



# STATE RADIO PROJECT



October 2014

Monthly Progress Report

### **PROJECT GOALS**

### INFRASTRUCTURE

Repair or replace critical components of Oregon's deteriorating state radio network and extend the useful life of the existing Oregon Department of Transportation and Oregon State Police wireless communications systems.

### NARROWBANDING

Comply with the approved Federal Communications Commission waiver deadline to transition state radios from wideband to narrowband transmission by Nov. 1, 2013, and position for future narrowbanding requirements.

### CONSOLIDATION

Consolidate the ODOT and OSP wireless communications systems into a single unit and allow for shared efficiencies and integration between the four existing state systems.

### INTEROPERABILITY

Provide limited, local interoperability for public safety agencies and lay the foundation for expanded and improved interoperability in the future.

Cover photo: A crew from HP Civil prepares the Beaver Mountain radio site in Baker County for a new tower installation.

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**PROJECT MAP** 



Visit ODOT's Radio Project website at www.oregon.gov/ODOT/HWY/StateRadioProject. See previous progress reports and an interactive map at www.OregonRadioProject.com.

### PROJECT UPDATE

tate Radio Project construction crews were all over the state in September, working feverishly to adhere to the site construction schedule.

"We continue to press forward on all fronts," said Dick Upton, State Radio Project manager. "We're busy building sites and installing microwaves and trunked radio equipment on mountaintops. We're also enjoying the nice weather and hoping that it continues."

The project is both ahead and behind on site delivery. The team completed procurement and gave notice to proceed on 19 sites in September, the most in any month so far.

"In terms of delivering sites to contract, we are ahead of where we expected to be," Upton said. "The profile now looks like we'll have far fewer sites left to contract in 2015."

In terms of construction, the project is behind expectations, with more than three dozen sites most likely finishing in 2015. Overall this is not bad news, however. The most timeconsuming and difficult part of delivering sites is getting through agreements, environmental processes, federal leasing and other clearances, Upton explained. Once these clearances are obtained, construction is typically measured in weeks. "We took the time to make adjustments and now it appears that our efforts to save money were successful."

Dick Upton, State Radio
Project manager

More sites to construct in 2015 does not equate to a schedule delay. Once the winter weather thaws, crews can get back on the higher elevation mountaintops and wrap up in spring. The increase in site completions pushing into 2015 is a direct result of the pause the project took last spring when construction prices were high.

"We took the time to make adjustments and now it appears that our efforts to save money were successful," Upton said.



State Radio Project staff visited the Five Mile site in Deschutes County. From left to right: Rick Williams, Bryce Foster, Billie OConnor, Dick Upton, Karl Ryan, Gail Harbert and Joe Messman.

Although more site completion in 2015 also impacts the microwave and trunking installation schedules, the current assessment is there will be ample time in the summer of 2015 to get these bodies of work completed.

To keep on target, the project team will do a full project assessment and plan for the 2015 build season in December and January — a time when many sites are inaccessible due to snow.

During the last week in September several members of the management team took the opportunity to visit six sites that have presented challenges in acquisition access or had unique construction conditions. The visit gave managers who are usually office-bound more familiarity with the challenges of building these remote sites.

"On a plot plan, most sites look large, but when you're up there in person it's a small, restricted space where somehow big trucks and cranes maneuver equipment, including full-sized shelters and 1,000-gallon propane tanks" said Gail Harbert, State Radio Project site acquisition manager. "It really opened my eyes to the logistics that construction crews deal with to build or improve a site. I was amazed."

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### INFRASTRUCTURE

This month seven sites attained substantial completion: Alkali Lake Maintenance in Lake County, Burns Maintenance in Harney County, Black Mountain in Morrow County, Blanton Heights in Lane County, High Heaven in Yamhill County, Mount Emily in Union County and Mount Scott in Clackamas County.

Notice to proceed was issued for 19 sites statewide covering 12 counties. Work includes seven shelter replacements, six shelter improvements, seven new HVAC systems, eight new propane tanks, nine new generators, five new towers, six concrete foundations, and interior and exterior electrical and grounding system improvements on 17 sites.



An employee from Summit Solutions/ADK guides the concrete chute and works to prepare the foundation for a new shelter on Grizzly Mountain in Crook County.

### NARROWBANDING

The radio project met the required Federal Communications Commission mandate to transition to narrowband operations ahead of the November 2013 deadline. Several narrowbanding-related work items, including antenna installations, office remotes and power system upgrades, remain to be completed, and 16 infill sites are yet to be constructed. Work will continue through 2014 and into 2015 to complete these items.

### CONSOLIDATION

The radio project goal to consolidate the ODOT and Oregon State Police wireless communications systems into a single unit and allow for shared efficiencies and integration between the existing state systems is complete. OSP staff, communications sites and communications systems were consolidated with ODOT in July 2013. The work to transfer the OSP sites to ODOT is complete.

### INTEROPERABILITY

Ederal representatives of the First Responder Network Authority (FirstNet) will be in Salem in early October to conduct the consultation with Oregon. The consultation's purpose is to understand the unique needs of the state, share information about FirstNet and begin the collaboration needed for FirstNet to develop a state-specific plan that meets the needs of Oregon's public safety community.

### PROJECT SUCCESS

### OREGON STATE FAIR GETS PUBLIC SAFETY BOOST FROM RADIO PROJECT UPGRADES

The Oregon State Fair is a tradition for many Oregonians who look forward to the familyfriendly event to celebrate summer's end. As with any large public gathering, having a system in place for emergencies is an important part of keeping the public safe. Upgrades to Oregon's emergency communications network by the State Radio Project are helping to modernize and improve that system.

Emergency medical technicians, Oregon State Police and private security personnel have had a presence on the State Fairgrounds for decades and have traditionally operated independently, but over time they realized that by coordinating efforts, they could increase efficiency.

Because the Oregon State Fairgrounds is a stateowned property, OSP has had a semi-permanent command center there for many years. During the annual run of the fair, the command center is used as a hub for OSP troopers and dispatchers.

About 10 years ago, the idea to have all emergency personnel share the same work space took shape. Now the command center is home base to not only OSP, but to first aid and emergency medical technicians, private security and Department of Homeland Security personnel.

By sharing a work space, emergency responders



The 30-year-old Zetron console at the Oregon State Fairgrounds is used by Oregon State Police dispatchers during the run of the State Fair. Next year, the Zetron will be replaced by a new digital console with multichannel capabilities.

have increased communications between agencies. Instead of one agency's dispatcher calling another agency's dispatcher to alert all emergency responders about a first aid call at the yellow gate, for example, the dispatchers are located next to each other on-site and can coordinate a response in less time. Still, there is room for improvement.

Currently, the medical and security dispatchers sitting next to the OSP dispatcher can see the incident narratives typed out by OSP on their computer aided dispatch (CAD) monitor, but their respective field resources cannot hear the OSP troopers' response out in the field. This could

"If the local radio system experiences a failure, the new digital console system gives dispatchers the ability to pull up a different radio channel."

 Jerry Martin, Oregon State Police Applications Team/CAD-Dispatch support manager change once the radio project's trunked radio system is up and functional, because emergency responders could communicate with each other on designated interoperability radio channels, a capability not easily accommodated today.

"We need to have a way for the security and the first aid people to have a channel that they can go to and interact with OSP troopers, notifying them that they are going to respond to an incident, or vice versa. We don't do that today. With an operational trunked radio system and an upgraded radio console system, this scenario becomes a possibility," said Jerry Martin, OSP Applications Team/CAD-Dispatch support manager.

For special events like the Oregon State Fair, a dedicated radio channel is available solely for OSP's use, but in the future it's likely that the fair operations will be on a trunked radio channel.

"If we need to bring in additional resources to assist for any reason, it will be easier for the fair dispatchers to coordinate using the trunking system," Martin said.

For Martin, the biggest benefits of the State Radio Project are that the trunked radio system will give OSP more flexibility in matching dispatch resources to patrol resources, and the redundancy and dependability of the radio system will be better.

In addition to increased communication capabilities with the new trunked radio system, the radio project will have more options with the new dispatch consoles.

"The consoles are a very important tool since they are the interface between the dispatch and all of the resources," Martin said.



In this temporary work space at the State Fairgrounds, emergency first responders work alongside each other to keep the public safe.

The existing command center console — still in operation at the fairgrounds — is about 30 years old and is only capable of transmitting a single channel.

"If the local radio system experiences a failure, the new digital console system gives dispatchers the ability to pull up a different radio channel," Martin said. The dispatchers can't do that today.

"As it stands now, the existing console is hardwired to two radios: the Salem area command patrol channel and the fairgrounds working channel. If the fairgrounds working channel radio fails, they can't use the console to find another system that works because it's hard-wired."

The new console system has digital capabilities, making it much more flexible and less vulnerable

to a single point of failure. Dispatchers will be able to use a different channel on the console until the problem with the other channel is fixed.

According to the current schedule, it's anticipated that the State Fair OSP Command Center will receive the new console before the start of the 2015 fair, but Oregon State Fair dispatch operations will likely continue to run on the conventional system until the following year.

The upgraded OSP command center will no doubt improve the overall functioning of day-to-day public safety operations at the Oregon State Fair. Additional communication system capabilities will make the jobs of first responders easier, with the public ultimately benefitting the most.

### PROJECT PROGRESS BY WBS

The total budget for the radio project is \$229,991,920. Less expenditures from the previous biennia, including a revaluation of the program following a review of expenditures in September, the remaining budget is \$175.1 million.

The work components necessary to launch the revised State Radio Project include project management, narrowbanding, microwave modernization, trunking, tactical interoperability and partner obligations. The budget and schedule for the project's active components are provided in the following pages of this report, which are based upon the work breakdown structure detailed in the State Radio Project's Project Management Plan.



*OWIN expenditures account for \$54.9 million of expenditures to date.* 



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### WBS 1.0 – PROJECT MANAGEMENT SUMMARY

Project management consists of those elements that are projectwide and affect all other WBS sections.

### **BUDGET EXPENDITURES**

For WBS 1.0 Project Management, 76 percent of the total budget has been expended to date.



### ASSET MANAGEMENT

Asset management staff continued their efforts to receive and release equipment to third-party contractors for installation. Staff also managed decommissioned materials returning from the field, determining whether the materials could be recycled or redeployed to another agency.

Surplus radios prepared for deployment to the Oregon Department of Forestry and to the Washington County Consolidated Communications Agency in August were transferred to the receiving agencies during September.

Staff conducted safety audits of the project warehouse and materials yard during September. These audits resulted in enhanced safety standards and revisions to official processes to ensure staff safety during material handling efforts, such as loading, unloading and storage, and when traveling to and from sites.

Asset staff continued to provide assistance to the radio project's finance team and their effort to reconcile asset-related expenses incurred during the 2013 fiscal year, which ended June 30.

### CHANGE MANAGEMENT

There are two types of change requests, administrative and formal. Administrative changes are those that do not affect the project's baseline scope, schedule or budget. Formal changes are those that affect those project baselines.

During September, 20 change requests were processed and approved. To date, 512 changes have been approved: 77 were administrative and 435 were formal.

	August 2014	September 2014	Total to date
Administrative	0	1	77
Formal	5	19	435
Total	5	20	512

The following chart represents the value of the project's contingency budget at the end of the two most recent months. The change noted is due to approval of formal budget changes executed in September.

	August 2014	September 2014	Total Change
Contingency budget, end-of-month value	\$276,252	\$1,096,591	+ \$820,339

### COMMUNICATIONS MANAGEMENT

Communications staff provided the following project information/materials during September:

- Produced September 2014 Monthly Progress Report
- Produced September 2014 Project Dashboard
- Produced September 2014 Key Project Facts sheet
- Produced September 2014 Radio User Update
- Updated project website on Oregon.gov
- Distributed project information notices via GovDelivery
- Produced and published project feature story in Inside ODOT
- Provided update on radio project activities to ODOT public affairs staff

Project management and staff also conducted the following outreach activities:

- Participation in and facilitation of the monthly State Radio User Group meeting
- Participation in and facilitation of the monthly Delivery Team meeting

### QUALITY MANAGEMENT

Public Knowledge delivered its September Quarterly Project Status and Improvement Report detailing activities from July 1 to Sept. 30.

	August 2014	September 2014
Total findings reported by Public Knowledge	11	9
Active – recommendations provided	11	9
Closed – no further action required	0	0
Watch list items	0	0

The following table is a snapshot of the issues, categorized by WBS section, managed by the project during September. Project management develops planned actions and target dates for resolving these issues. Until an issue has a target resolution date, it is not included in the planned for resolution count.

	Number of active issues	Number planned for resolution	Total resolved
1.0 Project Management	2	2	1
2.0 Narrowbanding	0	0	0
3.0 Microwave Modernization	1	1	0
4.0 Trunked Radio	0	0	0
5.0 Interoperability	1	1	0
6.0 Partnerships	0	0	0
7.0 Planning and Engineering	0	0	0
Total	4	4	1

### WBS 2.0 – NARROWBANDING

The narrowbanding component of the radio project involves two primary work efforts. First is to transition ODOT and Oregon State Police radio operations to narrowband mode, which the radio project completed in August 2013 in advance of the revised federal deadline of Nov. 1, 2013. The second effort includes implementing equipment upgrades, beyond those required for narrowband operation, to mountaintop tower sites and office locations throughout the state.



### BUDGET EXPENDITURES

For WBS 2.0 Narrowbanding, 98 percent of the total budget has been expended to date.



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### ACTIVITIES AND PROGRESS

#### 2.1 NARROWBAND REPEATERS

	September 2014		Total t	o date
	Forecast	Actual	Forecast	Actual
Repeaters installed – 170 sites	0	0	154	154
Antennas installed – 126 sites	0	0	111	102

### 2.2 OFFICE REMOTES

	September 2014		Total t	o date
	Forecast	Actual	Forecast	Actual
Sites transitioned to narrowband mode – 110	COMP	LETE	110	110
Base station installations complete – 110 sites	0	0	101	101
Antenna installations complete – 48 sites	0	0	9	9
Sites completed – 110 sites	0	0	53	53

### 2.3 RADIO DEPLOYMENT

This section of work consists of two primary elements: training and deployment of mobile radio equipment, and training and deployment of handheld, portable radio units. Recipients of this equipment include ODOT and OSP employees, along with select groups with the Oregon Department of Corrections and OEM, as identified by the agency.

The radio deployment effort is complete; the following table shows the number of units deployed. The project's effort to complete closeout work for the radio deployment, including final reconciliation of all work, is ongoing; actual totals to date may change as reconciliations are completed.

	September 2014		Total to date		
ODOT			Forecast	Actual	
Agency locations/crews completed			102	102	
Mobile radios deployed	COMPLETE		2,491	2,290	
Portable radios deployed			1,059	1,291	
Employees trained			NA	966	
OSP					
Agency locations/crews completed			42	42	
Mobile radios deployed			688	688	
Portable radios deployed	COMPLETE		648	648	
Employees trained			NA	370	
Other Agencies					
Agency locations/crews completed			7	7	
Mobile radios deployed	COMPLETE		50	50	
Portable radios deployed			159	159	
Employees trained			NA	0	

### 2.4 CUT-OVER TESTING

	September 2014	Total to	o date
		Forecast	Actual
Region cutovers completed – 10 zones	COMPLETE	10	10

### WBS 3.0 - MICROWAVE MODERNIZATION

The microwave component of the radio project involves replacing old and outdated ODOT and OSP analog microwave with digital microwave and making associated site improvements.

Microwave installation includes the acquisition, installation, implementation and optimization of the new digital microwave radios, antenna dishes, wave guide, routers and ancillary equipment to support both conventional and trunked radio systems.

Network implementation consists of integrating routing, switching and monitoring equipment into the microwave system to move both voice and data messages over the digital microwave system.

Improvements to towers, shelters, power supplies and other facilities required by the upgraded microwave and trunked radio systems are anticipated at most sites. New leases, permits and agreements will be obtained as needed.

The budget for this project component, totaling \$51.2 million, is comprised of \$17.6 million for installation, \$5.5 million for network implementation, \$26.9 million for site work and \$1.2 million for wireless infrastructure management system implementation.



### **BUDGET EXPENDITURES**

For WBS 3.0 Microwave Modernization, 37 percent of the total budget has been expended to date

			\$ <mark>19,058,112</mark> 37%
Total Section Budget	\$51,255,680		
Actual Expenditures	\$19,058,112	37%	
Forecast Expenditures	\$18,587,549	36%	\$22 107 569
Section Budget Remaining	\$32,197,568	63%	63%

#### Current Expenditures \$60 \$50 In Millions \$40 \$30 \$20 Actual \$10 Planned 100 2012012. 100 2012012. ( 101 2013 2013 -\$0 1312012 - Nar 2012 - Nar 2013 5892013 12n2014 Mar 201<sup>A</sup> 11a1201A Jul 2014 Sep 2014 Nov 2014 1212015 War 2015 May 2015 11/2015 Sep 2015 Nov 2013 Nov 2015 jan 2016 war2016 NOV 2011 Way 2016 JUI 2011 5ep 2011 2012 2012 2012 2012 2013

### BUDGET EXPENDITURES (Cont.)

### ACTIVITIES AND PROGRESS

### 3.1 MICROWAVE INSTALLATION AND 3.2 NETWORK IMPLEMENTATION

The project is tracking the implementation of the microwave network in two ways: by individual sites and by individual "hops." A microwave hop connects two sites to each other. In most cases, a single site will require equipment sets to support multiple hops. The microwave network is established by connecting the hops together.

The radio project will report a site as "microwave installation complete" when all equipment needed to support all hops has been installed at the site. No sites in the project's microwave network have yet received the entire equipment set needed for all hops connected to the site.

The project will report a "microwave hop complete" when equipment connecting two sites has been installed. The following hop report includes those completed to date.

	September 2014		September 2014		September 2014		Total t	o date
	Forecast	Actual	Forecast	Actual				
Microwave installation complete, by site	1	1	46	46				
Microwave hops complete	0	0	61	61				

MICROWAVE INSTALLATION COMPLETE



### 3.3 MICROWAVE SITE IMPROVEMENTS

The site improvement process includes three phases: pre-design, design and construction.

- **Pre-design phase**: Tasks completed from inception to approval by the Site Review Committee, the project's change review board.
- **Design phase**: Tasks completed from site planning through acquisition of the site building permit.
- **Construction phase**: Tasks completed from the acquisition of the building permit to the completion of site construction.

	Septemb	er 2014	Total t	o date
Site improvements	Forecast	Actual	Forecast	Actual
Pre-design complete	COMP	LETE	170	170
Design complete	0	2	101	100
Construction complete	3	1	76	73

Pre-design scoping activities at all sites is complete; however, radio project staff will revisit sites, as necessary, to address any needs that may arise during the design process.

### CONSTRUCTION COMPLETE



### 3.4 WIRELESS INFRASTRUCTURE MANAGEMENT SYSTEM

The wireless infrastructure management system, previously referred to as the network management system, will provide monitoring, alarming and control capabilities for system components and associated equipment. This system will allow Wireless Communications Section technicians to monitor site data in real time, without visiting the site.

System design discussions with vendor DPS Telecom continued in September. The detailed design review workshop for this section of work has been postponed to mid-November to allow Wireless Communications staff to focus their efforts on tower sites before weather affects access to more remote locations. This schedule adjustment will have little to no impact on the completion date of this section of work.

### WBS 4.0 – TRUNKED RADIO SYSTEM

A trunked radio system is used to maximize available capacity in a two-way radio system. Because not everyone in a group talks at once and radio transmissions are usually short, a trunked computer can assign talk frequencies in a manner that allows multiple groups of users to share a small set of frequencies without hearing each other's conversations. This effectively compresses the voice signals and enhances the capacity of the system.

The trunked system will allow local radio communications between public safety personnel; microwave will distribute those signals over a larger area, enabling distance and interagency communications.

The \$27.3 million budget for the trunked radio system includes five primary work efforts: procurement and installation of trunked radio repeaters for \$16.1 million, switches for \$2.4 million, dispatch consoles for \$4.6 million, and testing and training for \$4.2 million.



### SCHEDULE SUMMARY

### **BUDGET EXPENDITURES**

For WBS 4.0 Trunked Radio System, 23 percent of the total budget has been expended to date.



### **BUDGET EXPENDITURES (Cont.)**



### ACTIVITIES AND PROGRESS

Development of the trunked radio system includes three categories of work: repeater and site control equipment, central trunking switches and dispatch consoles. Section 7.0 Planning and Engineering also includes progress on the design efforts related to the trunked radio system.

### 4.1 TRUNKED RADIO REPEATERS AND 4.2 TRUNKED RADIO SWITCHES

	September 2014		ber 2014		o date
	Forecast	Actual		Forecast	Actual
Repeaters installed – 39 units	1	0		10	9
Switches installed – 2 units	COMPLETE			2	2
Sites completed – 41 sites	1	0		10	8

### TRUNKED RADIO SYSTEM REPEATER INSTALLATION COMPLETE



### 4.3 DISPATCH CONSOLES

	September 2014		Total to d	
	Forecast	Actual	Forecast	Actual
Consoles installed – 67 units	0	0	0	0
Sites completed – 4 sites	0	0	0	0
Consolettes installed – 24 sites	0	0	0	0

The detailed design documentation for the dispatch console installation was conditionally approved in early September. Representatives for the radio project and the vendor worked through the outstanding minor issues that remained. Specifications for the consolettes continue to be a topic of discussion. Sample units have been ordered to test operations prior to purchasing the full quantity needed.

### WBS 5.0 - INTEROPERABILITY

Improvements to state interoperability will be captured in this section. The State Interoperability Executive Council is currently heading statewide planning efforts to develop the overarching plan for interoperability in Oregon. Once the SIEC has finalized its plan, the project will initiate work on this effort. The project budget for this section is \$2.3 million.

### SCHEDULE SUMMARY

No schedule information is currently available. See 7.5 Interoperability Design for progress related to other interoperability activities.

### **BUDGET EXPENDITURES**

For WBS 5.0 Interoperability, 1 percent of the total budget has been expended to date.





### ACTIVITIES AND PROGRESS

With approval from the SIEC, funds were expended in September to support the work needed to update Oregon's Field Operations Guide.

### WBS 6.0 - PARTNERSHIPS

Partnerships were developed between the former OWIN program and local jurisdictions with the intent to reduce costs to both parties. These agreements created interdependency among participants for a functional system. The radio project has identified the partnership groups listed below as including sites that require work to meet the needs associated with these agreements.



### BUDGET EXPENDITURES

For WBS 6.0 Partnerships, 83 percent of the total budget has been expended to date.



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### ACTIVITIES AND PROGRESS

### 6.1 OWIN OBLIGATIONS

For each partnership cluster, forecast and actual progress is reported for the month and for the project cumulatively through September. The following correspond to all tables in this section:

- Agreements: Umbrella and supplemental agreements executed in a given region.
- **Design phase:** Tasks completed from site planning through acquisition of the site building permit.
- **Construction phase:** Tasks completed from the acquisition of the building permit to the completion of site construction.
- **Microwave installation phase:** All tasks involved in the installation of microwave equipment, from initiation to completion. Microwave installations may occur during a site's construction phase or after it has been completed.
- **Obligation complete:** All work has been completed and associated quality reviews have been conducted and work approved. Quality reviews include those conducted by the partner(s), Wireless Communications Section technicians and by representatives of OEM.

### 6.1.1 CHEMICAL STOCKPILE EMERGENCY PREPAREDNESS PROGRAM

	September 2014		· 2014 Total to da		o date
CSEPP	Forecast	Actual		Forecast	Actual
Agreements complete – 9 agreements	COMPLETE			9	9
Design phase complete – 1 site	COMPLETE			1	1
Construction phase complete – 4 sites	COMPLETE			4	4
Microwave installation phase complete – 3 sites	2	2		3	3
Obligations complete – 11 obligations	2	2		11	11

Microwave installations connecting Middle Mountain and Augspurger were completed in September. At Middle Mountain, a few small work items remain to ensure the site complies with industry standards, but this work is being done with funds from WBS 3.3 and is outside the scope of the partnership obligation. All work included in WBS section 6.1.1 is complete.

### 6.1.2 LINCOLN COUNTY

	September 2014		Total to date	
Lincoln County			Forecast	Actual
Agreements complete – 6 agreements			6	6
Design phase complete – 4 sites			4	4
Construction phase complete – 3 sites	COMPLETE		3	3
Microwave installation phase complete – 4 sites			4	4
Obligations complete – 4 obligations			4	4

All work included in WBS section 6.1.2 is complete.

### 6.1.3 NORTH COAST

	September 2014			Total to date	
North Coast	Forecast	Actual		Forecast	Actual
Agreements complete – 12 agreements	COMPLETE			12	12
Design phase complete – 3 sites	COMPLETE			3	3
Construction phase complete – 3 sites	COMPLETE			3	3
Microwave installation phase complete – 9 sites	0	0		8	8
Obligations complete – 13 obligations	0	0		12	12

Microwave installation and testing activities have been delayed to accommodate scheduling conflicts with the installation contractor. The expected completion date for WBS section 6.1.3 has been revised to October 2014.

### 6.1.4 NORTH VALLEY

	September 2014		Total to date	
North Valley			Forecast	Actual
Agreements complete – 1 agreements			1	1
Design phase complete – 2 sites			2	2
Construction phase complete – 2 sites	COMPLETE		2	2
Microwave installation phase complete – 2 sites			2	2
Obligations complete – 2 obligations			2	2

All work included in WBS section 6.1.4 is complete.

### 6.1.5 SOUTHWEST SEVEN

	September 2014		Total to date	
Southwest Seven			Forecast	Actual
Agreements complete – 6 agreements			6	6
Design phase complete – 3 sites			3	3
Construction phase complete – 5 sites	COMPLETE		5	5
Microwave installation phase complete – 4 sites			4	4
Obligations complete – 6 obligations			6	6

All work included in WBS section 6.1.5 is complete.

### 6.1.6 KLAMATH COUNTY

	September 2014		Total t	o date
Klamath County	Forecast	Actual	Forecast	Actual
Agreements complete – 7 agreements	COMPLETE		7	7
Design phase complete – 3 sites	COMPLETE		3	3
Construction phase complete – 2 sites	0	0	1	1
Microwave installation phase complete – 4 sites	0	0	0	0
Obligations complete – 5 obligations	0	0	1	1

Installation of underground power at Applegate Butte continues to progress. Weather permitting, the expected completion date for WBS section 6.1.6 remains December 2014.

### 6.1.7 ADDITIONAL PARTNERSHIPS

	September 2014		Total t	o date
Additional Partnerships	Forecast	Actual	Forecast	Actual
Agreements complete – 1 agreement	COMF	PLETE	1	1
Design phase complete – 1 site	COMPLETE		1	1
Construction phase complete – 1 site	0	0	0	0
Microwave installation phase complete – 1 site	0	0	0	0
Obligations complete – 1 obligation	0	0	0	0

The expected completion date for WBS section 6.1.7 is May 2015.

### 6.2 – 6.4 FUTURE PARTNERSHIPS

These sections have been reserved for future partnership-related activities, should the need arise.

### 6.5 STRATEGIC TECHNOLOGY RESERVE

Activities related to the deployment of the Strategic Technology Reserve have been completed. Operations of the reserve have been transferred to the Wireless Communications Section.

2013

### WBS 7.0 – PLANNING AND ENGINEERING

The planning and engineering section of the work breakdown includes design and development activities associated with the previous WBS sections.

### SCHEDULE SUMMARY



### **BUDGET EXPENDITURES**

For WBS 7.0 Planning and Engineering, 84 percent of the total budget has been expended.





### ACTIVITIES AND PROGRESS

### 7.1 STATEWIDE PLANNING

These activities are captured under 7.5 Interoperability Design and 7.6 Partnership Development.

### 7.2 NARROWBAND PLANNING AND ENGINEERING

The project has completed all narrowband planning efforts and has transitioned ODOT and OSP radios to operate in narrowband mode.

### 7.3 MICROWAVE MODERNIZATION ENGINEERING

The microwave design is considered substantially complete. Small adjustments continue to be made in response to needs identified during the site acquisition and construction processes. Coordination of microwave implementation is well underway.

#### 7.4 TRUNKED RADIO SYSTEM ENGINEERING

Development on the radio project's trunked radio system design is ongoing.

### 7.5 INTEROPERABILITY DESIGN

The project has no update to report on the development of an interoperability design. Planning and development of the interoperability design continues to be in the hands of the SIEC. Once the SIEC has established a plan, the project will begin work to develop its implementation strategy.

#### 7.6 PARTNERSHIP DEVELOPMENT

Also see 6.0 Partnerships for progress on site-specific work related to previous OWIN obligations. The following bullets correspond to the table below:

- Agreements: Umbrella and supplemental agreements executed.
- **Design phase:** Tasks completed from site planning through acquisition of the site building permit.

	September 2014		Total to date		
All OWIN Obligations	Forecast	Actual		Forecast	Actual
Agreements complete – 42 agreements	COMPLETE			42	42
Design phase complete – 17 sites			17	17	

### WBS 8.0 – INTEGRATION TRAINING

The system testing section of the work breakdown includes quality assurance activities developed to ensure that project components perform and interact as intended.

This section of work was developed and incorporated into the project budget during February 2013.

### SCHEDULE SUMMARY

Activities related to system testing are anticipated to begin near the end of 2014.

### BUDGET EXPENDITURES

For WBS 8.0 Integration Training, 10 percent of the total budget has been expended to date.



### ACTIVITIES AND PROGRESS

During September, radio project and Wireless Communications Section staff held a two-day analog to digital microwave workshop. This training session is the first activity and expense for this WBS section.

### STAFFING & VENDOR SUMMARY

Full-time state employees and contractors are working on the radio project throughout Oregon. In September, the project employed 28 full-time equivalent state positions.



### CONTRACT SUMMARY

Including historic values of the previous OWIN program, the State Radio Project has spent \$111,730,852 of the \$173,111,896 currently available across the project's 16 contracts. This represents an overall expenditure of approximately 65 percent.

To date in the 2013-2015 biennium, \$29,851,388 has been spent. This represents 17 percent of the total contract amount available and approximately 33 percent of the contract amount available for the biennium.



Percentage of the total contract value expended to the total value of work available

### CONTRACT SUMMARY BY VENDOR



### ABN ENGINEERING

ABN Engineering provides supplemental architecture and engineering design services.

### Activities and Progress

Deliverables submitted	Planned	Actual
Grounding and electrical designs and surveys	2	2
Structural analysis reports	3	3
Utility designs	1	1
Site layout designs and surveys	8	8
Environmental surveys	4	4
FAA 1A letters	3	3

### AECOM

AECOM provides consulting services to the project in the selection and engagement of the radio system contractor (Harris) and provides project and quality management of the radio system.

#### Activities and Progress

Deliverables submitted	Planned	Actual				
Delivered final microwave design submittals, site-to-site	7	7				
Document reviews and recommendations completed	17	17				
Design recommendations submitted	10	10				
State Radio Project meetings attended						
Radio Vendor Progress Update meeting	2	2				
Trunked Radio System Planning meeting	2	2				
Technology Collaboration meeting	4	4				

#### BLACK & VEATCH

Black & Veatch provides professional services in connection with the planning, design, engineering and administration for all phases of the project.

#### Activities and Progress

Deliverables submitted	Planned	Actual
Construction oversight visits completed	30	52
Certificates of substantial completed submitted	0	2
Land use and building permits approvals obtained	2	2

#### DPS TELECOM

DPS Telecom provides services, software and equipment for the design and implementation of the wireless infrastructure management system. Work products generated from these efforts are reported in sections 3.4 Wireless Infrastructure Management System.

#### Activities and Progress

State Radio Project meetings attended	Planned	Actual	
Contract kickoff meeting	1	1	

#### HARRIS CORP.

Harris provides services, software and equipment for the design, installation and implementation of the project's radio system. Work products generated from these efforts are reported in sections 2.0 Narrowbanding and 4.0 Trunked Radio System.

#### Activities and Progress

State Radio Project meetings attended	Planned	Actual
Radio Vendor Progress Update meeting	2	2
Trunked Radio System Planning meeting	2	2
Technology Collaboration meeting	4	4

### HDR ENGINEERING

HDR Engineering provides contract management and coordination support services and information systems development support for the project.

#### Activities and Progress

Work products generated from these efforts are reported elsewhere in this report. HDR employees provided support in project schedule management, project mapping, environmental analysis and project delivery improvement.

State Radio Project meetings attended	Planned	Actual
Site Review Committee meeting	3	3
Trunked Radio System Planning meeting	2	2
Technology Collaboration meeting	4	4

### LEGACY WIRELESS

Legacy Wireless provides personnel resources capable of providing ongoing project management services for the project. Personnel acquired through this contract must have experience with design and construction of telecommunications sites, the implementation of a public safety radio system and the operations of a complex network of microwave systems to transport information.

#### Activities and Progress

Work products generated from these efforts are reported elsewhere in this report. Legacy employees provided support in the following areas:

- Site project management design through construction
- Site design development and drafting

State Radio Project meetings attended	Planned	Actual
Site Review Committee meeting	3	3
Increment Zero Status meeting	2	2
Technology Collaboration meeting	4	4

#### PANTEL INTERNATIONAL

Pantel International provides services and equipment for the design and implementation of the console system. Work products generated from these efforts are reported in section 4.3 Dispatch Consoles.

#### Activities and Progress

Deliverables submitted	Planned	Actual		
System design iterations submitted	3	3		
State Radio Project meetings attended				
Console vendor status meeting	2	2		

### PUBLIC KNOWLEDGE

Public Knowledge provides independent quality management services for the project.

#### Activities and Progress

Deliverables submitted	Planned	Actual
Quarterly Project Status and Improvement Report	1	1

#### SAIC

SAIC Inc. provides personnel resources similar to those provided by Legacy Wireless. SAIC personnel must have experience with design and construction of telecommunications sites, the implementation of public safety radio systems and the operations of a complex network of microwave systems to transport information.

#### Activities and Progress

Work products generated from these efforts are reported elsewhere in this report.

### SITES BY COUNTY

For site-specific scope, schedule and budget, see the interactive map at www.OregonRadioProject.com.

### BAKER

Baker City Maintenance Baker City Patrol Office Baker Scale Beaver Mountain M/W Beaver Ridge OSP Elkhorn Mountain M/W Halfway Hill Lime Hill M/W Lone Pine M/W Richland Maintenance Summit Point Whitney Sand Shed

### **BENTON**

Corvallis Maintenance M/W Marys Peak M/W OSU Patrol Office Vineyard Hill

### **CLACKAMAS**

Brightwood Coffee Creek, DOC - Willsonville Estacada Maintenance Goat Mountain Government Camp Maintenance Government Camp Patrol Office Lawnfield District Maintenance M/W Linhart Butte Milwaukie Maintenance M/W Mount Hood (Timberline) Mount Scott M/W (District 2B) PCC Patrol Office Petes Mountain Portland Patrol Office Sand Shed (District 2C) Sandy Maintenance Suncrest M/W

### **CLATSOP**

Astoria Area Manager PM Astoria District Office 1 Astoria M/W Astoria Patrol Office Camp Rilea District 1 Bridge Crew Double Peak Humbug Maintenance Nicolai Mountain M/W OSP Seaside 911 Tillamook Head Warrenton M/W Warrenton Maintenance Wickiup Mountain M/W

### COLUMBIA

Clatskanie Maintenance Clatskanie Mountain Rainier M/W St Helens Patrol Office

### COOS

Baldy Butte (Coos Bay) Bandon BPA Bennett Butte M/W Blue Ridge North Coos Bay Maintenance M/W Coos Bay Patrol Office Coquille Maintenance M/W Davis Slough Maintenance (Coos Bay) Four Mile Noah Butte Signal Tree (Ram Cell) Signal Tree M/W

### CROOK

Barnes Butte Grizzly Mountain M/W (Crook) Powell Butte Prineville Maintenance Prineville Patrol Office

### **CURRY**

Black Mound Bosley Butte Cape Blanco Cape Blanco (Curry) Carpenterville Curry Co Courthouse Edson Butte Gold Beach Maintenance (Hunters Creek) Gold Beach Patrol Office Grizzly Butte (Curry) Harbor Hill Iron Mountain Port Orford Maintenance Stone Butte

### SITES BY COUNTY (continued)

### DESCHUTES

Awbrev Butte Bend District Office 10 Bend Maintenance M/W Bend Patrol Office **Brothers Maintenance** Five Mile Hampton Butte La Pine Maintenance Lona Butte Long Butte ODOT Mount Bachelor **OSP** East Headquarters Pine Mountain M/W Region 4 TOC (Bend) Sisters Maintenance Sugar Pine Wampus Butte Wanoga Butte Wanoga Sand Shed

### DOUGLAS

**Boswell Springs Maintenance** Canyonville Maintenance Chilcoot Mountain **Cinnamon Butte** Cougar Pass Dean Mountain Debris Hwy 38 Dean Mountain Rd Debris Hwy 38 Scottsburg Dodson Butte M/W Elkton Ridge Harness Mountain (LCSO) Harness Mountain M/W Lemolo Sand Shed Mount Nebo Red Butte Reedsport Maintenance Roman Nose Rose Hill Roseburg Maintenance (Shady) M/W **Roseburg Patrol Office** Roseburg Region 3 Office Scott Mountain (Douglas) Steamboat Maintenance Yellow Butte

### GILLIAM

Arlington Maintenance Arlington Patrol Office Condon Condon Maintenance

#### GRANT

Aldrich Mountain Austin Maintenance Dixie Butte Fall Mountain M/W John Day M/W Airport John Day Maintenance/Canyon City John Day Patrol Office John Day Scale Tamarack Mountain

### HARNEY

Beatys Butte Best Lane Burns Butte M/W Burns Maintenance Burns Patrol Office Devine Ridge M/W Jack Mountain King Mountain Steens Mountain Stinkingwater Pass Sand Shed Wagontire Mountain

### **HOOD RIVER**

Cascade Locks Maintenance Cascade Locks POE Debris I-84 M/W Cascade Locks Hood River (CRITFC) Hood River 911 Middle Mountain (US Cellular) Parkdale Maintenance

### **JACKSON**

Ashland Maintenance Ashland POE Central Point Maintenance Halls Point Lincoln Maintenance Sand Shed Medford ODOT M/W Mount Ashland Mount Isabelle OSP SW Headquarters

### SITES BY COUNTY (continued)

Prospect Maintenance Region 3 TOC (Central Point) Robinson Butte Roxy Ann Mountain M/W SCC/Central Point Dispatch/SW HQ Siskiyou Summit Fill Siskiyou Summit Sand Shed Soda Mountain M/W Starveout Mountain M/W Table Mountain (Jackson) Table Mountain BLM (Jackson) White City Maintenance District M/W

### **JEFFERSON**

Agency Plains Deer Ridge, DOC - Madras Gray Butte Madras Maintenance Madras Patrol Office Stephenson

### JOSEPHINE

Cave Junction Maintenance Debris US 199 Road Closure Eight Dollar Fiddler Mountain Grants Pass Maintenance Grants Pass Patrol Office Onion Mountain Sexton Mountain M/W

### **KLAMATH**

Applegate Butte Chemult Maintenance Chiloguin Maintenance **Gilchrist Patrol Office** Hamaker Mountain (KCSO) Hamaker Mountain ODOT Hogback Mountain Klamath Falls M/W Klamath Falls Maintenance Klamath Falls Patrol Office Klamath Falls POE Lake of the Woods Maintenance Medicine Mountain M/W Odell Butte **Odell Lake Maintenance** Pelican Butte Swan Lake Point Walker Mountain M/W (Klamath)

### LAKE

Adel Maintenance Adel Remote (Fish Rim) Alkalai Lake Maintenance M/W Black Cap Glass Butte BPA Glass Butte M/W Grizzly Peak M/W (Lake) Lakeview Maintenance M/W Lakeview Patrol Office Picture Rock (DI) M/W Round Pass Silver Lake Maintenance

### LANE

Bear Mountain **Blanton Heights** Buck Mountain M/W Dead Mountain Florence Maintenance Florence Patrol Office Glenada Ridge Glenwood Maintenance Goodwin Peak Herman Peak McKenzie Bridge Maintenance Mount Hagan Oakridge Maintenance Oakridge Patrol Office Prairie Peak M/W Springfield District Office M/W Springfield Patrol Office Table Rock (Lane) Veneta Maintenance Vida Walker Point (Lane) Wallace Butte Wolf Mountain (ATT) Wolf Mountain

### LINCOLN

Cape Perpetua Cape Perpetua (Lincoln) Euchre Mountain Lincoln County Newport Patrol Office Ona Beach Maintenance Rose Lodge Maintenance Saddlebag

### SITES BY COUNTY (continued)

Table Mountain (Lincoln) Yaquina Head M/W

### LINN

Albany Maintenance Albany Patrol Office Cascadia Green Peter Green Peter ODOT Hoodoo Butte ATC Hoodoo Butte M/W McCully Mountain Santiam Junction Maintenance Scott Mountain Lookout (Linn) Snow Peak Sweet Home Maintenance Washburn Butte

### MALHEUR

**Basque Maintenance** Black Butte (Juntura) Blue Mountain Cottonwood Mountain M/W Covne Ridae Farewell Bend POE Jordan Valley Maintenance Jordan Valley Patrol Office Juntura Maintenance Mahogany Mountain **ODOT District 14 Office** Ontario District Office 14 Ontario Maintenance M/W **Ontario Patrol Office** Pharmacy Hill Snake River, DOC - Ontario Succor Creek Summit Fill Vale Butte M/W Vale Maintenance Vale, District 14 Bridge Crew

### MARION

ARC (Anderson Readiness Center) Capitol Mall Patrol Office Detroit Maintenance Halls Ridge ODOT T-Building M/W Oregon Department of Forestry Oregon Emergency Management Oregon Motor Carrier HQ Oregon State Fire Marshall Prospect, Lower (Hill) M/W Prospect, Main M/W Region 2 TOC (Salem) Salem, Battery Room Salem, District 3 HQ Salem, District Office 3 Salem, Facilities Salem, Maintenance Salem, Material Lab Salem, OSP Office M/W Salem, Patrol Office Salem, PM & Sign Shop Salem, Radio, Building D Salem, Region 2 Electrical Building T Salem, Region 2 Stripping Salem, Region EOC/ HQ, Building B Salem, Repair Shop, Building M Salem, State Radio Project Salem, Transport Services Building K Salem, Wireless Building C State Fairgrounds State Penitentiary, DOC - Salem Wipper M/W Woodburn Maintenance Woodburn POE

### MORROW

Black Mountain (OSP) Black Mountain M/W Boardman Gleason Peak Heppner Maintenance Heppner Patrol Office Jordan Butte Wilkinson Hill

### **MULTNOMAH**

200 Market Ashforth Building (CRITFC HQ) Baldock Maintenance Barlow Maintenance M/W Council Crest Debris I-84 M/W Troutdale East Portland Maintenance Fremont Bridge M/W Interstate Bridge/Jantzen Beach Multnomah M/W System North Portland, Parkrose Maintenance Portland Bridge Office Portland Region 1 office

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### SITES BY COUNTY (continued)

Region 1 TOC (Portland) Sylvan District Office Maintenance M/W Troutdale District Office Troutdale Maintenance M/W Willatin Tank

### POLK

Bald Mountain (Polk) Doane Creek Eagle Crest Grand Rhonde Maintenance

#### **SHERMAN**

Moro Maintenance

### **TILLAMOOK**

Cape Lookout (L190) Cape Meares Debris Field Hwy 6 Tillamook Neahkahnie Tillamook Clatsop Connection Tillamook DMV Maintenance M/W Tillamook Patrol Office Wilson River M/W

### **UMATILLA**

Bone Point Cabbage Hill (CTUIR) Cabbage Hill (US Cell) Cabbage Hill M/W Cold Springs Scalehouse Coombs Canyon Hermiston Maintenance Hermiston Patrol Office Lorenzen Rd (Exit 198) Meacham Maintenance Milton Freewater Patrol Office Mount Weston Mount Weston (Broadcast Building) Pendleton East Pendleton Justice Center Pendleton Maintenance M/W (IH) Pendleton Patrol Office Two Rivers, DOC - Umatilla Ukiah Maintenance Umatilla POE Umatilla Ridge Whitmore Rd

### UNION

Elgin Maintenance La Grande Maintenance M/W La Grande Patrol Office La Grande Scales Ladd Canyon Mount Emily M/W Mount Fanny Spout Springs Fill

#### WALLOWA

Devil's Ridge Enterprise Maintenance Enterprise Patrol Office Flora Fill Station Howard Butte Mount Howard Wallowa Visitor Center

### WASCO

Criterion Summit M/W Foremans Point Hulse Ranch M/W Kaser Maupin Maintenance Shaniko The Dalles East (US Cell) The Dalles Maintenance M/W The Dalles Patrol Office Tygh Ridge Warm Springs Maintenance Wasco Butte M/W

### WASHINGTON

Banks Patrol Office Beaverton Area Manager PM Buxton Mountain M/W Cedar Hills Debris Field Hwy 6 Banks Manning Maintenance North Plains Patrol Office Round Top Tualatin Patrol Office

### WHEELER

Keyes Mountain FTN Keyes Summit (Mitchell Remote) Mount Pisgah Rancharea Rock Spray Maintenance

### SITES BY COUNTY (continued)

### YAMHILL

Boulder Crest Chehalem Mountain M/W High Heaven McMinnville Maintenance Station McMinnville Patrol Office Mount Hebo M/W Mount Hebo South Point Newberg Maintenance

### **OUT-OF-OREGON**

Augspurger Mountain M/W (CRITFC) Augspurger Mountain M/W (US Cell) Biddle Butte Golgotha Butte Golgotha Butte (BCES) Green Mountain Haystack Butte M/W Juniper (Klickitat) Megler (Chinook) Megler Bridge (Astoria) Roosevelt Mountain M/W Sheepy Ridge Sillusi Butte (BCES) Sillusi Butte Fill Skamania Mountain M/W Stacker Butte M/W Underwood

### PROJECT COST SUMMARY

	Original Budget 9/07/2011	Rebaselined Budget 09/30/2013	Prior Budget Changes as of 8/31/2014	Current Month Budget Changes as of 9/30/2014	Current Budget as of 9/30/2014	Funds Spent through 9/30/2014	Balance
Repeaters	6 100 000	4 415 302	326 500		4 741 802	1 673 584	68 308
Office Remotes	2 000 000	2 116 600	(912 488)	-	4,741,092	825 493	378 619
Hand Helds/Portables	33,200,000	25.742.427	242,691	285,911	26.271.029	26.046.827	224,202
Cutover/Testing	-	300,000	(69,295)		230,705	230,705	(0)
Narrowbanding Subtotal	41,300,000	32,574,329	(412,502)	285,911	32,447,738	31,776,609	671,129
Microwave Modernization							
Purchase & Installation	29,300,000	17,568,049	102,956	(30,486)	17,640,519	4,557,554	13,082,965
Network	45 550 000	5,498,992	22,310	-	5,521,302	4,912,039	609,263
Site Improvements	45,550,000	25,150,000	(141.094)	1,083,106	20,848,859	9,567,477	17,281,382
Training & Equipment Acquisition		1,360,964	(141,964)	-	1,245,000	21,042	1,223,956
Microwave Modernization Subtotal	74.850.000	50.104.025	99.035	1.052.620	51,255,680	19.058.112	32,197,568
	74,000,000	50/101/025	55,000	1,002,020	51/255/000	15/050/112	52,257,500
Trunking							
Receivers	5,250,000	14,803,450	1,352,537	-	16,155,987	3,707,312	12,448,675
Switches		2,403,062		-	2,403,062	2,114,248	288,814
Consoles	1,400,000	3,941,546	629,162	-	4,570,708	418,040	4,152,668
Testing & Training		4,193,867		-	4,193,867	103,469	4,090,399
Site Pros & Gateways	6 650 000	1,500,000	1 001 000	(1,500,000)			-
Trunking Subtotal	6,650,000	26,841,925	1,981,699	(1,500,000)	27,323,624	6,343,069	20,980,555
Interoperability							
Procurement & Installation	2,300,000	2,300,000			2,300,000	19,963	2,280,037
Interoperability Subtotal	2,300,000	2,300,000	-	-	2,300,000	19,963	2,280,037
Partnerships							
Construction	10,400,000	10,469,802		-	10,469,802	8,726,485	1,743,317
Partnerships Subtotal	10,400,000	10,469,802	-	-	10,469,802	8,726,485	1,743,317
Engineering							
Narrowbanding	1,300,000	1,532,772	257,689	76,849	1,867,311	1,821,186	46,125
Microwave Modernization	17,750,000	18,468,867	1,633,579	69,572	20,172,017	17,353,829	2,818,189
Trunking	1,850,000	9,299,376	352,309	-	9,651,685	7,203,727	2,447,958
Interoperability	-	3,064,792	(232,630)	-	2,832,162	2,631,872	200,290
Partnerships		410,155	(50,270)	-	359,885	360,027	(142)
Engineering Subtotal	20,900,000	32,775,962	1,960,677	146,421	34,883,060	29,370,640	5,512,420
Integration Training							
Integration Training		500.000	(250,000)		250.000	25 300	224 700
Integration Training Subtotal	-	500,000	(250,000)	-	250,000	25,300	224,700
Totals by Phase							
Narrowbanding	42,600,000	34,107,101	(154,813)	362,761	34,315,049	33,597,795	717,254
Microwave Modernization	92,600,000	68,572,892	1,732,614	1,122,192	71,427,698	36,411,941	35,015,757
Trunking	8,500,000	36,141,301	2,334,008	(1,500,000)	36,975,309	13,546,796	23,428,514
Interoperability	2,300,000	5,364,792	(232,630)	-	5,132,162	2,651,835	2,480,327
Integration Training	10,400,000	10,879,957	(30,270)	-	250 000	9,086,512	1,743,175
Phase Subtotal	156.400.000	155.566.043	3.378.909	(15.048)	158.929.905	95.320.179	63.609.726
	,,,		-,,	(,,-		,,	,,
Project Management	-	15,069,054		31,163	15,100,217	11,468,853	3,631,364
Project Contingency Reserve	-	3,852,259	(2,815,436)	59,768	1,096,591	-	1,096,591
Total State Radio Project	156,400,000	174,487,356	563,473	75,883	175,126,713	106,789,032	68,337,681
Old OWIN Project							
Spending	45,000,000	49,256,733		(639,356)	48,617,377	48,617,377	-
Treasury Loan	8,000,000	6,247,831			6,247,831	6,247,831	
Total Old OWIN	53,000,000	55,504,564	-	(639,356)	54,865,208	54,865,208	-
Constant Table	200 400 000	220.001.005	F 40 455	(FCD 435)	220.001.025	101 00 000	(0.000.000
Grand lotal	∠09,400,000	229,991,920	563,473	(503,473)	229,991,920	101,054,239	08,337,681

## ESTIMATED PROJECT CASH FLOW

