LastMile Connectivity Grant Application

Submitted by Columbia Gorge Education Service District (CGESD) on behalf of North Wasco County School District # 21 for Mosier Community School connectivity

Project Description

Mosier Community School (MCS) is part of North Wasco County School District (NWCSD) in The Dalles, OR. MCS currently utilizes a shared PVC frame relay circuit to the CGESD office for Internet connection. To access the Internet, there is a T1 connection at the school end which terminates to a shared T1 at the CGESD end. Currently they share this T1 with Cascade Locks School in Cascade Locks, Oregon which ultimately gives them a less than 1.5Mbps Internet connection.

The only viable and cost-effective solution to this issue was through wireless technology. Sawtooth Technologies has towers all over the Columbia Gorge area. They are proposing a microwave solution that will guarantee a minimum of 10Mbps throughput.

The project consists of setting up an antenna at Mosier school that will send traffic via microwave signals across the Columbia River to a Sawtooth tower on Underwood Mountain. From there it's routed via an existing 54Mbps link to their Fir Mountain tower. Another existing 54Mbps link takes it to one of their towers in The Dalles. Finally, it is connected via a 45Mbps link to a new microwave antenna at the CGESD office (See diagram page 5).

How This Project Will Fulfill The Grant Criteria

Currently MCS school connects with less than 1.5 MBps on the shared T1. Through it's wireless system, Sawtooth can guarantee a 10MBps circuit between the school and CGESD office. Once on the CGESD WAN, they can utilize our QLife/LS Networks connection out to the Internet. As part of this project, CGESD will upgrade our 30 Mbps Internet connection by 10Mps per site.

Site Information

Mosier Community School is a K-6 charter school located in Mosier, Oregon, approximately 15 miles west of The Dalles, OR. The school currently employs 22 staff and serves 136 students. The school is also used as a community center and usually has an average of 25 community volunteers onsite daily. It also serves as a center for many community activities and events.

This project will involve the following staff:

Name	Title	Phone	eMail	Organization
Brian Goodwin	Federal & Special Programs Director	541-506-3420 ext. 1022	goodwinb@nwasco.k12.or.us	NWCSD
Carole Schmidt	Principal	(541) 478-3321	schmidtc@nwasco.k12.or.us	MCS
Steve Daniels	Technology Director	541-506-3420 ext. 1024	danielss@nwasco.k12.or.us	NWCSD
Bryan Alexander	Technology Director	541-298-3140 541-370-5331	balexander@cgesd.k12.or.us	CGESD

Site Information:

Mosier Community School PO Box 307 1204 First Avenue Mosier, OR 97040 Telephone (541) 478-3321	North Wasco County School Disctrict #21 3632 West 10th Street The Dalles, OR, 97058 Telephone(541) 506-3420 Fax (541) 298-6018

Contractor Information

Sawtooth Technologies will solely be responsible for installation and setup of all microwave equipment and the associated VLans (including managing/overseeing any sub-contractors). They are a NOAA-Net contractor that provides Internet service out of Stevenson, Washington and possess an eRate SPIN number.

Configuration changes of current network switches and routers will be by INX Inc. INX is a Cisco and OETC partner with an office in Portland. Vendor contacts involved in this project are:

Name	Title	Phone	eMail	Organization
Brian Adams	System Engineer	509-427-4865	adams@saw.net	Sawtooth Technologies, LLC.
Rick Howard	Sales	503.594.0364	rickH@INXi.com	INX Inc.

Leveraging Resources

The proposal by Sawtooth actually encompasses 3 school sites: Mosier Community School, Dufur School District, and South Wasco County School District. Coordinating these 3 projects together allow us to utilize one microwave tower at CGESD for all three sites. This permits cost sharing for the equipment at the CGESD site among all three projects.

Equipment and Labor Details

Please see attached Sawtooth document, page 4.

Budget Page

Labor/ Equipment Mosier Site	$ 8,634.18
Labor/Equipment CGESD Site (The costs of this site could be shared if Dufur/Mosier also are awarded grants for a similar wireless system. This would be 1/3 of the $ 8,634.18 amount total above or $ 2,878.06.	$ 2,878.06
ESD switch/router configuration	$ 1,350.00
Grand Total for Project	**$ 12,862.24**

Our application for the LastMile grant is intended to cover the estimated $ 12,862.24 cost to install and setup this wireless network. Our hope is that we can combine the three projects (Dufur, Maupin, Mosier) for a cost savings and consistency in services.

There are recurring monthly charges of $ 500 per month per circuit for equipment and tower rental. Currently NWCSD is billed $ 405 per month for their end of a T1 connection. CGESD also pays $200 for the other end of this connection (1/2 of a shared T1). These are submitted to USAC for eRate reimbursement.

NWCSD would be able to funnel the funds they normally spend for a T1 to cover the cost of the maintenance. Likewise, CGESD would be able to move it's funds from the current T1 connection to increase it's bandwidth with LS Networks.

CGESD budgeted this fiscal year for a second T1 to allow Mosier to be moved to it's own private T1. Without these T1s, CGESD would be able to apply approximately $660 per month towards increased Internet transport:

Increase LS Networks Transport to Pittock Mansion. $32/MB X 10	$ 320
Increase ISP bandwidth (Clackamas ESD). $45/MB X 10	$ 450
Total	$ 770
Minus current budgeted amount for T1s (Mosier portion only)	-$660
Amount per month under-funded	$ 110

The ESD budgets for the full amount of these costs each year. eRate refunds are saved and put into infrastructure as needed (servers, etc). Because of the eRate reimbursement, the $110 amount that would be under-funded would still be affordable—there would be less of a net returned—but still stay in budget for this year. Ensuing years we could modify the budget to account for the increased $1,320.

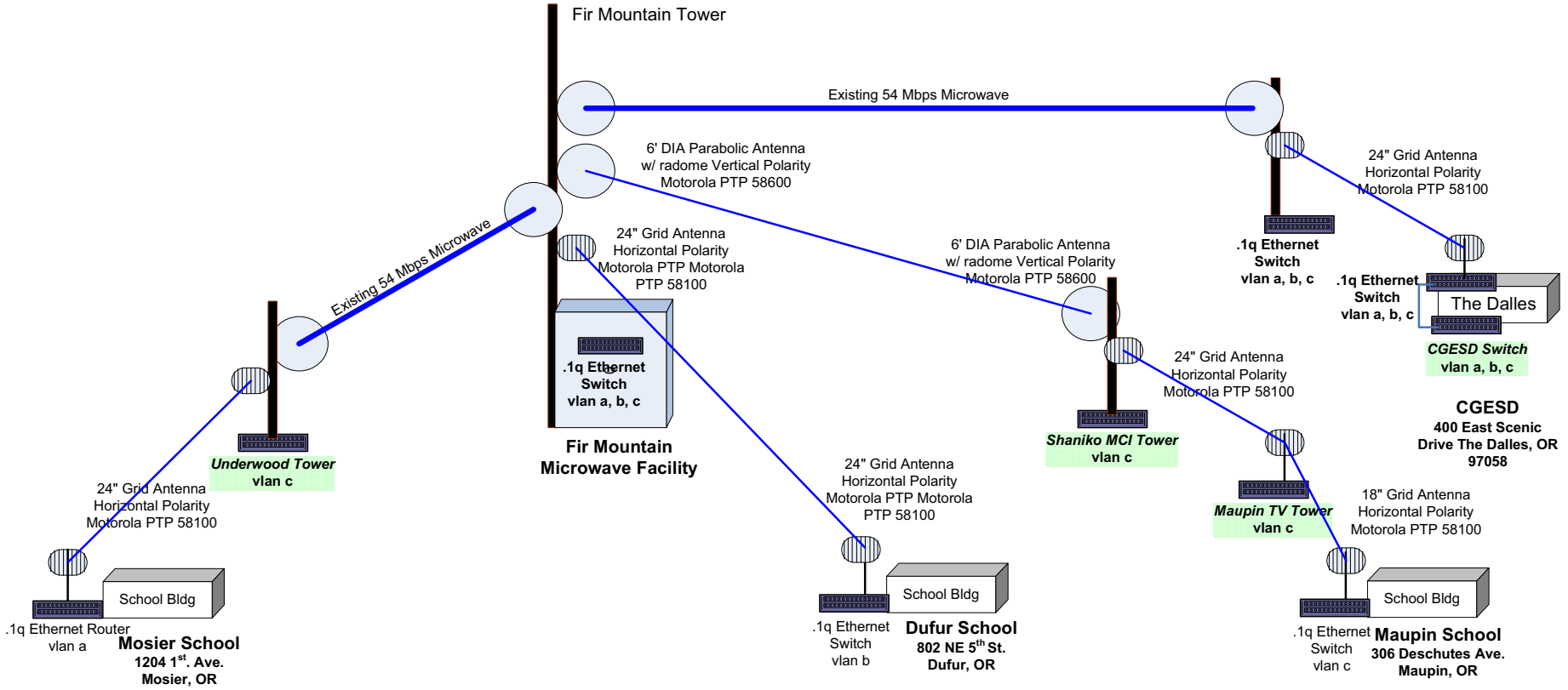
Prepared for: Mosier, Dufur, and Maupin Schools

Prepared by: Sawtooth Technologies, LLC
Engineer: Brian Adams
Date: October 12, 2008

Description: 10 Mbps Wireless Network Budget Detail

CONFIDENTIAL & PROPRIATARY

	Item	Details	Brand	Catalog Number	Vender	Mosier School 1204 1st. Ave. Mosier, OR Install 24" Grid Antenna Horizontal Polarity Motorola PTP 58100 (both ends of one microwave link)	Fir Mountain Microwave Facility 6' DIA Parabolic Antenna w/ radome Vertical Polarity Motorola PTP 58600	Dufur School 802 NE 5th St. Dufur, OR Install 24" Grid Antenna Horizontal Polarity Motorola PTP 58100 (both ends of one microwave link)	Maupin School 306 Deschutes Ave. Maupin, OR Install Grid Antennas Horizontal Polarity Motorola PTP 58100 (both ends of two microwave links)	CGESD 400 Scenic Drive The Dalles, OR 97058 Install 24" Grid Antenna Horizontal Polarity Motorola PTP 58100 (both ends of one microwave link)	Install Totals
Location											
Project Description											
Backbone Radios											
	Motorola	5.7 Ghz 45 Mbps Backhaul		PTP58600	Hutton		$ 4,800.00		$ 4,800.00		
	Motorola	5.7 Ghz 10 Mbps Backhaul		PTP58100	Hutton	$ 1,307.98	$ 2,615.96	$ 1,307.98	$ 2,615.96	$ 1,307.98	
	Motorola	AC Power Supply		MCP-ACPSSN-13A	Hutton	$ 18.48	$ 55.44	$ 18.48	$ 73.92	$ 18.48	
				Electronics Total		**$ 1,326.46**	**$ 7,471.40**	**$ 1,326.46**	**$ 7,489.88**	**$ 1,326.46**	**$ 18,940.66**
Hardware	Antennas	18" grid				$ 150.00	$ 300.00	$ 150.00	$ 150.00	$ 150.00	
		6' DIA Parabolic with Radome	Radiowaves		Hutton		$ 2,500.00		$ 2,500.00		
Network Switch	Cisco					$ 1,500.00		$ 1,500.00	$ 1,500.00	$ 1,500.00	
Standard Site											
	Ground Kit	9914 Cable			Hutton	$ 46.00	$ 138.00	$ 46.00	$ 46.00	$ 46.00	
	Cable Ties	32" Heavy Duty, 50/pkg			Hutton	$ 25.00	$ 75.00	$ 25.00	$ 25.00	$ 25.00	
	Butyl Tape	4" x 10' Roll			Hutton	$ 75.00	$ 225.00	$ 75.00	$ 75.00	$ 75.00	
	Lightning Arrestor	2ea per Radio			Hutton	$ 324.00	$ 972.00	$ 324.00	$ 324.00	$ 324.00	
	Entry port	4" 2 port	Microflect	95796	Hutton	$ 37.72	$ 113.16	$ 37.72	$ 37.72	$ 37.72	
	Antenna Supports	Site dependant roof and or wall mount steel structural supports			Microflect	$ 550.00	$ 1,650.00	$ 550.00	$ 550.00	$ 550.00	
Battery Plant	APC UPS					$ 350.00	$ 750.00	$ 350.00	$ 350.00	$ 350.00	
				Hardware Total		**$ 3,057.72**	**$ 6,723.16**	**$ 3,057.72**	**$ 5,557.72**	**$ 3,057.72**	**$ 21,454.04**
			Man hours								
Labor	Design and Engineering		40		Sawtooth	$ 850.00	$ 2,550.00	$ 850.00	$ 850.00	$ 850.00	
	Project Management		12		Sawtooth	$ 255.00	$ 765.00	$ 255.00	$ 255.00	$ 255.00	
	Mount Dish		12		Sawtooth	$ 255.00	$ 765.00	$ 255.00	$ 255.00	$ 255.00	
	Installation of Cable		16		Sawtooth	$ 340.00	$ 1,020.00	$ 340.00	$ 340.00	$ 340.00	
	Install enclose, radio, wiring etc		40		Sawtooth	$ 850.00	$ 2,550.00	$ 850.00	$ 850.00	$ 850.00	
	Align and test		40		Sawtooth	$ 850.00	$ 2,550.00	$ 850.00	$ 850.00	$ 850.00	
	Travel		40		Sawtooth	$ 850.00	$ 2,550.00	$ 850.00	$ 850.00	$ 850.00	
				Labor Total		**$ 4,250.00**	**$ 12,750.00**	**$ 4,250.00**	**$ 4,250.00**	**$ 4,250.00**	**$ 29,750.00**
				Total		**$ 8,634.18**	**$ 26,944.56**	**$ 8,634.18**	**$ 17,297.60**	**$ 8,634.18**	**$ 70,144.70**
											Project Total



Proposed Microwave Network Path for Mosier, Dufur, and Maupin Schools

NETWORK DIAGRAM - NOT TO SCALE

Prepared by: Brian Adams, Sawtooth Technologies, LLC

Date: October 12, 2008