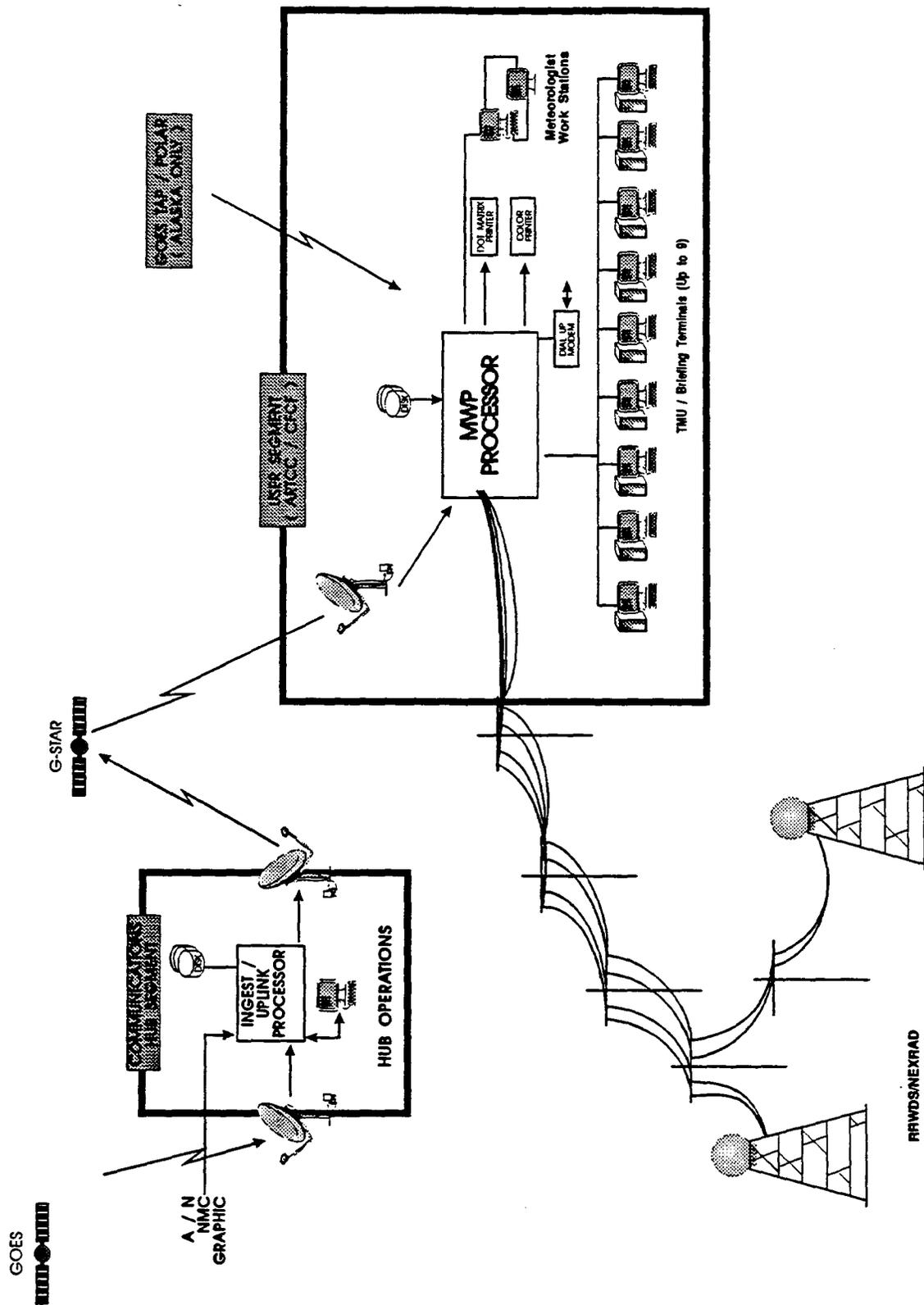
## CHAPTER 3. PROJECT DESCRIPTION

30. FUNCTIONAL DESCRIPTION. The detailed functional description of the MWP is contained in the MWP System Specification, FAA-S-2834. Figure 3-1 depicts the MWP system configuration. The following is a summary of the MWP's primary functions:

- a. Simultaneous and continuous receipt of a specified set of weather products.
- b. Processing and storage of a specified set of weather products.
- c. The capability to display alphanumeric, radar, satellite, or graphic products for the meteorologist's use.
- d. The capability to produce or acquire selected meteorological analyses.
- e. The capability to supply alphanumeric, radar, satellite, and graphic products to the briefing terminals at the Traffic Management Unit (TMU) and area supervisors in the ARTCC's, and Traffic Management (TM) specialists at the ATCSCC.
- f. The capability for the meteorologist to compose alphanumeric weather products for display at briefing terminals located in the TMU and/or at other locations within the ARTCC and ATCSCC.
- g. The capability for the meteorologist to create graphics and/or annotations to existing graphics for display at briefing terminals located in the TMU and/or at other locations within the ARTCC or ATCSCC.
- h. The capability for the meteorologist to disseminate alphanumeric products to the Weather Message Switching Center (WMSC) via the GS-200.

31. PHYSICAL DESCRIPTION. The detailed physical description of the MWP system is provided in figure 3-1 for all ARTCC configurations except for Anchorage (ZAN). The MWP equipment includes a receive-only satellite antenna for receipt of weather data, one MWP processor (consisting of two Concurrent Model 6450 computers), two Topaz Escort Micro Power Conditioners, modems to receive the dedicated Radar Remote Weather Display System (RRWDS) radars at each site, one MWP work station, two color hardcopy devices, one alphanumeric printer, and up to nine briefing terminals at each ARTCC. The contractor will provide two MWP systems at the ATCSCC. There will be no dedicated radars at ATCSCC, but each MWP at the ATCSCC and ARTCC's will have the capability to dial up any RRWDS equipped radar available across the continental United States. There will be no need for the Power Conditioners at the ATCSCC as there is no Uninterrupted Power Supply (UPS) at the ATCSCC. There also will not be any dedicated radars at ZAN. neither ATCSCC nor ZAN will have a MAD installed.

FIGURE 3-1. MWP GENERIC BLOCK DIAGRAM



a. The physical characteristics of the MWP are given in detail in subparagraphs 31a(1)-(3).

(1) Processors. There will be two racks of processor equipment at the ARTCC's and four MWP racks at ATCSCC. (The dimensions of the equipment racks are defined in paragraphs 32a and b.)

(2) Work Station Equipment. The MWP system will include a work station display console which will consist of the following:

- (a) One full ASCII QWERTY keyboard with numeric keypad.
- (b) One mouse.
- (c) Two physical 19" color graphics displays.
- (d) One color hard-copy printer.
- (e) One alphanumeric printer.

(3) Briefing Terminals. The MWP will be capable of supporting up to nine (9) remote briefing terminals. Appendix 1 lists the number of briefing terminals that will be installed in each ARTCC TMU and the area supervisor positions, and in the ATCSCC. One color hard-copy printer will be provided at one of the TMU briefing terminals. Each briefing terminal will consist of:

- (a) One 19" color graphics monitor.
- (b) One ASCII QWERTY keyboard.
- (c) One personal computer with a 40 megabyte hard drive and a 5.25 inch floppy disk drive.

(4) Communications. The MWP will include one ground, pole, or roof mounted satellite antenna for receipt of weather data products. The size of the antenna for each site is provided in appendix 1. The MWP will also include modems for receipt of radar data, and an interface to the Multiple Access Device (MAD) discussed in paragraph 33. The contractor will provide all required equipment. Impacts on facility communications installations will be determined during the site surveys. The MWP will transmit to the WMSC via the GS-200 in accordance with Attachment J-12 to the MWP contract.

32. SYSTEM REQUIREMENTS. The following MWP requirements that impact facility planning are measured values of the MWP system:

a. Weight limits.

(1) Floor loading. Average weight distribution not to exceed 125 lb/sq.ft.

(a) Equipment Rack 1. 22"W x 34"D (5.19 sq.ft.) with a weight of 622 pounds. The weight distribution is 120 pounds per square foot.

(b) Equipment Rack 2. 22"W x 34"D (5.19 sq.ft.) with a weight of 582 pounds. The weight distribution is 112 pounds per square foot.

(c) Work Station. 60"W x 30"D (12.5 sq.ft.) with a weight of 337 pounds. The weight distribution is 27 pounds per square foot.

(d) Color Hardcopy Printer. 26"W x 26"D (4.7 sq.ft.) with a weight of 75 pounds. The weight distribution is 16 pounds per square foot.

(e) Briefing Terminal. 24"W x 30"D (5.0 sq.ft.) with a weight of 165 pounds. The weight distribution is 33 pounds per square foot.

(2) Point loads. No point load over 1,000 lb/sq.in. over a 4 square foot area for any single cabinet or rack.

(a) Equipment Rack 1. The floor contact surface is (0.5" x 20" x 2) plus (0.5" x 27" x 2) for an area (contact point) of 47 square inches. The point load (662 lbs/47 sq.in.) is 14.09 pounds per square inch.

(b) Equipment Rack 2. The floor contact surface is identical to Equipment Rack 1, 47 square inches. The point load (582 lbs/47 sq.in.) is 12.38 pounds per square inch.

(c) Work Station. The point load equally distributed over four legs, each one-inch square, is (337 lbs/4 sq.in.) 84.25 pounds per square inch.

(d) Color Hardcopy Printer. The point load equally distributed over four legs, each 0.75 inch square (0.5625 sq.in.), is (75 lbs/2.25 sq.in.) 33.33 pounds per square inch.

(e) Briefing Terminal. The point load equally distributed over four legs, each 0.75 inch square (0.5625 sq. in.), is (165 lbs/2.25 sq.in.) 73.33 pounds per square inch.

b. Dimensions. There will be two equipment cabinets/racks in each ARTCC and four equipment racks in ATCSCC. Each of the MWP racks are 22"W x 34"D x 76"H. Figures 3-2 and 3-3 illustrate the two racks of equipment and the required front and rear clearance space for each rack.

c. Floor space.

(1) Processors. A space of 44"W x 118"D (36.1 sq.ft.) for the ARTCC configuration and a space of 88"W x 118"D (72.2 sq.ft.) for the

**FIGURE 3-2. FRONT VIEW OF MWP PROCESSOR RACKS**

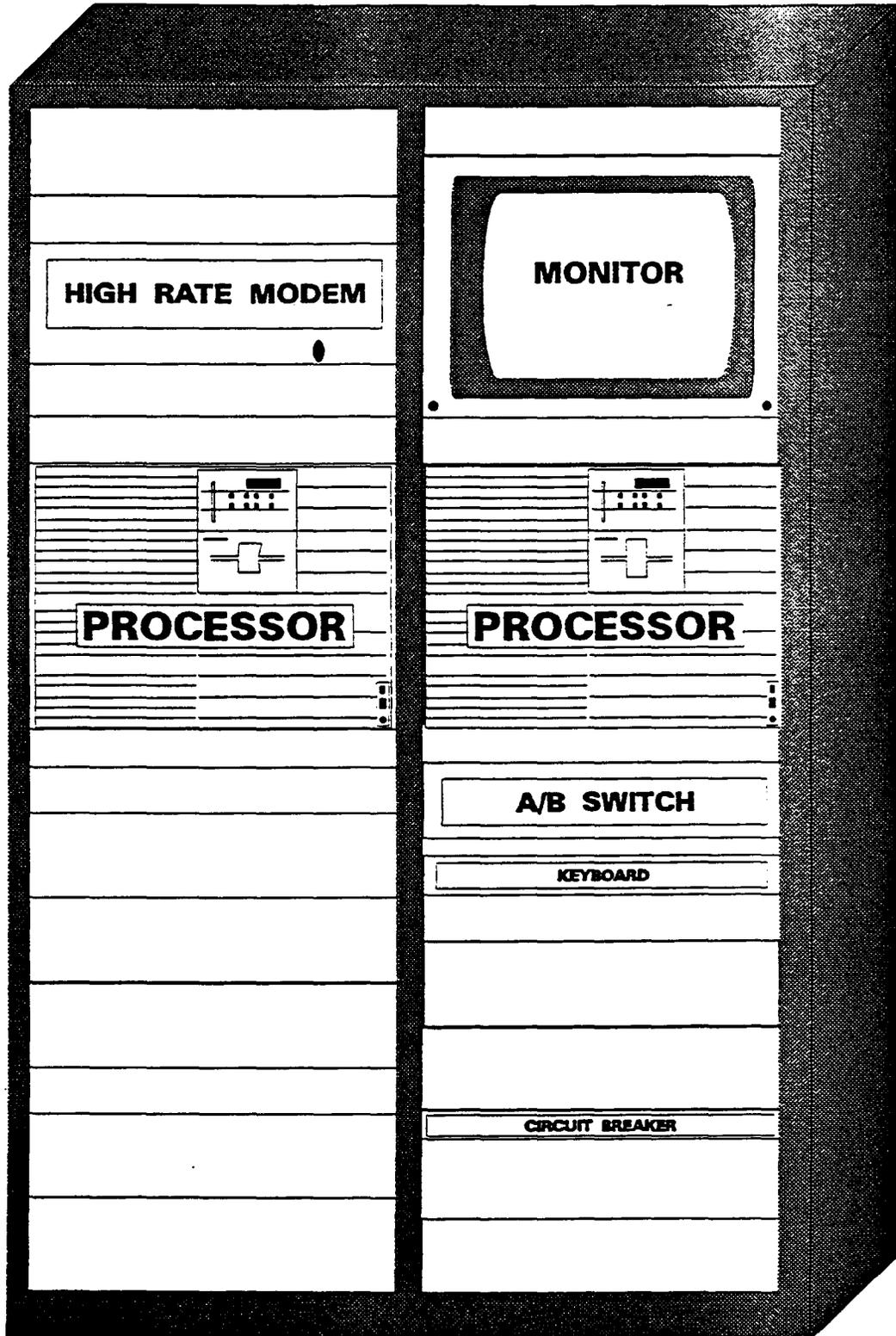
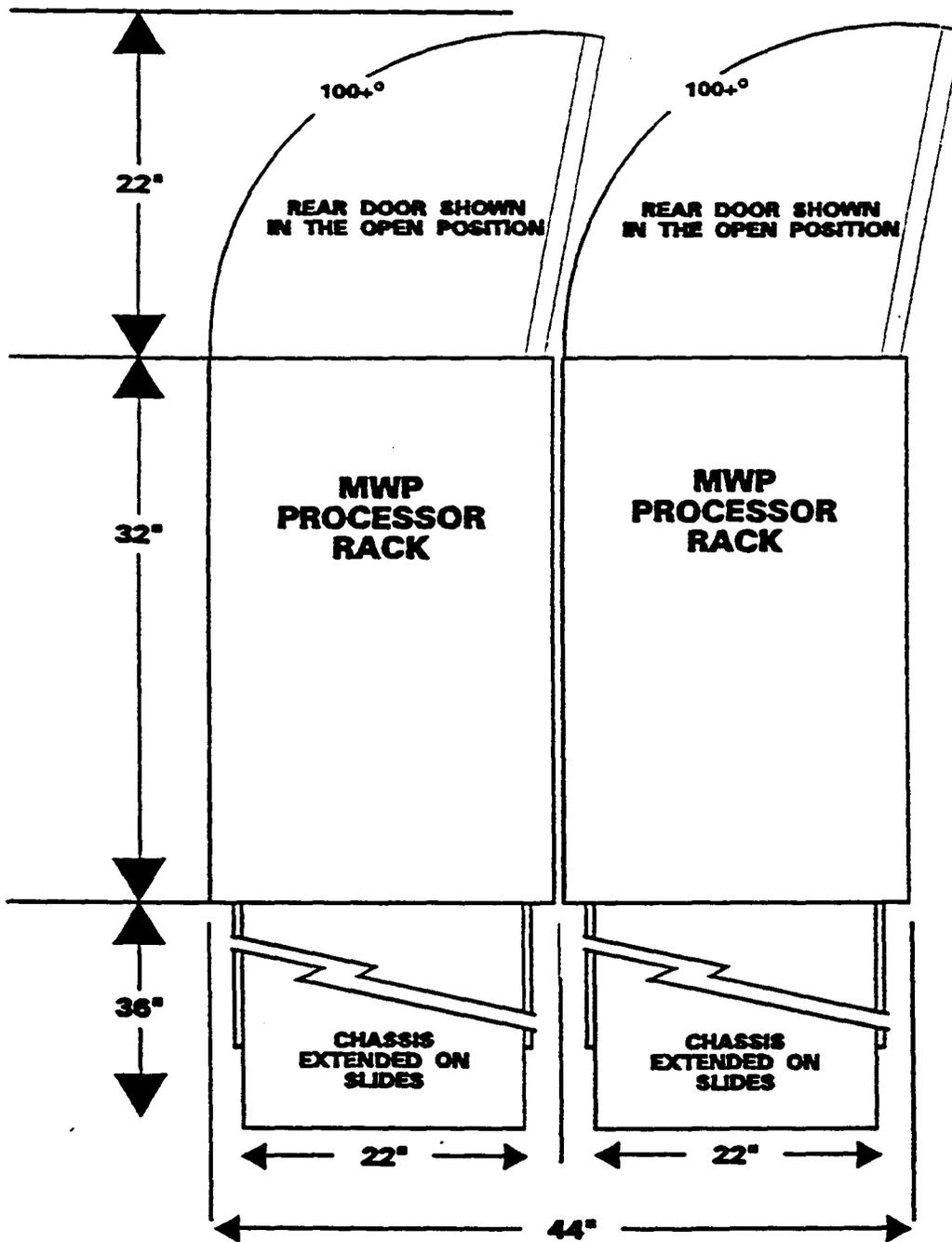


FIGURE 3-3. TOP VIEW OF MWP PROCESSOR RACKS



ATCSCC configuration is required. This includes front and rear access space.

(2) Work Stations. The MWP work station will include one desk, one table, and one chair. The MWP meteorologist desk will be approximately 60"W x 30"D x 26"H. The additional table is for the color printer and is approximately 26"W x 26"D x 26"H. The MWP meteorologist desk also includes two lockable drawers suspended under the left front corner of the desk top, a grommeted cable access hole near each rear corner, and a set of wire and cable holding clips to aid in cable management. The exact location of the MWP meteorologist desk will be determined at each of the MWP site surveys. In general, a maximum of 52.5 sq.ft. for the ARTCC and 105 sq.ft. for the ATCSCC will be required. This includes access and operator seating space. The chair has a molded, fabric-upholstered seat and back. Arms are foam-padded with resilient elastomer covering. Seat height is adjustable with a gas cylinder spring to raise the seat when a lever is pressed and the operator's weight is lifted from the seat. Height and angle of the spring-loaded back is adjustable to provide lumbar support suited to individual operators. The chair swivels freely on a central column. The base of the chair has five legs for stability. Each leg has an independently swiveling dual caster. The seat and back fabric of the chair is grey leedsweave, a dense, soil-resistant, 100-percent Nylon, medium blue-grey fabric. The chair upholstery fabric complies with the following performance standards:

(a) Flame resistance in accordance with National Fire Protection Association 260A, Class 1; Department of Commerce 191-53 Class 1; California Technical Bulletin 117.

(b) Wear resistance exceeds the requirements of GSA Specification CCC-C-00540, Amendments 1-4 for Type VIII fabric; ASTM Standard for Heavy Duty Upholstery - exceeds 80,000 double rubs.

(c) Non-upholstered surfaces are black elastomeric material finished in a fine haircell or pigskin texture. An example of the MWP meteorologist work station is provided in figure 3-4.

(3) Briefing Terminals. The briefing terminals will include one table. An additional table will be provided for the one color hard-copy printer. The briefing terminal table will be approximately 24"W x 30"D x 26"H (5 sq.ft. each). Figure 3-5 depicts the briefing terminal table. The color hard-copy printer table (26"W x 26"D x 26"H, 4.7 sq.ft.) is identical to the MWP work station printer table illustrated in figure 3-6. This space requirement does not include access or operator seating space. The ATCSCC will have eighteen (18) stations and the ARTCC's may have up to nine (9). The number of briefing terminals for each ARTCC is listed in appendix 1.

FIGURE 3-4. TOP VIEW OF MWP METEOROLOGIST WORK STATION

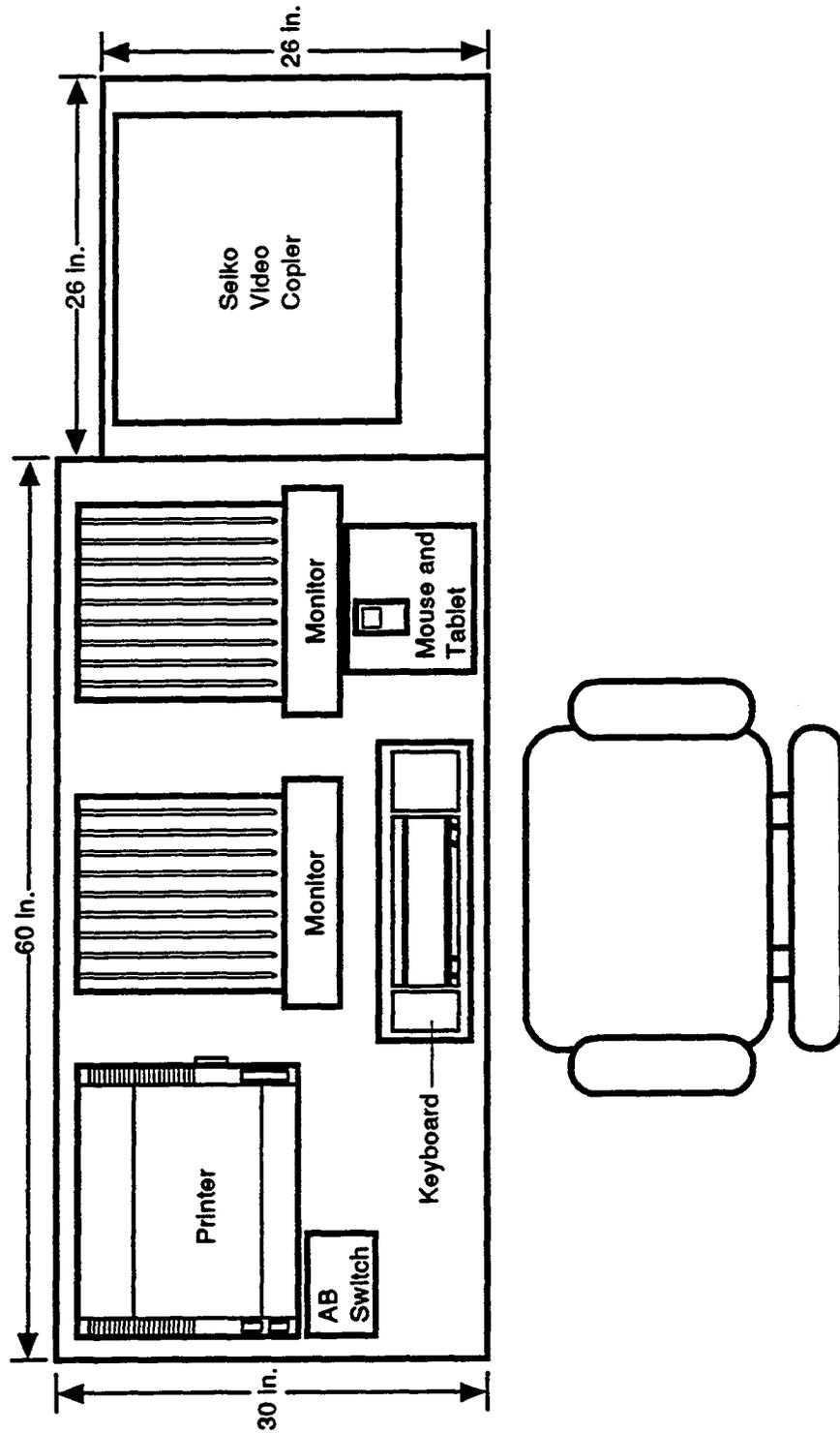


FIGURE 3-5. TOP VIEW OF MWP BRIEFING TERMINAL

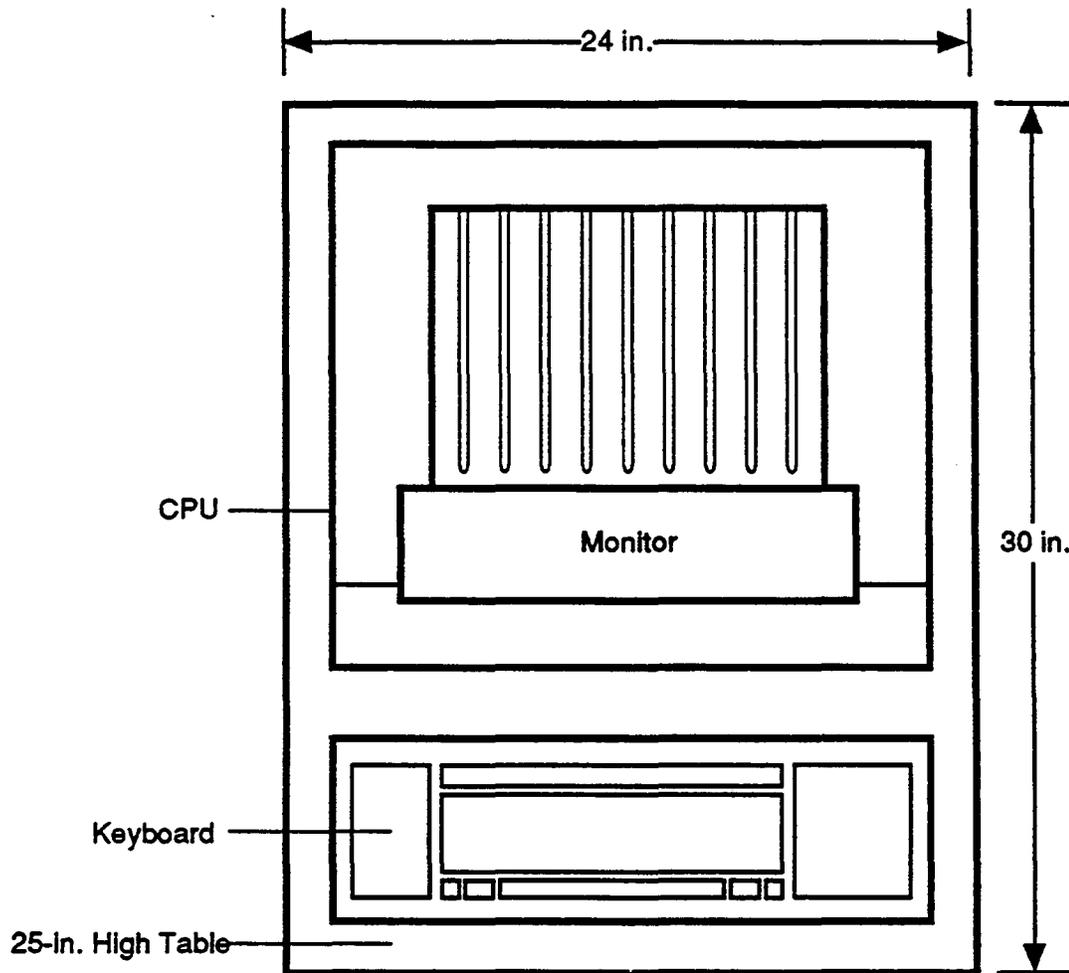
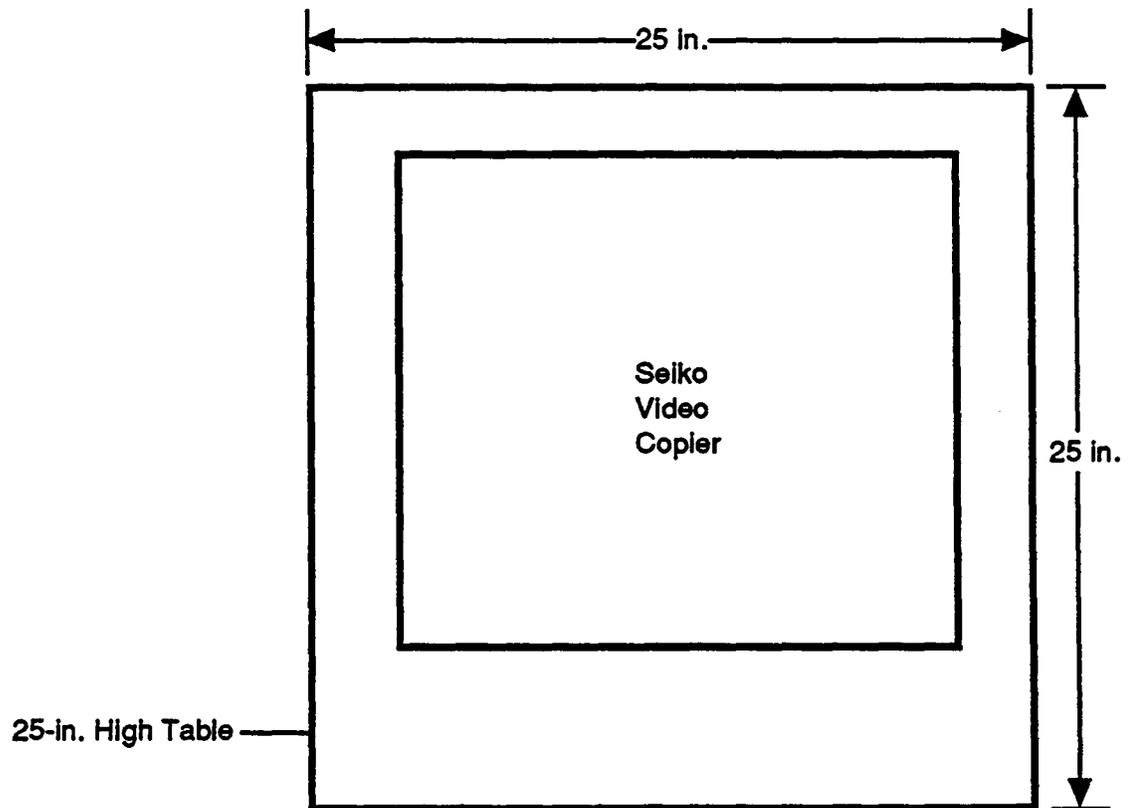


FIGURE 3-6. TOP VIEW OF MWP COLOR PRINTER TABLE



d. Cable runs. The maximum length of the cable run between the MWP processors and the last briefing terminal is limited to 640 feet, or 1,000 feet if a booster is utilized.

e. Electrical Power. The MWP has the following power requirements:

(1) Critical Power Requirements.

(a) Voltage and frequency.

120 VAC, +/- 10 percent, 1 phase, 60 Hz +/- 2 percent

(b) Current.

21 amps +/- 10 percent

(c) Power.

2.4 KW +/- 10 percent

2.8 KVA +/- 10 percent

(2) Essential Power Requirements.

(a) Table 3-1 gives the measured essential power requirements for the MWP based on antenna size. (The antenna size for each site is listed in appendix 1.)

TABLE 3-1. ESSENTIAL POWER REQUIREMENTS

<u>Item</u>	<u>Voltage</u>	<u>Current</u>	<u>Power</u>	<u>Quantity</u>	<u>Total Power</u>
Color Printer	120 VAC	2.3 amps	163 Watts	2	326 Watts
Briefing Terminal	120 VAC	2.4 amps	190 Watts	9(max)	1710 Watts
Work Station	120 VAC	6.25 amps	460 Watts	1	460 Watts

Subtotal for Control Room Floor Equipment: 2496 Watts

**Antenna Deicer (three types based on antenna size)**

Control Box	120 VAC	6 amps	720 Watts	1	720 Watts
1.8 Meter Dish	120 VAC	11.5 amps	1390 Watts	1	1390 Watts
2.4 Meter Dish	120 VAC	23 amps	2760 Watts	2	5520 Watts
3.5 Meter Dish	3ph 208 VAC	23 amps	8132 Watts	1	8132 Watts

Totals

Control Room Floor Equipment With 1.8 Meter Dish:	<u>4606 Watts</u>
Control Room Floor Equipment With 2.4 Meter Dish:	<u>8736 Watts</u>
Control Room Floor Equipment With 3.5 Meter Dish:	<u>11348 Watts</u>

(3) Power sources.

(a) At the ARTCC, the MWP processor and the satellite

receiving equipment shall be connected to critical power after Site Acceptance Testing. Only one 30 amp breaker connection will be made to the critical power bus via the MWP power conditioning units. Power from the MWP power conditioning unit will be provided to the MWP processor and the satellite antenna. Power to the MWP work station and the briefing terminals will be supplied from the ARTCC essential power bus or the equivalent of the essential power bus. The connection to the critical power shall be in accordance with the provisions of Order 6950.15B, ARTCC Critical Load Circuits and Configuration, the interim procedures for ARTCC space and power configuration management, and any approved regional Configuration Control Board (CCB) procedures. The project office has processed the National NAS Change Proposal (NCP) 13221 necessary for critical power connection at the ARTCC's.

(b) The MWP processor shall be connected to essential power or the equivalent of essential power during site acceptance testing (SAT) testing and critical power testing, if critical power testing is performed at the ARTCC's.

(c) The MWP shall present a load to the critical power bus that meets the requirements of FAA-G-2100e, Electronic Equipment, General Specification, sections 3.3.2, 3.3.4, and 3.3.7.

(d) The installation and testing at all FAA facilities shall comply with Order 6950.2C, Electrical Power Policy Implementation at National Airspace System Facilities.

(e) In the ATCSCC, the MWP shall be connected to the existing ATCSCC power bus.

(f) Except for Houston (ZHU), Miami (ZMA), Jacksonville (ZJX), and Oakland (ZOA), the satellite antenna will be supplied with deicing equipment. Power to the deicing need not be conditioned.

f. Environment. Indoor equipment environments are:

(1) Temperature: 60 to 90 degrees F.

(2) Relative humidity: 10 to 80 percent.

g. Electromagnetic Interference (EMI). The MWP will meet the requirements of MIL-STD-461C, Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference, Section 7.

33. INTERFACES. The MWP system will interface to RRWDS digitizers at the NWS and FAA radar sites, the MAD, and to the WMSC via the GS-200 at each site, except for Alaska, which will not have RRWDS or MAD interfaces implemented.

a. RRWDS. The MWP system will interface to RRWDS digitizers at radar sites to obtain required real-time weather radar data. The contractor will coordinate between the NWS, the local ARTCC, and the

selected phone vendor on matters concerning the installation schedule, and all connectivity issues between RRWDS radars and the MWP. The contractor is responsible for distributing RRWDS data to multiple ARTCC's. The RRWDS interface will be in accordance with Attachment J-5 of the MWP contract.

b. MAD. The FAA has procured and will be installing a MAD in each ARTCC. The organization responsible for procuring MAD is En Route/Special Projects Program, ANR-110. The MAD will provide dial-up access to weather radar data from RRWDS equipped radars. This capability will allow up to eight users to simultaneously dial-in to the MAD and access radar signals for display from up to 16 radars. Additionally, some radars, which are not currently available on a dial-up basis at the radar site but are brought into ARTCC's via microwave communications, will be available on a dial-up basis through the MAD. The MWP contractor will provide RRWDS radar data to the MAD in each ARTCC on request. Radars required to support the mosaic radar product at each ARTCC will be continuously available. Questions concerning the MAD should be addressed to ANR-110.

c. WMSC. As part of the MWP contract, the MWP contractor shall develop, demonstrate, and implement an interface to the WMSC. This interface will allow the dissemination of meteorologist-created alphanumeric products. This interface shall be implemented via the Leased A/B Service (LABS) system's GS-200 located in or serving each of the ARTCC's and the ATCSCC. The GS-200 in Alaska is off-site and is connected via modem in a manner similar to the test configuration described below. The WMSC interface preliminary demonstration will be accomplished as part of the Factory Acceptance Test (FAT) and final testing at the site acceptance testing. As part of this development activity, the contractor has been provided with the capability to access the GS-200 at the GS-200 vendor's facility via a dial-up port. The GS-200 port to be used for the WMSC interface development will be connected to the MWP contractor's facility via modem. The contractor will provide all communications back to his facility during the development and demonstration of the WMSC interface. Messages may be sent from the contractor's facility, via the modem to the GS-200 at the GS-200 vendor's facility. In this way the contractor can perform needed development tests of the WMSC interface. The MWP-WMSC interface via the GS-200 will be in accordance with Attachment J-12 of the MWP contract.

34.-39. RESERVED.

## CHAPTER 4. PROJECT SCHEDULE AND STATUS

40. PROJECT SCHEDULES AND GENERAL STATUS. The MWP contract was awarded on September 29, 1989, to Harris Corporation, Government Information Systems Division, located in Melbourne, Florida. The current project milestones are provided in appendix 1. For planning purposes, the regions may obtain a Systems Engineering and Integration (SEI) developed and maintained ARTEMIS schedule from the SEI contractor regional representatives.

41. MILESTONE SCHEDULE SUMMARY. Milestones that pertain to implementation are listed in appendix 1. These milestones reflect key contract deliverables required by the Statement of Work and a site specific delivery schedule.

42. INTERDEPENDENCIES AND SEQUENCE. For the MWP/WMSC interface, the MWP will operate as a LABS (GS-200) terminal. There is a planned modification to the GS-200 that will enable the GS-200 to convert from ASCII to X3.28. This new protocol conversion capability of the GS-200 will be utilized by the MWP and other processors. The involvement of the GS-200 will be strictly limited to the allocation and use of one Input/Output (I/O) port. When the MWP is installed at a site where the MAD device is operational:

- a. The MWP contractor will supply the RRWDS radar data to the MAD.
- b. The dial-in telephone lines connected to the MAD are the responsibility of the FAA.
- c. Maintenance of the MAD is an FAA responsibility.

43.-49. RESERVED.

## CHAPTER 5. PROJECT MANAGEMENT

50. PROJECT MANAGEMENT, GENERAL.

a. FAA Project Management. The overall management of the MWP project shall be the responsibility of the Program Manager for Weather Processors, ANW-300. This organization will accomplish management tasks within the guidelines provided by FAA policies, procedures, and directives. A member of ANW-300 has been designated the MWP Program Manager and is the single focal point for all MWP project activities. The technical and contract management of the MWP shall be the responsibility of ANW-130.

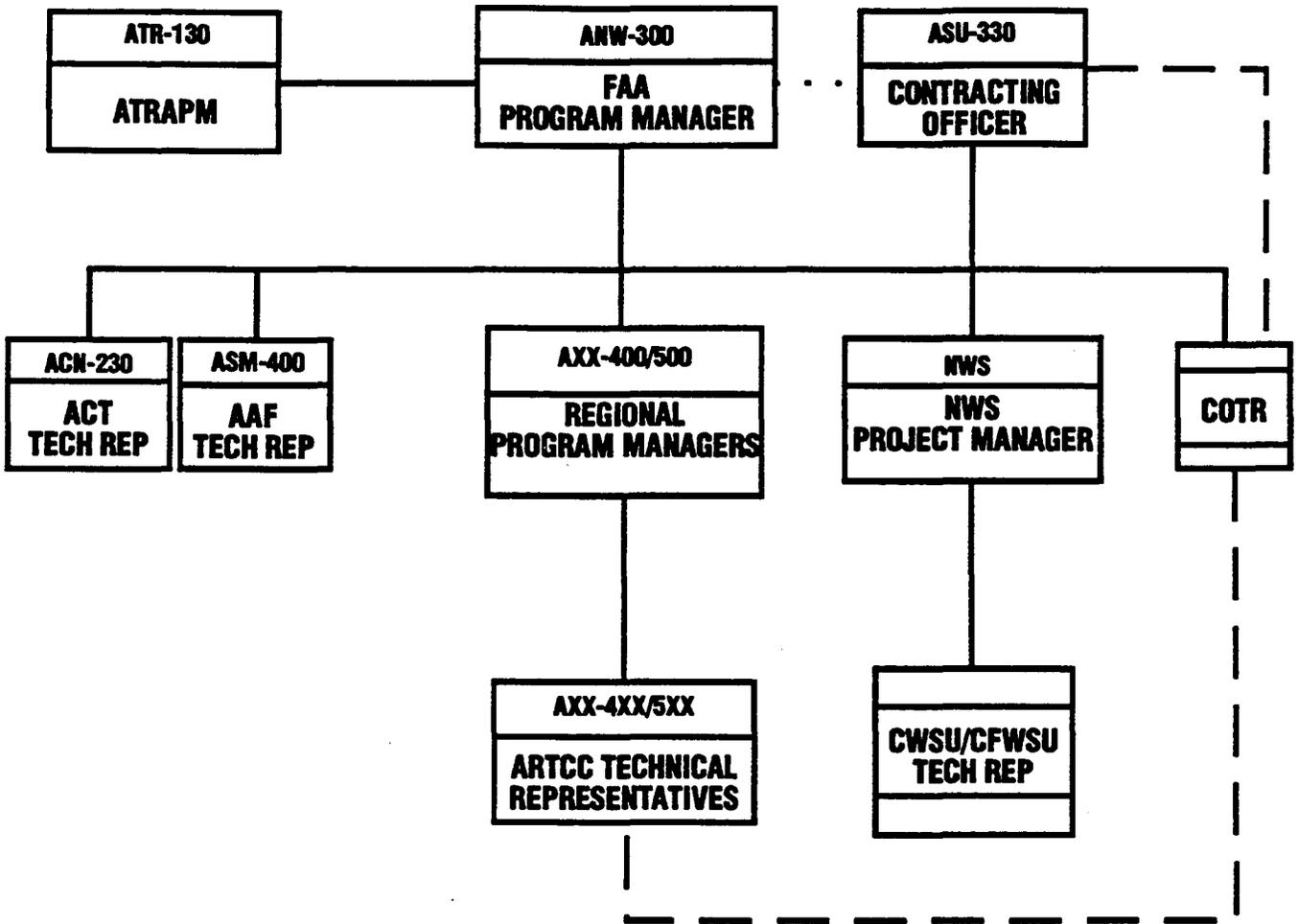
b. Contracting Officer. The Contracting Officer (CO) has been designated by the Office of Acquisition Support, Contracts Division, ASU-330. The CO performs the general contract management activities of monitoring contractor schedules, assessing problem reports and solutions, attending meetings, conducting inspections, conducting in-progress reviews, and all other activities concerned with assuring that the terms of the contract are met. The CO is the only person authorized to make changes that will affect prices, deliverables, or schedules.

c. Contracting Officer's Technical Representative. The Contracting Officer's Technical Representative (COTR) has been designated by the CO and provides technical guidance and direction to the contractor within the scope of the contract. The COTR shall ensure that the contractor has access to technical documentation, appropriate data bases, and sources of information relative to Government Furnished Equipment (GFE). The COTR has overall responsibility for inspection and acceptance of the MWP service. The COTR may designate the ARTCC Air Traffic Technical Representative (ATTR) as the individual responsible for inspecting and accepting the MWP.

d. Air Traffic Plans and Requirements Associate Program Manager. The Air Traffic Plans and Requirements Service shall appoint an Air Traffic Plans and Requirements Associate Program Manager (ATRAPM). The ATRAPM will coordinate proposed changes to Order 7210.38A, Center Weather Service Unit, and Chapter D-25 of the Weather Service Operations Manual (WSOM) with the regional Air Traffic Associate Program Manager (ATAPM), the ARTCC ATTR, the NWS MWP Project Manager, and the MWP Project Manager for changes to these documents.

e. FAA Airway Facilities Regional Program Management. Each region shall appoint an MWP Airway Facilities Associate Program Manager (AFAPM). The AFAPM shall ensure that facilities and engineering work is completed prior to the delivery of the MWP equipment. The AFAPM shall monitor the installation of the MWP equipment and coordinate requests for contractual or technical support with ANW-130. Each AFAPM shall designate an Airway Facilities Technical Representative (AFTR) at each ARTCC. The Eastern Region AFAPM shall also designate an AFTR for the ATCSCC. The AFAPM shall coordinate with the ARTCC and ATCSCC AFTR's to ensure that adequate staffing is maintained during scheduled Airway Facilities (AF) training.

FIGURE 5-1. MWP ORGANIZATION CHART



The AFAPM shall be responsible for equipment removal and disposal in accordance with Order 4800.2A, Utilization and Disposal of Excess and Surplus Personal Property. (A suggested plan of action is provided in paragraph 85.)

f. FAA Air Traffic Regional Program Management. Each region shall appoint an MWP ATAPM. The ATAPM will designate the ATTR at each center. The ATAPM shall coordinate with the ARTCC and ATCSCC ATTR's to ensure that adequate staffing is maintained during scheduled Air Traffic (AT), TM, and NWS training. The ATAPM will also review ATTR recommended changes in operating procedures and coordinate comments with the ATRAPM.

g. ARTCC/ATCSCC Airway Facilities Technical Representative.

(1) The ARTCC/ATCSCC AFTR shall be appointed by the respective AFAPM's. They shall be responsible to the COTR for the management of site preparation, installation, and acceptance activities within their respective facilities. The AFTR shall be responsible for ensuring that the MWP site preparation activities are complete and acceptable before the MWP equipment arrives.

(2) The AFTR will be responsible for assisting the MWP contractor in conducting the site survey, coordinating through the AFAPM, ANW-130, and ASU, any site preparation work. The contractor and facility personnel will jointly determine the cable runs required during the site survey. The contractor shall then prepare the cables. For those facilities which prefer to install cables themselves, the contractor shall ship the cables a minimum of 45 days prior to equipment delivery so that the facilities personnel can install them prior to delivery of the MWP equipment. Where the cable route makes it possible, the contractor shall ship cables complete with connectors attached.

(3) The AFTR shall report any problems encountered during the contractor's installation of the MWP and the resolution of these problems with the help of the AFAPM and ANW-130, if required. The AFTR must ensure that all MWP hardware has been installed according to the MWP contractor's Installation and Checkout (I/CO) Plan, that acceptance testing has been completed, and that Initial Operational Capability (IOC) has been reached. The AFTR shall ensure that all contractor training for the AF personnel has been completed satisfactorily. The duties of the AFTR will be completed when the MWP is made available for service.

(4) The AFTR is to coordinate with the ATTR for AF training.

h. ARTCC/ATCSCC Air Traffic Technical Representative.

(1) The ATTR shall ensure that all contractor training for the NWS meteorologists, and the associated NWS training to TMU and supervisory personnel has been satisfactorily completed, and shall participate in the acceptance activities at their respective facilities.

(2) The ATTR shall make recommendations to change operational procedures.

(3) The ATTR shall coordinate these recommendations with the NWS CWSU/CFWSU technical representative and then forward them to the ATRAPM. The duties of the ATTR will be completed when the MWP is made available for service.

i. National Weather Service Project Management. The NWS has appointed a NWS MWP Project Manager. The NWS Project Manager will appoint technical representatives as needed to participate in selected MWP activities. The NWS Project Manager will receive recommended changes in the procedures to WSOM chapter D-25 from the NWS CWSU/CFWSU technical representatives and Regional Aviation Meteorologists (RAM) prior to the operational readiness date (ORD). The NWS Project Manager will coordinate with the FAA ATRAPM in revising WSOM Chapter D-25 procedures and the ATRAPM will coordinate with the NWS Program Manager in revising Order 7210.38A. The NWS Program Manager will monitor and coordinate requests for technical support with FAA MWP Project Manager.

j. NWS CWSU/CFWSU Technical Representative. The NWS CWSU/CFWSU technical representative shall be the Meteorologist-In-Charge (MIC) in each facility. The NWS CWSU/CFWSU technical representative shall coordinate training with the FAA ATTR for NWS personnel, aid in training the traffic management coordinators and area supervisors, and provide assistance as needed in other site activities. Problems encountered shall be coordinated with the FAA facility ATTR and ATAPM, NWS Project Manager, and ANW-130, if required. The NWS CWSU/CFWSU technical representative shall also be responsible for recommending changes in procedures to the RAM and the NWS Project Manager. These changes in procedures shall be coordinated with the ATTR. The implementation duties of the NWS CWSU/CFWSU technical representative shall be completed when the MWP is made available for service.

k. FAA Technical Center Project Management. A test representative shall be appointed from the FAA Technical Center Communications/Navigation/Surveillance Division (ACN-200) and Weather and Remote Maintenance Monitoring Systems Branch (ACN-250), to serve as lead for integration testing. ACN-250 will review plans and procedures and monitor test activities for factory acceptance test (FAT), site acceptance test (SAT), shakedown test and evaluation (ST&E), and operational test and evaluation (OT&E). ACN-250 will prepare test documentation and conduct any required integration tests. Test representative activities will be coordinated with the MWP Project Manager, ANW-130.

l. FAA Operational Suitability Testing Manager. ASM-400 will:

(1) Have overall responsibility for testing operational suitability of the MWP service.

(2) Name a representative who shall coordinate with the users and ANW-130 on all testing issues (FAT, SAT, ST&E, and OT&E) through the conclusion of Joint Acceptance Inspection (JAI).

(3) Review plans and procedures and monitor test activities for FAT, SAT, and integration testing.

(4) Prepare test documentation and conduct any required operational suitability tests.

(5) Coordinate with the users and ANW-130 to resolve any issues that may arise.

m. Associate Program Manager for Logistics (APML). The NAILS Program Divison (ANS-400) shall appoint an APML who shall be responsible for ensuring that all National Airspace Integrated Logistics Support (NAILS) requirements are identified and satisfied.

51. PROJECT CONTACTS. Appendix 2 has a listing of project management personnel designated as points of contact for respective organizations.

52. PROJECT COORDINATION.

a. General. The MWP COTR has the overall responsibility for the acceptance of the MWP service. Major organizational responsibilities are as follows:

ANW-130:	Project management, service procurement, and configuration management.
ATM-110:	AT requirements and acceptance testing.
ATR-130:	AT requirements and certification.
NWS:	Meteorologist requirements and procedures.
ACN-250:	NAS integration testing.
ASM-400:	System shakedown.
ASM-300:	Interfacility communications.
ASU-300:	Preparation and negotiation of contract and contract modifications.
AHT-400:	Personnel and technical training.
ANS-200:	Space Configuration Management, power connection, and configuration management.
ANS-420	National Airspace Integrated Logistics Support

ALG-300 Advise the regions on disposal of replaced equipment.

AXX-400: Assign AFAPM's and ARTCC/ATCSCC AFTR's.

AXX-500: Assign ATAPM's and ARTCC/ATCSCC ATTR's.

AAC-932d: Supply training materials to new FAA and NWS hires.

ARTCC/ATCSCC: Site configuration management, site preparation, site survey support, and equipment installation support.

SEI contractor: Project management support and planning.

Support

Contractors: Project management support.

Contractor: Provide MWP service which includes hardware, software, data stream, communications, maintenance, and initial training for the NWS meteorologists and AF personnel. A limited number of AT personnel will attend a module of the NWS meteorologist/AF courses.

b. Weather and Flight Service Systems (ANW) Responsibilities.

- (1) Direct, guide, and coordinate overall project activities.
- (2) Develop and baseline a system specification based on validated user requirements.
- (3) Fund a contractor.
- (4) Develop and maintain the project master schedule.
- (5) Ensure adherence to Capital Investment Plan (CIP) and availability of funds.
- (6) Develop and maintain the PIP.
- (7) Develop an Integrated Logistics Support Plan.
- (8) Coordinate the training program with Air Traffic Training Program Division, AHT-500.
- (9) Develop and maintain the project Master Test Plan.
- (10) Develop any appropriate national NCP for the MWP connection to critical power.
- (11) Ensure vendor maintenance support is in-place.
- (12) Accept the MWP services from the contractor.

(13) Task the SEI contractor and other support contractors as required for effective project management.

(14) Develop the draft JAI checklist in accordance with Order 6030.45, Facility Reference Data File.

c. Air Traffic Plans and Procedures (ATP) Responsibilities. ATP will prepare MWP operational procedures.

d. Air Traffic System Management (ATM) Responsibilities.

(1) Identify operational/functional concepts.

(2) Review and approve/disapprove operational cutover plans.

(3) Support ANW-130 in the acquisition of the service by participating in site acceptance testing.

(4) Support the MWP contractor development of a WMSC interface using the LABS system and the GS-200's.

e. Air Traffic Plans and Requirements Service (ATR) Responsibilities.

(1) Identify operational/functional requirements.

(2) Coordinate the AT training requirements and training program.

(3) Provide advice and representation on technical training programs.

(4) Coordinate with the NWS Project Manager on related WSOM procedures and FAA order changes.

(5) Collect overall AT and NWS operational and functional requirements for the MWP and associated briefing terminals.

(6) Coordinate overall AT and NWS operational and functional requirements for the MWP and associated briefing terminals.

(7) Validate overall AT and NWS operational and functional requirements for the MWP and associated briefing terminals, as well as being involved in all phases of testing and evaluation, including factory, site acceptance, and follow-on evaluations.

f. NWS Responsibilities.

(1) Identify operational/functional requirements.

(2) Update WSOM Chapter D-25 procedures and recommend changes

to FAA orders to reflect operational changes due to the MWP implementation.

(3) Coordinate with FAA ARTCC AT and AF technical representatives to provide facility meteorologists, AT, and AF training, uninterrupted operational system planning, and coordinate cutover with the ATTR.

(4) Provide assistance in training the FAA traffic management coordinators and area supervisors in the use of briefing terminals.

g. FAA Technical Center, Engineering, Test, and Evaluation Service (ACN) Responsibilities.

(1) Appoint a test manager for NAS integration test and evaluation (IT&E).

(2) Develop the NAS integration test plan (ITP) and test procedures.

(3) Conduct NAS IT&E at the first operational site.

(4) Report on NAS IT&E at the first operational site.

(5) Support ANW-130 in the review and acceptance of the FAT, SAT, ST&E, and OT&E plans and procedures.

(6) Support ANW-130 in monitoring FAT, SAT, ST&E, and OT&E tests for compliance with their respective plans and procedures.

h. Systems Maintenance Service (ASM) Responsibilities.

(1) Appoint a test manager for ST&E.

(2) Develop the ST&E plans and procedures.

(3) Validate the ST&E plans and procedures at the ATCSCC and the first operational site.

(4) Conduct ST&E at the ATCSCC and first operational site.

(5) Report on the ST&E at the ATCSCC and the first operational site.

(6) Provide validated and updated ST&E plans and procedures to all other MWP sites for their ST&E.

(7) Support ANW-130, AF, and AT during ST&E and OT&E of other MWP sites.

(8) Process daily down time and maintenance action information.

(9) Support ANW-130 in the review of the FAT, SAT, and IT&E plans and procedures.

(10) Support ANW-130 in monitoring FAT, SAT, and IT&E tests for compliance to their respective plans and procedures.

(11) Identify a site and a GS-200 port for the WMSC interface development.

i. Acquisition Support (ASU) Responsibilities. Prepare, negotiate, and administer a contract for MWP services.

j. Training and Higher Education (AHT) Responsibilities.

(1) Assure that project technical training requirements are identified.

(2) Assure that the contractor-provided technical training programs meet the training requirements and are administered according to the contract.

k. NAS Telecommunications Management and Operations Division (ASM-300) Responsibilities.

(1) Manage space, critical power, and intrafacility communications configuration.

(2) Assign specific ports on modems and statistical multiplexers for contractor access to microwave-relayed RRWDS data.

(3) Provide the contractor access to the MAD in order for the contractor to supply RRWDS data to the MAD.

(4) Coordinate with the contractor in order for the contractor to provide RRWDS data to the MAD.

(5) Provide a dedicated access port to each FAA RRWDS digitizer.

(6) Ensure that all NAILS requirements are identified and satisfied.

l. FAA Academy (AAC) Responsibilities. The FAA Academy will provide training materials to NWS and FAA new hires.

m. Logistic Services (ALG) Responsibilities. Logistic Services will support AF regional personnel in the removal and disposal of obsolete CWSU equipment.

n. Airway Facilities Regional/ARTCC/ATCSCC Responsibilities.

(1) Conduct initial site survey and support contractor's site survey to identify cable run paths, potential structural modifications to support potential satellite antenna installation, and establish a location for the contractor's leased line connections.

(2) Generate NCP's to establish configuration baselines for each site which satisfy floor space and critical power requirements.

(3) Perform site preparation including site engineering and planning, update facility documentation, drill holes through operations floor and walls for cable routing, install signal and power cables.

(4) Provide assistance to the contractor during installation.

(5) Review the generic and site-specific site preparation requirements plan, SAT plans and procedures, site survey report, and I/CO plan prior to installation and ensure that all FAA activities are completed.

(6) Provide the contractor access to the installation site and coordinate with the contractor on installation and integration activities.

(7) Appoint a representative in each ARTCC to monitor, sign-off, and report all MWP maintenance activities.

(8) Monitor and report, to ANW-130, contractual compliance with installation plan and site test procedures and ensure that all nonconformances have been documented.

(9) Support site acceptance testing.

(10) Conduct the JAI.

(11) Support the contractor in scheduling personnel for training.

(12) Update the facility drawings.

(13) Plan, coordinate, remove, and dispose of obsolete CWSU equipment in accordance with Order 4800.2A.

o. Air Traffic Regional/ARTCC/ATCSCC Responsibilities.

(1) Provide space for the contractor to conduct training.

(2) Coordinate with the NWS RAM's and the CWSU/CFWSU technical representatives to provide facility meteorologists and AT training, uninterrupted operational system planning, and coordinate cutover with ATTR.

(3) Coordinate the facility plans and procedures with AF

necessary to modify and/or relocate the current CWSU work area.

- (4) Support site acceptance testing.

p. System Engineering and Integration (SEI) Contractor Responsibilities. The SEI contractor will support:

- (1) Overall project activities.
- (2) The development and baselining of a system specification based on validated user requirements.
- (3) The development and maintenance of a project master schedule.
- (4) Adherence to the CIP and availability of funds.
- (5) The development and maintenance of a PIP.
- (6) The development of an integrated logistics support plan.
- (7) AT, AF, and NWS meteorologist training requirements and coordinate the training program with AHT-400 and AHT-500.
- (8) Development of project Master Test Plan.

q. Other Support Contractors Responsibilities. Other support contractors will support:

- (1) Overall project activities.
- (2) The development and baselining of a system specification based on validated user requirements.
- (3) Adherence to the CIP and availability of funds.
- (4) The development and maintenance of a PIP.
- (5) The development an Integrated Logistics Support Plan.
- (6) AT, AF, and NWS meteorologist training requirements and coordinate the training program with AHT-400 and AHT-500.
- (7) Development of the project Master Test Plan.

r. MWP Contractor Responsibilities.

- (1) Prepare all contract specified plans:
  - (a) Site Preparation Requirements Plan.

- (b) Installation and Checkout Plan.
  - (c) Operations and Maintenance Plan.
  - (d) Contractor Master Test Plan.
  - (e) FAT Plan and Procedures.
  - (f) SAT Plan and Procedures.
  - (g) Contract Training Plan.
- (2) Conduct FAT at the contractor's facility.
  - (3) Conduct site surveys at each MWP site.
  - (4) Install MWP equipment.
  - (5) Conduct checkout and SAT of the MWP.
  - (6) Conduct NWS meteorologist and AF training in accordance with contract provisions. A limited number of AT personnel will attend a module of the NWS/AF training courses to gain indepth knowledge of the MWP system.
  - (7) Ensure contractor maintenance support is in accordance with contract provisions.

53. PROJECT RESPONSIBILITY MATRIX. The MWP responsibility matrix is provided in figure 5-2.

54. PROJECT MANAGERIAL COMMUNICATIONS.

a. Meetings.

- (1) The contractor has conducted a post-contract award kick-off meeting. Copies of the minutes may be obtained through the MWP Project Office.
- (2) The contractor will schedule and conduct monthly progress meetings at the contractor's facility until the FAT is completed. Additional meetings will be scheduled, as required, until the last SAT is completed.
- (3) The contractor's project manager will meet, as needed, with the COTR for discussions regarding MWP status.
- (4) Meetings to discuss training issues will also be held, as needed, at the contractor's facility.

FIGURE 5-2. MWP RESPONSIBILITY MATRIX

ACTIVITY	ANW	ATM	ATR	NWS	ACN	ASM	ASU	AHT	ASE	AAC	AF	AT	SEI	ANS	CONTRACTOR	OTHER SUPP. CREW
1. PROJ. MASTER SCHED./ SYSTEM SPECIFICATION	P												S			S
2. DEVELOP MWP PIP	P	R	R	R	R	R	R	R	R	R	R	R	M	P	R	M
3. DEVELOP MWP ILSP	R				R	R	R	R					S	R		S
4. PROJECT MASTER TEST PLAN	R			R	R	R							S	R		R
5. CONTRACTOR MASTER TEST PLAN	A				R	R							R		P	R
6. SITE SURVEY	M								M		D		M		C	
7. SITE PREPARATION PLANS & PROCEDURES	A								R		R		R		P	
8. CONDUCT SITE PREPARATION											C				S	
9. SITE PREPARATION REPORTS	R								R		R				R	
10. FAT PLANS & PROCEDURES	A		R		R	R							R		P	R
11. CONDUCT FAT	M		M		M	M							M		C	M
12. FAT REPORTS	A	R	R		R	R					R		R		P	R
13. VCO PLANS & PROCEDURES	A				R	R					R				P	
14. CONDUCT VCO	M				M						M		P		C	
15. VCO REPORTS	A				R	R					R				P	
16. SAT PLANS & PROCEDURES	A	R	R		R	R					R		R		P	R
17. CONDUCT SAT	M	M	M		M	M					M		M		C	M
18. SAT REPORTS	A	R	R		R	R					R		R		P	R
19. IT&E / SLT&E PLANS & PROCEDURES	A			R	P	R							R		R	R
20. CONDUCT IT&E	M			M	C	M					M	M	M		M	M
21. IT&E / SLT&E REPORTS	A			R	P	R					R	R	R		R	R
22. OT&E / ST&E PLANS & PROCEDURES	A	R		R	R	P					R	R	R			R
23. CONDUCT OT&E / ST&E	M	M		M	M	C						M	M			M
24. OT&E / ST&E REPORTS	A	R		R	R	P					R	R	R			R
25. PRODUCE TRAINING MATERIAL	A		R	R				A					R	R	P	R
26. CONDUCT MWS / AF TRAINING		M		M				M			M	M		R	C	
27. ASSIST AT / TM TRAINING				C				M				M		R		
28. MAINTAIN TRAINING MATERIAL										C				M		
29. MWP MAINTENANCE REPORTING	M										C		M	M		
30. MWP MAINTENANCE	M										M		M	M	C	

LEGEND	
A Approve	P Prepare a Document
C Conduct / Perform	R Review and Comment
D Direct	S Support
M Monitor for Compliance	

(5) ANW-130 will hold weekly staff meetings to discuss project progress and issues.

(6) Program Director Status Review (PDSR) meetings are held with ANW-1 bimonthly to review project status including cost and schedule issues.

(7) Major System Acquisition review meetings are held with the Office of the Administrator (AOA-1) on a quarterly basis.

b. Reports.

(1) The contractor will prepare monthly progress, status, and management reports until the last SAT is complete.

(2) The contractor will prepare conference minutes.

(3) The regional AFAPM's will prepare monthly reports until the last ORD is completed synthesizing contractor progress, potential problem areas, and their potential resolutions.

55. IMPLEMENTATION STAFFING. There are no unique or peculiar staffing requirements associated with the implementation of this project. Offices with assigned responsibilities are expected to accomplish their tasks with existing resources.

56. PLANNING AND REPORTS. Successful implementation of the service described in this order will require the preparation and approval of several documents by the FAA and the contractor. Included in this are items such as the Master Test Plan, Configuration Management Plan, Installation and Checkout Plan, Training Plan, Maintenance Plan, Test Procedures, Test Reports, etc. A list of the applicable plans and reports required for implementation is included in appendix 1.

57. APPLICABLE DOCUMENTS.

- |    |                  |  |
|----|------------------|--|
| a. | FAA-S-2834       | Meteorologist Weather Processor (MWP) System Specification       |
| b. | FAA-G-2100e      | Electronic Equipment, General Requirements                       |
| c. | Order<br>1810.4A | FAA NAS Test and Evaluation Program                              |
| d. | Order<br>1812.7  | System Requirements Statement for the Central Weather Processor  |
| e. | Order<br>4800.2A | Utilization and Disposal of Excess and Surplus Personal Property |
| f. | Order<br>6030.45 | Facility Reference Data File                                     |

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6560.25A

- g. Order 6950.2C                    Electrical Power Policy Implementation at National Airspace System Facilities
  
- h. Order 6950.15B                ARTCC Critical Load Circuits and Configuration
  
- i. Order 7210.38A                Center Weather Service Unit
  
- j. WSOM Chapter D-25            National Weather Service, Operations Manual Support to Air Traffic Facilities
  
- k. MIL-STD-461C                Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference
  
- l.                                    Uniform Building Code, May 1985

58.-59.    RESERVED

## CHAPTER 6. PROJECT FUNDING

60. PROJECT FUNDING STATUS, GENERAL. The project is fully funded.
61. SPECIAL FUNDING REQUIREMENTS. The following items will be funded by the MWP Project Office:
- a. Intrafacility equipment moves from initial locations to accommodate ongoing facility modernization.
  - b. Equipment removals for replaced equipments.
  - c. Site preparation subject to the review and approval of the Site Preparation Requirements Plan (SPRP) for each site.
62. REGIONAL TRAVEL. A lump sum was provided to the regions from the project office to provide for travel for field and regional personnel as required to support the MWP project implementation.
- 63.-69. RESERVED.

## CHAPTER 7. DEPLOYMENT

70. GENERAL DEPLOYMENT ASPECTS. The general deployment aspects and the schedule for the Deployment Readiness Review (DRR) of the MWP are:

a. Deployment Aspects.

- (1) FAA has provided generic site equipment location drawings to prospective bidders.
- (2) Bidders have submitted generic site installation requirements and cost estimates as part of their proposals.
- (3) Upon contract award, the FAA has provided additional details on site-specific equipment locations to the contractor. The data was based on responses to the ANW-130 letter of May 30, 1988, and any updates provided by the regions prior to contract award.
- (4) Upon contract award, the FAA has provided the generic site installation requirements of the selected contractor to all regions and sites.
- (5) Contractor will perform site surveys. The roles of FAA site personnel and the contractor concerning the physical installation of system cabling will be determined by each ARTCC AF Sector Manager based upon the results of the site survey.
- (6) Contractor will deliver the SPRP which will include specific site preparation actions to be accomplished by FAA sites.
- (7) Regions will accomplish required site preparation as defined in the SPRP and update the facility drawings.
- (8) Contractor will prepare detailed I/CO plans for each site.
- (9) Contractor will deliver the system to the site.
- (10) The COTR, or his/her designated representative, along with the contractor and FAA site personnel will conduct pre-installation walk-through. This will ensure that all site preparations activities have been successfully completed and that all equipment, tools, and personnel are onsite and ready for the I/CO.
- (11) Contractor will install and checkout the system in accordance with the approved I/CO plan. The MWP processor will initially be connected to essential power during all phases of testing. The installation and testing shall comply with Order 6950.2C, Electrical Power Policy Implementation at National Airspace System Facilities.
- (12) The contractor will perform the SAT in accordance with the contractor developed and FAA approved SAT plan and procedures. The FAA will monitor the conduct of the SAT and review/approve the SAT report.

(13) The contractor will provide required NWS and AF training in accordance with approved training plans and course documentation. A limited number of AT personnel will attend a module of the NWS/AF training courses to gain indepth knowledge of the MWP system.

(14) Each site will perform the Contract Acceptance Inspection (CAI) in accordance with the provisions of Order 6030.45.

(15) Each site will perform the integration testing in accordance with ACN-250 developed plans and procedures.

(16) Each site will declare IOC after successful completion of the integration tests along with the completion of the required training and receipt of all required documentation.

(17) Each site will perform the system shakedown in accordance with ASM-400 developed plans and procedures.

(18) Each site will perform the JAI and declare the ORD in accordance with the provisions of Order 6030.45.

(19) After successful SAT, the MWP power conditioning units shall be connected to critical power.

b. DRR Schedule. The milestones and dates for all DRR activities are contained in Appendix 1, Milestones and Schedules.

71. SITE PREPARATION. Site preparation will be performed in accordance with the contractor prepared and FAA approved SPRP. This plan will be based upon the results of each individual site survey. The regions are responsible for site preparation. Site preparation may be performed by AF personnel, the Technical Services Support Contractor (TSSC), or other contractors as determined on a site-by-site basis.

72. DELIVERY. Delivery dates are not specified in the contract. The completion of the FAT and SAT will be in accordance with the requirements of the MWP contract and Statement-of-Work. Estimated delivery dates are provided in Appendix 1, Milestones and Schedules.

73. INSTALLATION PLAN. The contractor will prepare I/CO plans to reflect site specific requirements and plans as agreed to during the site survey. The I/CO plans shall include the appropriate seismic requirements as specified in the Uniform Building Code, section 2312 and Table 23-J. Plans for ZLA, ZOA, and ZAN require zone 4 compliance. Sites ZSE, ZBW, ZME, and ZLC require zone 3 compliance. ZAB and ZTL require zone 2 compliance. All other sites are classified as zone 1 or zone 0, neither of which require special seismic consideration. AF personnel will ensure these sites are prepared as necessary to meet the seismic requirements.

74.-79. RESERVED.

## CHAPTER 8. VERIFICATION

80. FACTORY VERIFICATION. Factory verification will consist of a FAT. The FAT plan and procedures will be written by the contractor and approved by the FAA. The FAT will consist of system-level testing on the first system delivered only and will be performed at the contractor's facility. The FAT will verify all system requirements as defined in FAA-S-2834 and verify the requirements necessary for the MWP to connect to critical power.

81. CHECKOUT. The I/CO of the MWP will be accomplished in accordance with the provisions of the I/CO plan. The I/CO plan will be written by the contractor and approved by the FAA.

82. CONTRACTOR INTEGRATION TESTING. There is currently no requirement for contractor integration testing of the MWP system with other NAS systems. SAT plans and procedures will be written by the contractor and approved by the FAA. The SAT will be performed by the contractor after completion of the I/CO. ACN-250 will accomplish part or all of the MWP integration testing by witnessing appropriate parts of the SAT. The SAT will demonstrate the functional performance of the MWP. The contractor will provide required NWS/AF training at the completion of the SAT. A limited number of AT personnel will attend a module of the NWS/AF training courses to gain indepth knowledge of the MWP system.

83. CONTRACTOR ACCEPTANCE INSPECTION. The CAI will be performed after the site acceptance testing and training is complete. Requirements will include the completion of the I/CO, SAT, and training. At the CAI the COTR, or his/her designated representative, will accept the system for use in the CWSU and/or CFWSU.

84. FAA INTEGRATION TESTING. Integration testing will be performed by ACN-250 in accordance with Order 1810.4. For the basic system the integration testing will be limited to the RRWDS, GS-200, and MAD interfaces. ACN-250 will accomplish part or all of the MWP integration testing by witnessing appropriate parts of the SAT. For the WMSC interface, ACN-250 will test the integration of the MWP with the WMSC via the GS-200. Upon successful completion of the integration testing, the IOC will be declared.

85. SHAKEDOWN AND CHANGEOVER. ASM-400 has been tasked to develop the shakedown plans and procedures as required by Order 1810.4. The system shakedown will exercise the MWP system in the real operational environment and assist in the development and refinement of operational procedures. These will be developed for the ARTCC with modifications for the ATCSCC environment. The system shakedown plans and procedures will be validated at the ATCSCC and first ARTCC site and provided to the remaining sites for their use in conducting the system shakedown. After shakedown is completed at the first site, the final DRR report will be briefed to AAF-1 and the DRR Executive Committee for a deployment decision. Following each field shakedown, the ARTCC's and the ATCSCC will be allowed a period of parallel operations between the MWP and

existing Geostationary Operational Environmental Satellite (GOES) facsimile (FAX), digital FAX (DIFAX), RRWDS displays and processors, and/or other unique CWSU equipment. Each ARTCC and the ATCSCC is responsible for providing the regional AFAPM a list of equipment to be disposed of at the particular site. The following guidelines are provided for the disposal of equipment.

a. The ATTR and the MIC should determine if any:

(1) Non-standard/special equipment purchased/leased by the region or ARTCC should be disposed.

(2) Other users (Flight Service Stations, NWS Weather Forecasting Offices) are supported by the current CWSU equipment (i.e., RRWDS leased lines and/or processors).

b. The suggested standard list of equipment to be removed at each site include the following:

(1) RRWDS displays.

(2) RRWDS processors and leased lines to the RRWDS processors with the exception of those sites with other users as described in subparagraph 85a(2).

(3) GOES FAX.

(4) DIFAX, only after the MWP begins to receive the high altitude AFOS graphics not currently available through the NWS's Family Of Services.

(5) Any other unique equipment that falls under subparagraph 85a(1) and is deemed unnecessary by the ATTR and the CWSU MIC.

c. ANW-130 recommends the following procedures for disposal of the RRWDS displays and processors.

(1) Coordinate with the FAA Logistics Center for disposal of the RRWDS displays and processors. The RRWDS displays and processors may be of some value since many flight service stations utilize similar equipment.

(2) Coordinate with the NWS weather forecasting offices since many of these offices utilize similar equipment.

(3) Salvage the equipment.

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86. JOINT ACCEPTANCE INSPECTION. Each site will perform the JAI as defined in Order 6030.45 and declare the ORD. Harris Corporation will maintain both the MWP's hardware and software for the life of the system, therefore the software documentation, hardware documentation, and spares logistics do not seem to be of concern during the JAI.

87.-89. RESERVED.

## CHAPTER 9. INTEGRATED LOGISTICS SUPPORT

90. MAINTENANCE CONCEPT.

a. The MWP contract requires the contractor to perform all maintenance on the MWP for the life of the contract to meet the availability requirements as stated in the system specification. Contractor maintenance includes contractor provided communications equipment and telecommunications circuits. The contractor is required to provide a maintenance plan which describes how the support of the MWP is to be accomplished.

b. The MWP System specification states that the MWP shall have a functional availability based upon 24 hour/day, 7 days/week operation, of 0.995. The MWP has a mean downtime of 4 hours with a maximum down time of 8 hours. The contractor must respond to meet the availability requirements or the Government will accrue downtime credit.

c. The contractor is required to provide the Government a primary point of contact with a telephone number and address and make arrangements to receive requests for service assistance 24 hours per day, 7 days a week. The contractor is also required to provide a secondary point of contact in the event the primary point of contact is not available.

d. The contractor will provide training to AF personnel in order for the AF personnel to determine if the MWP is operational as well as provide overall knowledge of the MWP system.

e. The contractor is required to provide an Operations and Maintenance Plan. The plan includes a list of equipment and techniques used to provide fault detection and isolation, a description of any other fault reporting techniques or devices incorporated into the operation and maintenance devices, a schedule for contractor performed preventive maintenance activities, and a description of the procedures for reporting malfunctions.

91. TRAINING. MWP training will be provided at each site as follows:

a. National Weather Service. The NWS meteorologists at each site will be trained by the contractor in the complete operations of the MWP system, work stations, and briefing stations. The contractor will provide a complete package of training materials to each site and the FAA Academy. Two of these courses will be conducted at each site.

b. Air Traffic. The contractor will develop an AT Operations Systems User's Guide. A limited number of AT personnel will attend a module of the NWS/AF training courses to gain indepth knowledge of the MWP system. Lectures/briefings for AT personnel will be given by the MWP contractor on the use and operation of the briefing terminals. Additionally, TMU and supervisory personnel will be trained in the operations of the briefing stations by the AT training specialist and

assisted by the contractor trained NWS meteorologists at each site. ATCSCC personnel will be trained by NWS meteorologists.

c. Airway Facilities. AF personnel will attend the NWS training courses to gain overall knowledge of the MWP system. In addition, the contractor is required to provide an Operations and Maintenance Plan, as described in paragraph 90, and an Operation and Program Manual. Two of these courses will be conducted at each site.

d. Training Materials. Training materials to be developed and delivered by the contractor are:

- (1) Job task analysis.
- (2) Contract training plan.
- (3) Course design guide.
- (4) Instructor lesson plans for training courses.
- (5) Tests for measurement of student achievement.
- (6) Students guide and documentation.
- (7) Class schedule.
- (8) Audiovisual aids, master reproducibles, and review copies for training equipment and training courses.
- (9) Validation reports.
- (10) AT operations systems user's guide.

e. Training Travel. Since all personnel cannot be trained at the same time, it may be necessary for some personnel to travel between centers to receive the required training. Detailed training plans will be available soon after contract award.

92. SUPPORT TOOLS AND TEST EQUIPMENT. The contractor will maintain the MWP. Therefore, there are no requirements for the FAA to have support tools and test equipment. The contractor is required to meet the operational availability requirements as stated in the MWP system specification.

93. SUPPLY SUPPORT. There are no FAA supply support requirements for the MWP. The contractor must provide all supply support. This includes consumables such as printer paper, printer ribbons, printer ink, magnetic tapes, etc.

94. VENDOR DATA AND TECHNICAL MANUALS. The schedule for delivery of contractor supplied data and manuals is provided in appendix 1.

95. EQUIPMENT REMOVAL. The MWP will replace existing FAX, non-LABS teletype, and RRWDS displays/processors in the CWSU's and the CFWSU. The MWP project office, working with NAS Transition and Implementation Service (ANS) and Systems Maintenance Service (ASM), will fund and provide disposition instructions for these replaced systems after the period of parallel MWP/existing systems operations.

96. FACILITIES. Due to the "interim" nature of the MWP, the physical locations of the system components within the facilities are left to the discretion of the regional and site AF and AT representatives subject to the following restrictions:

- a. The work station(s) should be installed in the CWSU/CFWSU.
- b. Two briefing stations and a color printer are to be installed in the TMU at the ARTCC's.
- c. Up to seven other briefing stations are to be installed at the area supervisor stations. In the ATCSCC, up to 18 stations will be installed for the traffic management specialists.
- d. The processors should be installed in the automation wing basement in or near the area designated for the end-state weather processors. In any case they must be within 640 feet (or 1,000 feet when utilizing a booster) of the work/briefing stations.
- e. The selected locations for the processors should provide for inlet of cooling air from under the floor of the facility or from above the floor at the rear of the MWP processor rack. Specific flooring and cooling requirements will be determined and resolved during the site surveys, and documented in the SPRP and I/CO Plan.
- f. Provision should be made to allow for the installation of one satellite dish antenna of up to 11.5 feet in diameter. The antenna will be installed on the grounds of the facility. The ATCSCC MWP systems will require the installation of only one satellite dish on the roof of the FAA headquarters building. The exact size of the antenna required at each site is given in appendix 1.
- g. Regions will submit cost estimates to ANW-130 for site preparation work as identified in the FAA approved SPRP for each site.

97.-99. RESERVED.

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CHAPTER 10. ADDITIONAL PROJECT IMPLEMENTATION ASPECTS

100.-109. RESERVED.

APPENDIX 1. MILESTONES AND SCHEDULES1. PROJECT SCHEDULES AND MILESTONES.

a. Estimated Delivery Dates. There are no contractual requirements as to the dates of delivery of equipment. The contract only specifies the schedule for acceptance of the "service," defined as the completion of the SAT. The following delivery schedule is based upon the contract required SAT completion schedule and an estimated period of 3 weeks from delivery to completion of the SAT:

SITE #	SITE	DELIVERY (Weeks after contract award)	SITE ACCEPTANCE TEST (SAT) COMPLETION (Weeks after contract award)	# BRIEFING TERMINALS (TMU/ SUPERVISOR)	ANTENNA SIZE AT EACH SITE (meters)
1	Atlanta (ZTL)	55	56	2/7	1.8
2	ATCSCC (1 of 2)	59	61	9	2.4
3	Fort Worth (ZFW)	61	62	2/6	2.4
4	Kansas City (ZKC)	61	62	2/6	2.4
5	Leesburg (ZDC)	62	63	2/7	2.4
6	Indianapolis (ZID)	62	63	2/5	1.8
7	Seattle (ZSE)	63	64	2/4	3.5
8	Minneapolis (ZMP)	64	67	2/7	3.5
9	Salt Lake City (ZLC)	64	67	2/4	2.4
10	Miami (ZMA)	67	68	2/5	3.5
11	Oakland (ZOA)	67	68	2/5	2.4
12	Boston (ZBW)	68	69	2/5	2.4
13	Cleveland (ZOB)	68	69	2/7	3.5
14	Memphis (ZME)	69	70	2/5	1.8
15	Albuquerque (ZAB)	69	70	2/6	2.4
16	Los Angeles (ZLA)	70	71	2/5	2.4
17	Denver (ZDV)	70	71	2/5	2.4
18	Chicago (ZAU)	71	72	2/7	1.8
19	New York (ZNY)	71	72	2/7	2.4
20	Jacksonville (ZJX)	73	74	2/5	1.8
21	Houston (ZHU)	73	74	2/7	2.4
22	ATCSCC (2 of 2)	74	75	9	N/A
23	Anchorage (ZAN)	75	76	2/2	3.5

b. Contract Deliverables. The following is a list of key contract deliverables that are related to the implementation of the MWP.

<u>DELIVERABLE</u>	<u>DELIVERY DATE</u>
Draft Operations and Maintenance Plan	2 Weeks after Contract Award
Draft Contractor Master Test Plan	4 Weeks after Contract Award
Operations and Maintenance Plan	8 Weeks after Contract Award
Draft FAT Plan	8 Weeks after Contract Award
Draft SAT Plan	10 Weeks after Contract Award
Contractor Master Test Plan	15 Weeks after Contract Award
FAT Plan (Final)	15 Weeks after Contract Award
SAT Plan (Final)	21 Weeks after Contract Award
FAT Report	3 Weeks after FAT
Training Material	3 Weeks after equipment delivery
SAT Reports	3 Weeks after each SAT
Site Preparation Requirements Plan	114 Calendar Days before SAT
Installation and Checkout Plan	28 Calendar Days after each Site Survey

c. Generic Site Implementation Schedules. This list provides a generic schedule of site implementation milestones relative to the completion of the SAT.

MILESTONE	WORKING DAYS REFERENCED TO SAT COMPLETION
Site Survey Start	- 111
SPRP Draft	- 102
Review Comments Due	- 87
SPRP Final	- 81
System Delivery	- 19
Site Walk-through	- 18
Installation and Checkout	- 16
SAT Start	- 5
SAT Complete	REFERENCE
NWS/AF Training Start	+ 5
CAI	+ 16
Integration Testing Start	+ 17
Shakedown Testing Start	+ 28
JAI	+ 37
ORD	+ 47

d. Contractor Site Implementation Schedules. This list provides the contractor's schedule of site implementation milestones.

SITE	SITE	ACTUAL DAY OF SITE SURVEY	ACTUAL WEEK OF INSTALL START	ACTUAL SAT COMPLETION
1	Atlanta (ZTL)	11/14/89	10/15/90	11/09/90
2	ATCSCC (1 of 2)	11/08/89	11/13/90	11/30/90
3	Fort Worth (ZFW)	2/14/90	11/26/90	12/07/90
4	Kansas City (ZKC)	12/14/89	11/26/90	12/14/90
5	Leesburg (ZDC)	2/06/90	12/14/90	8/29/91
6	Indianapolis (ZID)	2/27/90	12/03/90	12/14/90
7	Seattle (ZSE)	3/21/90	12/14/90	8/29/91
8	Minneapolis (ZMP)	4/11/90	9/09/91	9/19/91
9	Miami (ZMA)	4/25/90	9/09/91	9/19/91
10	Boston (ZBW)	5/22/90	9/16/91	9/26/91
11	Cleveland (ZOB)	5/31/90	9/16/91	9/26/91
12	Memphis (ZME)	5/30/90	9/23/91	10/03/91
13	New York (ZNY)	7/21/90	9/23/91	10/03/91
14	Chicago (ZAU)	6/29/90	9/30/91	10/10/91
15	Jacksonville (ZJX)	8/02/90	9/30/91	10/10/91
16	Houston (ZHU)	9/06/90	10/07/91	10/17/91
17	ATCSCC (2 of 2)	N/A	10/07/91	10/17/91
18	Anchorage (ZAN)	8/30/90	10/14/91	10/24/91
19	Oakland (ZOA)	5/16/90	10/14/91	10/24/91
20	Los Angeles (ZLA)	6/27/90	10/21/91	10/31/91
21	Albuquerque (ZAB)	6/21/90	10/21/91	10/31/91
22	Denver (ZDV)	7/12/90	10/28/91	11/07/91
23	Salt Lake City (ZLC)	4/18/90	10/28/91	11/07/91

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Appendix 1

2. DEPLOYMENT READINESS REVIEW SCHEDULE.

<u>ACTION</u>	<u>ACTUAL DATE</u>
SEI Conducts Initial Review	NOV 21 1989
Initiate DRR Process	DEC 07 1989
First Test Site Delivery	OCT 15 1990
DRR Report	JUN 18 1991
AND-1 Approval	JUN 19 1991
Conduct EXCOM Meeting	JUN 28 1991
Deployment Memorandum	JUL 03 1991

APPENDIX 2. MWP PROJECT POINTS OF CONTACT

<u>Name</u>	<u>Organization</u>	<u>Title</u>	<u>Phone Number</u>
<u>FAA HEADQUARTERS</u>			
Jeanne Rush	ANW-300	Program Manager	267-5857
Kevin Young	ANW-130	Associate Program Mgr.	267-8547
David Roth	ANW-130	MWP TO/Proj Mgr.-COTR	267-8662
Don Espinosa	AHT-400	Training	267-8030
Ron LaMarche	ATM-120	ATCSCC AT Operations	267-7957
Mike Munro	ATR-134	Associate MWP Proj Mgr	267-9170
Steve Manley	ASU-330	Contracting Officer FTS:	267-7539
Mike Cieslak	ASU-330	Contract Specialist (202)	724-0374
Ed Cabott	ANS-420	Associate Program Manager for Logistics (APML)	267-8806
<u>FAA TECHNICAL CENTER</u>			
Frances MacKuse	ACN-250	NAS IT&E	FTS: 482-5415
Donald Shawver	ASM-400	NAS OT&E	FTS: 482-6503
<u>NWS HEADQUARTERS</u>			
Mike Tomlinson	W/OM13x1	NWS Project Manager	427-7726
<u>CENTRAL REGION (ACE)</u>			
Jeff Yarnell	ACE-452	AFAPM	FTS: 867-5676
Charles Gray	ACE-510.B	ATAPM	FTS: 867-3400
Eric Markussen		ZKC AFTR	FTS: 753-1625
Joe Taber		ZKC ATTR	FTS: 753-1460
Gary Foltz	W/CR1x3	NWS RAM	FTS: 867-3239
Gary H. Ernst		NWS MIC (ZKC)	FTS: 753-1456
<u>EASTERN REGION (AEA)</u>			
Charles Gruner	AEA-452.1	AFAPM	FTS: 667-1890
Al Garcia			FTS: 667-1198
Helen Krywka	AEA-510	ATAPM	FTS: 667-1223
John Kochis	AFS-824	ZNY AFTR	FTS: 663-3577
John Paeper	ZNY-510	ZNY ATTR	FTS: 663-3491
Dennis Freeman	AFS-834	ZDC AFTR	FTS: 925-4670
			(703) 771-3670
James M. Morris	ZDC-510	ZDC ATTR	FTS: 925-4420
John E. Jones	W/ER1x2	NWS RAM	649-5459
Pat Albanese		NWS MIC (ZNY)	FTS: 663-3454
Norbert Novacin		NWS MIC (ZDC)	FTS: 925-4480
Ray Stralka		NWS MIC (CFWSU)	FTS: 267-9390
Michael R. Chinn	AFSFO-840.3	ATCSCC AFSFO Manager	FTS: 267-8200
Stan Lowrey	AF/Sector		FTS: 267-8016

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<u>Name</u>	<u>Organization</u>	<u>Title</u>	<u>Phone Number</u>
<u>GREAT LAKES REGION (AGL)</u>			
Gary St.Johns	AGL-422.1	AFAPM	FTS: 384-7422
Russ Hazelite	AGL-420		FTS: 384-7559
Lee Riley	AGL-510	ATAPM	FTS: 384-7559
		ZID AFTR	FTS: 332-0280
Fred Heaviland		ZID ATTR	FTS: 332-0536
William Frazier		ZAU AFTR	FTS: 388-9201
Danny Kaebala		ZAU ATTR	FTS: 388-9397
David Michalak		ZAU ATTR (alt.)	FTS: 388-9239
Tom Berry		ZOB AFTR	FTS: 292-8241
Allen Johnson		ZOB ATTR	FTS: 292-8127
Tom Hutchcraft		ZMP AFTR	FTS: 784-3226
Jack Huber		ZMP ATTR	FTS: 784-3370
Gary Foltz	W/CR1x3	NWS RAM (ZID, ZAU, ZMP)	867-3239
John E. Jones	W/ER1x2	NWS RAM (ZOB)	649-5459
Mike Rosemark		NWS MIC (ZID)	FTS: 332-0469
Allan H. Fisher		NWS MIC (ZAU)	FTS: 388-9291
Ernest Marion		NWS MIC (ZOB)	FTS: 292-8164
Dale Branch		NWS MIC (ZMP)	FTS: 784-3189
<u>NEW ENGLAND REGION (ANE)</u>			
Bruce Ng	ANE-422N	AFAPM	FTS: 836-7271
Wendy Schoneberger	ANE-515	ATAPM	FTS: 836-7147
Don Nevers	AFS-815	ZBW AFTR	FTS: 834-6792
Richard Chomitz	ZBW-540A	ZBW ATTR	FTS: 834-6801
John E. Jones	W/ER1x2	NWS RAM	649-5459
Gregory Dietz		NWS MIC (ZBW)	FTS: 834-6698
<u>NORTHWEST MOUNTAIN REGION (ANM)</u>			
Don Keen	ANM-422E3	AFAPM	FTS: 392-2408
Dale Realph	ANM-516	ATAPM	FTS: 392-2516
Rachel Ayers		ZSE AFTR	FTS: 390-5306
Cliff Wallace		ZSE ATTR	FTS: 390-5230
Milton R. Scholz		ZLC AFTR	FTS: 586-3144
Arno Bosley		ZLC ATTR	FTS: 586-3244
Terry Malleck		ZDV AFTR	FTS: 323-4434
Bobby Mullikin		ZDV ATTR	FTS: 323-4205
Larry Burch	W/WR1x2	NWS RAM (ZSE, ZLC)	588-4000
Gary Foltz	W/CR1x3	NWS RAM (ZDV)	867-3239
John Machowski		NWS MIC (ZSE)	FTS: 390-5401
John A. Conlin		NWS MIC (ZLC)	FTS: 586-3278
Frederick J. Foss		NWS MIC (ZDV)	FTS: 323-4251

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Appendix 2

<u>Name</u>	<u>Organization</u>	<u>Title</u>	<u>Phone Number</u>
<u>SOUTHERN REGION (ASO)</u>			
Richard Williams	ASO-422	AFAPM	FTS: 246-7371
Deborah Dennis	ASO-514	ATAPM	FTS: 246-7488
Fred Terrible	ASO-402	ZJX AFTR	FTS: 965-1662
Gene Wygal		ZJX ATTR	FTS: 965-1578
Jim Harris	ASO-402	ZMA AFTR	FTS: 820-1370
Glen Rivera		ZMA ATTR	FTS: 820-1241
David Howell	ASO-402	ZME AFTR	FTS: 222-3181 x207
Dan Carrington		ZME ATTR	FTS: 222-3181 x216
Richard Farell	ASO-402	ZTL AFTR	FTS: 249-7971
John S. Davis		ZTL ATTR	FTS: 249-7960
Armando Garza	W/SR1x2	NWS RAM	334-2652
Curtis Morton		NWS MIC (ZJX)	FTS: 965-1544
David McLaughlin		NWS MIC (ZMA)	FTS: 820-1274
John D. White		NWS MIC (ZME)	FTS: 222-3181 x250
Arthur Ayers		NWS MIC (ZTL)	FTS: 249-7693
<u>SOUTHWEST REGION (ASW)</u>			
Russ Lenz/SEI	ASW-4222.2	AFAPM	FTS: 734-5426
Doug Felix	ASW-511F	ATAPM	FTS: 734-5519
Randy Simpson	ZFW-TSO	ZFW AFTR	FTS: 334-7430
Phil Harris, Jr.	ZFW-510	ZFW AMNI	FTS: 334-1303
James Tabor	ZHU-OSC	ZHU TSS	FTS: 527-5350
Max Tindell	ZHU-510	ZHU AMNI	FTS: 527-5503
Dave Roop	ZAB-RDPS	ZAB TSS	FTS: 476-0451
Dan Kerr	ZAB-510	ZAB ATTR	FTS: 476-0510
Armando Garza	W/SR1x2	NWS RAM	FTS: 334-2652
Jack Paup		NWS MIC (ZFW)	FTS: 334-1538
Roger Smith		NWS MIC (ZHU)	FTS: 527-5676
Serge Rivard		NWS MIC (ZAB)	FTS: 476-0690

<u>Name</u>	<u>Organization</u>	<u>Title</u>	<u>Phone Number</u>
<u>WESTERN PACIFIC REGION (AWP)</u>			
Lee Richards	AWP-422.41	AFAPM	FTS: 984-1494
John Maloney	AWP-512.4	ATAPM	FTS: 984-0053
Robert Durben		ZLA AFTR	FTS: 968-8416
Ward Billings		ZLA AFTR (alt.)	FTS: 968-8456
John Skudmore		ZLA ATTR	FTS: 968-8251
Lewis Hawkins		ZOA AFTR	FTS: 449-6382
Donald Chapman		ZOA ATTR	FTS: 449-6308
Elisabeth Morse	W/WR1x2	NWS RAM	588-4000
Walter Rodgers		NWS MIC (ZLA)	FTS: 968-8258
Kenneth Parker		NWS MIC (ZOA)	FTS: 449-6457

<u>ALASKAN REGION (AAL)</u>			
Leonard Grau	AAL-421A	AFAPM	(907) 271-3840
Terry Alexander	AAL-510	ATAPM	(907) 271-5881
Karla Schommer	ZAN AF MNI	AF NAS IMPL	(907) 269-1239
John R. Cline	Mgr Tech Supt	ZAN MTS	(907) 269-1191
Joe Boswell	Maint. Man. Office		(907) 269-1157
Bill Hampton	ZAN-560	ZAN ATTR	(907) 269-1108
Dale Eubanks	W/AR1x1	NWS RAM	(907) 271-5132
Paul McCloud		NWS MIC (ZAN)	(907) 338-1010
Bruce Benson	AAL-403Z	NAS Coordinator	(907) 269-1131
Leon Chesler	AAL-480	TM&O Mgr	(907) 271-5563
Dave Palmer	ZAN AT AMNI	AMNI	(907) 269-1118
Stewart Mee	MMC-SEI	ZAN Center Lead	(907) 269-1127

APPENDIX 3. ISSUES AND CONCERNS

1. COMMUNICATIONS. Two issues concerning communications support for the MWP are:

- a. The capability and space requirements for the MAD.
- b. The organizational responsibilities needed to ensure complete implementation.

2. PARALLEL OPERATIONS/TRANSITION.

- a. Space for the MWP work station during parallel operations.
- b. Radar data to MWP and RRWDS processor during parallel operations.

APPENDIX 4. ACRONYM LIST

AAC	Aeronautical Center
AAL	Alaskan Region
ACE	Central Region
ACN	Engineering, Test, and Evaluation Service
ACT	FAA Technical Center
AEA	Eastern Region
AF	Airway Facilities
AFAPM	Airway Facilities Associate Program Manager
AFSFO	Airway Facilities Sector Field Office
AFTR	Airway Facilities Technical Representative
AGL	Great Lakes Region
ALG	Logistic Services
AHT	Office of Training and Higher Education
AND	Associate Administrator for NAS Development
ANE	New England Region
ANM	Northwest Mountain Region
ANS	NAS Transition and Implementation Service
ANW	Weather and Flight Service Systems
AOA	Office of the Administrator
ARTCC	Air Route Traffic Control Center
ASCII	American Standard Code for Information Interchange
ASE	NAS Systems Engineering Service
ASM	Systems Maintenance Service
ASO	Southern Region
ASU	Office of Acquisition Support
ASW	Southwest Region
AT	Air Traffic
ATAPM	Air Traffic Associate Program Manager
ATC	Air Traffic Control
ATCSCC	Air Traffic Control System Command Center
ATM	Air Traffic Management
ATR	Air Traffic Plans and Requirements Division
ATRPM	ATC Plans and Requirements Associate Program Manager
ATTR	Air Traffic Technical Representative
AWP	Western-Pacific Region
CAI	Contractor Acceptance Inspection
CCB	Configuration Control Board
CFWSU	Central Flow Weather Service Unit
CO	Contracting Officer
COTR	Contracting Officer's Technical Representative
CWP	Central Weather Processor
CWSU	Center Weather Service Unit
DIFAX	Digital Facsimile Machine
DRR	Deployment Readiness Review
EMI	Electromagnetic Interference
EXCOM	Executive Committee
FAA	Federal Aviation Administration

FAT	Factory Acceptance Test
FAX	Facsimile Machine
GOES	Geostationary Operational Environmental Satellite
I/CO	Installation and Checkout
I/O	Input/Output
IOC	Initial Operational Capability
IT&E	Integration Test and Evaluation
ITP	Integration Test Plan
JAI	Joint Acceptance Inspection
KVA	Kilo-volts amperes
KW	Kilowatts
LABS	Leased A & B Service
MAD	Multiple Access Device
MIC	Meteorologist In Charge
MWP	Meteorologist Weather Processor
NAFAX	National Facsimile Machine
NAILS	National Airspace Integrated Logistics Support
NAS	National Airspace System
NATCOM	National Communications Center
NCP	NAS Change Proposal
NWS	National Weather Service
ORD	Operational Readiness Date
OT&E	Operational Test and Evaluation
PDSR	Program Director Status Review
PIP	Project Implementation Plan
RAM	Regional Aviation Meteorologist
RRWDS	Radar Remote Weather Display System
RWP	Real-time Weather Processor
SAT	Site Acceptance Test
SEI	Systems Engineering and Integration
SPRP	Site Preparation Requirements Plan
ST&E	Shakedown Test and Evaluation
STD	Standard
TM	Traffic Management
TMU	Traffic Management Unit
TO	Technical Officer
TSSC	Technical Services Support Contractor
UPS	Uninterrupted Power Supply

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Appendix 4

VAC	Volts Alternating Current
WMSC	Weather Message Switching Center
WSOM	Weather Service Operations Manual