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FY2015 STATE HOMELAND SECURITY GRANT PROGRAM COMBINED COVERSHEET

(see page 6 of application instructions)

Combine all sub-applicant requests within your county or tribe on this coversheet

County or Tribe Applicant: YAMHILL COUNTY

Address: 535 NE 5TH ST., McMINNVILLE, OR 97128

Contact: SUE LAMB

Phone number: (503) 434-7340 e-mail: LAMBS@CO.YAMHILL.OR.US

Total Federal Funds Requested: \$ 411,936.00

Amount Dedicated to Law Enforcement: \$ 236,492.00

Project #1 \$165,410.00

Project #5 \$54,400.00

Project #2 \$14,876.00

Project #6 \$

Project #3 \$9,700.00

Project #7 \$

Project #4 \$167,550.00

Total: \$411,936.00

Sub-applicant Information:

Agency Name: <u>Yamhill County</u>	Total Funds Requested \$ <u>165,410.00</u>
Agency Name: <u>City of McMinnville</u>	Total Funds Requested \$ <u>16,876.00</u>
Agency Name: <u>Amity Fire District</u>	Total Funds Requested \$ <u>1,100.00</u>
Agency Name: <u>Carlton Fire District</u>	Total Funds Requested \$ <u>1,100.00</u>
Agency Name: <u>Lafayette Fire District</u>	Total Funds Requested \$ <u>1,100.00</u>
Agency Name: <u>Sheridan Fire District</u>	Total Funds Requested \$ <u>1,100.00</u>
Agency Name: <u>West Valley Fire District</u>	Total Funds Requested \$ <u>1,100.00</u>
Agency Name: <u>City of Newberg</u>	Total Funds Requested \$ <u>168,650.00</u>
Agency Name: <u>City of Yamhill</u>	Total Funds Requested \$ <u>54,400.00</u>
Agency Name: <u>Yamhill Fire Protection District</u>	Total Funds Requested \$ <u>1,100.00</u>

Total Requested \$411,936.00

YAMHILL County is in support of the four local projects identified in the State Program Guidance document being managed by Oregon Office of Emergency Management.

Authorized Official for the Agency: ALLEN SPRINGER

Signature of Authorized Official: *Allen Springer* Date: 2-5-15

B.O. 15-31

FY2015 State Homeland Security Grant Program Application Summary

Agency Name	Funding Request	Brief Project Summary
1) Yamhill County, Information Technology	\$165,410.00	Requesting funds to complete phase III of a four phase replacement and enhancement plan to update the emergency communications system for Yamhill County, which also serves our regional partner, Polk County. See complete application attached.
2) City of McMinnville, CERT	\$14,876.00	Requesting phase one of a two phase project to purchase one utility trailer and the equipment to stock it, which would assist in facilitating the training of 50 new members. There are currently 100 trained volunteers in the McMinnville Area, and as revealed during a 2014 exercise, only 15 were available. They are seeking to increase the pool of responders and better serve the area in the case of an emergency.
3) City of McMinnville, on behalf of the fire districts of: Amity Carlton, Lafayette, Newberg, Sheridan, West Valley, McMinnville and Yamhill.	\$9,700.00	A one phase project requesting the purchase of 8 Ham Radio and power units for Fire Departments throughout Yamhill County and 30 training manuals to be used in a training class. The class will be provided by the ARES (Amateur Radio Emergency Service) volunteer group and increase the number of Ham Radio Operators. Ham Radios are the main source of communication during a loss of traditional communication systems.
4) City of Newberg	\$167,550.00	Requesting to purchase 55 dual band radios for police, fire and EMS responders. Will create full interoperability between primary City of Newberg jurisdictions, allow for full realistic trainings, exercises and drill opportunities. This will limit the need to patch radio systems together by the two PSAP's within Yamhill County.
5) City of Yamhill	\$54,400.00	Requesting funding for Phase II of a four phase project. Phase II includes four components: 1. hiring an outside consultant to identify the EOC/AOC's vulnerabilities and capabilities. 2. Develop "Just in time" job aids. 3. A workshop for 20 EOC staff to review aids, position specific books, information management systems flows and general training. 4. Hire a consultant to run a EOC table top for 20 people to analyze and implement the first three components of Phase II.
Total Funds Requested	\$411,936.00	

Accepted by Yamhill County
Board of Commissioners on

2.5.15 by Board Order

15 - 31

FY2015 STATE HOMELAND SECURITY GRANT PROGRAM SUB-APPLICANT COVERSHEET

Volume 117
Page 0072

(see page 7 of applications instructions)

Each sub-applicant agency requesting federal funds (within your county or tribe) must complete a separate sub-applicant coversheet for each project.

Project Title: Yamhill County Microwave Network Improvement Project, Phase III(Regional)

County or Tribe: Yamhill County

Sub-Applicant Agency Requesting Funds: Yamhill County

Federal Funds Requested: \$ 165410.00

Program Mailing Address:

535 NE 5th Street

McMinnville, Oregon

97128

Fiscal Mailing Address:

535 NE 5th Street

McMinnville, Oregon

97128

Program Contact: Murray Paolo Title: Information Technology/Telecomm Manager

E-mail: paolom@co.yamhill.or.us Phone number: (503) 434-7401 ext. _____

Fiscal Contact: Jayne Mercer Title: Grants and Special Projects Manager

E-mail: mercerj@co.yamhill.or.us Phone number: (503) 434-7501 ext. _____

Identify State Investment Justification: 3. Interoperable Communications Investment

Agency Federal Tax Identification Number: 93-6002318

Agency Data Universal Numbering System (DUNS) Number: 829864326

To obtain a DUNS number for your agency, please go to the D&B website at:

<http://fedgov.dnb.com/webform>, or call the DUNS Number request line at 1-866-705-5711.

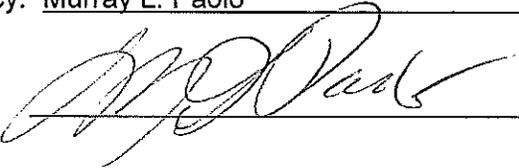
Completed required registration in System for Awards Management (SAM): Yes MP (initial)
(your DUNS number is a required field to start your SAM Registration)

CAGE Number: 5F2Y2 (found within your completed SAM)

To register in SAM, please go to the SAM website at www.sam.gov/portal/public/SAM/.

My jurisdiction has a property/equipment tracking and monitoring system in place that complies with the requirements set forth in 44CFR Section 13. YES NO MP (initial)

Authorized Official for the Agency: Murray L. Paolo

Signature of Authorized Official:  Date: 1/29/2015

Fiscal Year 2015

Oregon

EMERGENCY MANAGEMENT

STATE HOMELAND SECURITY GRANT PROGRAM

PROJECT PLANNING WORKSHEET

DECEMBER 2014



STATE HOMELAND SECURITY PROJECT PLANNING WORKSHEET

Overview

This worksheet is for applicants applying for the FY2015 State Homeland Security Grant Program (SHSGP) funding in compliance with FY2015 Application Instructions and Grant Guidance. This worksheet must be completed in full and provide a detailed budget as identified in the application instructions. No more than seven (7) worksheets may be turned in per county or tribe.

Project Information:

(See page 7 of application instructions)

1. County or Tribe:

Yamhill County

2. Project Name:

Yamhill County Microwave Network Improvement Project, Phase III(Regional)

3. Total Federal Funding Requested:

\$165,410

Investment Justification

(See page 4 of application instructions)

4. Identify State IJ:

3. Interoperable Communications Investment

Baseline: New or Ongoing Project

Capabilities that will be created or enhanced by the project.
(See pages 7 and 8 of application instructions)

5. Project Phase: (Place an "X" in the corresponding box) (Point Value = 5)

- Sustaining or maintaining a core capability acquired with Federal funding
- Sustaining or maintaining a core capability acquired without Federal funding
- Developing or acquiring a new core capability (new capabilities must be deployable)

Description of Capabilities:

This proposed project is Phase III of our microwave system replacement and enhancement plan. There are four proposed phases in total. Phase I is nearing completion now, and is being funded by a combination of General Fund resources which have built a system replacement fund, and an additional contribution from the City of McMinnville. Phase II is in progress and was funded by a 2014 SHSP grant. The equipment for Phase II is now being prepared for installation. There are four phases in total to complete this project. This proposed Phase III project also represents a partnership between Yamhill and Polk County which will combine two present links of microwave equipment into one, thus saving tower space on the Eagle Crest and Doane Creek towers, as well as combining resources to serve both counties, and thereby also improving interoperability between the entities.

Our current Public Safety communications system will be greatly enhanced by this proposed project. The capabilities that will be added will be improving the reliability of our system through the reduction of recurring microwave failures, along with adding the ability to perform proactive preventative maintenance through system alarm, control, and monitoring. The overall management of the entire communications system, including the microwave and public safety radio systems will be dramatically improved. This proposed project will be focused on the microwave infrastructure of our system. The present infrastructure was acquired and implemented using a combination of a local communications tax levy, Federal Title III resources, and surplus equipment from other agencies.

Project Description:

Provide a detailed description of this project.
(See page 8 of application instructions)

6. Description of Project:	(Point Value = 30)
<p>Yamhill County is currently seeking the funding needed to implement Phase III of a four phase critical overhaul of its emergency communications microwave system. To date, previous phases of the project have been funded through a combination of local General Fund resources, (Phase I), and a Federal Homeland Security grant,(Phase II). This proposed Phase III will include Polk County as a regional partner, consolidate outdated systems, and strengthen the communications capabilities of the entire area.</p> <p>Yamhill County's need to replace its public safety microwave infrastructure has been serious for several years. This was clearly determined during a comprehensive study of the microwave system that was commissioned and completed by the AdComm Corporation of Redmond, Washington in May of 2013, (Appendix A). This independent study confirmed the high state of risk of the microwave system, and the associated risk to all public safety communications posed by this situation. The system has already experienced multiple link failures due to issues such as deteriorating crystals that wander off frequency. The occurrence of failures continues to increase as time goes on. The present gap in this capability is the risk of system failures associated with communications interruptions, and the lack of ability to perform proactive system monitoring and management associated with alarm and control features available with present day technology. Public safety communications are critical to the protection of life and property, thus any interruption of those communications is very serious. The AdComm report concluded with the recommendation to immediately begin a planned replacement/upgrade to the microwave system. The county has begun implementation of a four phased approach to replace/upgrade the entire system, which was designed to be in compliance with the adopted and updated Yamhill County Emergency Communications Plan, (Appendix B), and is specifically noted on page 20, Section IX, paragraph C. The project is also compliant with SAFECOM priorities 4 and 5 regarding activities and technical standards, the Oregon Statewide Communication and Interoperability Plan (SCIP) under Goal 5.3 Technology, and Goal 5.7 Life Cycle funding. Finally, this proposed project will be fully capable of supporting federal P-25 communications protocols immediately.</p> <p>Phase III (this project) proposes to replace equipment on the following links in our microwave system; Eagle Crest to Doane Creek, Doane Creek to Spirit Mountain, and Doane Creek to Mt. Hebo. Please refer to Appendix C for a visual diagram of the proposed project. This project presents an opportunity to partner with Polk County by replacing two existing microwave links between the towers located at Eagle Crest and Doane Creek with a single link capable of carrying communications traffic for both entities. This will reduce the overall required tower space on the Eagle Crest and</p>	

Doane Creek towers. Yamhill County and Polk County will now share microwave resource between these sites.

For over nine years, Yamhill County has made a major commitment to the improvement of UHF based public safety communications. This initiative has been implemented through multiple projects and in multiple phases. Our geographic location has made it possible and critical that we establish and maintain regional relationships with our surrounding counties. Our regional partners have enabled us to further leverage our resources, as well as implement multiple inter-operational projects with success.

However, the integrated and forward thinking approach currently utilized in the planning and implementation of the regional microwave infrastructure, is a shift from what has been done historically . For example, in the past microwave equipment using old analog T-1 circuits was acquired from state and other local agencies, assuming that it would adequately support the present and future needs of the system. Once adequate long range planning and engineering of the communications systems was implemented, approximately six years ago, it became obvious that the microwave technology would not be adequate to support present and future digital technology. Further, the present microwave system does not support the proactive system management needed to adequately support our UHF simulcast system. Consequently, plans were developed to ultimately upgrade the microwave infrastructure to digital IP based systems. In the interim, it was necessary to continue the use and even implement limited expansion of the existing technology such that operational simulcast systems could be further expanded and supported. Over the past three to four years, the age (1980s technology) and capability of the present microwave system has begun to challenge the reliability and supportability of our UHF public safety system. System interruptions now occur on a regular basis, demonstrating the immediate need to complete each phase of this overhaul.

In order to ensure that Yamhill County establishes a sustainable and complete communications system that is compatible with modern technology, and that it can be independently financed and maintained over its lifetime, a replacement fund mechanism was established by the Yamhill Communications Agency (YCOM) four years ago. The fund has steadily grown in the years since, with business partners within YCOM contributing to this fund on an annual basis. Using that fund, plus a generous additional contribution from the City of McMinnville, the first phase of the overhaul, (replacing the innermost links of the system), has begun. An RFP was developed and released in the Spring of 2014, and covers all phases of the entire project. Vendor selection and contract negotiation has been completed. Phase I is in process, and is nearing completion at this time. Phase II was selected for SHSP funding in FY2014 and is currently ahead of schedule, equipment is currently being implemented. Dependent on future funding, this proposed Phase III project is now ready to begin immediate equipment acquisition and implementation, and will follow on the heels of the previous two phases.

The need to continue to move through the project's phases quickly is imperative. There is now a co-existence of old technology (analog T-1) and new technology (IP/Ethernet) running on the same system. Until all equipment is replaced, the old technology communication methods throughout the entire system must be maintained to support active emergency communications. Further, it important that all equipment installed is as near identical as possible, so as to not have any compatibility issues that may hinder use. This project presents an opportunity to leverage and build upon the local commitment and funding invested in Phase I, combined with the SHSP resources being used to implement Phase II. Further, we have designed these projects to continue to operate within the 6 ghz. frequency range within the main loop. This will allow, in some cases, the system to combine existing functional non-electronic equipment with new equipment, and thus reduce the overall cost of the project without compromising quality.

The accompanying budget for this proposed Phase III project includes the acquisition of new microwave radios and their accompanying ancillary equipment, along with the costs of installation and associated services. This project proposes the reuse of the existing 6 ghz. microwave dishes in order to save costs, and to use existing equipment that is fully serviceable for many years to come. In order to ensure that this plan is feasible, we have already sought and licensed wider bandwidth frequencies from the FCC that will enable us to operate equipment with greater throughput within the existing 6 ghz. frequency band.

The overhaul of Yamhill County's emergency communication system will equip the county with a sustainable microwave system that will serve the area for decades to come. The old components of the current system pose a direct risk to the public safety of county residents and our regional partners. Further replacement, (as proposed by this phase III project), coupled with the successful completion of phases I and II will significantly minimize these risks.

Equipment or Services

Equipment or services to be purchased for the project.
(See page 8 of application instructions)

7. Project Outputs:

(Point Value = 10)

Three hops of microwave equipment consisting of Star Microwave Cirrius LM and HM systems, or the equivalent, designed to provide T-1 and IP connectivity simultaneously.

All associated RF design, path analysis, installation, and system testing.

Capabilities

Capabilities that will be created or enhanced by the project.
(See pages 8 and 9 of application instructions)

8. Project Outcomes:

(Point Value = 15)

Substantially increase the reliability and servicability of our Public Safety communications system.

Add the capability to proactively monitor and anticipate potential service interruptions in our Public Safety communications system.

Add capacity to our Public Safety communications system for expanded communications, and alarm/control functionality.

Add capacity and capability to interoperate more effectively with public safety agencies in Washington, Polk, and Tillamook counties.

With regards to Polk County, this will improve interoperability capabilities by sharing microwave resource - thus literally joining our networks. In addition, it will free critical tower space for other entities on the Eagle Crest tower.

State Strategy:

Identify all goals and objectives in the State Homeland Security Strategy supported by this project.
(See page 9 of application instructions)

9. Project Goals and Objectives:

(Point Value = 5)

Goal 1: Enhance communications interoperability among public safety agencies.
 Objective 2: Develop and upgrade the interoperable communications infrastructure to meet national and statewide standards.
 Goal 2: Increase the ability to investigate, disrupt, deter, and dismantle international and domestic terrorist efforts in Oregon.
 Objective 5: Expand existing technology to alert, warn, and facilitate information sharing to the local jurisdictions.
 Goal 4: Enhance Oregon's statewide ability to plan, prepare for, and respond to CBRNE/WMD and all hazards events.

Proposed Funding by Solution Area:

Provide the Proposed Funding amount to be obligated from this project towards Planning, Organization, Equipment, Training, and Exercises (POETE). (Please provide amounts for all that apply) (See page 9 of application instructions)

10. Proposed Funding:		(Point Value = 5)
Solution Area	Amount of Proposed Funding \$	Funds dedicated to LETPA*
	SHSP	
Planning	\$0	\$0
Organization	\$0	\$0
Equipment	\$165,410	\$133,982
Training	\$0	\$0
Exercises	\$0	\$0
Total Proposed Funding:	\$165,410	\$133,982

* If applicable, provide the proposed funding amount that is expected to be obligated towards Law Enforcement Terrorism Prevention Activities (LETPA).

Core Capabilities:

Select all Core Capabilities supported by this Project. (Place an "X" in the corresponding boxes)
 (See page 9 of application instructions)

11. Project Core Capabilities:		(check all that apply)
<input checked="" type="checkbox"/> Access Control and Identity Verification	<input checked="" type="checkbox"/> Operational Communications	
<input type="checkbox"/> Community Resilience	<input checked="" type="checkbox"/> Operational Coordination	
<input type="checkbox"/> Environmental Response/Health and	<input type="checkbox"/> Planning	

<input type="checkbox"/>	Safety	<input checked="" type="checkbox"/>	Public Information and Warning
<input checked="" type="checkbox"/>	Infrastructure Systems	<input type="checkbox"/>	Screening, Search, and Detection
<input checked="" type="checkbox"/>	Intelligence and Information Sharing	<input checked="" type="checkbox"/>	Situational Assessment
<input type="checkbox"/>	Interdiction and Disruption	<input checked="" type="checkbox"/>	Threats and Hazard Identification
<input checked="" type="checkbox"/>	On-Scene Security and Protection		

Milestones:

Identify Milestones by quarter, with start and end dates, which will be achieved within the period of performance.

(See pages 9 and 10 of application instructions)

12. Project Milestones:		(Point Value = 15)	
Quarter	Milestones	Start Date (mm/yyyy)	End Date (mm/yyyy)
1	Complete contract agreement with OEM for project funding. Develop detailed specifications for each microwave path. Determine exact equipment list for each path. Complete and file first quarter report with OEM.	10/2015	12/2015
2	Complete purchase orders based upon existing contract from RFP, complete equipment orders with vendors. Ensure all FCC licensing is adequate. Receive equipment. Complete and file second quarter report with OEM.	01/2016	03/2016
3	Install, align, and test microwave equipment. Cutover onto new equipment from existing. Project substantial completion. Complete and file third quarter report with OEM.	04/2016	06/2016
4	Complete any necessary punchlist items. Final project closeout. Complete and file final progress report with OEM.	7/2016	9/2016

Sustainment:

Identify how you will sustain the project.
(See page 10 of application instructions)

13. Sustainment:

(Point Value = 15)

This project is the third phase in a four phased initiative. The equipment acquired through this project will be maintained by our local radio system contractor and their technicians, along with factory support provided by the vendor. There is an existing budget to fund this activity, and that budget will continue to be maintained. The existing equipment that will be replaced with this project is currently maintained in this same manner, thus maintaining the new equipment will be a continuation of current activities and funding.

In the course of planning for this project, we are anticipating a system life cycle of ten years on the new microwave equipment. With that in mind, a replacement fund reserve has been established that will be funded at approximately 10% of the projected acquisition cost of replacement equipment. Thus, in ten years the reserve will be fully funded to replace and upgrade the equipment at the end of its life cycle. This plan for funding, operations, maintenance, and subsequent replacement will maintain the capability for overall public safety systems communications well into the future.

Phase I of this overall initiative was locally funded and is nearing completion now. Phase II equipment is being implemented presently. This proposed regional project is Phase III. Phase IV will be addressed as soon as possible, and is projected to be the smallest of all the phases. Due to the critical nature of public safety communications, and the need to complete the entire system as soon as possible, we will likely also be asking for Phase IV funding in the next Homeland Security grant cycle. We will be closely following the implementation recommendations that were developed by the study that was commissioned through AdComm Corporation. The need to fully replace the entire system is obvious due to the high risk of communications failures, and the commitment for funding and sustainment is universal among all the Public Safety agencies that are served by the communications system.

Planning Subtotal	\$0
Training Subtotal	\$0
Exercise Subtotal	\$0
PROJECT TOTAL \$165,410	

Grant Programs Directorate

(See page 13 of application instructions)



Homeland Security

OMB Control#: 1660-0115
Expiration Date: 10/31/2013
FEMA Form: 024-0-1

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
ENVIRONMENTAL AND HISTORIC PRESERVATION SCREENING FORM
Paperwork Burden Disclosure Notice

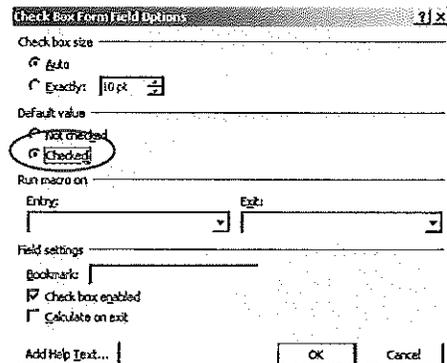
*Public reporting burden for this form is estimated to average 8 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing the burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472, Paperwork Reduction Project (1660- 0115) **NOTE: Do not send your completed form to this address.***

Completing the Screening Form:

This form must be attached to all project information sent to the Grant Programs Directorate (GPD) to initiate environmental and historic preservation (EHP) compliance review, per the National Environmental Policy Act (NEPA) and other EHP laws and executive orders. *There is no need to complete and submit this form if the grant scope is limited to planning, management and administration, classroom-based training, table-top exercises and functional exercises, or purchase of mobile and portable equipment where no installation needed.* Information Bulletin 345 (September 1, 2010) provides details on these activities. The form must be completed by someone with in-depth understanding of project details and location. Completion of this form does not conclude the EHP review process and FEMA may need to contact you for further information. Not providing requested information may result in funding release delays. This form is intended to be completed electronically. The following website provides a version of this form that is suitable for printing and completing by hand as well as additional guidance such as on how to make an aerial map: <http://www.fema.gov/plan/ehp/ehp-applicant-help.shtm#5>.

To check (X) a box (for example, Yes No), left double-click using your mouse and a Check Box Form Field Options box will appear, then under the Default Value, select Checked and press OK (see figure, right). To write in a text field (____), select the text field with your mouse and begin typing.

Submit completed form with necessary attachments to GPDEHPInfo@dhs.gov with the following information in the e-mail subject line: EHP Submission: Project Title, Subgrantee Name; Grant Award Number (Example, EHP Submission: Courthouse Camera Installation, Any Town, State, 12345).



Complete all of Section A, Section B, all of each portion(s) of Section C corresponding to checked blocks in Section B, and all of section D that apply to the project.

A. PROJECT INFORMATION (complete all)

DHS Grant Award Number: _____

Grant Program: _____

Fiscal Year:2015

Project Title:.....Yamhill County Microwave Network Improvement Project, Phase III(Regional)

Grantee (SAA):Yamhill County

Sub grantee:.....Yamhill County

Grantee POC:Murray Paolo

Subgrantee POC:Murray Paolo

Mailing Address:535 NE 5th Street, McMinnville, Oregon 97128

Mailing Address:535 NE 5th Street, McMinnville, Oregon 97128

E-mail:.....paolom@co.yamhill.or.us

E-mail:paolom@co.yamhill.or.us

Dollar value of grant (if known): \$165,410

B. PROJECT TYPE

Please check ALL the block(s) that best fit the scope of the project.

- 1. Training and Exercises. Go to page 2. Complete all of Section C.1.
- 2. Purchase of Equipment. Go to page 3. Complete all of Section C.2.
- 3. Physical security enhancements. Go to page 3. Complete all of Section C.3.
- 4. Renovations/upgrades/modifications to existing structures. Go to page 3. Complete all of Section C.4.
- 5. New construction/addition. Go to page 4. Complete all of Section C.5.
- 6. Communication towers, related equipment, and equipment shelters. Go to page 5. Complete all of Section C.6.
- 7. Other. If your project does not match any of these categories, go to page 6. Complete Section C.7

The following information is required to initiate EHP review of the project. Based on the project's scope of work, determine which project type applies below and complete that section. For multi-component projects or those that may fit into multiple project types, complete the section that best applies and provide a complete project description. The project description should contain a brief summary of what specific action is proposed, where it is proposed, and how it will be implemented. If the project involves multiple locations, information for each must be provided. Attach additional pages, if needed.

Provide a complete project description: This proposed project replaces existing microwave radios and associated equipment on existing, established tower sites and inside existing communications buildings. All equipment installed will be replacing existing equipment. The project proposes to reuse existing microwave dishes by utilizing the same frequency range that is already in use now. The project scope is to replace three microwave links at four different tower locations.

C. PROJECT DETAILS

- 1. Training and Exercises (check each that applies): Classroom-based Field-based
All training must provide the following:

- a. Describe the scope of the proposed training or exercise (purpose, frequency, materials, and equipment needed, number of participants, and type of activities required)
(Attach additional pages, if needed):
- b. Will the field-based training take place at an existing facility having established procedures for that particular proposed training and exercise, and that conforms with existing land use designations (refer to Information Bulletin #329 (http://fema.dps.mo.gov/empg/IB%20329_20090902.pdf) for further information)? Yes No
 - If yes, please provide the name and location of the facility (physical training site address or latitude-longitude):
 - If no, provide the location (physical project address or latitude-longitude) and a full description of the area where training will occur:.....
- c. Does the field-based training/exercise differ in any way (including, but not limited to frequency, amount of facilities/land used, materials or equipment used, number of participants, type of activities) from previously permitted training exercises and training practices?..... Yes No
 - If yes, explain any differences between the proposed activity and those that were approved in the past, and the reason(s) for the change in scope:
- d. Will any equipment or structures need to be installed to facilitate training? Yes No
 - If yes, explain how and where this is proposed to be done (include site-specific color photographs):.....

2. Purchase of equipment

- a. Specify what equipment, and the quantity: Microwave systems and associated equipment, 3 hops(links)
- b. Provide AEL number(s) (if known): 06CP-03-MWAV, 06CP-02-BRDG
- c. Will this equipment be installed?..... Yes No
 - If Yes, go to page 6. Complete Section D.

3. Physical security enhancements and or installations (for example: installation of back-up generators, fencing, cameras, building/room access control, bollards, motion detection systems, x-ray machines, and lighting).

- a. Describe what, how, and where improvement(s)/installation(s) will occur in/on the facility/building/structure:
- b. Provide project location (physical project address and latitude-longitude):.....
- c. Will the new equipment/improvements use the existing power supply systems?..... Yes No
 - If no, describe new power source and installation (such as utility trenching):
- d. If generator installation, please state the capacity (KW):.....
 - If a separate fuel tank is also included, describe if it is to be installed above or below ground, and its capacity (gallons):.....
- e. Go to Page 6. Provide additional project details in Section D.

4. **Renovations/upgrades/modifications to existing structures.**

- a. Provide detailed description of modifications:..... _____
- b. Provide project location (physical project address and latitude-longitude): _____
- c. Will any equipment need to be installed? Yes No
 - If yes, please note in Section 2, (purchase of equipment).
- f. Go to Page 6. Provide additional project details in Section D.

5. **New construction/addition (for example: emergency operations centers, docks, piers, security guardhouse).**

- a. Provide detailed scope of work (site acreage, new facility square footage/number of stories, utilities, parking, stormwater features, etc): _____
- b. Provide project location (physical project address or latitude-longitude): _____
- c. Will any equipment need to be installed? Yes No
 - If yes, please note in Section 2 (purchase of equipment).
- d. Will the new building/facility/renovations use existing utilities? Yes No
 - If no, describe installation of new utilities in (a) above (including trenching): _____
- e. Go to Page 6. Provide additional project details in Section D.

6. **Communication towers, related equipment, and equipment shelters**

- a. Provide a detailed description of the project _____
- b. Provide project location (physical project address or latitude-longitude: _____
- c. Provide the elevation above mean sea level of the project location: _____
- d. For projects involving antenna(s) installations on existing towers:
 - Provide the height of the existing tower: _____
 - The height of the tower following the installation of the new antenna(s): _____
- e. For new tower projects, state the total height (in feet) of the communication tower or structure including any antennae to be mounted: _____
 - If the proposed tower height is greater than 199 feet above ground level, state why this is needed to meet the requirements of the project: _____
 - Will the tower be free-standing or require guy wires? Free standing Guy wires
 - If guy wires are required, state number of bands and how many: _____
 - State why a guyed tower is needed to meet the requirements of this project: _____
 - What kind of lighting will be installed, if any (for example: white strobe, red strobe, or steady burning?): _____
- f. A general description of terrain (For example: mountainous, rolling hills, flat to undulating): _____
- g. Describe the frequency and seasonality of fog/low cloud cover: _____

Environmental and Historic Preservation Screening Form

- h. Provide a list of habitat types and land use on and adjacent to the tower site (within 1/2 mile), by acreage and percentage of total (e.g., woodland conifer forest, grassland, agriculture) waterbody, marsh):
 - i. Is there evidence of bird roosts or rookeries present within 1/2-mile of the proposed site? Yes No
 - a. If yes, describe:.....
 - Distance to nearest wetland area (for example: forested swamp, marsh, riparian, marine) and coastline if applicable:
 - i. Distance to nearest telecommunication tower:.....
 - j. Have measures been incorporated for minimizing impacts to migratory birds? Yes No
 - If yes, describe:.....
 - k. Has an FCC registration been obtained for this tower?..... Yes No
 - If yes, provide Registration #:
 - l. Has the FCC E106 process been completed?..... Yes No
 - m. Has the FCC Tower Construction Notification System (TCNS) process been completed?..... Yes No
 - If yes, attach all relevant environmental documentation submitted as part of the registration process including use of the Tower Construction Notification System (TCNS), if applicable. FRN#.....
 - n. Will any equipment or structures need to be installed?..... Yes No
 - If yes, explain what type how and where this is proposed to be done (*attach additional pages, if pages needed*):.....
 - o. Will equipment be co-located on existing FCC licensed tower or other structure? Yes No
 - If yes, identify the type of structure:.....
 - p. Go to Page 6. Provide additional project details in Section D.
7. **Other.** For any project that does not fit a category listed above, please provide a thorough summary of the proposed action and location. Include as much detail as necessary to ensure someone not personally familiar with the project is able to conduct an EHP review.
- a. Project Summary: _____
 - b. Provide additional project details in Section D.

D. OTHER PROJECT RELATED INFORMATION (complete all that apply)

The following website may provide some additional EHP related guidance and resources to help complete this section <http://www.fema.gov/plan/ehp/ehp-applicant-help.shtm#5>.

- 1. If work is proposed on/in an existing building(s) or structure(s) provide the year built: 1995, 2001, 2004, 2006
 - If the building or structure involved is over 45 years old and significant renovation, rehabilitation, or modification has occurred, please provide the year(s) and briefly describe the nature of remodeling:.....

Environmental and Historic Preservation Screening Form

2. If the project affects the exterior of the building, are there any known buildings and/or structures that are 45 years or older in the immediate project area? Yes No/NA
- If yes, please provide the location, ground-level color photos of these, and identify their location(s) on the aerial map.
3. Is the building or structure on which work is proposed a historic property or in a historic district, or are there any adjacent historic properties? Yes No
- Information about historic properties may be found on the National Register of Historic Places at <http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome> or the respective State Historic Preservation Office may have information on their website.
4. Will ground disturbance be required to complete the project? Yes No
- If yes, provide total extent (depth, length and width) of each unique ground disturbing activity. Light poles, bollards and fencing are each unique ground disturbing activities (For example, six light poles, 24" dia. x 4' deep; trenching 12" x 500' x 18" deep):..... _____
5. Has the ground been previously disturbed?..... Yes No
- If yes, please describe the current disturbed condition of the area (for example, parking lot, roadway right-of-way, commercial development):..... _____
6. Are there technical drawings or site plans available, if yes please attach. Yes No
7. Attach color site photographs:
- Ground-level color site photos that provide context and show where site work/physical installations are proposed (label photos),
 - Ground-level color photographs of each side of the building involved.
 - Aerial color photograph with project limits outlined and with the location of any proposed installations identified.
 - Aerial color photograph(s) showing all ground disturbing activities (if applicable).
8. Is the project part of an approved plan such as a Master Plan or an Implementation Plan or any larger action/project? Yes No
- If yes, provide the plan/project name and brief description: Yamhill County Emergency Communications Plan
9. Is there any *previously* completed environmental documentation for this project (for example: Environmental Impact Statement, Environmental Assessment, wetland delineation, archaeological study)?..... Yes No
- If yes, please attach documentation. If a NEPA document, what was the decision? (*Check one, and please attach*):
 Finding of *No Significant Impact* (FONSI) or
 Record of Decision (ROD)
Name of preparing agency:..... _____
Date approved:..... _____
10. Is there any *previously* completed agency coordination for this project (for example correspondence with the U.S. Fish and Wildlife Service, State Historic Preservation Office (SHPO), Tribal Historic Preservation Office (THPO), or permitting agencies? Yes No
- If yes, please attach documentation unless included in NEPA documentation identified above.
11. Provide FEMA Flood Insurance Rate Map (FIRM), with project limits outlined. FIRM maps can

be created from: <http://www.fema.gov/hazard/map/firm.shtm>

12. Provide U.S. Fish and Wildlife Service, National Wetlands Inventory (NWI) Map created from:
<http://www.fws.gov/wetlands/Data/Mapper.html>

National Incident Management System (NIMS) COMPLIANCE FORM

This NIMS Compliance Form **MUST** be completed by **EACH** agency requesting or benefiting from funding.

In Federal Fiscal Years 2005-2015, all recipients of (and those receiving direct benefit from) federal preparedness funding are required to comply with the National Incident Management System (NIMS) requirements. Oregon NIMS compliance guidance can be found at: http://www.oregon.gov/OMD/OEM/Pages/plans_train/NIMS.aspx

If your organization cannot verify compliance with all listed NIMS requirements, you will not be eligible to receive or benefit from the FY2015 Homeland Security grants.

If you have questions about NIMS compliance contact the State NIMS Point of Contact, Zach Swick, by email at zach.swick@state.or.us, or by phone at (503) 378-2911 Ext. 22233.

Please CHECK THE BOX next to each action your organization has completed.

NIMS Adoption Implementation Objectives

- Formally adopt NIMS for your agency/department
- Designate a NIMS POC (single point of contact) for your agency/department
- Ensure agencies/departments receiving Federal preparedness funds (or benefit from) are NIMS compliant.

Planning Implementation Objectives

- Revise Emergency Operations Plans to incorporate NIMS components, principles and policies
- Promote and develop intrastate and interagency Mutual Aid Agreements and assistance agreements for your jurisdiction

Training Implementation Objectives

- Completion of the following:
IS-100b (Intro to ICS)
IS-200a (ICS)
ICS-300 (ICS – classroom only)
ICS 400 (ICS – classroom only)
IS-700a (Intro to NIMS)
IS-701a (Intro to Multi-Agency Coordination System)
IS-702a (Public Information Systems/NIMS)
IS-703a (NIMS Resource Management)
IS-706 (NIMS Intrastate Mutual Aid)
IS-800b (National Response Framework)

NOTE: Each agency/department must identify within your organization "who" must take "what". For more information on who needs to take any, some, or all of the above courses reference OEM's "Who Takes What" on the NIMS webpage (see link above).

Exercises Implementation Objectives

- Incorporate NIMS concepts and principles into all training/exercises
- Plan for/participate in all-hazards exercise program (Homeland Security Exercise and Evaluation Program)
- Incorporate corrective actions (identified in exercises) into preparedness and response plans and procedures

Communications and Information Management

- Use plain language and common/consistent terminology (no 10 or 12-code, et cetera)
- Present consistent and accurate information during an incident or event (common operating picture)

Resource Management

- Inventory resource assets
- Ensure interoperability of equipment, communications, data
- Utilize resource typing for intrastate/interstate mutual aid requests
- Initiate credentialing system (*state level - already completed*)

Command and Management

- Implement ICS (manage all events and incidents using ICS)
- Coordinate response objectives through use of integrated Multi-Agency Coordination Systems (MACS/EOCs)
- Institutionalize Public Information (Joint Information Systems and Joint Information Centers) during an incident or planned event
- Ensure Public Information procedures and processes can gather, verify, coordinate and disseminate information during an incident or planned event

Authorized Signature: *Susan A. Lane* Date: *1/28/2015*

Title: County Emergency Manager Agency: Yamhill County

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- Ensure Public Information procedures and processes can gather, verify, coordinate and disseminate information during an incident or planned event

Authorized Signature: _____

Date: 1-22-15

Title: County Emergency Manager

Agency: Polk County Sheriff's Office



POLK COUNTY

850 MAIN STREET * DALLAS, OREGON 97338-3185 * 503-623-9251 / FAX 503-623-2060

SHERIFF'S OFFICE

Sheriff Bob Wolfe

Criminal Division
Civil Division
Marine Patrol Division
Dog Control
Emergency Management

January 22, 2015

Oregon Emergency Management
P.O. Box 14370
Salem, OR 97309-5062

Dear State Homeland Security Grant Program Reviewers:

Polk County fully supports Yamhill County's regional application under the 2015 Homeland Security Grant. This project proposes to replace a critical microwave link that will ultimately serve both counties.

Polk and Yamhill counties have a long history dating back to 2003 of working together towards a common goal of providing a reliable, redundant, first-responder radio system. That partnership has tremendously enhanced communication services to our first responders and, ultimately, to the citizens of our counties. This project furthers that work to provide both counties a level of redundancy by replacing an outdated microwave link that presently serves only Yamhill County, but will soon serve both counties. This project will equally benefit our entities and will provide both counties a redundant microwave path in case either of our systems should ever fail.

As with any radio system, you need to have a reliable means to get radio and data traffic from site to site and then back to the dispatch center. The current microwave link that Yamhill County owns is no longer supported and cannot provide either county any level of redundancy, nor does the current outdated system have the amount of voice/data capacity needed to serve either county. It is critical that this project be given high priority so both counties can serve the citizens in northwest Polk and southwest Yamhill counties.

Our support in the project will be both administrative and technical. Both counties will continue to work together to serve our citizens by providing a safe, secure, reliable and redundant communications systems.

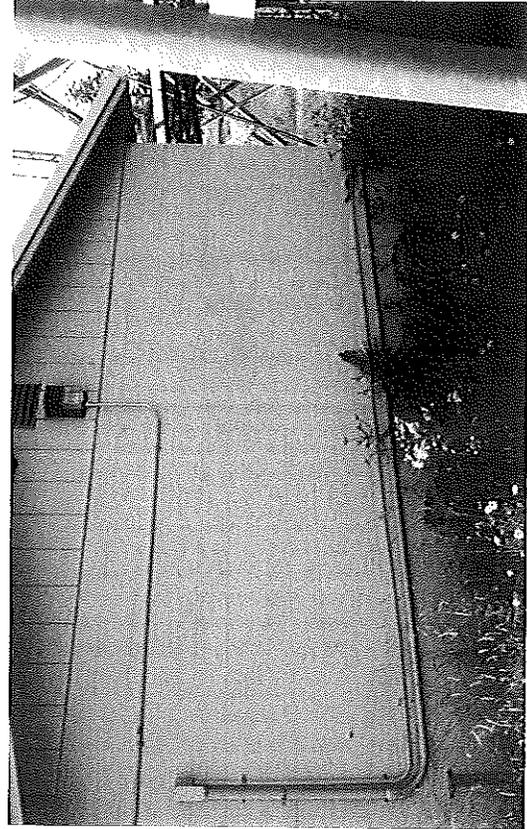
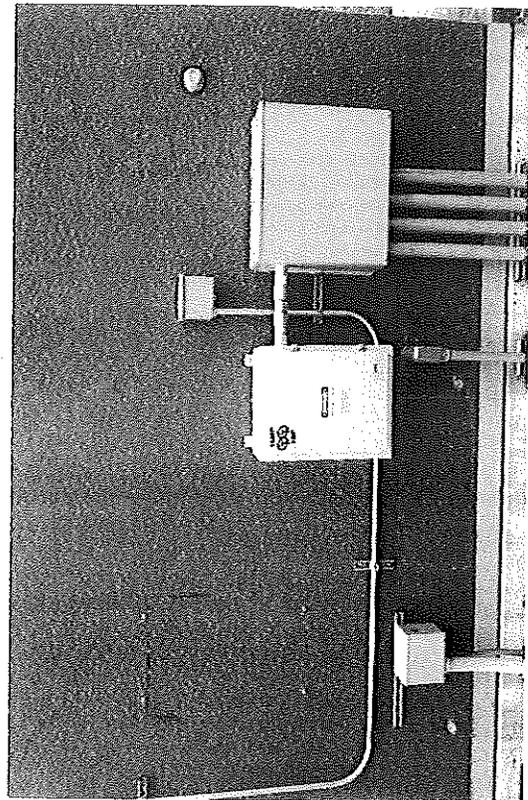
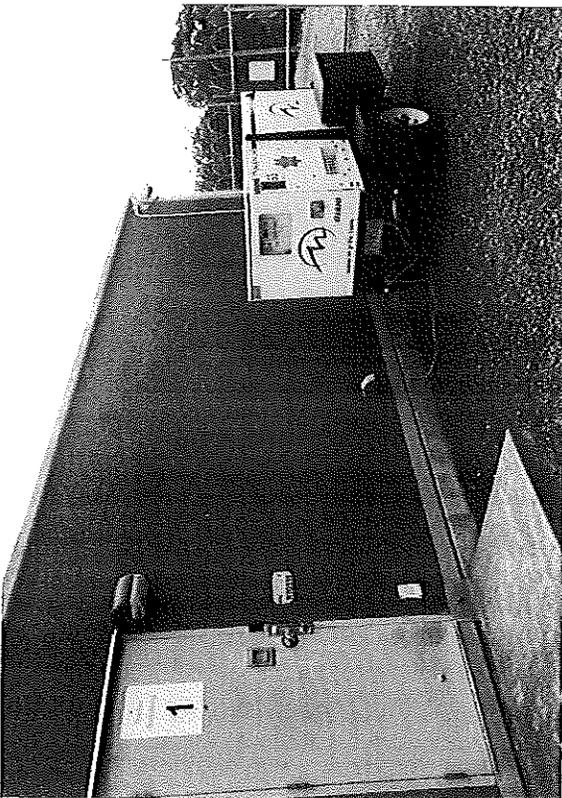
Thank you for your consideration of this regional project.

Sincerely,

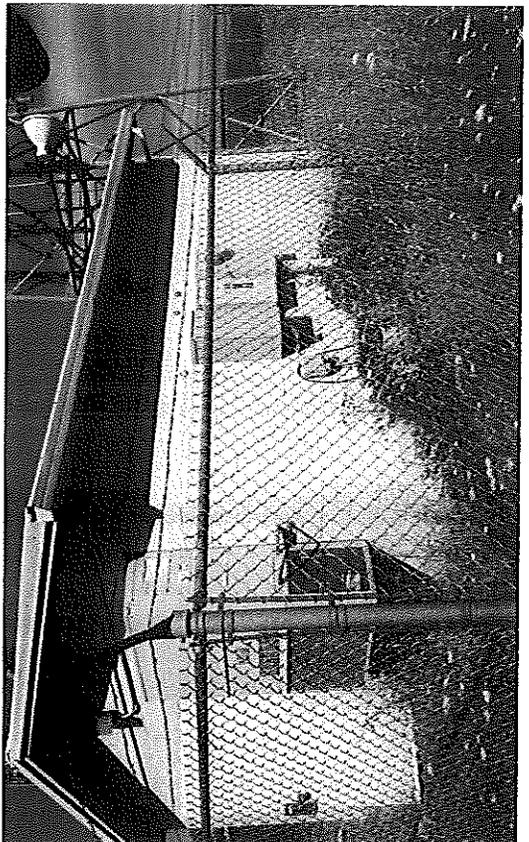
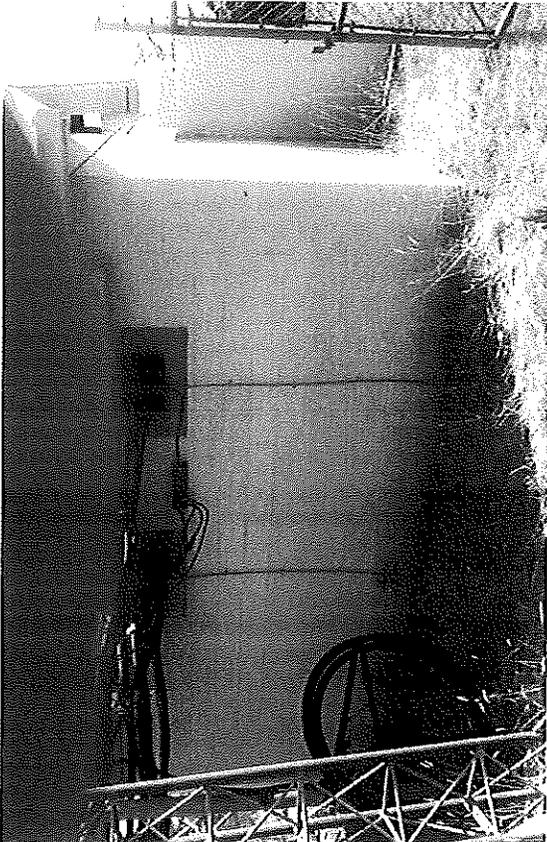
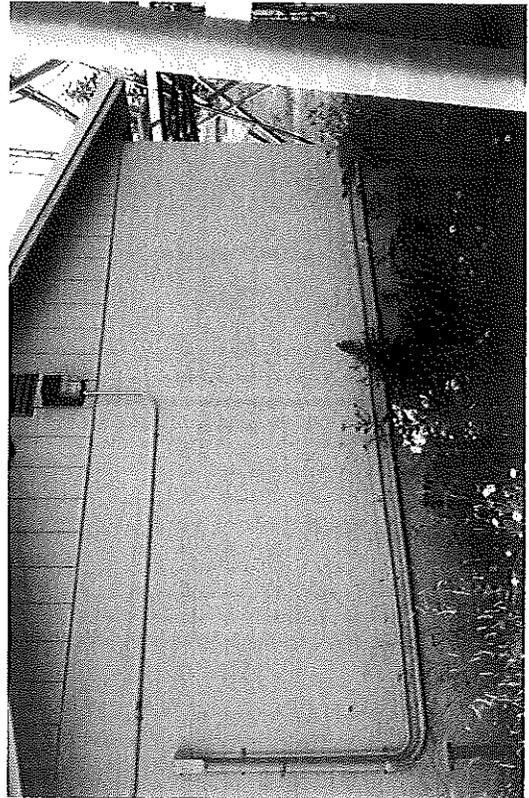
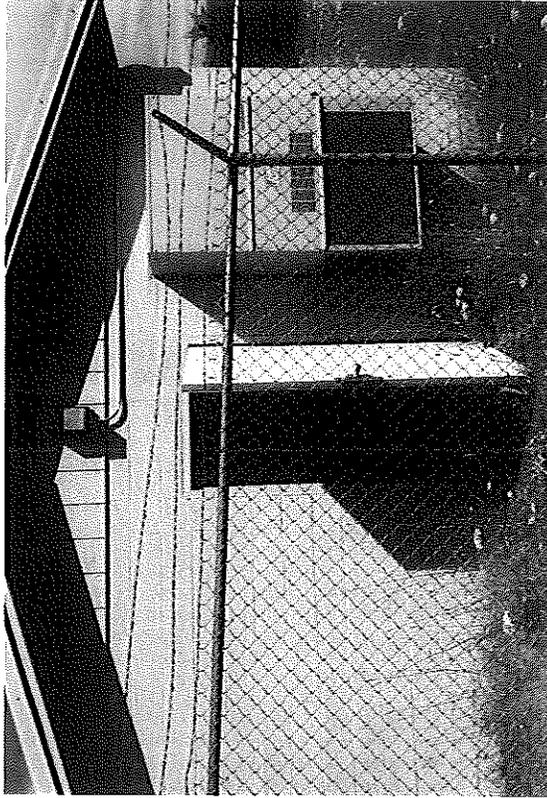
A handwritten signature in black ink, appearing to be "M. J. ...", written over a horizontal line.

Polk County Emergency Manager

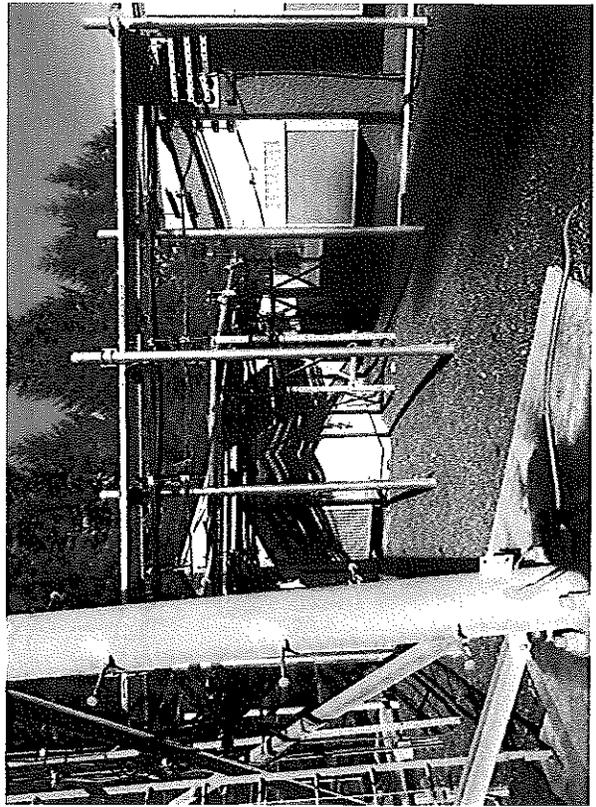
Yamhill County Microwave Network Improvement Project, Phase III
Eagle Crest Tower Communications Building (for EHP)



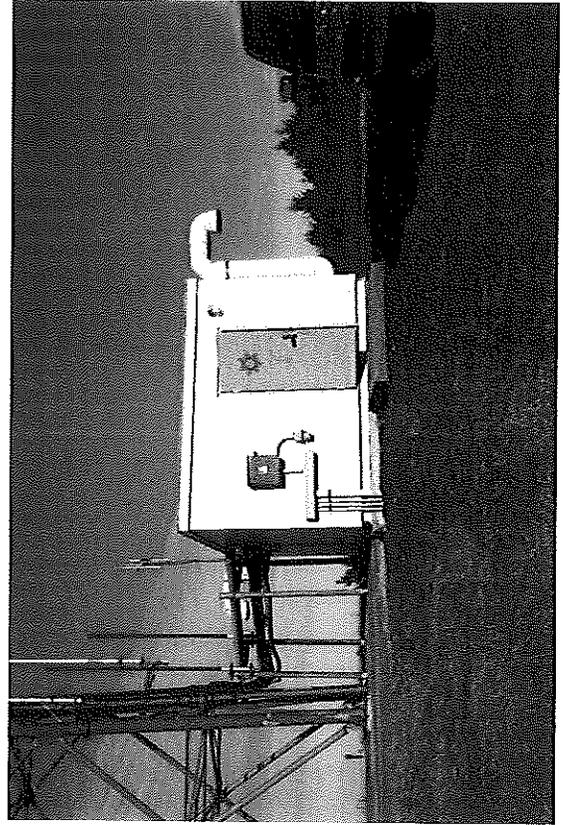
Yamhill County Microwave Network Improvement Project, Phase III
Doane Creek Tower Communications Building (for EHP)



Yamhill County Microwave Network Improvement Project, Phase III
Spirit Mountain Tower Communications Building (for EHP)



Yamhill County Microwave Network Improvement Project, Phase III
Mt. Hebo Tower Communications Building (for EHP)



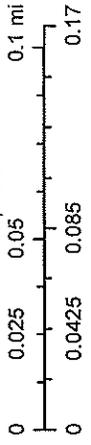
Yamhill County Microwave Project - EMA Floodplain - Eagle Crest Tower



January 26, 2015

-  SL
-  500 Year Flood Area
-  City Boundary
-  County
-  Townships
-  Taxlots
-  100 Year Flood Area
-  County Roads

1:3,160



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and

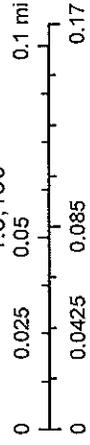
Yamhill County Microwave Project - FEMA Floodplain - Doane Creek Tower



January 26, 2015

- SL
- City Boundary
- County
- 500 Year Flood Area
- 100 Year Flood Area
- County Roads
- Townships
- Taxlots

1:3,160



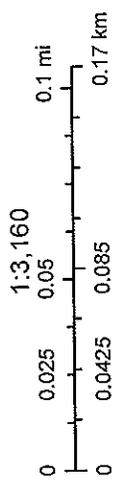
Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Geomapping, Aerogrid, IGN, IGP, swisstopo, and

Yamhill County Microwave Project - Spirit Mt. Tower



January 26, 2015

-  SL
-  City Boundary
-  County
-  500 Year Flood Area
-  100 Year Flood Area
-  County Roads
-  Townships
-  Taxlots



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and

Yamhill County Microwave Project - EMA Floodplain - Mt. Hebo Tower



January 26, 2015

-  SL
-  City Boundary
-  County
-  500 Year Flood Area
-  100 Year Flood Area
-  County Roads
-  Townships
-  Taxlots

1:3,160
0 0.025 0.05 0.1 mi
0 0.0425 0.085 0.17 km
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and


U.S. Fish and Wildlife Service
National Wetlands Inventory

Eagle Crest Tower
Location

Jul 11, 2014

Wetlands

-  Freshwater Emergent
-  Freshwater Forested/Shrub
-  Estuarine and Marine Deepwater
-  Estuarine and Marine
-  Freshwater Pond
-  Lake
-  Riverine
-  Other



This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currency of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

Doane Creek
Tower Location

Jul 11, 2014

Wetlands

-  Freshwater Emergent
-  Freshwater Forested/Shrub
-  Estuarine and Marine Deepwater
-  Estuarine and Marine
-  Freshwater Pond
-  Lake
-  Riverine
-  Other



U.S. Fish and Wildlife Service
National Wetlands Inventory



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User Remarks:

Spirit Mountain
Tower Location

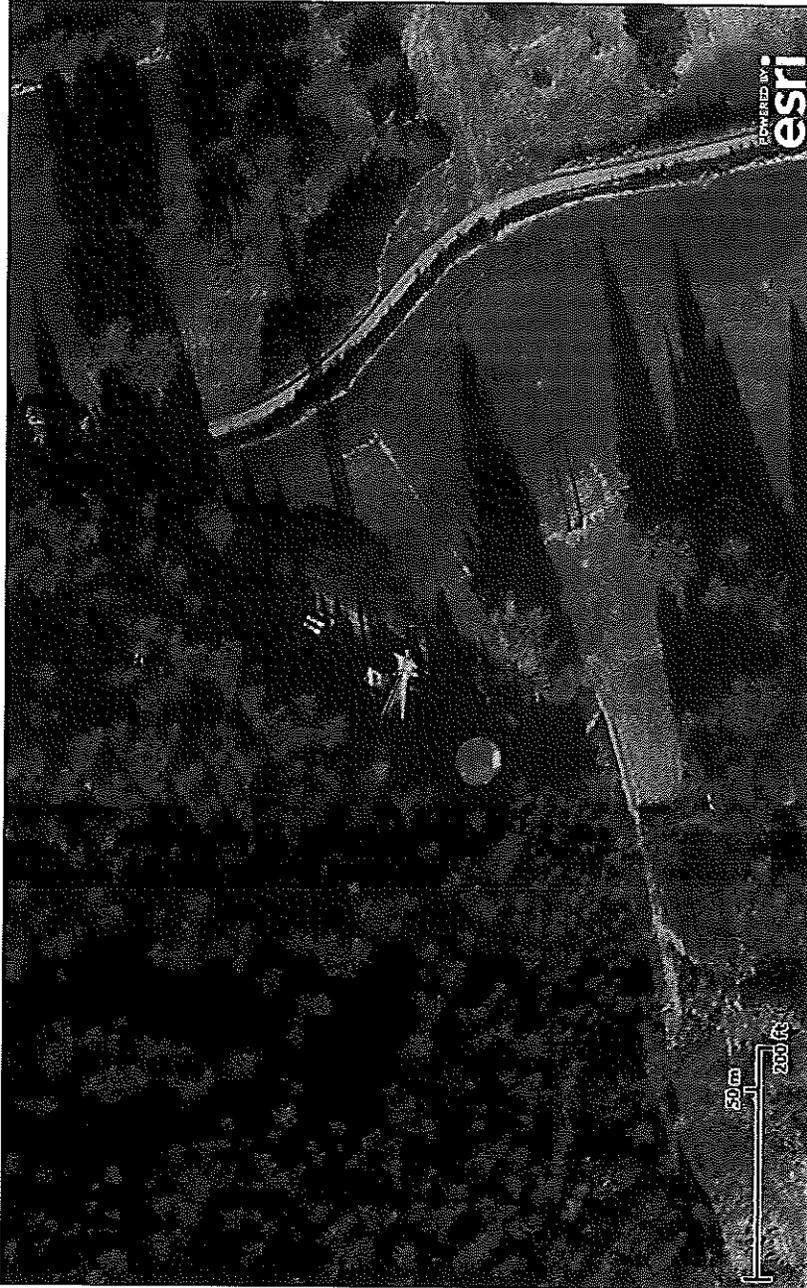
Jan 27, 2015

Wetlands

-  Freshwater Emergent
-  Freshwater Forested/Shrub
-  Estuarine and Marine Deepwater
-  Estuarine and Marine
-  Freshwater Pond
-  Lake
-  Riverine
-  Other

U.S. Fish and Wildlife Service

National Wetlands Inventory



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User Remarks:

Mt. Hebo Tower
Location

Jan 27, 2015

Wetlands

-  Freshwater Emergent
-  Freshwater Forested/Shrub
-  Estuarine and Marine Deepwater
-  Estuarine and Marine
-  Freshwater Pond
-  Lake
-  Riverine
-  Other


U.S. Fish and Wildlife Service
National Wetlands Inventory



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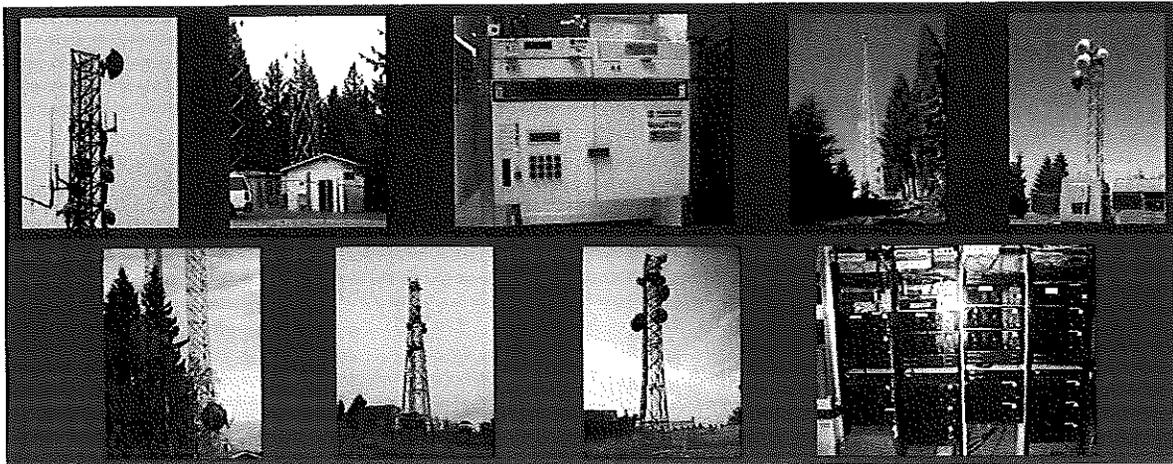
User Remarks:

Yamhill County Microwave Network Improvement Project, Phase III(Regional)

Appendix A

AdComm Microwave Replacement Report

Dated May 29, 2013



Microwave Replacement Report

Prepared for
Yamhill Communications Agency (YCOM)



Prepared by
Joe Blaschka, Jr., P.E.
ADCOMM Engineering Company

Date Prepared
May 29, 2013

ADCOMM Engineering Company
Bridging the Gap Between Operations and Technology®

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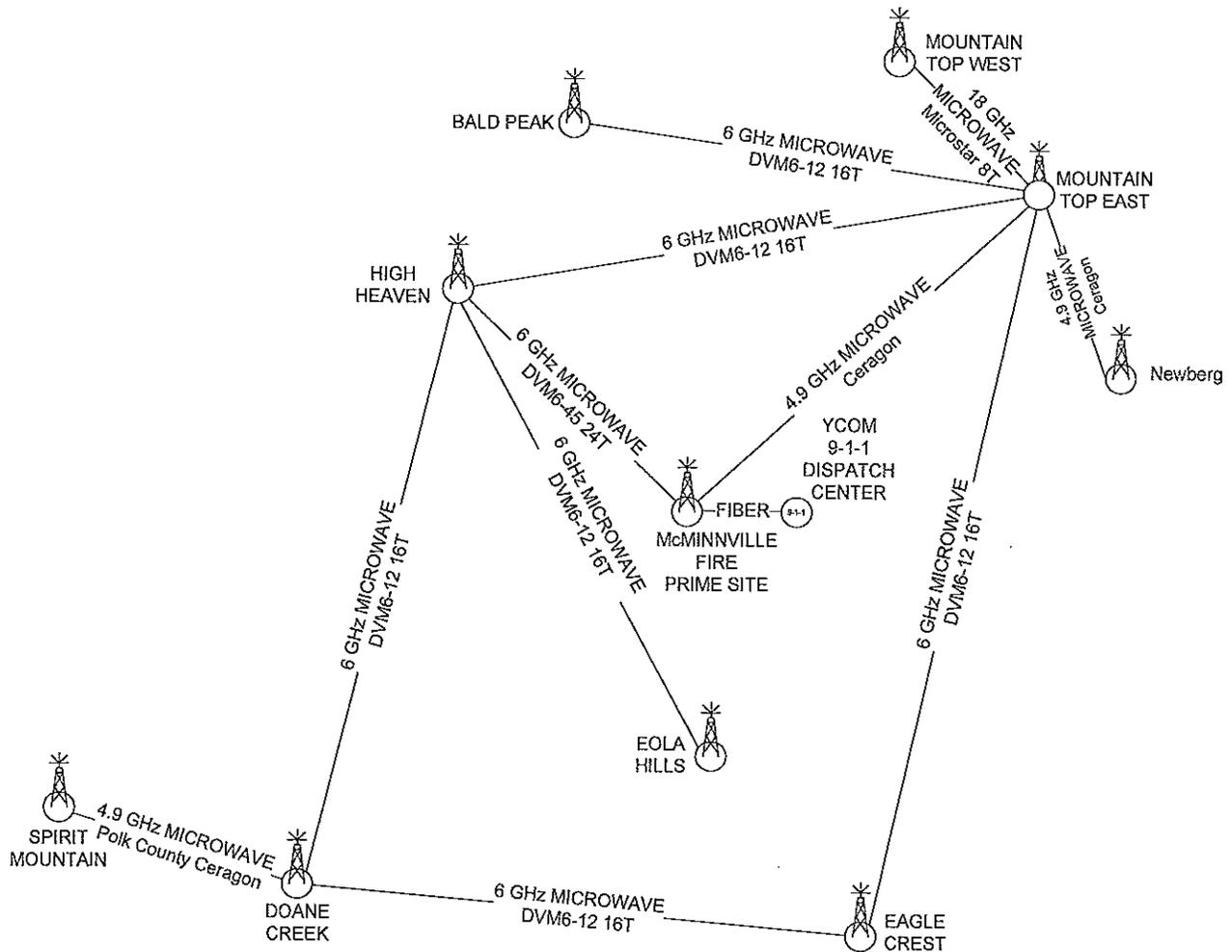
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Background

Yamhill Communications Agency (YCOM), as part of its public safety radio system, operates an extensive microwave network that links the dispatch center with its remote radio sites. This microwave equipment was installed over a period of several years in the mid 2000s. Much of the equipment was obtained surplus from Washington County, purchased used from used equipment suppliers, or obtained from other similar sources. Some of the equipment was purchased and then sat outside for several months in winter weather covered by tarps at the radio shop until it was installed. Washington County purchased the microwave YCOM is using around 1990 so it is approximately 23 years old. Most of the microwave equipment used by YCOM was manufacturer discontinued in the early 2000s.

The microwave network is configured both in a "loop" configuration and in single hop configurations. A diagram of the network is shown below.





The concept behind a loop configuration is that there can be a failure of any single link or site and not affect the traffic to the other sites. If a link fails, the traffic is routed in the opposite direction to the desired end site. The single hops of microwave use "hot-standby" equipment so a single equipment failure should not cause a traffic failure.

The existing equipment, with the exception of the Ceragon equipment used to connect Newberg to YCOM, supports a minimum of 16 T1 connections. The system is entirely based on T1 transport and does not provide any native Ethernet or Internet Protocol (IP) connectivity.

Equipment Condition

The existing equipment, while still functional, is starting to fail. The following should be noted:

- This equipment is long past manufacturer support. This means that spare parts are generally available only on the used market and through equipment refurbishers who buy used equipment for parts to maintain systems that are still operational. However, given the age of the equipment, this source will eventually not be available.
- Of particular risk is the frequency determining crystals that over time drift beyond the ability to correctly adjust the frequency within tolerance. Each path has its own set of frequencies and the crystals are unique to that frequency. As a result, if the crystal drifts the path fails and a replacement crystal must be ordered.
- Some of the equipment was stored improperly for some time. As a result, there is likely corrosion in some of the equipment that will result in a failure in the future.
- As equipment ages, the circuit card connector spring connections start to lose their "springiness" resulting in intermittent contacts. In most cases, it is not possible to replace the connectors due to the construction of the radio and parts availability.
- Wiring starts to become brittle and the potential for wire breakage increases.
- Parts such as capacitors start to change value as they age and reach their practical life. Any replacement boards will have parts that are similar in age.

The system is likely not in immediate danger of a catastrophic failure. However, the number of failures will continue to increase resulting in increasing downtime and maintenance costs. Eventually, there will be an unreparable failure at a site. This could be caused by equipment failure or some other event. Walla Walla County recently suffered a lightning strike at one site that took out two hops of DVM6-12, which was not repairable. This was because much of the radio was damaged and there were no replacement units available that were set for the correct frequency. This resulted in an emergency replacement of the entire system that took months to complete. During this time, there was significant loss of communications.

The microwave network T1 outputs are connected to ADTRAN channel banks to provide the individual circuits. These channel banks were recently purchased and installed and can continue in service for the foreseeable future. There are, however, a set of Telco Systems channel banks used on the connection between YCOM and Newberg. These channel banks are probably 20 years out of production and should be replaced.

In summary, the equipment is currently functional but should be considered at end of life. It should be replaced within the next 3 to 4 years to avoid the potential for a significant system failure due to failure of the equipment and the inability to effect repairs.

Equipment Considerations

Microwave systems and equipment are not like standard 2-way land mobile radio systems where one can mix and match different brands of equipment. For example, using Kenwood, Tait, or Motorola mobiles and portables will result in similar performance regardless of the brand of the base station equipment. Microwave systems must use the same brand and model of equipment for each link and if possible for the entire system. Some other items to consider are:

- Replacing one link at a time may not be possible depending on the equipment proposed. The voice radio system uses simulcast technology that requires stable T1 timing. Using radio links of different types and brands will likely not work. This could create a significant problem if one link were to fail catastrophically and not be able to be repaired.
- Both ends of a link must have equipment that is the same brand, model, and capacity.
- FCC licensing is specific to the equipment brand, modulation type, power, etc. Any changes to the equipment will require frequency coordination and relicensing.
- The system should be equipped with a fault and alarm system so equipment status, failures, and site status can be remotely monitored. This will allow the service technician to review the equipment conditions prior to making a trip to the site or sites.
- While replacing the equipment on a multi-year cycle can be accomplished, it should be done carefully and with a planned approach. The cycle should not be longer than 2 to 3 years as equipment models and software configurations change over time. It is possible that adding equipment, even with the same model from the same manufacturer can result in software/hardware upgrades to the previously installed equipment. This adds cost and complexity to the upgrade process.
- The digital transport industry and many of the equipment manufacturers are moving towards an Ethernet or LAN based network. This is known as IP capability. This includes microwave equipment as well. While any new microwave system should support IP, the existing channel banks and simulcast network requires standard T1 networking. Therefore, any new system should support both technologies.
- A replacement system should use FCC site licensed frequencies and not unlicensed or area-wide licensed frequencies. The use of unlicensed or area-wide frequencies could result in interference for which YCOM could do little to resolve. FCC site licensed frequencies have interference protection.

There is a wide variety of equipment and associated cost. Much of the low-cost equipment is designed for IP networks and some is designed with cost as the primary factor. This equipment may appear attractive from a cost point of view but either will not work satisfactorily or will require additional maintenance. The best long-term solution is to select an equipment approach from a long-time established supplier who has a track record of supporting their equipment. In addition, the equipment needs to be compatible with the simulcast equipment, which will eliminate some of the low-cost options.



Equipment Replacement Options

The microwave network should be replaced within the next 2 to 3 years to reduce the potential for a catastrophic failure. Repairing or replacing the system under emergency conditions almost always results in a less than optimal solution from both a technology and a cost perspective because speed is the driving factor, not good engineering practice.

The following equipment replacement options are discussed.

- Replace the entire system as one project
- Replace the loop switched portion as one phase, then the spurs as a second phase
- Replace the loop switched portion as one phase, then the spurs in two phases

These options all assume that the microwave from YCOM to Newberg would remain the same and not be replaced as part of this project and that the existing Polk County connection from Doane Creek to Spirit Mountain would be continued.

Option 1 – Replacement of the Entire System as One Project

The best approach from an overall system point of view is to replace the entire system as one single project. At the completion of the project, the entire system would be new and of the same vintage. This allows for better maintenance, reduced number of spares, and it will function as an integrated system. However, this approach does require the maximum amount of capital funding to be available for the implementation. These costs assume the equipment is purchased using the WSCA contract and does not include developing detailed bid specifications. The cost estimate is based on recent bids and includes the complete replacement of the antennas and transmission lines.

▪ Microwave Equipment and Installation for 8 Hops	\$1,400,000
▪ System Engineering and FCC Licensing Paperwork	\$37,000
▪ Frequency Coordination	\$7,000
▪ Alarm and Network Management	\$100,000
▪ Spares	\$40,000
▪ Project Management and Implementation Engineering	\$43,000
Total System Cost	\$1,627,000
Contingency (10%)	\$165,000
Total Estimated Budget	\$1,792,000

If the antennas and transmission line are reused, there would be an estimated \$400,000 savings in the overall cost.

Option 2 – Replacement of the Loop in Phase 1 and the Spurs in Phase 2

This option simply breaks the project into two phases from a financial perspective. The actual overall cost will be higher because the installation work, mobilization, etc. is broken into two separate projects.



Phase 1 – Loop System Replacement

The loop portion of the microwave network must operate as an integrated system. While it may be possible to replace portions of the loop in a piecemeal fashion, it would require significant engineering effort and would result in significantly higher overall costs due to the additional labor. As a result, that approach is not recommended. However, replacing the loop first and then the spurs in a second phase has little technical risk or complexity. The spurs could also be replaced first and then the loop. The order is not critical other than the loop portion is the most critical to the overall radio system. These costs assume the equipment is purchased using the WSCA contract and does not include developing detailed bid specifications. The cost estimate is based on recent bids and includes the complete replacement of the antennas and transmission lines.

▪ Microwave Equipment and Installation for 4 Hops	\$730,000
▪ System Engineering and FCC Licensing Paperwork	\$26,000
▪ Frequency Coordination	\$3,500
▪ Alarm and Network Management	\$80,000
▪ Spares	\$40,000
▪ Project Management and Implementation Engineering	\$27,000
Total System Cost	\$906,500
Contingency (10%)	\$91,000
Total Estimated Budget	\$997,500

If the antennas and transmission line are reused, there would be an estimated \$200,000 savings in the overall cost.

Note also that the alarm and network management system core costs are included in this phase of the project. Should YCOM decide to replace the spurs first, that core cost would need to be shifted to that portion of the project as well.

Phase 2 – Four Spurs Replaced in a Single Project

The spurs operate independently of the loop and as such can be replaced independently. The cost for the spur replacement is essentially the same as for the loop replacement since they are the same number of hops. These costs assume the equipment is purchased using the WSCA contract and does not include developing detailed bid specifications. The cost estimate is based on recent bids and includes the complete replacement of the antennas and transmission lines.

▪ Microwave Equipment and Installation for 4 Hops	\$730,000
▪ System Engineering and FCC Licensing Paperwork	\$26,000
▪ Frequency Coordination	\$3,500
▪ Alarm and Network Management	\$20,000
▪ Project Management and Implementation Engineering	\$27,000
Total System Cost	\$806,500
Contingency (10%)	\$81,000
Total Estimated Budget	\$887,500

If the antennas and transmission line are reused, there would be an estimated \$200,000 savings in the overall cost.

The total estimated cost for the entire project would be \$1,885,000.



Option 3 – Replacement of the Loop in Phase 1 and the Spurs in Phases 2 and 3

This option simply breaks the project into three phases from a financial perspective. The actual overall cost will be higher because the installation work, mobilization, etc. is broken into two separate projects.

Phase 1 – Loop System Replacement

The loop portion of the microwave network must operate as an integrated system. While it may be possible to replace portions of the loop in a piecemeal fashion, it would require significant engineering effort and would result in significantly higher overall costs due to the additional labor. As a result, that approach is not recommended. However, replacing the loop first and then the spurs in a second phase has little technical risk or complexity. The spurs could also be replaced first and then the loop. The order is not critical other than the loop portion is the most critical to the overall radio system. These costs assume the equipment is purchased using the WSCA contract and does not include developing detailed bid specifications. The cost estimate is based on recent bids and includes the complete replacement of the antennas and transmission lines.

▪ Microwave Equipment and Installation for 4 Hops	\$730,000
▪ System Engineering and FCC Licensing Paperwork	\$26,000
▪ Frequency Coordination	\$3,500
▪ Alarm and Network Management	\$80,000
▪ Spares	\$40,000
▪ Project Management and Implementation Engineering	\$27,000
Total System Cost	\$906,500
Contingency (10%)	\$91,000
Total Estimated Budget	\$997,500

If the antennas and transmission line are reused, there would be an estimated \$200,000 savings in the overall cost.

Phase 2 – Two Spurs Replaced in a Single Project

The spurs operate independently of the loop and as such can be replaced independently. These costs assume the equipment is purchased using the WSCA contract and does not include developing detailed bid specifications. The cost estimate is based on recent bids and includes the complete replacement of the antennas and transmission lines.

▪ Microwave Equipment and Installation for 2 Hops	\$375,000
▪ System Engineering and FCC Licensing Paperwork	\$15,000
▪ Frequency Coordination	\$1,800
▪ Alarm and Network Management	\$13,000
▪ Project Management and Implementation Engineering	\$15,000
Total System Cost	\$419,800
Contingency (10%)	\$42,000
Total Estimated Budget	\$461,800

If the antennas and transmission line are reused, there would be an estimated \$100,000 savings in the overall cost.



Phase 3 – Two Spurs Replaced in a Single Project

The spurs operate independently of the loop and as such can be replaced independently. These costs assume the equipment is purchased using the WSCA contract and does not include developing detailed bid specifications. The cost estimate is based on recent bids and includes the complete replacement of the antennas and transmission lines.

▪ Microwave Equipment and Installation for 2 Hops	\$375,000
▪ System Engineering and FCC Licensing Paperwork	\$15,000
▪ Frequency Coordination	\$1,800
▪ Alarm and Network Management	\$13,000
▪ Project Management and Implementation Engineering	\$15,000
Total System Cost	\$419,800
Contingency (10%)	\$42,000
Total Estimated Budget	\$461,800

If the antennas and transmission line are reused, there would be an estimated \$100,000 savings in the overall cost.

The total estimated cost for the entire project would be \$1,921,100.



System Maintenance

Microwave systems are generally very reliable and do not require extensive routine maintenance. However, there are several tasks that should be accomplished on an annual basis. They are:

- Measure and document the transmit power and received signal levels at each site for each path.
- Measure and document the frequency.
- Perform a T1 bit-error measurement for a minimum of 1 hour on one T1 circuit. Document the results.
- Verify proper operation of the loop switches where applicable. Document the results.
- Verify alarm conditions and document the results.
- Verify the waveguide is holding air pressure and the air compressor and dryer are operating properly. This includes checking the desiccate.
- Verify power supply voltages are within normal ranges.

This work is estimated to take 8 hours per site including travel and documentation or approximately 2 weeks per year for preventive maintenance.

One set of spares should be kept for all field replaceable units that can affect service.

Failures of the core microwave equipment when it is new are anticipated to be rare. As a result, approximately 1 week of failure related maintenance for the system should be budgeted. Note that this time does not include extraordinary time due to antenna failures from weather, being shot at, damage by others working on the tower, etc.



Recommendations

ADCOMM recommends the following:

1. YCOM should start the budgeting process to obtain the funds required to replace the microwave radio network within the next 3 to 4 years. Certainly, grant funding can be used to offset the need to generate local funds. However, grant funding may not be available and the microwave system needs to be replaced within 3 to 4 years.
2. Implement either Option 1, the full system replacement at one time, or Option 2, the two-phased approach. Option 3 is not recommended as it has the potential for there to be additional complications due to either failure of the existing system or upgrades and changes to the new microwave equipment during the project. Option 3 is also the most expensive.

ADCOMM recommends against YCOM purchasing newer used microwave equipment to replace the existing equipment. There have been significant technology changes between current production microwave and even the last generation microwave radios. In addition, the engineering and installation labor would be significant as space is limited at many of these sites and the older microwave equipment uses significantly more space.

Yamhill County Microwave Network Improvement Project, Phase III(Regional)

Appendix B

Yamhill County Emergency Communications Plan Excerpt

Dated July 26, 2011

Yamhill County Emergency Communications Plan



Adopted by Yamhill County, 23 February, 2005 under Board Order 05-108
Updated 29 April, 2008 – UHF multicast system
Updated 30 July, 2010 – UHF simulcast system
Updated 26 July, 2011 – Regional TICP inclusion, additional narrative edits

- Newberg Fire maintains a mutual aid relationship with TVF & R.
- Newberg Police Department K-9 and Motorcycle officers train together with Washington County officers.
- Newberg Police Department police units and K-9 respond to mutual aid requests in both Washington County and Yamhill County.

B. Yamhill Communications Agency, (YCOM)

The Yamhill Communications Agency, (YCOM), was created in 1987. It is currently structured as an entity under an ORS chapter 190 intergovernmental agency. YCOM provides services to the following public safety departments:

- City of Amity Law Enforcement
- Amity Fire District
- City of Carlton Law Enforcement and Fire District
- Dayton Fire District
- City of Lafayette Law Enforcement and Fire District
- City of McMinnville Law Enforcement and Fire District
- McMinnville Rural Fire Protection District
- City of Sheridan Law Enforcement
- Sheridan Fire District
- City of Willamina Law Enforcement
- West Valley Fire District
- City of Yamhill Law Enforcement
- Yamhill Fire District
- Yamhill County Sheriff's Office

IX. STRATEGIC INITIATIVES

A. P25 Digital systems.

The federal government is mandating that public safety radio systems adopt and/or be compliant with the evolving P25 standard for radio systems. In the case of Yamhill County, the cost for these systems has been prohibitive as of this point in time, however, we have committed to the compliance with the P25 standard. All of our equipment purchases over the past several years have included equipment that can easily be enhanced through software and/or hardware upgrades and run the P25 digital communications protocol.

B. Narrow-banding.

The Federal Communications Commission has mandated that all public safety radio systems be "narrow-banded" by December 31, 2012. This means that all of our systems must use frequency spacing technology that is more efficient in its use of radio frequency spectrum as defined by the FCC. As of July, 2011, all of the systems which the County operates have been converted to narrow-banded technology and are in full compliance with the FCC regulations.

C. Microwave system upgrade.

Yamhill County's public safety radio system is extensive in terms of geographic area covered and the number of links contained within the microwave system. The system was assembled with refurbished microwave equipment that is approximately 30 year old technology. This has created some reliability issues, a lack of security, a limited ability/bandwidth to communicate and interoperate with our regional partners, and a lack of alarm and control features. The County will soon need to look at replacing the microwave system in a phased approach, so that it can be funded in a sustainable way and the most critical links can be replaced first. In terms of priority, this has become a critical project that needs to be addressed in the near term.

D. State Radio Project (OWIN).

The State of Oregon has had a major radio upgrade and enhancement project underway for several years. Initially this project was identified as the Oregon Wireless Interoperability Network (OWIN). For a number of reasons, this project was substantially challenged. In 2011, the project received new direction which reduced its scope and prioritized the tasks that were most critical. With this new direction, the project was renamed the State Radio Project (SRP). Yamhill County has embraced a number of opportunities to partnership with the state. It is clear that there can be reasonable value-added to both entities through some of these joint initiatives. Yamhill County will continue to look for ways to partner with the state as this project moves ahead.

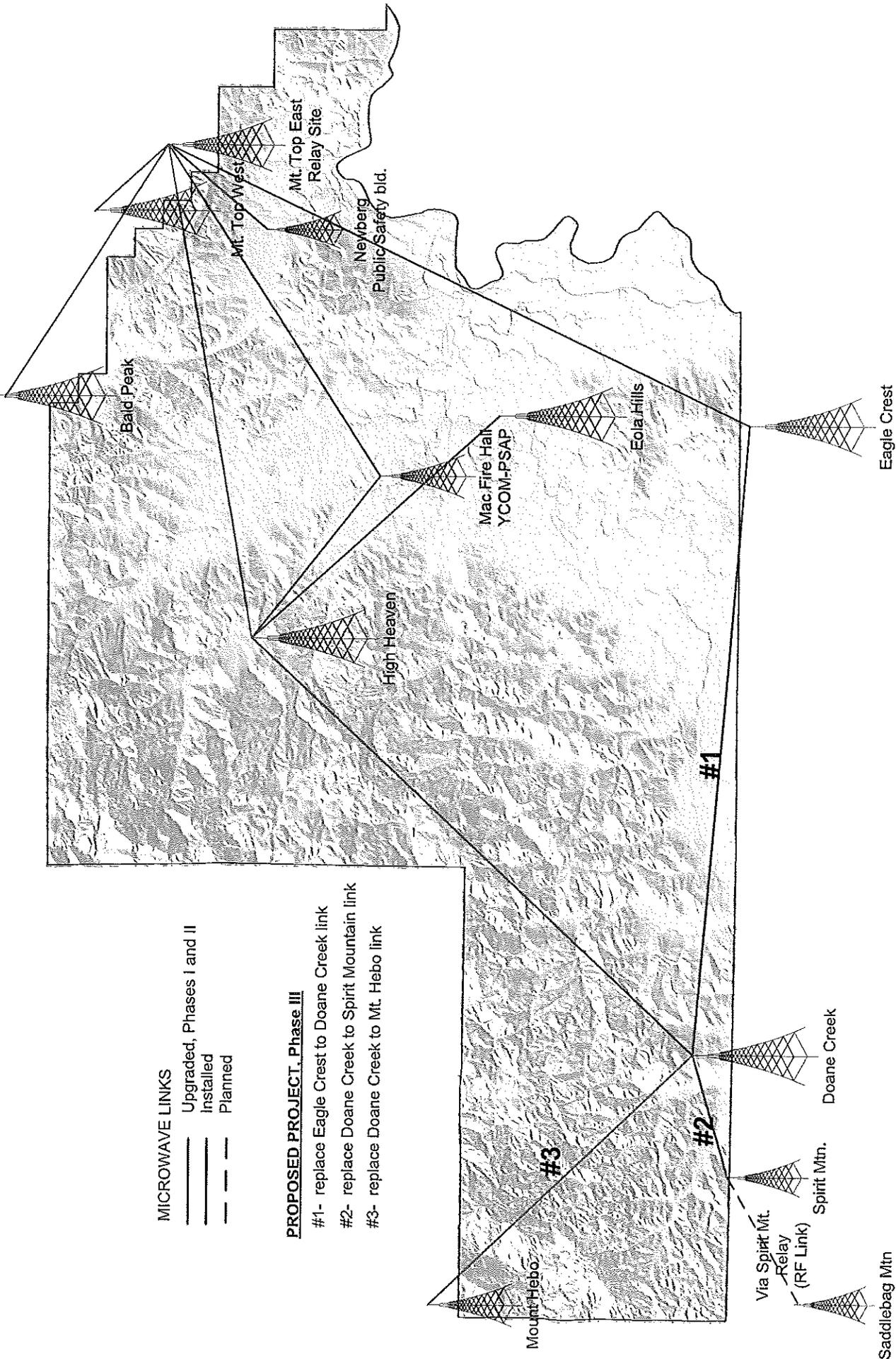
X. PLAN DEVELOPMENT AND MAINTENANCE

The Yamhill County Emergency Manager will be responsible for maintaining this plan. Each agency will develop standard operating procedures that address assigned tasks along with Emergency Operations Plans directly related to their agency. These plans will be forwarded to the Emergency Manager for inclusion into this plan.

XI. APPENDICES TO THE EMERGENCY COMMUNICATIONS PLAN

- A. Yamhill County Tower locations**
- B. Yamhill County Fire frequency template**
- C. Yamhill County Law frequency template**
- D. Yamhill County Public Works frequency template**
- E. Newberg-Dundee 9-1-1 frequency template**
- F. Amateur Radio frequency template**
- G. OEM frequency template**
- H. Local business and hospital template**
- I. Regional Tactical Interoperability Plan, Yamhill County Section**

Yamhill County Public Safety Microwave System Network Improvement Project, Phase III, Appendix C



- MICROWAVE LINKS**
- Upgraded, Phases I and II
 - - - Installed
 - · · Planned

- PROPOSED PROJECT, Phase III**
- #1- replace Eagle Crest to Doane Creek link
 - #2- replace Doane Creek to Spirit Mountain link
 - #3- replace Doane Creek to Mt. Hebo link

B.O. 15-31