

LastMile Connectivity Grant Application



*Submitted by Columbia Gorge Education Service District
(CGESD) on behalf of Dufur School District # 29*

Project Description

Dufur School District in Dufur, OR 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 ESD end. Currently they share this T1 with South Wasco School District in Maupin, 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 Dufur school that will send traffic via microwave signals to a Sawtooth tower on Fir Mountain. From there it's routed via an existing 54Mbps link 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 Dufur 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

Dufur School District is a K-12 school located in Dufur, Oregon, approximately 15 miles south of The Dalles, OR. The district currently employs 55 staff and serves 310 students. The school library also serves as a community library in conjunction with the Wasco county library system.

This project will involve the following staff:

Name	Title	Phone	eMail	Organization
Jack Henderson	Superintendent	541-467-2509	jhender@dufur.k12.or.us	Dufur School
Burt Wyatt	Principal	541-467-2509	bwyatt@dufur.k12.or.us	Dufur School
Virginia Albrecht	Business Manager	541-467-2509	valbrech@dufur.k12.or.us	Dufur School
Charlie Little	Teacher/Network Administrator	541-467-2509	clittle@dufur.k12.or.us	Dufur School
Bryan Alexander	Technology Director	541-298-3140 541-370-5331	balexander@cgesd.k12.or.us	CGESD

Dufur School District #29
802 NE 5th Street
Dufur, Oregon 97021

Phone: 541-467-2509 Fax: 541-467-2589

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.

Labor / Equipment Details

Please see attached Sawtooth document, page 4.

Budget Page

Labor / Equipment Dufur 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 will be recurring monthly charges of \$ 750 per month per circuit for equipment and tower rental. Currently Dufur is billed \$ 335 per month for their end of a T1 connection. Dufur would be able to funnel the funds they normally spend for a T1 to help cover the cost of the maintenance. The district is committed to budgeting for the additional recurring expense and anticipate continued eRate coverage as they have a high level of free and reduced eligible students.

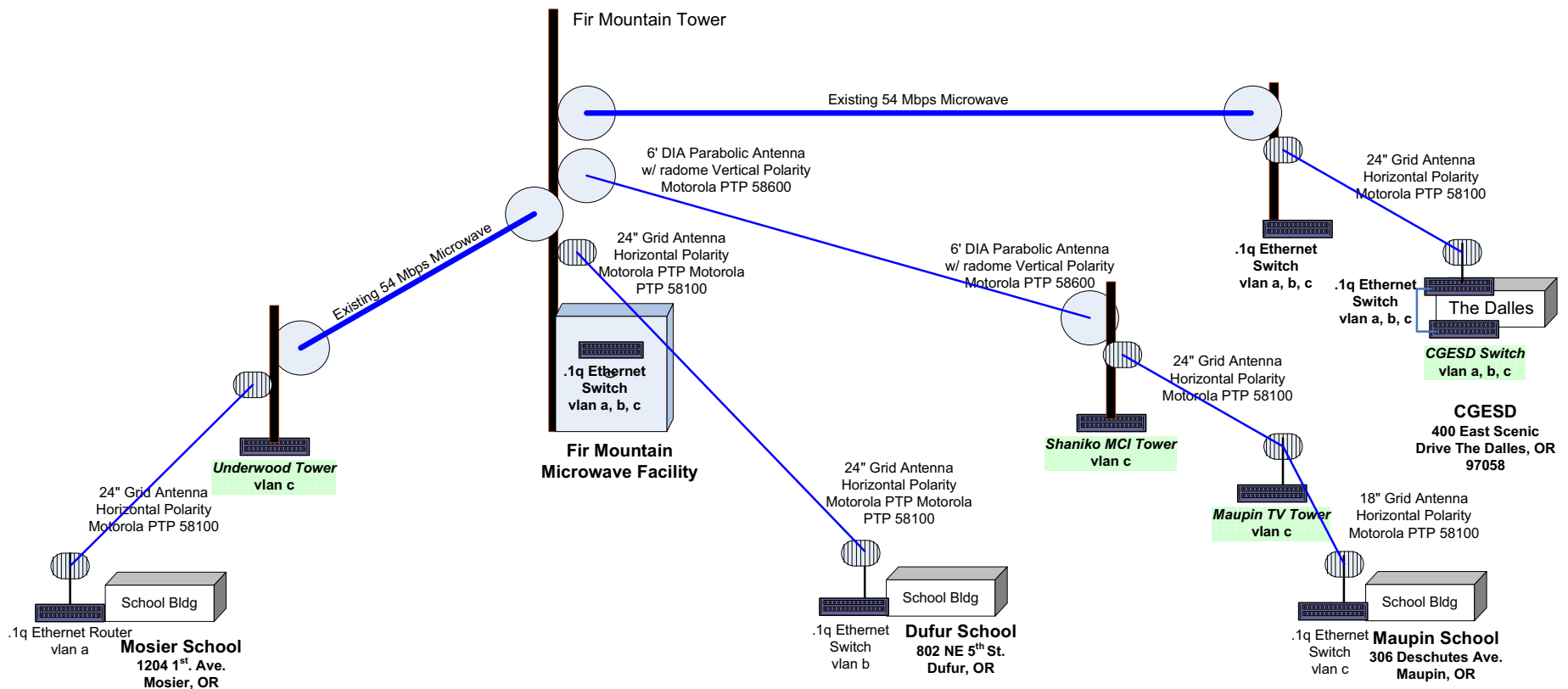
CGESD also pays \$200 for the other end of this connection (1/2 of a shared T1). Likewise, CGESD would be able to move it's funds from the current T1 connection to increase it's bandwidth with LS Networks. These are submitted to USAC for eRate reimbursement. CGESD budgeted this fiscal year for a second T1 to allow Dufur 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	<u>\$ 450</u>
Total	\$ 770
Minus current budgeted amount for T1s (Dufur portion only)	<u>-\$660</u>
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.

CONFIDENTIAL & PROPRIETARY

Item		Details	Brand	Catalog Number	Vender						
Location						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
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			Hutton	\$ 150.00	\$ 300.00	\$ 150.00	\$ 150.00	\$ 150.00	
Network Switch	Cisco	6' DIA Parabolic with Radome Radiowaves			Hutton	\$ 1,500.00	\$ 2,500.00	\$ 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
Labor			Man hours								
	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