

PLANNING CONNECTION

Birchler Arroyo Associates, Inc.

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Only the beginning.....

Changes In Wireless Industry To Increase Demand for New Facilities

A new generation of wireless technology has been launched in Japan and will be implemented throughout the world over the next several years. This will transform second generation digital voice communications to multimedia 3G (third generation) systems. 3G will provide high-speed mobile DSL connections for data transfer, higher quality voice connections, video phone capabilities, virtual TV and radio stations, online gaming, and enhanced 911 features. Numerous business applications will be offered by this high-speed data connection.

The following highlights the evolution of the wireless industry. It is currently moving from 2G levels into 2.5G and 3G technology systems. The interim 2.5G technology, which is being implemented now in many areas, will increase bandwidth but will not offer the high speed data transmission of 3G.

Phases	1G Analog	2G Digital	3G Multimedia	4G Holographic & Beyond
Key Services	Analog Voice & No Data	Digital Voice & Slow Data	High-Speed Mobile DSL & Global Roaming	Holographic Images & Enhanced Virtual Applications
Timeframes U.S.	1982-89	1990-2001	2002-2009	2010 Japan

Sources: Wingspan Acquisitions, Inc. & LGC Wireless¹

What does all this mean? The number of U.S. wireless users was estimated to be 109 million in 2000, with over 104,000 U.S. cellular sites.² The current 2002 estimate is 134 million U.S. subscribers. By 2006, Strategy Analytics, Inc. forecasts 245 million U.S. wireless subscribers. Worldwide subscribers are

estimated to reach 620 million by 2010. Some forecast as high as 1.32 billion worldwide subscribers in 2010. In addition, the average number of monthly minutes used per subscriber grew from about 110 to over 400 from 1995 to 2001, with a continuing trend upward. During this same period, the cost per minute dropped 80 percent.³

According to industry analysts from Wingspan Acquisitions, the new 3G technology will increase efficiency of the system, but it will not result in the need for lower tower heights or fewer towers. In fact, because the number of users and the amount of usage per subscriber will trend upward, there will be a demand for more sites. There will also be a desire to fill in gaps in existing coverage areas.

Satellite systems are not expected to replace ground-based wireless for the foreseeable future. Today, the primary target of these systems is military applications. Satellite systems one day may augment the global connectivity goal of 3G and 4G technology, filling in gaps in remote coverage areas.

The industry will continue to be challenged by tower height, topography/terrain, zoning, and "constructability" issues. Opportunities are better than ever to bring industry and community needs together as part of a comprehensive planning process.

Wireless Communications Master Plan Services

Birchler Arroyo Associates, Inc. offers Wireless Master Plan services to municipal clients. Our staff offers unique expertise and experience in the wireless planning industry. Rod Arroyo, Vice President, assisted in the planning analysis for three original FCC cellular license applications in 1982. He has provided a wide range of planning services for Michigan communities since 1986, including the preparation of Wireless Master Plans.

Marlin Rubin, Senior Associate, was formerly with two wireless communications companies where he served as a wireless site acquisition specialist. He provides a unique perspective to the community wireless master plan process.

¹ Cunningham, Susan, *Wireless Third Generation Technology: A Communication Revolution*. Wingspan Acquisitions, Inc. & LGC Wireless.com

² Cellular Telecommunications & Internet Association, 2001

³ Wall Street Journal, April 17, 2002