

# Feasibility of a Fixed Wireless Access Business

A. Eftekhari  
R. Lewis  
S. Pollock  
B. Weber  
T. Lookabaugh

Interdisciplinary Telecommunications Department  
University of Colorado  
Campus Box 530, Boulder, CO 80309  
Contact Email: [Tom.Lookabaugh@colorado.edu](mailto:Tom.Lookabaugh@colorado.edu)

Submitted: November 13, 2002

Topic: Broadband Deployment

**Abstract**—The capital markets are currently quite pessimistic about the feasibility of new telecommunications businesses in general and fixed wireless businesses in particular. We undertook a detailed bottoms-up business feasibility analysis of a fixed wireless broadband access business in a currently underserved suburban community. Our analysis suggests that such a business is indeed feasible with only modest capital requirements, giving us reason for optimism for the fixed wireless access business in general as stakeholders recover from their current depression.

## I. INTRODUCTION

The demand for high-speed internet Access continues to increase; the adoption of such broadband services currently exceeds that of any other digital product in U. S. history. Further, although broadband is available to many subscribers throughout the U.S., there are still suburban and rural neighborhoods that are not served, and many more where only a single provider of the highest volume platforms – cable modem and DSL – is available. Provision of broadband on a fixed wireless access platform has the potential for very rapid infilling of areas of unserved and latent demand.

However, since the rapid decline in technology business starting in 2000, the capital markets have become leery of most telecommunications businesses and in particular new telecom service providers. Is the capital markets' pessimism well founded, or are nascent fixed wireless access businesses subject to an irrational market (in the same way that they might have been overfunded in the late 90's)? The viability of fixed wireless access businesses is important to the entire wireless community.

In this paper we have taken the approach of performing a bottoms up analysis of the feasibility of a fixed wireless access business in a suburban community (Superior, Colorado). The analysis considers each of four key areas:

*Regulatory Factors* – fixed wireless access can conceivably be delivered over both licensed and unlicensed spectrum. Both local and federal regulation is relevant.

*Technical Factors* – several wireless transmission standards are potentially relevant to fixed wireless access. We considered IEEE 801.11a, 802.11b, 802.16.1 (LMDS) and 80.16.3 (MMDS), comparing factors such as operating frequency, data rates, coverage distance, line-of-sight characteristics, reliability, and security.

*Economic Factors* – We considered the basic economic drivers for a fixed wireless business, including equipment and infrastructure costs, pricing and demand, competition, and availability of capital. We focused on a low capital requirement “bootstrap” model consistent with current capital scarcity.

*Other Factors* – We evaluated other factors relevant to business feasibility, including ease of infrastructure deployment, ease of consumer premises equipment deployment, and scalability.

Our analysis included interviews with experts in regulatory and business aspects of wireless, review of local regulations in the target community, propagation modeling, a survey of the local population covering key factors such as competition, willingness to pay, and service requirements, and integrated business modeling.

Our conclusion is quite optimistic. With a modest initial capital requirement, a fixed wireless business should be feasible in our target community. This result bodes well for emergence of fixed wireless access businesses as the capital markets and general confidence in telecommunications recovers from its current depressed state.