



*Valuation, Management & Technical Consulting*

**DETERMINATION OF THE  
FAIR MARKET VALUE OF THE CERTAIN PORTIONS OF  
FCC LICENSED WIRELESS SPECTRUM  
PROPOSED FOR REALIGNMENT BY  
NEXTEL COMMUNICATIONS, INC.  
UNDER FCC WT DOCKET NO. 02-55  
AS OF DECEMBER 31, 2002**

Prepared for:

Verizon Wireless  
Bedminster, New Jersey

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Valuation, Management & Technical Consulting

October 23, 2003

Mr. Donald C. Brittingham  
Director – Wireless/Spectrum Policy  
Verizon Communications  
1300 I Street NW  
Suite 400W  
Washington, DC 20005

Mr. John Bareham  
Director – Business Development  
Verizon Wireless  
180 Washington Valley Road  
Bedminster, NJ 07921

Dear Messrs. Brittingham & Bareham:

Kane Reece Associates, Inc. has completed an analysis and study of the fair market value of the frequency spectrum associated with the December 2002 proposal by Nextel Communications, Inc. (“Nextel”) before the Federal Communications Commission (“FCC” or the “Commission”) to modify its licenses in conjunction with a realignment of the 800 MHz band. The specific proposal is under FCC WT Docket No. 02-55, *In the Matter of Improving Public Safety Communications in the 800 MHz Bank, Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels*. (to be referred to as the “Nextel Proposal”).

Nextel Communications has proposed to the Federal Communications Commission (“FCC”) that it relinquish a substantial amount of its frequency spectrum in return for other frequency spectrum. Nextel claims its proposal will make additional spectrum available for public safety communications and reduce interference to public safety communications.

The purpose of our analysis and appraisal will be for submission to the FCC in support of the “Comments of Verizon Wireless to Supplemental Comments of the Consensus Parties”, dated February 10, 2003. This report will determine the fair market value of the subject spectrum addressed in the Nextel Proposal. This is the sole purpose of our report.

This report develops an estimate of the fair market value of the spectrum Nextel proposes to give up and the value of the spectrum it proposes to acquire, and concludes that the net financial gain to Nextel under its proposal would be \$6.5 billion.

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Messrs. Brittingham & Bareham  
October 23, 2003  
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The following Executive Summary outlines our analysis and conclusions found in our appraisal report.

Respectively Yours,

*Kane Reece Associates, Inc*

KANE REECE ASSOCIATES, INC.

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## **Executive Summary**

### **Introduction**

Nextel has proposed to the FCC that it relinquish its licenses for the following:

1. 4 MHz guard band at 700 MHz;
2. 8.5 MHz (Nextel's estimate) of SMR spectrum between 851/861-806/816 MHz; and
3. 3.8 MHz of spectrum at 900 MHz.

The frequency bands that Nextel proposes to be granted are:

1. 6 MHz (866/869-821/824) band at 800 MHz adjacent to the frequencies it will continue to operate and that are also adjacent to cellular operators, and
2. 10 MHz at 1.9 GHz (1990/1995 – 1910/1915) adjacent to existing PCS operations.

The frequency spectrum that Nextel proposes to relinquish is shared with other users, and is not suitable for the wideband, high-speed data services that CMRS operators are now beginning to provide and are planning to expand in the near future. The frequency spectrum that Nextel proposes it be granted, would enable it (or any user of the spectrum) to offer wideband, high-speed data services and increase its voice channel capacity. Consequently, the spectrum that Nextel seeks has a significantly higher fair market value ("FMV") than the spectrum it would surrender in exchange.

### **Valuation**

Nextel proposes it be granted a 6 MHz block in the 800 MHz band that has a FMV of \$3.17 billion and a 10 MHz block in the 1.9 GHz band that has a FMV of \$5.28 billion for a total of \$8.45 billion.

We estimate the FMV of the spectrum that Nextel proposes to relinquish to be \$31 million at 700 MHz, \$898 million at 800 MHz, and \$331 million at 900 MHz, for a total of \$1.26 billion. Consequently, our estimate of the fair market value of the frequency spectrum that Nextel proposes that it be granted by the Commission relative to the frequency spectrum Nextel proposes to relinquish is:

**\$7.2 billion**

Additionally, and conditionally, Nextel proposes to pay some other spectrum users up to \$700 million (in present value terms) for their costs involved in implementing Nextel's

## **Executive Summary (Cont.)**

plan. The overall net gain to Nextel, therefore, after considering the present value of its proposed relocation costs, on a FMV basis is:

**\$6.5 billion**

### **Methodology**

We began our analysis and valuation by determining the Business Enterprise Value of the vast majority of the US wireless companies that comprise that industry. The Fair market values ("FMV") of these companies and their respective assets have been determined through a variety of estimation techniques including:

- The income approach employing the discounted cash flow ("DCF") method.
  - A "start-up" DCF valuation model has been developed for 10 MHz of PCS spectrum.
  - DCF valuation models have been developed for non-publicly traded domestic wireless companies plus Nextel.
- Market Approach
  - A publicly traded guideline company analysis has determined the business enterprise value ("BEV") of the domestic wireless firms.
  - A comparable wireless system sales analysis has been conducted to confirm the reasonableness of the guideline company analysis.
  - The guideline company analysis also produced a market multiple analysis which has been applied to the same companies for which the DCF analysis was conducted. Using a weighted average, individual company BEVs are concluded.
- Cost Approach
  - Historical cost basis is used as a proxy for the wireless companies' tangible asset fair market values.
  - Historical cost per gross add data by company has been used to determine the wireless industry customer relationship intangible asset value.

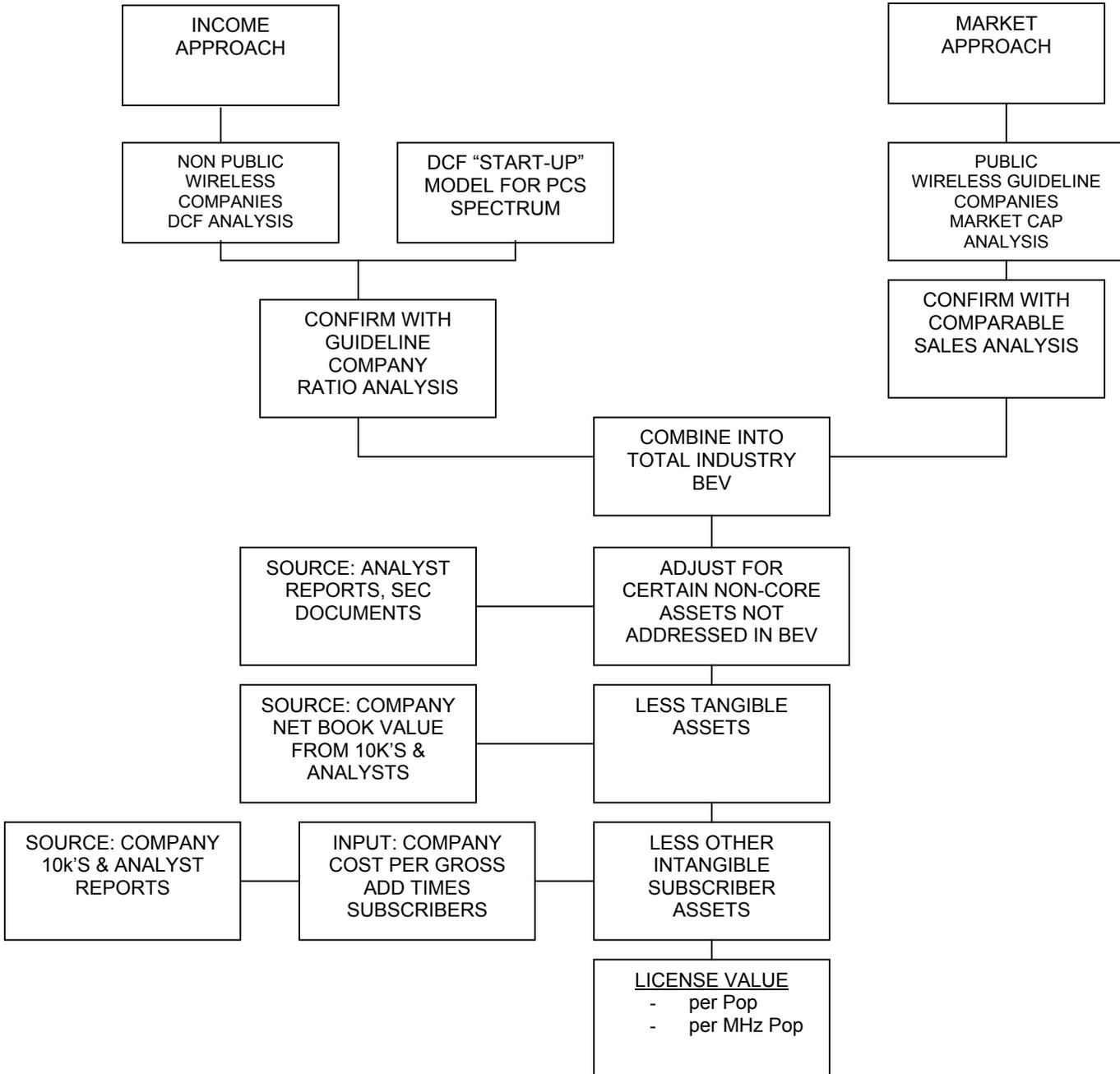
Using the above data, by wireless company, we have compiled the aggregate domestic wireless industry BEV. From this value, we determine the wireless industry license or spectrum value by:

- Adjusting the BEV for any working capital items, international and non-wireless assets,
- Deducting the net tangible asset value
- Deducting the customer relationship value

## Executive Summary (Cont.)

We then calculate the remainder or license value on a per MHz Pop basis. With the understanding that we are using the average value of wireless industry spectrum to determine the fair market value to a buyer of the spectrum, this average value is then applied to the Nextel spectrum to be surrendered and to be granted and adjustments are made based on relative impairment considerations. The following is a flow chart of that process.

### Nextel Proposed Bandwidth Realignment Valuation Process



## Executive Summary (Cont.)

In conducting this appraisal, we relied on industry documents and Commission reports and submissions and applied standard appraisal techniques, conforming to the Uniform Standards for Professional Appraisal Practice of the Appraisal Standards Board, to develop the opinions of value as stated herein.

Fair market value, as used herein, is defined as the price, in cash or equivalent, that a buyer could reasonably be expected to pay and a seller could reasonably be expected to accept, if the property were exposed for sale in the open market for a reasonable period of time, both buyer and seller being in possession of the pertinent facts, and neither being under compulsion to act, as of a certain date.

### Conclusion

Based upon publicly available information from the providers, wireless industry investment banking analysts, company press releases, and other sources, the following FMV's have been determined as of December 31, 2002:

#### Nextel Existing Spectrum Proposed to be Relinquished

	<u>FMV (\$Million)</u>
700 MHz (4 MHz):	\$ 31
800 MHz (8.5 MHz):	898
900 MHz (3.8 MHz):	<u>331</u>
Total License value Relinquished:	\$ 1,260

#### Nextel Proposed Spectrum to be Granted

	<u>FMV (\$Million)</u>
800 MHz (6MHz):	\$ 3,167
1.9 GHz (10MHz):	<u>5,278</u>
Total:	\$ 8,445
License Value Gained	\$ 7,185
Nextel Proposed Relocation Costs	<u>(700)</u>
Net Nextel Gain	<u>\$ 6,485</u>

We note that our valuation conclusions are probably conservative due to the fact that December 2002 was a relative low point in public wireless equity values and that the FMV of the spectrum derived herein would most likely increase as of a more current date.

## **LIMITING AND GENERAL SERVICE CONDITIONS**

- 1) We have relied on information listed in Appendix B and other material which we believe to be true without conducting an independent analysis.
- 2) Kane Reece Associates, Inc. is not responsible for the impact that economic events occurring after the date of this report may have on this valuation and we have no obligation to update this report unless subsequently engaged to do so.
- 3) We have made no investigation of, and assume no responsibility for, the title to the assets considered in this report nor for any undisclosed liabilities of any of the companies considered in this report.
- 4) All statements in this appraisal are based on the best knowledge and belief of Kane Reece Associates, Inc.
- 5) Neither Kane Reece Associates, Inc. nor its officers and employees have any present or prospective interest in the assets that are the subject of this report, nor is there any personal interest or bias with respect to the parties involved. Principals and/or staff of Kane Reece Associates, Inc. may hold small amounts of publicly traded securities, either directly or indirectly through mutual funds for investment purposes, in the parties involved. However, any such holdings are de minimus in nature and in no way compromise Kane Reece Associates, Inc.'s or the appraisers' independence in rendering an unbiased appraisal of the property that is the subject of this report.
- 6) Kane Reece Associates, Inc. is not required to give testimony in court, or be in attendance during any hearings or depositions, with reference to the company being appraised, unless previous arrangements have been made.
- 7) This appraisal is valid only for the purpose(s) stated herein, for the appraisal date specified herein, and no one may rely on the report for any other purpose(s). You agree to hold Kane Reece Associates, Inc., harmless from any liability, including attorneys' fees, damages or cost that may result from any improper use or reliance by you or third parties. We will maintain the confidentiality of all conversations, documents provided to us, and the contents of our reports, subject to legal or administrative process or proceedings. These conditions can be modified only by written documents executed by both parties.

KANE REECE ASSOCIATES, INC.

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**PART I – INTRODUCTION**

Kane Reece Associates, Inc. has completed an analysis and study of the economic or fair market value of the frequency spectrum associated with the December 2002 proposal by Nextel Communications, Inc. (“Nextel”) before the Federal Communications Commission (“FCC” or the “Commission”) to modify its licenses in conjunction with a realignment of the 800 MHz band. The specific proposal is under FCC WT Docket No. 02-55, *In the Matter of Improving Public Safety Communications in the 800 MHz Bank, Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels*. (to be referred to as the “Nextel Proposal”).

Verizon Wireless (“Verizon”), a joint venture of Verizon Communication Inc. and Vodafone AirTouch Plc (“Vodafone”), has engaged Kane Reece Associates, Inc. (“Kane Reece”) to analyze Nextel’s proposal and appraise the license assets proposed to be contributed by Nextel, allegedly to free up portions of the 700, 800 and 900 MHz bands in order to reduce or eliminate real or potential interference with the Public Safety communications spectrum. Correspondingly, we have been asked to appraise the value of the license spectrum that Nextel proposes to receive in return for its contributed spectrum and to compare those values.

We understand that there is currently interference in the 800 MHz block in which Nextel, Cellular, Business Radio and Industrial/Land Transportation Radio (“B/ILT”) and Public Safety (“PS”) reside. Furthermore, Nextel, B/ILT and PS channels are interleaved or overlapped in the lower 800 MHz band and PS and B/ILT technology is not compatible

with commercial digital technology. The following provides a summary of our understanding of Nextel's proposal:

- Nextel gives up approximately 16.3 MHz of spectrum in the 700, 800, and 900 MHz bands, some portions of which are frequency cleared and some not and some portions that are contiguous to each other as well as to Nextel's retained 800 MHz spectrum and some not. In addition, the 700 MHz spectrum is not now expected to be usable for cellular-type services in the foreseeable future.
  - 4.0 MHz of 700 MHz guard band (encumbered and restricted).
  - 3.8 MHz of 900 MHz band, which is interleaved, in certain instances encumbered and some channels not fully national in scope.
  - 8.5 MHz of 800 MHz band, which is interleaved, in certain instances encumbered and not fully national in scope.
- In exchange, Nextel receives approximately the same amount of spectrum, however, unencumbered, contiguous and national in scope, as follows:
  - Immediate allocation of 10.0 MHz of contiguous G-band PCS spectrum (1910/1915 – 1990/1995).
  - 6.0 MHz of PS channels (821/824 – 866/869) on completion of relocation.
- B/ILT would keep its current allocation of 8.5 MHz in the 800 MHz band and receive 3.8 MHz of Nextel's 900 MHz spectrum at 896/901 – 935/940 where B/ILT currently is located. Those who volunteered to move to 900 MHz would receive twice as much spectrum but relocation reimbursement would be limited to only costs associated with a move within 800 MHz.
- PS would receive the 4 MHz of 700 MHz guard band spectrum currently assigned to Nextel plus 2 - 2.5 MHz of the 800 MHz band.
- Nextel is offering to pay the required relocation costs up to \$850 million for the relocation of public safety and B/ILT.

Our review and analysis of the Nextel Plan indicates that while it is nearly "bandwidth neutral" i.e. giving up 16.3 MHz of bandwidth for 16.0 MHz of new bandwidth, the new bandwidth received results in:

- Nextel gaining 6 MHz unencumbered, contiguous spectrum in the 800 MHz band adjacent to its existing, retained 10 MHz SMR operation. Assuming FCC rule changes, this could facilitate the implementation of

CDMA technology or other technology that employs blocks of contiguous spectrum to achieve higher bandwidth efficiencies and therefore higher capacity.

- Nextel gaining 10MHz of new PCS spectrum (G-band) that possibly could be used in conjunction with other PCS bands. Half of this spectrum would be close to McCaw's (a shareholder in Nextel) New ICO spectrum (MSS) which is being considered for repurposing from satellite to terrestrial use.

Kane Reece Associates, Inc. ("Kane Reece"), Westfield, New Jersey was retained by Verizon Wireless to provide a supportable basis for determining the fair market value ("FMV") of the Nextel spectrum to be given up and the spectrum to be obtained under the Nextel Proposal spectrum realignment. As part of our engagement, we have been requested to determine;

1. The FMV of the 10 MHz spectrum in the G block of the 1.9 GHz band and separately, 6 MHz of spectrum in the upper 800 MHz band that Nextel would gain, and
2. The FMV of the approximate 16.3 MHz of spectrum in the 700, 800, and 900 MHz bands that Nextel would give up.

Factors addressed in our analysis of the current Nextel spectrum value are:

1. The influence of broad, contiguous spectrum on the value of the subject spectrum, and
2. The extent to which some of the present Nextel bandwidth is encumbered or not cleared or prone to interference with the PS and B/ILT channels.

The purpose of our analysis and appraisal will be for submission to the FCC in support of the "Comments of Verizon Wireless to Supplemental Comments of the Consensus Parties", dated February 10, 2003 and in general, expressing opposition to the Nextel proposal based on the significant incremental value that Nextel is receiving for free from the FCC, among other considerations. This report will determine the fair market value of the subject spectrum outlined above. This is the sole purpose of our report.

Fair market value, as used herein, is defined as the price, in cash or equivalent, that a buyer could reasonably be expected to pay and a seller could reasonably be expected to accept, if the property were exposed for sale in the open market for a reasonable period of time, both buyer and seller being in possession of the pertinent facts, and neither being under compulsion to act, as of a certain date.

Kane Reece Associate's personnel have visited with Verizon Wireless personnel on May 12, June 18, and July 28, 2003 to discuss the Nextel proposal with Verizon management. Various public industry sources of information pertaining to the Wireless Industry, along with certain Verizon analyses of the Nextel proposal were provided to us through facsimile, express mail, e-mail, and telephone conversations. We also held numerous telephone conferences with Verizon's network engineering and management personnel. Our communications with Verizon personnel were conducted solely for the purpose of our analysis of the Nextel proposal.

In the course of our analysis, we reviewed numerous public wireless company SEC 10K and 10Q documents, FCC documents and web sites, various investment banker analyst reports, certain industry publications and financial databases. A list of documents reviewed is contained in Appendix B.

The procedures and methods used for the appraisal of the license assets of the wireless industry correspond with generally accepted valuation techniques. Consistent with the guidance contained in the Uniform Standards of Professional Appraisal Practice of the Appraisal Standards Board, the report is structured to address the following information.

A summary of values for the spectrum realignment is contained in the executive summary. A description of the Nextel Proposal is provided in Part II. Parts III and IV provide a business enterprise valuation of the wireless companies that comprise the vast majority of the industry. A business enterprise is defined<sup>1</sup> as "an entity pursuing an

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<sup>1</sup> USPAP 2002 edition, The Appraisal Foundation

economic activity”. A business enterprise evaluation is defined<sup>2</sup> as the “act or process of determining the value of a business enterprise or ownership interest therein”.

In Part III, we discuss the income approach to value, which uses a standard industry method of valuation, the discounted cash flow (“DCF”). Here we include a discussion of the industry cost of capital and general description of the DCF method. Our utilization of the DCF method is first applied to a cash flow forecast model developed by Kane Reece, using industry operational and financial metrics, related to the “start-up” of an incremental wireless business employing a newly acquired 10 MHz spectrum segment in the 1.9 GHz band. Secondly, our DCF method is applied to four wireless company cash flow projections representing a consensus or average forecast of several investment banking firms that follow each of the four companies. The companies valued under this method include Verizon Wireless, Cingular Wireless, and T-Mobile, all three of which are major wireless industry firms and are not publicly traded and therefore do not have a public market value indicator. The fourth firm is Nextel Communications, which is public and is the subject of this report.

Part IV of this report continues our business enterprise valuation of the wireless industry through the utilization of the market approach to value. Under the market approach, we have employed two methodologies, namely the public guideline company method and the comparable sales method. Since many of the domestic wireless industry firms are publicly traded, this method, accompanied with the income approach discussed in Part III, enables us to determine the business enterprise value of virtually the entire U.S. wireless industry.

Part V discusses our approach to derive the FMV of the industry participant’s license spectrum asset. This section also discusses the tangible assets and customer relationship intangible assets present in all wireless companies and presents a summary market cap and Business Enterprise Value (“BEV”) derived enterprise value for the industry’s composite companies, their respective license values and the wireless industry’s license value expressed on a per MHz pop basis.

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<sup>2</sup> [www.appraisors.org](http://www.appraisors.org)

Part VI provides a comparative evaluation and conclusion for the spectrum proposed to be given up and the spectrum to be obtained by Nextel. We then reach our valuation conclusion opinion.

The exhibits section of this report provide the financial and market analysis schedules used in reaching our valuation conclusion. Appendix A provides the reader with an overview of the economy and the wireless industry as of the valuation date. Appendices B through E provide additional supplemental information to our analysis.

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**PART II – DESCRIPTION OF THE NEXTEL PROPOSAL**

**Background**

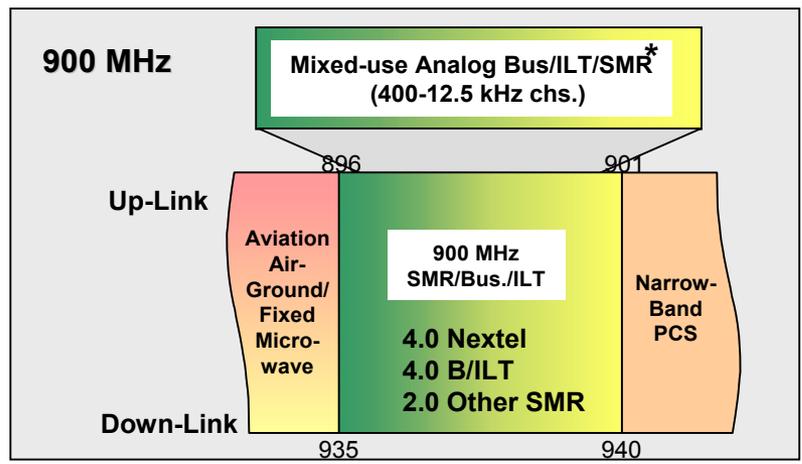
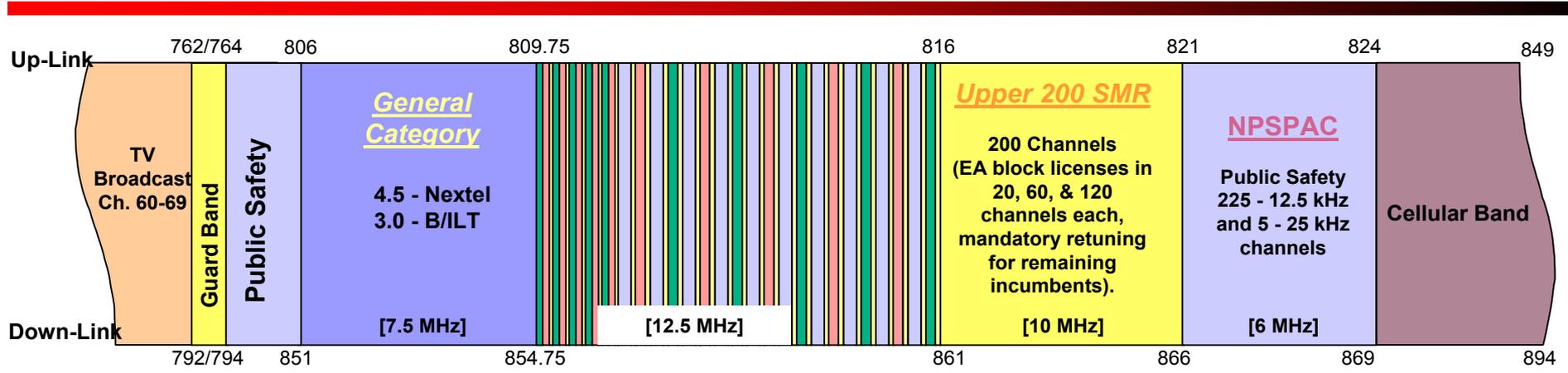
The Specialized Mobile Radio (SMR) service was established by the FCC to provide for land mobile communications on a commercial basis. In total today, 21.5 MHz of SMR spectrum is available in the 800 MHz band in addition to Business and Industrial/Land Transportation (B/ILT) spectrum blocks, public safety spectrum blocks, the original cellular telephone block of spectrum and other uses. In addition, 10 MHz of spectrum is available for SMR and B/ILT uses in the 900 MHz band.

Nextel currently possesses licenses to operate services in the spectrum across three different bands, nominally the 700 MHz, 800 MHz and 900 MHz bands. (See Figure 1.)

Nextel currently operates specialized mobile radio (SMR) service in two distinct portions of the 800 MHz spectrum band. One portion of its licensed spectrum in the 800 MHz band is labeled Upper 200 SMR and is a 10 MHz “contiguous block” of spectrum (816-821 MHz up-link, 861-866 MHz down-link, channels 401-600) in most markets in the U.S. that Nextel will continue to use. The other portion of the 800 MHz band (channels 1-400) is the spectrum that Nextel proposes to relinquish and that Nextel calculates to be 8.5 MHz. This spectrum includes general category pool channels, numbered 1-150, and designated as blocks D, DD, E, EE, F and FF with 25 continuous channels each and interleaved channels designated by the letters G through V (16 in total) with each letter representing five channels (Block G for example includes channels 201, 241, 281, 321, and 361). Nextel’s licenses for these groups varies by market. In addition, Nextel

**FIGURE 1**

**Nextel Current Spectrum Allocation**



<b>NEXTEL Holdings:</b>	<b>General</b>	<b>Interleaved</b>	<b>Upper 200</b>	<b>Total**</b>
POPs Covered (M)	248	254	281	281
Total MHz-POPs (M)	1,575	949	2,476	5,000
Avg. MHz per covered POP	4.5	4	9.5*	18
Level of encumbrance	High	High	Low	
Level of interference	Medium	High	Medium	

\* 10 MHz in most markets; at least 6 in all.

\*\*NEXTEL also has licenses for 4 MHz virtually nationwide in the 700MHz "Guard Band" frequencies (Not currently usable due to incumbency of UHF Television); and 2 to 4MHz in most markets in the 900MHz SMR band (acquired in secondary market from paging operators).

has licenses for some channels between channel 151 and channel 200 not included with the general category pool or with interleaved channels.

Nextel holds licenses for about 3.8 MHz of SMR spectrum in the 900 MHz band interleaved within a 10 MHz block with B/ILT and other SMR channels. Nextel has not yet made any significant cellular Mobile Radio Service (“CMRS”) operational use of this spectrum.

Nextel also holds licenses for 4 MHz of “guard band” in the 700 MHz band. Licensees of the 700 MHz spectrum block (762-764 MHz up-link, 792-794 MHz down-link) are prohibited from using this spectrum for any CMRS or ESMR type of service. Barring a major change in the public safety spectrum, it will still probably maintain its status as a guard band, subject to significant operational restrictions. Nextel has yet to employ this spectrum for any major uses.

### **Nextel White Paper Submitted To FCC And Subsequent Developments**

On November 21, 2001, Nextel Communications submitted a White Paper to the Federal Communications Commission (FCC) recommending changes to the current 700 MHz, 800 MHz and 900 MHz spectrum band plans. The White Paper primarily addressed the serious issue of interference to public safety communications from the operations of cellular systems (predominately Nextel’s) in the 800 MHz band.

In response to Nextel’s White Paper, the FCC issued a Notice of Proposed Rule Making (NPRM, FCC Docket 02-81) on March 14, 2002, to solicit comments and to investigate alternative solutions to the problems Nextel outlined.

On August 7, 2002, Nextel Communications submitted a new proposal, referred to as the “consensus plan”, that represents a compromise agreement between itself, some private wireless carriers affected by that proposal, and some public safety organizations (collectively the “Consensus Parties”). On December 24, 2002, Nextel, in conjunction with the consensus parties, presented a detailed filing to the FCC that provided

supplemental information in support of its plan for improving public safety communications in the 800 MHz band.

One key element of the Nextel and consensus parties submissions is that Nextel proposes that it release its entire licensed blocks of spectrum in the 700 MHz band (4 MHz), 900 MHz band (3.8 MHz) and the part of its 800 MHz licensed spectrum that is generally interleaved or otherwise encumbered with public safety/B/ILT services (8.5 MHz). In return, Nextel proposes to receive (1) a contiguous 6 MHz block of the 800 MHz band (821-824/866-869 MHz), contiguous with its existing non-interleaved block of 800 MHz spectrum (Upper 200 SMR), that would be vacated by public safety in the proposed plan and (2) a 10 MHz block of contiguous spectrum at 1.9 GHz adjacent to the PCS "C Block" band (See Figure 2). As part of its proposal, Nextel has agreed to fund up to \$850 million for public safety and private wireless relocations required to implement its proposal.

This report addresses the values of the spectrum or licenses to be exchanged in the Nextel proposal.

### **Specific Considerations Of The Nextel/Consensus Parties Proposal**

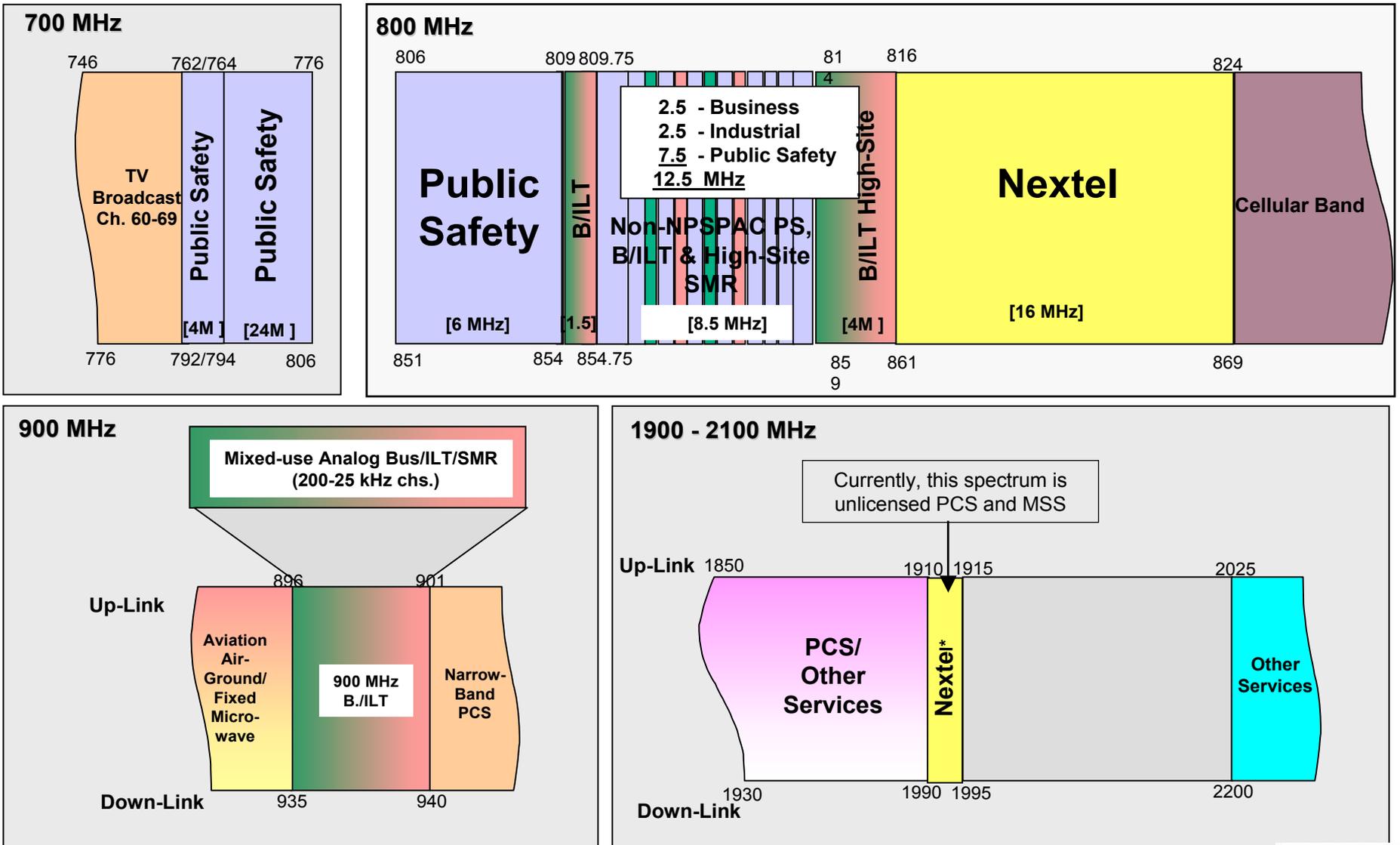
#### **Spectrum To Be Vacated By Nextel**

##### **800 MHz Band (8.5 MHz)**

Nextel has SMR spectrum in several different portions of this band as described above. The spectrum license was granted in 25 KHz channel pairs.

SMR general category pool spectrum was auctioned as six 25-channel pair contiguous blocks in each of 175 economic areas. The spectrum is shared with B/ILT and public safety systems on an overlay basis. Nextel won the bulk of the auctioned economic areas/channel blocks (800 out of 1053 licenses) in Auction #34, paying approximately \$231.6 million in September 2000, at an average of \$0.147 per MHz Pop. The B/ILT and public safety occupants of this spectrum block encumber Nextel's overlaid spectrum resulting in the potential for co-channel interference between Nextel and incumbent B/ILT and public safety licensees. Importantly these incumbents are not

**FIGURE 2**  
**Nextel Proposed Spectrum Allocation**



required to relocate out of the band and Nextel is required to protect incumbents from any harmful interference by its operations.

Nextel is licensed in the interleaved block of spectrum (811.0125-815.6875 MHz up-link/856.0125-860.6875 MHz down-link). The SMR spectrum is arranged in sixteen non-contiguous 5 channel blocks in 175 economic areas. The SMR channel blocks are interleaved with public safety and B/ILT channel blocks throughout. Of the 2,800 licenses, Nextel acquired 2,579 in Auction #36, paying approximately \$27 million in December 2000, for an average of \$0.03 per MHz Pop. In addition, about 50% of the Business channels and 67% of the ILT channels are employed for SMR, some of which are licensed by Nextel.

### **900 MHz Band (3.8 MHz)**

Nextel is licensed for approximately 3.8 MHz of spectrum in the 900 MHz band. The relevant spectrum in this band (896-901 MHz up-link/935-940 MHz down-link) is designated mixed-use for analog B/ILT and SMR on an interleaved basis. The spectrum is channelized into 400-12.5 KHz channel pairs. This compares to the 25 KHz channel pairing licensed for SMR in the 800 MHz band. The spectrum for SMR was auctioned as 20 ten-channel pair blocks. Auction 7, concluded in April 1996, produced \$204 million in revenue or approximately \$0.15 per MHz Pop.

Nextel will vacate its approximate 3.8 MHz of SMR spectrum in this band. This spectrum is essentially nationwide in coverage but Nextel has recently announced plans to begin the deployment of iDEN Motorola cell equipment for this band in order to provide its CMRS service.

### **700 MHz Band (4 MHz)**

The relevant spectrum in this band (762-764 MHz up-link/792-794 MHz down-link) is designated as B Block Guard Band. (Other licensees hold the other 2 MHz.) The 700 MHz guard bands consist of a total of six megahertz of paired spectrum divided into a 2 MHz A Block and a 4 MHz B Block. The Guard Bands were allocated to provide for the

efficient use of 700 MHz commercial spectrum while ensuring adequate protection to public safety operations in adjacent bands. This band cannot be employed for CMRS.

Nextel proposes to vacate its entire 4 MHz of licensed spectrum at 700 MHz in the proposal. In 92 of the top 100 cities nationwide, Nextel is the 700 MHz Guard Band B Block Guard Band Manager/licensee. Nextel's 700 MHz licenses cover approximately 83% of the U.S. population. This band is adjacent to a public safety spectrum block on one side and UHF broadcast television spectrum on the other. Until the broadcast television transmitters are removed in digital television proceedings, this block is encumbered with those transmissions.

Nextel purchased its 700 MHz spectrum in two separate auctions, one in September 2000 and the other in February 2001. Nextel also acquired two 700 MHz Guard Band licenses in March 2002. Nextel paid a total of \$354,711,000 for these licenses which equates to an average of \$0.37 per MHz Pop.

#### Spectrum To Be Acquired By Nextel

##### **800 MHz Band (6 MHz)**

In return for the spectrum Nextel would contribute for the realignment of the public safety and other spectrum, the company is asking to be assigned 6 MHz of contiguous spectrum adjacent to its existing 10 MHz block in the Upper 200 SMR block (821-824 MHz up-link/866-869 MHz downlink channels 601-720) after the current public safety users are moved under the plan. This then would give Nextel a contiguous 16 MHz block of spectrum in the 800 MHz band in most economic areas.

##### **1.9 GHz Band (10MHz)**

Also, in return for contributed spectrum, Nextel is requesting a contiguous 10 MHz block of paired spectrum at 1910-1915 MHz up-link/1990-1995 MHz down-link for CMRS services. The up-link band is currently allocated to unlicensed PCS, but there has been little use of the band for that purpose. The down-link band is currently used for the Broadcast Auxiliary Service (BAS), but a plan has been developed to clear the band for

other services. Adjacent to this spectrum block is the PCS C block and the remainder of the unlicensed PCS block.

**Summary**

In summary, Nextel proposes a bandwidth “neutral” realignment of spectrum: give up 4 MHz in the 700 MHz band, 3.8 MHz in the 900 MHz band and 8.5 MHz of the 800 MHz band in exchange for 6 MHz adjacent to its existing 10 MHz in the Upper 200 SMR block of the 800 MHz band and 10 MHz in the 1.9 GHz band.

**Nextel Proposed Spectrum Realignment**

	<u>Band</u>	<u>Bandwidth</u>	<u>Description</u>
To Be Given Up:	700 MHz	4.0 MHz	Guard Band
	900 MHz	3.8 MHz	Mixed use analog business/ILT/SMR
	800 MHz	<u>8.5 MHz</u>	General Category and Interleaved and other channels
<b>Total Proposed to be Given Up:</b>		<u>16.3 MHz</u>	
To Be Awarded:	800 MHz	6.0 MHz	Adjacent/Contiguous to upper 200 SMR
	1.96 GHz	<u>10.0 MHz</u>	“New” PCS Spectrum
<b>Total Proposed to be Awarded:</b>		<u>16.0 MHz</u>	

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FCC LICENSED WIRELESS SPECTRUM  
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UNDER FCC WT DOCKET NO. 02-55  
AS OF DECEMBER 31, 2002**

**PART III – VALUATION OF THE WIRELESS INDUSTRY BUSINESS ENTERPRISE  
VALUE – THE INCOME APPROACH**

In our analysis and valuation of Nextel's proposed spectrum to be given to Nextel by the FCC and the spectrum to be released by Nextel, our objective is to determine an industry average spectrum fair market value, expressed in terms of value per MHz Pop. In order to arrive at the fair market value of this spectrum to an interested, unbiased, willing purchaser, we begin by determining the Business Enterprise Value of substantially all of the industry's domestic wireless carriers. This is the first step to then determine the average license or spectrum value of the industry. This part of the report begins with an overview to the valuation process and specifically addresses the income approach to valuation of the industry. In Part IV of this report, we will discuss the market approach to value. In Part V of this report, we will use the BEV data derived in Parts III and IV to determine the wireless industry spectrum fair market value.

There are several possible approaches to value the Business Enterprise of the Wireless Industry. We begin by determining the FMV of the individual wireless Companies' Business Enterprise Value that collectively represent the vast majority of the wireless industry. The three classical approaches to value, based upon (1) cost, (2) market and (3) income, may all have relevance and validity in the valuation of wireless businesses. However, approaches that are based on cost would be the least meaningful and most subjective. This is because the intangible asset of FCC licenses, that permit a wireless network to operate utilizing the public airwave spectrum, are typically of substantial value and the cost of directly obtaining these assets may not relate to the value of that intangible asset. Consequently, the best approaches to value are those that rely on

estimates of future income to be realized from developing the license, and on market data from the market valuations of other wireless companies.

## **Overview**

We utilized the two most commonly employed methods for valuing Wireless Telephone businesses namely: income approach and market approach. The cost approach was considered, but eliminated as inappropriate. In this section of the report, we will discuss the income approach, followed in Part IV by the market approach to our valuation of the Wireless Industry. Under the income approach we undertook two separate analyses, (1) we valued an incremental “start-up” wireless business or network based upon the award of a 10 MHz bandwidth license in the 1.9 GHz band, analogous to that which the Nextel proposal requests, and (2) we valued three wireless non-publicly traded companies namely, Verizon Wireless, Cingular, and T-Mobile. Since these three companies are major components of the wireless industry and current market capitalization values are not available for them, it was necessary to assign a value to them. We relied on a “consensus” or average of several current investment bank analysts’ reports that follow and forecast the performance of these companies, including both operational parameters and cash flow projections. Additionally and similarly, since it is the subject of this report, we valued Nextel Communications under the DCF approach in order to confirm the market value indication.

## **Income Approach to Incremental “start-up” Business**

In deriving the FMV of the 10 MHz of 1.9GHz spectrum requested by Nextel, we developed a discounted cash flow model of the business on an incremental “start-up” basis. The appraiser first determined the projected operating cash flow for the wireless network (the “Network”) or business, defined as income before depreciation, amortization, debt retirement, and interest on funds invested in the property. We then forecasted the Network’s free cash flow, which begins with operating cash flow and deducts capital expenditures, any working capital requirements and a provision for federal and state income tax in arriving at a value indication for the business.

In determining the Network's projected free cash flow, the appraiser utilized industry historical data and the consensus of industry market analysts' forecasts to prepare a ten-year forecast of financial and operational performance. From this, we derived average annual revenues per customer, operating margins, and market penetrations as a percent of the population. We consider this spectrum in the context of an incremental start-up model, whereby we assumed that the likely acquirer of this spectrum would be an existing wireless industry member and would use it in a "highest and best use value" mode, providing additional traffic capacity for its existing wireless network, national in scope. Exhibit A summarizes the assumptions made and methodology employed in forecasting the customer growth and penetration, the monthly revenue per customer, and the expenses, which in turn are used in developing the cash flow projections shown in Exhibit B.

In using the DCF, value results from the sum of two sources: the present value of the annual cash flows of the projection period and the present value of the property's residual value at the end of the projection period. The reliability of this method rests directly with the accuracy of the revenue forecast, the income-expense relationship, and other assumptions required to produce the yearly cash flows.

In any analysis of future cash flows, a critical factor is the selection of the discount rate that will be utilized in the calculation of the present value of these future values. We estimated the discount rate for the business using a weighted average cost of capital approach. The weighted average cost of capital is made up of two components: debt and equity. The cost of equity is determined by using the widely accepted Capital Asset

Pricing Model (“CAPM”)<sup>3</sup>. The derivation of the cost of equity and its formula is shown in Table 1 and is consistent with the general form of the CAPM.

The derived equity rate represents the return expected on equity capital by an investor and is consistent with our experience with respect to equity investor expectations in today’s wireless communications marketplace. Briefly, this method begins with the risk free rate of return, generally the rate on U.S. government debt instruments of appropriate duration, and then adds an equity risk premium, adjusted by the market/industry beta. We then consider the applicability of an additional small stock premium and/or Company specific or unsystematic risk that an equity investor is exposed to in the market. Since we are valuing the entire US Wireless Industry, we did not apply a small stock nor unsystematic risk premium. To determine the equity cost, these components are added together.

The next step is to determine the cost of debt capital. This rate is principally affected by the credit worthiness of the borrower and the general risk associated with the industry. This is done on an after tax basis, taking into consideration appropriate statutory federal and state income taxes.

The final step is to determine the mixture of debt and equity in the capital structure. The capital structure percentages were derived based upon a review of the industry lending practices and market capitalization structures as of the valuation date. We also

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<sup>3</sup>*Stocks, Bonds, Bills, and Inflation 2002 Yearbook*, Valuation Edition, Ibbotson Associates

Weighted Average Cost of Capital

$$WACC = W_d k_d (1-t) + W_e k_e$$

WACC = weighted average cost of capital

$W_d$  = weight of debt in the capital structure

$k_d$  = cost of debt capital

$t$  = effective tax rate for the company

$W_e$  = weight of equity in the capital structure

Equity Cost of Capital

$k_e$  = cost of equity capital

$k_e$  =  $r_f + (B \times ERP) + sp$

$k_e$  = the cost of equity

$r_f$  = the expected return of a riskless asset

$B$  = the beta of the stock

ERP = the expected equity risk premium

SP = the appropriate size premium

**TABLE 1**  
**Discount Rate Determination**  
**as of December 31, 2002**

Cost of Equity

Risk Free Rate (20 Year Treasury Securities, as of December 31, 2002) Source: Federal Reserve		<u>4.83%</u>
Equity Risk Premium Long Term (Entire Market) (Source: Ibbotson Associates, 2002)	7.00%	
Market Beta Wireless Telecommunication Stocks	<u>x 1.75</u>	12.25%
Small Stock Premium (Ibbotson Associates, 2003) Plus Company Specific Risk		<u>0.00%</u>
Cost of Equity		<u>17.08%</u>

Cost of Debt

Average of Prime Rate & Merrill Lynch Hi-Yield Index		8.25%
Less Tax Effect (at 40%)		<u>3.30%</u>
Cost of Debt		<u>4.95%</u>

Weighting

	<u>% Return</u>	<u>% Of Capital Structure</u>	<u>Wtd Cost Of Capital</u>
Equity	17.08%	50.0%	8.54%
Debt	4.95%	50.0%	<u>2.48%</u>
		Total Cost Of Capital	11.02%
		Discount Rate/Cost of Capital (Rounded)	<u>11.00%</u>

reviewed cost of capital statistics for the wireless industry SIC code as published in Ibbottson Associates' *Cost of Capital 2002 Yearbook* for consistency. The after-tax discount rate of 11.0%, derived from our weighted average cost of capital model is shown in Table 1.

Beyond the projection horizon, the wireless business will still have value. To quantify this continuing value, we employed the theory that the investor would continue to realize value from the property at the end of the projection period either through continued ownership or a sale of the property. The present value of this continuing future value is then added to the present value of annual cash flows during the DCF model time horizon to arrive at a value indication under this approach. We selected an end of year ten free cash flow multiple that was derived based on using the dividend discount model as a proxy. The model states that the value of the Network in year ten is equal to the expected future dividend in year eleven divided by the remainder of the required rate of return less the expected long-term growth rate. The derived multiple is calculated as the inverse of the required aftertax rate of return less the growth rate (g) in perpetuity.

To determine the growth rate (g), we used a multiphase growth model. Because the System's revenues and cash flow are still growing at the end of the projection period, we calculated g using a formula that would account for this. We determined the perpetual growth rate (g<sub>0</sub>) that would be equivalent to using a growth of g<sub>1</sub> for the next five years and a "steady state" g<sub>2</sub> thereafter, by solving for g<sub>0</sub> in the following equation\*:

$$\frac{(1+g_0)}{(r-g_0)} = \frac{(1+g_1)^1}{(1+r)^1} + \frac{(1+g_1)^2}{(1+r)^2} \dots \frac{(1+g_1)^5}{(1+r)^5} + \frac{(1+g_1)^5 \times (1+g_2)}{(1+r)^5 (r-g_2)}$$

From the article "Adjusting Pricing Multiples for Expected Growth", Stephen J. Bravo, *Business Appraisal Practice*, Spring 2000.

As shown in Exhibit B, using 6.3% for g<sub>1</sub>, 3.0% for g<sub>2</sub>, and the after-tax discount rate of 11.0%, g<sub>0</sub> equals 4.0% (rounded). Returning to the Dividend Discount Model, the calculated continuing value free cash flow multiple is 14.3.

The continuing value multiple is consistent with the current market multiples and reflects the added value due to the capital expenditure projections for network expansion and upgrades. The FMV of the 10 MHz of 1.9 GHz spectrum is derived in Exhibit B to be \$4.97 billion or \$17.30 per Pop, or \$1.73 per MHz Pop.

#### Income Approach to Wireless Companies

In addition to conducting a DCF analysis for the incremental “start-up” 10 MHz 1.9 GHz spectrum, we have conducted DCF BEV Analyses for the following wireless companies:

- Verizon Wireless
- Cingular
- T-Mobile
- Nextel Communications

The first three of these companies are not publicly traded and therefore do not have a public “benchmark” to measure their market value. We added Nextel to our DCF analyses since it is the subject of our spectrum valuation appraisal.

The approach to the above company BEV analyses has one difference to that discussed above for the 1.9 GHz spectrum model. The difference is, the operational and financial forecasts are based on the average or “consensus” of several investment banking analysts for each specific company. We computed the average free cash flow and applied our discounted cash flow methodology discussed above. The value indication is comprised of the present value of the projected free cash flow over an eight year period (the common duration of the analyst’s forecasts), plus the continuing or terminal value based on the previously discussed dividend discount model.

The forecasts for key operating and financial metrics are shown for each individual investment banker’s forecast in Exhibit C. The DCF analysis is also provided along with several valuation parameters.

As shown in Exhibit C, the DCF analysis for these four Companies result in the following value indications.

	<u>BEV</u>	<u>BEV/Pop</u>
Verizon Wireless	\$ 56.9B	\$ 217
Cingular	23.0B	105
T-Mobile	10.3B	47
Nextel Comm	28.3B	121

In summary, the income approach has been used to value an incremental “start-up” wireless business employing 10 MHz of PCS spectrum licensed nationwide. We then used a consensus of investment banker reports to develop a DCF model for each of the above three non-public wireless companies and Nextel. The values reflect the respective companies’ size, market penetration and growth prospects. This is illustrated by the range in per Pop BEV values of \$217 for Verizon Wireless to \$47 for T-Mobile. These BEV values will be incorporated in Part V of this report where we determine the wireless industry spectrum FMV.

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**PART IV – VALUATION OF THE WIRELESS INDUSTRY BUSINESS ENTERPRISE  
VALUE – THE MARKET APPROACH**

Guideline Company Analysis

As part of our analysis, we considered a guideline company method to establish multiples that are applicable to the property being valued. Guideline company valuation analysis is a technique that provides an indicated publicly traded equivalent value based on direct comparison of the subject business entity value to the enterprise value of publicly traded companies involved in the same or similar lines of business.

**Selection of Guideline Companies**

The guideline companies were selected on the basis of the following criteria:

1. The corporation derived a significant portion of its revenues from activities relating to wireless communications services.
2. Adequate financial information about the corporation was publicly available. We note that the industry is dynamic and growing rapidly and therefore, we considered the most recent annual financial reporting period to be pertinent with respect to publicly traded enterprise values.
3. The corporation's stock was publicly traded on a U.S. stock exchange.

We reviewed a list of public companies and selected the companies that meet the above criteria. Specifically, the selected companies are all primarily in the business of providing wireless telephone services using the cellular, SMR and/or PCS spectrum licensed by the FCC. Financial and market data on the following selected companies are presented in Exhibit D. This data was compiled from the Standard and Poor's

Compustat database. Descriptive of these companies, extracted from each company's SEC filings, press releases, Hoover's online website and/or Yahoo Market Guideline website is provided in Appendix D.

- AT&T Wireless Services (NYSE: AWE)
- Nextel Communications Inc. (NasdaqNM: NXTL)
- Nextel Partners (NasdaqNM: NXTP)
- Sprint PCS (NYSE: PCS)
- Leap Wireless Intl. (NasdaqNM: LWIN)
- Triton PCS Holdings, Inc. (NYSE:TPC)
- US Unwired, Inc. (NasdaqBB:UNWR)
- Alamosa Holdings, Inc. (NasdaqBB: ALMO)
- UbiquiTel Inc. (NasdaqNM:UPCS)
- AirGate PCS, Inc. (NasdaqBB:PCSA)
- United States Cellular (AMEX:USM)
- Western Wireless (NasdaqNM:WWCA)
- Dobson Communication's (Nasdaq:DCEL)
- Rural Cellular (OTCBB:RCCC.OB)
- Centennial Communications (NasdaqNM:CYCL)

### **Valuation Using Guideline Company Analysis**

Several approaches for valuing companies are available under the guideline company analysis approach. Most approaches involve some variation of sales, earnings power, or underlying assets, or a combination thereof.

This market approach relies on financial data from the publicly traded guideline companies. The value multiples utilized in the market approach relate the guideline companies' stock prices at the valuation date to various fundamental data such as revenues, cash flow and earnings. These multiples generally take into account trends in operating performance as well as the stability or instability of the underlying data. In this manner, the risks associated with the guideline companies can be viewed in relation

to return expectations as exhibited by the pricing behavior of a particular company's common stock.

In conducting our guideline company analysis, we calculated the total Market Value of Invested Capital ("MVIC") for each public wireless company by first calculating the freely traded minority equity value. This is derived by multiplying the total shares outstanding by the share price as of the valuation date. We determine the control equity value by applying a control premium of 30%. This control premium is determined as appropriate to the communications industry and is derived from actual merger and acquisition data published in *Mergerstat Review*. We analyzed the long-term, five year average of the premiums paid for control since the investor horizon for wireless properties tends to be long-term. We also limited our analysis to transactions in excess of \$100 million since we are dealing with large cap public companies. Appendix E summarizes the control premium sources.

As a proxy to market value, we then added the book value of the respective companies' debt and any preferred equity to the control equity value to arrive at the MVIC. Based on company published data, we calculated the MVIC as a multiple of earnings, sales, and EBITDA. Also shown for comparison purposes are MVIC multiples on a per subscriber and per licensed Pop basis. Total MVIC for these companies ranges from a low of \$504 million for Ubiquitel to a high of \$36 billion for AT&T Wireless. On a per Pop basis, the MVIC's range from a low of \$42 for Leap Wireless to a high of \$361 for Dobson Communications. For the leading public U.S. Wireless Carriers noted in Standard & Poors Industry Surveys, Telecommunications: Wireless, dated May 29, 2003, the MVIC per Pop is in a much tighter range of \$101 to \$132 as indicated below.

**Public Guideline Wireless Leaders**

<b><u>Company</u></b>	<b><u>(\$Billion)</u></b>	<b><u>MVIC/Pop (\$)</u></b>
	<b><u>MVIC</u></b>	
AT&T Wireless	\$36.0	\$ 132
Nextel	29.7	127
Sprint	24.8	116
US Cellular	4.1	101

Since the MVIC represents the total asset value of the respective companies, we then subtracted the Companies' net working capital asset and most recent tangible asset value represented by the net book property, plant, and equipment ("PP&E"), including construction in progress ("CIP"). Based on our experience in appraising the assets of numerous wireless businesses, we note that most wireless businesses have only two intangible assets of material value, namely customer relationships and license operating rights (or FCC license value). We then estimated the value of the Companies' customer relationship intangible asset based on its subscriber count and the cost to acquire a subscriber.

The remaining value of each guideline company, represents its FCC license value. It is this value that is analogous to the value of the spectrum that we are appraising. We analyzed this license value on a total industry basis, and based on industry published sources (SEC, Industry Analysts Reports, Company press releases) for the amount of licensed spectrum for each company, we derived the total license value on a per MHz Pop basis for the public guideline companies.

Table 2 summarizes the results of our guideline Company analysis which results in a total public wireless industry value of \$115 billion. After subtracting \$45.7 billion of net tangible assets and \$5.3 billion of net working capital assets we are left with \$64 billion in intangible asset value. Subtracting the \$22.5 billion value derived for the customer relationship assets, we arrive at a public guideline company composite license value of \$41.4 billion. This equates to \$42.53 per licensed Pop and \$1.61 per MHz Pop which compares very favorably to our income approach value of \$1.73 per MHz Pop (Exhibit B). We note that our guideline company license value of \$1.61 does not include several non-publicly traded companies including the largest, Verizon Wireless, as well as Cingular Wireless and T-Mobile. These companies are added to our analysis in the next Part of this report.

**Table 2**  
**Summary of Guideline Company Approach**

		<b>Total Wireless</b>
Total Capitalization / Market Value of Invested Capital (in millions)	\$	114,866
Less:		
Net Tangible Assets (in millions)	\$	45,664
Net Working Capital (in millions)		<u>5,286</u>
MVIC less NTA and NWC	\$	63,917
Less:		
Customer Relationship Value (in millions)	\$	<u>22,533</u>
<u>License Value (in millions)</u>	<u>\$</u>	<u>41,384</u>
Per Total Licensed Pop	\$	42.53
Per MHz*Licensed Pops	\$	1.61
<u>Memo:</u>		
Total Licensed Pops		973,012,000
MHz Pops		25,759,716,900
Subscribers ('000)		58,975
CPGA (Average)	\$	<u>382</u>
Customer Relationship Value (in millions)	\$	22,533

Exhibit D provides the detailed analysis of each guideline Company. Several appropriate median and mean valuation metrics are derived in Exhibit D and are summarized below:

	<u>Median</u>	<u>Mean</u>	<u>Median of Positive Multiples</u>
MVIC/Earnings	(12.07)	(27.53)	
MVIC/Sales	2.54	2.77	2.54
MVIC/EBITDA	8.60	9.97	9.42
MVIC/Subscriber	\$1,959	\$2,189	\$1,959
MVIC/Licensed Pop	\$116	\$142	\$116

The median positive valuation parameters above have been used to determine a market value indication for the three non-public wireless companies and Nextel, all of which were valued under the DCF income approach in Part III of this report. Using these market metrics, we weighted the EBITDA multiple value indication most heavily, followed by the sales multiple and to a lesser degree, the per subscriber and per licensed Pop value indications. Since the earnings multiple is negative, the earnings multiple was not used. The results are shown in Table 3. Comparing these value indications with those derived in Exhibit C under the income approach (discussed in Part III of this Report), we weighted the income approach more heavily (75%) than the market approach, consistent with industry practice and for the reasons stated in Part V and Appendix A of this report. The overall value conclusions for these Companies are shown at the bottom of Table 3.

#### Market Comparable Sales Approach

Another approach considered in the valuation of wireless business spectrum is known as the market approach or comparable sales approach. The market approach requires the appraiser to collect and analyze recent comparable market transactions and then make value adjustments based on a comparative analysis between the market transactions and the subject property. It is important to use transactions which are near the valuation date.

The application of the market approach is most commonly found in the appraisal of real estate. The market for real estate is characterized by frequent sales within a geographic area, reliably known sale prices, and readily discernable attributes of

**Table 3**  
**Summary of Value Indication**

		<u>Nextel Communications</u>	<u>Verizon Wireless</u>	<u>Cingular Wireless</u>	<u>T-Mobile</u>
Sales	(000)	8,584,000	18,683,667	14,093,333	5,221,667
EBITDA	(000)	3,165,200	6,788,000	4,487,333	422,333
Subscribers	(000)	10,612	32,491	21,925	9,916
Licensed Pops	(000)	234,851	262,000	219,000	218,000
<u>Valuation Indication</u>	<u>Median</u>				
Sales	2.54	\$21,778,053	\$47,401,431	\$35,755,517	\$13,247,639
EBITDA	8.60	\$27,232,748	\$58,402,595	\$38,608,119	\$3,633,672
Subscribers	\$1,959	\$20,793,394	\$63,663,604	\$42,960,343	\$19,429,636
Licensed Pops	\$116	\$27,343,837	\$30,504,811	\$25,498,296	\$25,381,866
<u>Weighted Value Indication</u>					
Sales	30.0%	6,533,416	14,220,429	10,726,655	3,974,292
EBITDA	60.0%	16,339,649	35,041,557	23,164,871	2,180,203
Subscribers	5.0%	1,039,670	3,183,180	2,148,017	971,482
Licensed Pops	5.0%	<u>1,367,192</u>	<u>1,525,241</u>	<u>1,274,915</u>	<u>1,269,093</u>
Market Value Indication	100.0%	\$25,279,926	\$53,970,407	\$37,314,458	\$8,395,070
DCF BEV Value Indication		\$28,310,038	\$56,878,254	\$22,968,094	\$10,262,067
Wtd Average Value Indication (75% DCF/25% Market)(Rounded)		<u>\$27,550,000</u>	<u>\$56,150,000</u>	<u>\$26,550,000</u>	<u>\$9,800,000</u>

properties sold. This is not the case for sales of wireless telephone spectrum. The spectrum sales are comprised of a number of variable characteristics. The data on these transactions are available typically only through the press and trade publications. The quality of this data is often suspect and incomplete. Our experience in the wireless industry leads us to believe that the publicly available data is at best an approximation. The buyers and sellers in this market are under no obligation to report the necessary information to determine a truly comparable purchase price.

According to Kagan's historical wireless system sales scoreboard published in the January 16, 2003 issue of the Wireless Telecom Investor, the 2002 values per pop for Cellular and PCS Systems sales were:

	<u>No. of Markets</u>	<u>Total Pops (000)</u>	<u>Average \$/Pop</u>	<u>Minimum \$/Pop</u>	<u>Max \$/Pop</u>
Cellular	110	14,208	\$ 137	\$ 51	\$ 176
PCS	<u>136</u>	<u>54,610</u>	<u>30</u>	5	59
Total/WTD Average	246	68,818	<u>\$ 52</u>		

The Pop weighted average wireless transaction price equates to \$52 per Pop for 2002 with the number of transactions and the average price per Pop down from prior years. This is due to the significant industry consolidation that has already taken place and the recessionary effect the market has had on equity values in 2002, limiting a source of capital for further consolidation. The weighted average of \$52/Pop compares reasonably to the guideline Company average of \$42.53/Pop shown in Table 2. Also, the range of price per Pop, shown above, are consistent with the guideline company values.

In summary, the market approach was utilized to determine the value of the publicly traded domestic wireless companies. This data will be used in conjunction with the non-public company valuation data from Part III, in the following Part V, Industry Spectrum Value Derivation. The market approach data was also used to support and verify the DCF valuations for the three non-public companies plus Nextel.

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**PART V – INDUSTRY SPECTRUM VALUE DERIVATION**

In order to determine the value of wireless spectrum, in the preceding Parts III & IV of this report we determined the enterprise value of virtually all of the firms possessing spectrum for the provision of domestic wireless services. The enterprise value for each significant wireless industry firm is determined through either:

- Public companies – the public market price for equity plus a control premium plus debt less non-related assets, or
- Private companies – through an average of the income or DCF approach and the market index approach.

Once the value of the enterprise is determined, net property plant & equipment and the customer relationship asset is subtracted to arrive at the license value indication. In a manner similar to that analyzed for the publicly traded guideline companies in Part IV, the license value indication for the industry, is then determined. The license value Indication for the total industry is then divided by the MHz-Pops relevant to the industry to achieve a metric of license value per MHz-Pop for the industry.

This part of the report also discusses the nature and valuation methodology for the tangible PP&E assets and the intangible customer relationships.

The tangible PP&E consists largely of the following categories: towers, antennas and transmission lines, analog/digital cell equipment, transmission/telecom equipment, switch and software equipment, power equipment, microwave equipment, tools and test

equipment, furniture and office equipment, computer equipment, leasehold improvements, and vehicles.

Based upon our experience in appraising the assets of numerous wireless systems, we note that the FMV of these assets typically approximates that of the respective entities' net book value of its PP&E. Therefore, due to the enormity of the task to value many companies tangible assets, we relied on each companies' net book PP&E value as a reasonable estimate of the FMV of its tangible property.

The intangible assets of a wireless telephone business can consist of many rights and contracts required to operate the company. The intangible assets can include customer relationships, FCC license rights, tower site rights, covenants not to compete, beneficial leasehold interests, favorable contracts, rights-of-way, going concern and goodwill value. Based upon our experience in appraising the intangible assets of wireless companies, we determined that there are two intangible assets of material value: customer relationships and FCC license rights. Therefore, we conclude that all intangible assets other than the above listed intangible assets have negligible value or are incorporated in the two intangible categories noted above.

Typically we value the customer relationship asset via a subscriber attribution analysis. Again, due to the magnitude of the scope of the industry customer relationships, we used the cost method as a reasonable proxy to determine the FMV of this asset. To value this asset, we use the Cost Per Gross Add ("CPGA") multiplied by the number of subscribers active at the valuation date.

We then structured our analysis of the industry in a manner similar to that presented by JP Morgan in its Wireless market research report, *Mobile Metrics – Spring 2003*, dated March 12, 2003. We added the non-public wireless company metrics to those of the publicly traded companies to compile a database representing the vast majority of the industry. For the non-public companies, we used our valuations based on the income and market approaches as discussed in the preceding Parts III and IV of this Report.

In order to derive the FMV of the license asset for the aggregate industry, we began with the business enterprise value for each company. For the public companies, this is based on the market value of the outstanding equity shares and their respective share prices. As this calculated value is based on individual minority share prices, it represents a minority interest value, to which a control premium was added as previously discussed. For the public companies, consistent with the guideline company approach in Part IV, debt, including any preferred stock, was added to the equity value. For this analysis we relied on the JP Morgan analysis for the public companies to obtain the net working capital amount. The enterprise value was then adjusted to exclude net working capital, such as cash amounts, which the market, given its efficiencies, already reflects. Lastly, we relied on JP Morgan's analysis to adjust for international and non-related asset values by Company, as these were not readily available in public SEC documents. The net amount of adjustments are not considered to be a material amount relative to the business enterprise value.

The next step was to adjust the Business Enterprise Value by subtracting the net book PP&E and customer relationship asset values to leave the remaining asset value, the spectrum license value.

Based on a review of published sources for the total licensed Pop and average MHz for each carrier we selected the consensus value for these metrics (see Tables 4 & 5). Table 4 provides industry data for Pops, subscribers, revenue, and EBITDA. Table 5a provide a compilation of industry sources for wireless carrier licensed spectrum capacity, measured in average MHz. Exhibit G provides some additional details of spectrum licenses by market for the top 100 US markets for Verizon wireless (prepared by Verizon) and Nextel (from Nextel's report to the FCC and Congress, July 2002). Table 5b provides a compilation of industry sources for licensed Pops for certain carriers.

Using these metrics, we derived the FMV of the wireless industry's spectrum on a per MHz Pop basis. While there is some variability among the carriers in this value, we believe the predominant value represented by the larger carriers drives the overall market. Some carriers have exploited their spectrum more favorably than others, others

**Table 4****U.S. Wireless Companies : Key Data  
As of Year-End 2002 and Calendar Year 2002**

<u>Company</u>	000s <u>Covered Pops*</u>	000s <u>Licensed Pops*</u>	000s <u>Subscribers</u>	\$millions <u>Service Revenue</u>	\$millions <u>EBITDA</u>	<u>EBITDA margin %</u>
Nextel	211,366	234,851	10,612	\$ 8,186	\$ 3,166	38.7%
Nextel Partners	36,300	52,000	878	647	1	0.2%
Sprint PCS	198,000	213,265	14,760	10,866	2,857	26.3%
T-Mobile	218,000	218,000	9,916	5,698	449	7.9%
Leap Wireless	25,425	53,545	1,600	583	(124)	-21.3%
Triton PCS	11,000	13,600	830	683	166	24.3%
Alamosa	11,780	15,845	622	536	23	4.3%
Airgate/iPCS	11,500	14,835	555	463	(46)	-9.9%
US Unwired	12,600	17,600	551	526	(14)	-2.7%
Ubiquitel	7,080	11,082	257	214	(33)	-15.4%
Verizon Wireless	227,210	262,000	32,491	17,747	6,933	39.1%
Cingular	219,000	219,000	21,925	13,746	4,371	31.8%
AT&T Wireless	213,000	274,000	20,859	14,278	3,839	26.9%
Alltel Wireless	59,008	59,008	7,602	3,999	1,529	38.2%
US Cellular	36,568	41,000	4,103	2,099	632	30.1%
Western Wireless	10,582	10,582	1,198	838	368	43.9%
Dobson	6,354	6,354	880	719	316	43.9%
Rural Cellular	5,900	7,319	667	438	218	49.7%
Centennial	6,000	7,134	603	361	156	43.2%
Totals/Averages	1,526,673	1,731,020	130,909	\$ 82,627	\$ 24,807	30.0%

\* Licensed and Covered Pops are the same for some companies, either because all licenses have been developed in the company's network coverage, or because data is not available to distinguish licensed Pops from covered Pops.

Sources are based on latest SEC documents and Analyst Reports.

Table 5A

**Industry Sources for Average MHz by Wireless Operator**

Company	Top 56 Mkts	Top 100	Total U.S.	Top 100 Mkts Avg	Top 50 Mkts	Top 100 Mkts	Total U.S. Avg	Total U.S.	Notes
	Avg MHZ	Mkts Avg MHZ	Avg MHZ	MHZ	Avg MHZ	Avg MHZ	MHZ	Estimate used	
	Verizon	Verizon	JP Morgan	Lehman Brothers	Merrill Lynch	Bear Stearns	Company 10K	By Kane Reece	
Nextel			18.5	18.0	22.0		26.0	26.0	use 10 K/Mkt indication
Nextel Partners			15.0					15.0	used JP Morgan
Sprint PCS	25.6	25.4	25.6		25.4	25.0		25.6	used JP Morgan
T-Mobile	24.4	23.4		25.0	24.3			24.3	used Merrill Lynch
Leap Wireless			14.5				14.2	14.2	Kane Reece calculation from 10K data.
Triton PCS			23.7					23.7	used JP Morgan
Alamosa			27.2				27.2	27.2	Kane Reece calculation from 10K data.
Airgate			20.0				17.7	17.7	Kane Reece calculation from 10K data.
US Unwired			26.4					26.4	used JP Morgan
Ubiquitel			29.4				29.4	29.4	Kane Reece calculation from 10K data.
Verizon Wireless	30.7	30.6		29.0	31.1	29.0		29.0	used Lehman
Cingular	20.6	20.2		25.0	20.7	25.0		22.9	used average Merrill Lynch and Lehman
AT&T Wireless	33.4	33.6	26.6	33.0	34.9	32.0		33.0	used Lehman
Alltel			25.0					25.0	used JP Morgan
US Cellular			25.0					25.0	used JP Morgan
Western Wireless			25.0					25.0	used JP Morgan
Dobson			25.0					25.0	used JP Morgan
Rural Cellular								24.4	Kane Reece calculation from 10K data.
Centennial			25.0					25.0	used JP Morgan

Sources:

Verizon Wireless - internal Company estimates  
 JP Morgan- Mobile Metrics Spring 2003, Dated Mar. 12, 2003  
 Lehman Brothers- Wireless Services, April 10, 2003  
 Merrill Lynch- "The Next Generation VII", February 21, 2003.  
 Bear Stearns- Wireless Services, May 2003  
 Company 10Ks, press releases, and internet sites.

Table 5B

Industry Sources for Licensed POPs by Wireless Operator

<u>Company</u>	<u>Top 56 Mkts. Pops (000)</u> <u>Verizon</u>	<u>Top 100 Mkts. Pops (000)</u> <u>Verizon</u>	<u>"Core Pops" (000)</u> <u>JP Morgan</u>	<u>UBS Warburg</u>	<u>Morgan Stanley</u>	<u>Company Internal, 10k, press release, and/or Web Site</u>	<u>Estimate used By Kane Reece</u>	<u>Notes</u>
Nextel			230,000	234,851			234,851	used Warburg estimate
Nextel Partners			51,024	52,000			52,000	used Warburg estimate
Sprint PCS	175,900	208,739	256,027	208,883			213,265	JP Morgan 256M adjusted for unduplicated affil. POPs
T-Mobile	170,700	200,875				218,000	218,000	Company press releases
Leap Wireless			53,545				53,545	used Warburg estimate
Triton PCS			13,534	13,600			13,600	used Warburg estimate
Alamosa			15,640			15,845	15,845	Company 10K 2002 page 6
Airgate			14,835				14,835	used JP Morgan
US Unwired			18,026			17,600	17,600	Company 10K 2002 page 1
Ubiquitel			11,239			11,082	11,082	Company 10K 2002 page 9
Verizon Wireless	175,900	203,963			227,210	262,000	262,000	Verizon internal estimate
Cingular	159,300	183,744			219,000	231,000	219,000	Morgan Stanley 1Q03 Cingular report
AT&T Wireless	175,900	208,739	258,307	258,000		274,000	274,000	Company 10K 2002 page 13
Alltel Wireless			50,000	59,008			59,008	used Warburg estimate
US Cellular			42,466	41,000			41,000	used Warburg estimate
Western Wireless			10,486			10,582	10,582	Company 10K 2002 page 10
Dobson			6,231			6,354	6,354	Company 10K 2002
Rural Cellular						7,319	7,319	Company 10K 2002
Centennial			7,134				7,134	used JP Morgan

Sources:

Verizon Wireless - internal Company estimates

Source: JP Morgan Mobile Metrics Spring 2003, Dated Mar. 12, 2003

UBS Warburg "Key Stats"

Morgan Stanley - Various "1Q03" reports on individual companies.

Company 10Ks, press releases, and internet sites.

are influenced by the demographics and characteristics of their markets and for certain limitations of their spectrum. Overall as shown in Table 6, we derived a value of \$1.82 per MHz Pop for spectrum, independent of any unique characteristics the spectrum may have and independent of frequency band. From a customer perspective, the frequency band being used is unimportant as long as service is reliable and covers the customers geographic and personal/business requirements. Table 6 is derived in Exhibit E of this report.

We note that the value derived in the JP Morgan modeled approach of \$1.82 per MHz Pop is very close to the value derived in our public guideline company analysis of \$1.61 and confirms the reasonableness of the methodology since the Guideline Company Analysis does not include the three large non-public wireless companies. For comparison purposes only, if the three non-public companies were excluded, the average value per MHz Pop for just the public companies under the JP Morgan modeled approach would be \$1.66, as compared to the Guideline Company value of \$1.61.

#### Spectrum Comparable Sales Analysis

Another method analyzed by the appraisers is referred to as the market comparable analysis approach and is discussed below. This is similar to that discussed in Part IV of this report, except here we are addressing spectrum sales as opposed to system or company sales which was addressed in Part IV. The application of a classic market approach to wireless telephone business spectrum would be difficult due to the lack of comparative data and the subjectivity of any comparative value adjustments. Due to the unique nature of each property, to complete a valid comparative analysis the following factors would need to be obtained and analyzed for each market transaction:

- Population in Service Area
- Customer Characteristics/demographics
- Revenue potential Per Customer
- Potential Cash Flow
- System/Network Configuration and Capacity
- Location

**Table 6**

**Market Method Valuation  
MHz\*POPs and Value per MHz\*POP  
for Continental U.S. Cellular, PCS and ESMR Operators**

	<b>Wireless Operators <u>Total/Avg.</u></b>
Total Wireless Industry Business Enterprise Value (\$ Mil)	\$ 210,932
Less: Net PP&E	81,101
Less: Customer Relationship Asset (CPGA * Subscribers)	47,591
License Value Indication(\$ Mil)	\$ 82,240
Avg MHZ (for licensed POPs)	26.1
MHz*POPs(millions)	45,147
<b>License Value per MHz*POP</b>	<b>\$ 1.82</b>
 <u>Memo Items:</u>	
Less: Net PP&E/Pop	\$ 46.85
Less: Customer Relationship per POP	\$ 27.49
License Value/Pop	\$ 47.51
Service Revenue - 2002	82,627
Enterprise Value/Revenue- 2002	<b>2.6</b>
EBITDA - 2002	24,807
Enterprise Value/EBITDA - 2002	<b>8.5</b>
EBITDA margin of Svce. Revenue	<b>30.0%</b>
Subscribers at 12/31/02 (000s)	130,909
Wireless BEV Value per subscriber	\$ 1,611
Net PP&E per subscriber	\$ 620
License value per sub	\$ 628
Subscribers per 1000 MHz*POPs	2.90
Cost per Gross Add(CPGA) incl equip subsidy	\$ 364
Licensed Pops (000)	1,731,020
Net Wireless Value per Licensed Pop	\$ 122

- Service Area Demographics
- Any Tangible Assets Vintage and Condition
- Regulatory Environment; restrictions/encumbrances on spectrum utilization.
- Competition
- Specific Buyer and Seller Motivations
- Liabilities Assumed and Nature of the Transaction
- Ownership Interests and Relevant Terms and Conditions

Even if all the necessary information were available, the quantification of value adjustments to reflect differences between market transactions comparative indicators and the subject property's comparative indicators would be difficult.

While the market approach was not used to develop specific value conclusions, market data from recent wireless telephone spectrum transactions was collected and reviewed to provide corroborative evidence to the value conclusions determined by the income and market guideline company approaches.

Industry practice is to describe market transactions for wireless systems in terms of per Pop (population) multiples or Price/Pop and in terms of license spectrum capacity measured in terms of price per Pop per MHz. We reviewed the wireless telephone spectrum transaction market for the period January 2001 – May 2003. These multiples vary by specific network operating parameters such as amount of spectrum and its market coverage, demographics, and market build-out and penetration as well as specific buyer motivations.

In conducting our review of reported wireless system spectrum transactions, we utilized press releases, recent monthly issues of the Wireless Telecom Investor, published by Kagan World Media, and data published in various SEC filing documents. From this data, we compiled a list of spectrum sales for which sales price data was provided. We then derived average and population weighted average market values per MHz-Pop for the reported transactions. Exhibit F shows the weighted average price per MHz-Pop is

\$1.51 and the median price per MHz-Pop is \$1.21. Given the limited number of transactions of various sizes, we place more weight on the weighted average price of \$1.51 per MHz-Pop.

According to a recent article in *Telephony Online* dated August 5, 2003 and a NextWave/Cingular joint press release of the same date, Cingular has agreed to purchase licenses from NextWave to provide wireless services in 34 markets for \$1.4 billion. The announcement indicates a license coverage of 83 million Pops utilizing 10 MHz of broadband PCS spectrum in all but two (which have 20 MHz) of the 34 markets. Assuming an average license spectrum of approximately 10 MHz, this would translate to \$1.69 per MHz Pop. We consider this transaction to be in line with our start-up 1.9 GHz valuation of \$1.73 and our overall industry Enterprise Valuation conclusion of \$1.82 per MHz Pop.

We have not used the spectrum comparable sales approach for the reasons previously noted. We also note that the spectrum transactions listed in Exhibit F generally do not include the top population markets and are not national in scope. For these reasons, we would expect the value indication under this method to be lower than our overall industry value conclusions. Thus, we do consider the spectrum comparable sales approach to confirm the reasonableness of the wireless industry license value of \$1.82 per MHz Pop, derived earlier in this Part of the report.

**DETERMINATION OF THE  
FAIR MARKET VALUE OF THE CERTAIN PORTIONS OF  
FCC LICENSED WIRELESS SPECTRUM  
PROPOSED FOR REALIGNMENT BY  
NEXTEL COMMUNICATIONS, INC.  
UNDER FCC WT DOCKET NO. 02-55  
AS OF DECEMBER 31, 2002**

**PART VI – COMPARATIVE EVALUATION AND CONCLUSION**

Based upon the preceding valuation of industry spectrum, we can estimate the value of the spectrum that Nextel proposes to relinquish, the value of the spectrum Nextel proposes to receive, the gain in the license value to Nextel as a result of the proposed license exchange and the overall net gain to Nextel considering the present value of its proposed expenses. As summarized in Table 7 and discussed below, we have valued the subject spectrum on a fair market value basis.

Our value conclusions are that Nextel has a gain in its license value on a FMV basis of:

**\$7.2 Billion**

and an overall net gain on a FMV basis of:

**\$6.5 Billion**

As of the end of 2002, Nextel Communications had approximately 235 million licensed Pops. We estimate that all of the 800 MHz band of spectrum which Nextel would give up under its proposal has approximately this population coverage, although there may be small variations. We also estimate that Nextel's 700 MHz and 900 MHz licenses cover 290 million Pops.<sup>4</sup> Nextel proposes to receive two full national licenses in return that would cover the entire U.S. population of approximately 290 million. Consequently Our calculations of the value of the spectrum that Nextel would receive are based on a population of 290 million.

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<sup>4</sup> This assumes coverage of the entire country, based upon *Sales & Marketing Management 2003 Survey of Buying Power*, published by VNU Business Publications USA. The exact number of 700 and 800 MHz band Pops is unknown but is estimated to be slightly less than full nationwide coverage, therefore making our analysis conservative.

**Table 7**

**FAIR MARKET VALUE ANALYSIS OF GAIN TO NEXTEL FROM SPECTRUM REALIGNMENT**

<b><u>Band (MHz)</u></b>	<b><u>Bandwidth (MHz)</u></b>	<b><u>Industry Value \$ per MHz*POP</u></b>	<b><u>Impairment (%)</u></b>	<b><u>Value \$ per MHz*POP</u></b>	<b><u>Pops (Millions)</u></b>	<b><u>Fair Market Value (\$Millions)</u></b>
<b><u>VALUE OF SPECTRUM NEXTEL PROPOSES TO RELINQUISH</u></b>						
700	4.0	\$ 0.027	0.0%	\$ 0.027	290	\$ 31
800(Gen Cat.&Interleave)	8.5	1.820	75.3%	0.450	235	898
900	3.8	1.820	83.5%	0.300	290	331
						<u>\$ 1,260</u>
<b><u>VALUE OF SPECTRUM PROPOSED TO BE GRANTED</u></b>						
800	6.0	1.820			290	3,167
1900	10.0	1.820			290	5,278
						<u>\$ 8,445</u>
						<b>LICENSE VALUE GAINED</b>
						<b>\$ 7,185</b>
						<b>LESS: NEXTEL'S PROPOSED RELOCATION COSTS*</b>
						<u>(700)</u>
						<b><u>NET GAIN TO NEXTEL</u></b>
						<b><u>\$ 6,485</u></b>

\* Nextel's proposed funding for relocation of 800 MHz incumbents is not reflected in the license swap values. The present value of the proposed relocation costs of \$850 million over 42 months is estimated at \$700 million pre-tax based on an equal monthly expenditures.

## **Valuation of Nextel's Existing Spectrum Proposed For Realignment**

### **700 MHz Guard Band Spectrum**

Based upon current FCC licensing , the 700 MHz guard band is not licensed for the provision of cellular or cellular-like services and it does not appear that CMRS will be allowed in this 4 MHz block of Guard Band spectrum in the foreseeable future.

Because the timing of the clearance of the adjacent UHF television spectrum is indefinite, and because negligible use is currently planned for the spectrum block, Nextel's total acquisition cost two years ago for its 42 licenses, about \$355 million or \$0.37 per MHz Pop, appears to be far above the value that could be ascribed to that spectrum at this time. The auction of portions of 700 MHz spectrum in Auction #44 during August/September of 2002, yielded an average price of only \$0.033 per MHz Pop. FCC Auction #49, completed on June 13, 2003, yielded an average price of \$0.027 per MHz Pop. However, these are auctions of wider  $2 \times 6 = 12$  MHz spectrum, with fewer restrictions on its use than Nextel's Guard Band spectrum, so the value of Nextel's spectrum should be less than these recent prices, and perhaps is economically worthless. For purposes of this analysis, however, we assumed the Nextel spectrum to have the value of the Auction #49 average, or \$0.027, resulting in a total fair market value of \$31 million, calculated by multiplying \$0.027/MHz Pop times 4 MHz x 290 million Pops.

### **800 MHz SMR Spectrum**

Nextel proposes to give up licenses that it holds for approximately 8.5 MHz of spectrum that is channelized into 25 KHz channel pairs. Approximately 4.5 MHz of this 800 MHz spectrum is located in the "General Category" pool (channels 1–150) and approximately 4.0 MHz is located above the General Category in a portion of the spectrum that is interleaved with public safety and B/ILT spectrum pools (channels 151–400). There is limited use for this spectrum relative to emerging digital technology. Most cellular and PCS carriers are evolving toward some form of CDMA implementations that utilize wide

bandwidths. For example, Goldman Sachs *Wireless United States*<sup>5</sup> report indicates, “all else constant, we believe CDMA allows for the most efficient use of spectrum resources and has the most well-defined and inexpensive migration path to 3G”.

Another indication of the trend away from TDMA based technology is provided in the FCC’s Commercial Mobile Services Report<sup>6</sup>:

TDMA is being phased out as its main advocates, AT&T Wireless and Cingular Wireless, have announced plans to overlay their existing TDMA networks with GSM/GPRS technology. Furthermore, the trade group that had represented TDMA technology announced in December 2001 that it was dissolving, as it had “successfully served its mission”.

In the eighth annual CMRS Competition Report released July 14, 2003 the Commission shows iDEN as a 2G technology. The report shows the migration of GSM/TDMA and CDMA to 3G technologies with the ability to offer high-speed data services but it is silent on iDEN’s capability to migrate to high-speed data services. We believe the Commission’s silence on this subject is because it is not possible to provide such service using iDEN technology.

In an article in the IEEE Communication magazine<sup>7</sup> entitled “Hotspot Wireless LANs to Enhance the Performance of 3G and Beyond Cellular Networks” Doufexi, et. al. state that “In the near future, users are expected to demand higher-rate multimedia services and ubiquitous communications. To achieve these goals, 3G networks will evolve to provide higher data rates and new radio access technologies. One widely anticipated form of evolution is the complementary use of wireless LAN (WLAN) hotspots. Ultimately, beyond 3G networks will expand to offer data rates in excess of 100 Mb/s and interwork with a number of technologies including satellite communications, WLANs, and digital broadcast technologies. Eventually, such networks will provide intergrated and seamless services via a common IP-based network.”

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<sup>5</sup> Wireless United States, Goldman Sachs Global Equity Research, page 17, January 23, 2003

<sup>6</sup> Seventh Report before the FCC, *Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, released July 3, 2002.

<sup>7</sup> Doufexi et. al., “Hotspot Wireless LANs to Enhance the Performance of 3G and Beyond Cellular Networks”, IEEE Communications Magazine Volume 41, No. 7, July 2003, pp 58-65.

The implication of these statements is that Nextel's iDEN, which is a narrowband TDMA based system, will not be capable of competing as the marketplace demands high-speed wideband services. The iDEN technology will be further isolated from the wireless industry standards, and future development costs for Nextel and its sole source vendor, Motorola, could be substantial unless it obtains additional wideband non-channelized spectrum. As a result, compared to other cellular and PCS spectrum blocks, the highest and best use of this spectrum block is limited, as indicated above.

The commercial value of spectrum is directly related to its capacity to carry communications traffic, in this case voice and data with voice traffic being paramount. To determine spectrum value, we calculated the capacity of iDEN and CDMA to carry voice traffic. The critical measure is the number of customer calls that can be supported simultaneously in a given bandwidth. Some background in how the present cellular systems developed may be useful and is provided in the following paragraphs.

The original cellular systems used analog signals for communications between cell sites and mobile phones. Each call occupied a portion of the frequency spectrum in an area for the duration of the call. Using low power levels and relatively low tower heights permitted operators to reuse frequencies in a service area and thereby handle more calls. In an analog system, frequency reuse was limited such that adjacent cell sites could not use the same frequencies. The net result of this limitation was that any one cell site could use one-seventh (1/7) of the available spectrum with each of its adjoining six cell sites using a different one-seventh of the licensed spectrum. Cellular operators found that total voice capacity could be further increased by dividing cell areas into sectors, generally three sectors per cell site.

As demand for mobile phones increased, digital technology was used to increase the number of calls that could be handled in the licensed bandwidth. There was considerable controversy between proponents of TDMA and CDMA as to which technology offered the best solution. The Commission permitted both technologies to co-exist in the marketplace along with GSM. Strictly from a spectrum usage viewpoint,

there is a major difference between TDMA and GSM on one hand and CDMA on the other hand. TDMA and GSM have the similar frequency reuse constraints as the analog system mentioned above and CDMA permits complete reuse of the spectrum; i.e. each cell site and each sector can transmit simultaneously within the same bandwidth without interference.

Wideband TDMA, GSM, and CDMA have clear migration paths to a CMRS system that offers high-speed data, photos, small screen streaming video, and quality voice capabilities, often referred to as "3G". The Nextel iDEN system has not publicly announced such capabilities. The wideband TDMA and GSM path would include the intermediate steps of implementing GPRS (General Radio Packet Service) and EDGE (Enhanced Data GSM Environment) technology prior to UMTS (Universal Mobile Telecommunication System) which is based on CDMA Technology. CDMA carriers have already deployed CDMA 2000 or 1 x RTT (1 times Radio Transmission Technology) and can migrate to 1 x EV-DO (1 x EVolution Data Optimized) and 1 x EV-DV (1 x EVolution Data and Voice) as market forces warrant, or to W-CDMA (Wideband CDMA).

To make a valid comparison between the capacity of iDEN, which is based on narrowband technology, and CDMA1xRTT, which is a current implementation of wideband CDMA technology, an equal amount of bandwidth and similar vocoders (8 KB in this case) must be considered. Nextel's iDEN uses 25 KHz channels in the 800 MHz band and CDMA uses 1250 KHz (1.25 MHz) channels. Therefore, our capacity comparison uses 50 iDEN channels (25 KHz times 50 equals 1250 KHz) and one CDMA channel. Two separate but related measures of capacity were used; number of simultaneous voice circuits and Erlangs. (An Erlang represents the continuous use of one voice path for one hour.)

The frequency reuse characteristics of Nextel's iDEN yield a maximum of 7.14 channels (50 channels shared among 7 cell sites,  $50/7 = 7.14$ ) per cell site and 2.38 channels ( $7.14/3 = 2.38$ ) per sector. (The actual iDEN reuse characteristics may be as low as 1/9 according to information in the previously referenced Goldman Sachs report attributed

to Nextel.) CDMA's frequency reuse characteristics permit full frequency reuse. We understand that a Nextel iDEN channel can carry between three and six simultaneous voice circuits and therefore we multiplied the 2.38 channels per sector by 3 to yield 7.14 and by 6 to yield 14.29 simultaneous users in a sector. By comparison each CDMA1xRTT channel supports 35 users per sector. This means that Nextel's iDEN can support 20.4% ( $7.14/35 = .204$ ) as many voice channels as CDMA1xRTT assuming three user per channel conditions and 40.8% ( $14.29/35 = .408$ ) as many voice channels as CDMA1xRTT assuming six user per channel conditions. Stated another way Nextel's iDEN has a disadvantage in throughput capacity of 79.6% (1-20.4%) during three user per channel conditions and 59.2% during six user per channel conditions. Comparing Erlang capacity shows that Nextel's iDEN operates at an even greater disadvantage in throughput capacity, yielding 10.2% of the capacity of CDMA1xRTT for the three user case and at 30.1% of the capacity of CDMA1xRTT for the six user case.

Table 8 below shows a comparison, described above, between Nextel's iDEN (the only known narrowband technology applicable here) at 3 and 6 channels/carrier<sup>8</sup> and CDMA1xRTT, all with 8 Kb codecs and on the basis that both technologies have full control of the authorized bandwidth within a geographical area and are not constrained by interference with other users.

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<sup>8</sup> This is based on Motorola's iDEN Technical Overview dated August 8, 2000 Software Release 9.1

**Table 8**  
**Comparison of iDEN and CDMA Capacity at 800 MHz**

	iDEN <u>3 channels/ carrier</u>	iDEN <u>6 channels/carrier</u>	<u>CDMA1xRTT</u>
Channel Bandwidth (MHz)	0.025	0.025	1.25
Number of Channels	50	50	1
Bandwidth being compared (MHz)	1.25	1.25	1.25
Vocoder (KHz)	8	8	8
Frequency Reuse Factor	1/7	1/7	1
Channels per Cell Site	7.14	7.14	3.00
Number of sectors	3	3	3
Channels per sector	2.38	2.38	1.00
Simultaneous Users Per Channel	3	6	35
Simultaneous Users/sector	7.14	14.29	35.00
iDEN Capacity relative to CDMA 1xRTT in simultaneous users/sector	20.4%	40.8%	
iDEN Disadvantage	79.6%	59.2%	
Erlangs per sector	2.5	7.4	24.6
iDEN capacity relative to CDMA1xRTT in Erlangs/sector	10.2%	30.1%	
iDEN Erlang disadvantage	89.8%	69.9%	

Table 8 calculates Nextel's iDEN disadvantage relative to CDMA1xRTT to be between 59.2% and 89.8% depending on the number of calls that can be supported on one channel and whether one measures capacity in terms of simultaneous users or Erlangs.

Understanding that iDEN is a narrowband technology in a telecommunications world that is demanding wideband capacity and the data speeds that such technology supports, for our calculation of value, we use 70 % as a conservative capacity impairment due to channelization and frequency reuse in calculating FMV. The use of this value is very conservative based on the statement in Nextel's 2002 annual report that it will "nearly double our network's cellular capacity with Motorola's 6.1 voice coder technology. The innovative software enables six concurrent cellular calls over a single iDEN radio channel by digitizing voice more efficiently...."

Furthermore, in its December 31, 2002 Form 10-K filing to the Securities and Exchange Commission, Nextel states that it is evaluating new technologies.

“We do not see a need to migrate to a next generation technology at this time for voice capacity given the significant capacity enhancement expected in 2003 for the existing IDEN technology, as discussed above. However, based on our current outlook, we do anticipate an eventual deployment of next generation technology and therefore actively continue to evaluate new technologies. We will only deploy a new technology when it is warranted by expected customer demand, when we have sufficient capital to deploy.”<sup>9</sup>

As discussed in the Nextel 10K, these evaluations include a specific CDMA development program.

“We have entered into an exclusive development agreement with QUALCOMM, Inc. to develop, subject to certain conditions and limitations, our Nextel Direct Connect service on various CDMA platforms. We may enter into additional development agreements of this nature with other infrastructure or handset vendors. There have been many recent announcements of competitive push-to-talk products by our U.S. national wireless competitors and small start-up companies, some of which have the support of large infrastructure vendors. To date, these announcements largely consist of product demonstrations and laboratory trials.”<sup>10</sup>

As further support to our analysis above, we note the following explanation of Nextel’s iDEN network capacity which indicates that for Direct Connect or “push-to-talk” services, Nextel achieves about 6 channels per carrier. For mobile telephone services, it achieves 3 channels per carrier. This is consistent with our assumption of 3 to 6 simultaneous users per channel in our analysis. Based on approximately 33% of Nextel’s minutes of use being Direct Connect minutes<sup>11</sup>, we would expect the overall Nextel utilization to be closer to 3 channels per carrier.

First, each channel on our network is capable of carrying up to six voice and/or control paths, by employing six-time slot TDMA digital technology. Alternatively, each channel is capable of carrying up to three voice and/or

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<sup>9</sup> Nextel Communications, Inc. Form 10-K Annual Report, dated December 31, 2002.

<sup>10</sup> *ibid*

<sup>11</sup> Nextel: *Imitation is the Sincerest Form of Flattery*, page 13 USB Warburg, March 3, 2003

control paths, by employing three-time slot TDMA digital technology. Each voice transmission is converted into a stream of data bits that are compressed before being transmitted. This compression allows each of these voice or control paths to be transmitted on the same channel without causing interference. Upon receipt of the coded voice data bits, the digital handset decodes the voice signal. Using IDEN technology, our Direct Connect service achieves about six times improvement over analog specialized mobile radio in channel utilization capacity. We also currently achieve about three times improvement over analog specialized mobile radio in channel utilization capacity for channels used for mobile telephone service.<sup>12</sup>

Additionally, the voice channel capacity in Nextel's General Category and interleaved spectrum blocks is further reduced through interference to and from other SMR, B/ILT and public safety incumbents. This frequency band is shared and does not meet the criteria noted above in calculating the 70% impairment.

In its November 21, 2001 white paper to the Commission, Nextel states that it has expended resources to mitigate interference to public safety including voluntarily agreeing to limit the use of its licensed frequencies at certain sites, reducing power, and reorienting antennas. There are several interference mechanisms that serve to effectively reduce system capacity both on a temporary and permanent basis. These mechanisms include:

- co-channel interference,
- adjacent channel interference,
- intermodulation (IM) interference, and
- out-of-band emissions (OOBE)

Co-channel interference is the only interference mechanism that lends itself to some type of quantitative analysis on a nation-wide basis. The three other types of interference require specific information about the sites and equipment involved in a particular situation and do not lead to conclusions that can be readily applied on a quantitative basis to other situations.

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<sup>12</sup> *ibid*

Co-channel interference can be examined at some quantitative level because two or more operators are licensed to use same frequency in a geographical area. The very nature of this sharing means each party can use the shared frequency to serve only a portion of the area. For a commercial user such as Nextel, this means that the population that they can reach with a shared frequency is less than for an exclusive frequency.

In attempting to quantify the additional impact that co-channel interference would have on capacity, we examined the FCC July 2002 submission to Congress. Specifically Exhibit 4 of the submission to Congress (see pages 3&4 of Exhibit G of this report) lists Nextel, Public safety, other SMR, and B/ILT users by channel for the top 100 markets. For channel groups D, DD, E, EE, F, FF in the lower part of the band (channels 1-150) and for channel groups G-V (sixteen groups of five channels each for a total of eighty channels) we calculate the MHz-Pops in each of the top 100 markets for the Nextel channels and for the Nextel channels with co-channel interference (This data is shown in Exhibit H.) We calculate that 17.5% of Nextel's MHz-Pops have co-channel interference across the top 100 markets. For the top five markets, 26.7% of Nextel's MHz-Pops have co-channel interference and for the top ten markets 24.3% of Nextel's MHz-Pops have co-channel interference. These percentages represent the maximum decrease in capacity that Nextel could suffer if it was not able to make any use of these channels due to co-channel interference. The effects of other types of interference would certainly cause these maximum co-channel percentages to increase but we are not aware of any reliable quantifiable method of calculating such values. We do note that the top 100 markets in the Commission study covers 152.8 million Pops rather than Nextel's 235 million Pops and that co-channel interference appears to diminish in smaller markets.

Our objective is to estimate the impact on Nextel of using spectrum that is encumbered and/or affected by interference from/to other spectrum users. The maximum co-channel interference for the top 100 markets is 17.5% and consideration of adjacent channel interference, intermodulation interference, and out-of-band emissions would increase

this level of impairment. As the interference that Nextel would experience in major markets is most likely from high site users that tend to dominate a geographical area for a particular frequency, we believe an estimate of 17.5% for the economic impairment of capacity due to all manner of interference is reasonable. To illustrate the reasonableness of our selection of 17.5% as the economic impairment, due to all manner of interference, we note that

“...in one Western metropolitan area, Nextel has implemented case-by-case best practices mitigation measures to reduce CMRS – public safety interference. Specifically, to eliminate IM “hits” on public safety channels, Nextel is observing self-imposed use restrictions affecting up to 80 percent of its total channel availability at a number of base stations. Unsurprisingly, such severe restrictions are adversely affecting Nextel’s service to its customers and causing valuable spectrum to lie fallow in direct contravention of the Commission’s public interest mandate.”<sup>13</sup>

Because Nextel has licensed spectrum that lies fallow, the fair market value of such spectrum is significantly impaired.

We calculate Nextel’s total general and interleaved 800 MHz band capacity impairment to be 75.3%. This is calculated by multiplying the percent good for the previously derived channelization impairment of 30% (1-70%) by the percent good for the co-channel interference impairment of 82.5% (1-17.5%). The product of these two factors is a percent good of 24.7% or an impairment of 75.3% (1-24.7%).

The FMV value is determined to be \$898 million, as shown in Table 7. This is the product of 8.5 MHz times \$1.82/MHz-Pop times 24.7% times 235 million Pops. We note that this compares to \$319 million generated at auction for the general category and \$29 million for the interleaved channels.

### 900 MHz SMR Spectrum

Nextel holds licenses for approximately 3.8 MHz (152 paired 12.5 KHz channels) of this block of spectrum, for a service area comprised of an approximate 235 million

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<sup>13</sup> Exparte Submission Of The Consensus Parties, dated August 7, 2003, p. 23, WTC Docket No. 02-55.

population. Table 9 below is similar to Table 8 shown for 800 MHz with the number of channels and bandwidth per channel changed to reflect the 900 MHz spectrum. There is very little data on how Nextel will use this band, hence we applied the principals of the 25 KHz channels to the 12.5 KHz channels.

The iDEN disadvantage relative to CDMA1xRTT in this band is between 72.8% and 94.5% depending on the number of calls that can be supported on one channel and whether one measures capacity in terms of simultaneous users or Erlangs.

This spectrum has very little infrastructure as shown by Nextel currently having only one model phone that operates in this band. Based on the above iDEN disadvantage range, we have assigned a conservative 80% impairment to this band. Since the radio equipment and handsets are unique in this 900 MHz band, we believe additional impairment exists due to the likely higher equipment cost due to the relatively small customer and channel base upon which Nextel and Motorola may spread development costs.

**Table 9**  
**Comparison of iDEN and CDMA Capacity at 900 MHz**

	iDEN 1 Channel/ Carrier	iDEN 2 Channels/ Carrier	CDMA1xRTT
Channel Bandwidth (MHz)	0.0125	0.0125	1.25
Number of Channels	100	100	1
Bandwidth being compared (MHz)	1.25	1.25	1.25
Vocoder (KHz)	8	8	8
Frequency Reuse Factor	7	7	1
Channels per Cell Site	14.29	14.29	1.00
Number of sectors	3	3	3
Channels per sector	4.76	4.76	1
Simultaneous Users Per Channel	1	2	35
Simultaneous Users/sector	4.76	9.52	35.00
iDEN Capacity relative to 1xRTT in simultaneous users/sector	13.6%	27.2%	
iDEN Disadvantage	86.4%	72.8%	
Erlangs per sector	1.35	3.75	24.6
iDEN capacity relative to CDMA1xRTT in Erlangs/sector	5.5%	15.2%	
iDEN Erlang disadvantage	94.5%	84.8%	

Similar interference factors as discussed for 800 MHz apply to the 900 MHz band and therefore, we applied the same 17.5% impairment. The resultant total capacity impairment to FMV is therefore 83.5%, or 16.5% of the value of spectrum that is not channelized and has no other limitations that affect its capacity to carry traffic. As calculated for the 800 MHz spectrum, this is calculated by multiplying the percent good for the channelization impairment of 20% (1-80%) by the percent good for the co-channel interference impairment of 82.5% (1-17.5%). The product of the two factors is a percent good of 16.5% or an impairment of 83.5% (1-16.5%). This results in a fair market value of \$331 million as shown in Table 7. This is the product of 3.8 MHz times \$1.82/MHz-Pop times 16.5% times 290 million Pops. The \$331 million compares to \$204 million received by the FCC for the 900 MHz band in auction #7.

### **Valuation of Spectrum Proposed To Be Received By Nextel In Spectrum Realignment**

#### **800 MHz Upper 200 SMR Spectrum**

Nextel proposes that it acquire a 6 MHz block of spectrum on a nationwide basis. This spectrum block, once cleared of public safety operations, and authorized for advanced SMR services, on a fair market value basis would be worth the industry average of \$1.82 per MHz Pop. Based upon 290,000,000 nationwide Pops, and the ability to offer CDMA type services in this block, the value of this spectrum block would be based on the industry average and calculated as  $\$1.82 \times 290,000,000 \times 6.0 = \$3,167$  million (see Table 7).

This analysis does not take into account the potential for Nextel to realize improved spectrum efficiency once it has cleared 16 MHz of contiguous spectrum in the 800 MHz band by adding a new 6 MHz block to their existing 10 MHz block. Within limits, when operating a CDMA cellular system, the larger amount of contiguous spectrum over which one can operate, the more spectrum efficiency is achieved. The chart below shows the potential synergy of the 16 MHz (8 MHz in each direction) spectrum block that Nextel proposes to create.

CDMA Spectrum Efficiency Example  
CDMA Channel Width 1.25 MHz

	<u>Bandwidth Allocation (MHz)</u>	<u>Max. Number of Channels</u>
Noncontiguous Spectrum	3	2
Noncontiguous Spectrum	<u>5</u>	<u>3</u>
Total	8	5
 Contiguous Spectrum	 8	 6

For 8 MHz of one-way spectrum, a CDMA system can operate as many as 6 channels if the spectrum is contiguous and 5 channels if the spectrum is divided between a 3 MHz block and a 5MHz block, yielding a potential 20% ((6 channels minus 5 channels)/5 channels) advantage to the contiguous spectrum case.

Nextel alone would have the potential to increase the value of this 16 MHz spectrum. A quantitative valuation of this spectrum combination does not fit within our definition of fair market value. However, we believe that this aspect of Nextel’s proposal has the potential to increase Nextel’s gain in spectrum asset value by more than \$1.0 billion.

1.9 GHz Near-PCS Spectrum

Nextel proposes that it acquire a 10 MHz block of spectrum on a nationwide basis at 1.9 GHz. This spectrum block, once cleared of BAS and unlicensed PCS operations, would be clear of impairments. Based upon the average DCF and market valuation of this spectrum at the industry average of \$1.82 per MHz Pop, the value of this spectrum block would be approximately  $\$1.82 \times 290,000,000 \times 10.0 = \$5,278$ .

**Summary and Value Conclusions**

Nextel proposes to the FCC that it be awarded, virtually free of charge, nationwide licenses for 10 MHz of spectrum in the 1.9 GHz band and 6 MHz of spectrum adjacent to its existing spectrum in the upper 800 MHz band. These licenses involve spectrum that either currently is or potentially could be unencumbered, with Nextel effectively becoming the only licensee of these frequencies. In return for this spectrum Nextel proposes to “give up” spectrum in the 700, 800, and 900 MHz bands with the following attributes:

- Channelized licenses of 25 KHz bandwidth (12.5 KHz channels in the 900 MHz band).
- Not fully nationwide coverage.
- Certain licenses are encumbered or overlapped with existing license holders in the public safety, other SMR users and B/ILT category.
- Certain licenses are interleaved with public safety and B/ILT, creating actual and potential interference.
- The licenses are non-contiguous making it impossible to implement broadband technologies.

We note that while original cost does not necessarily provide a reliable measure of FMV, in 2000 and 2001 Nextel paid approximately \$355 million for its 700 MHz spectrum and \$259 million for its 8.5 MHz of general and interleaved 800 MHz spectrum for a total of \$614 million. Clearly the Nextel proposal represents a windfall to Nextel in terms of the value of spectrum it is requesting, which we would put in the category of “prime real estate”.

The gain in Nextel’s license value from its proposed spectrum realignment would be approximately \$7.2 billion on a fair market value basis.

We understand that our estimate of spectrum value (\$1.82 per MHz Pop) is an industry average, and that individual companies (including Nextel) may value their spectrum somewhat higher or lower. This includes the spectrum that Nextel currently has as well as the spectrum it proposes to get under its realignment proposal. However, regardless of the value that a particular company would attribute to its spectrum, Nextel’s proposed spectrum realignment would still represent an economic windfall due to the impairments of its current spectrum holdings and the absence of such impairments in the spectrum it proposed to acquire. We note that certain existing Nextel spectrum is not subject to the Nextel’s proposal and is not as encumbered or impaired as the subject spectrum and may currently be of greater value to Nextel under its unique iDEN network topology.

Nextel proposes to pay a total of \$850 million in relocation costs to the current incumbent users of affected spectrum, over a four-year period, which we estimate to be

worth \$700 million<sup>14</sup> on a net present value basis. Therefore, as summarized in Table 7, the net gain to Nextel including this cost would be approximately \$6.5 billion on a fair market value basis. We note, however, that the \$700 million present value payment is for relocation expenses, not value that could be available to the government in an auction of any of the proposed Nextel spectrum awards. The calculations are shown in Table 7.

### **Other Considerations**

In the course of our analysis, we noted certain factors or considerations that are difficult to quantify, such as actual and potential interference for certain channel licenses in certain markets. Other factors that have not been quantified and therefore make our analysis conservative are the following:

- The impairment for narrow band versus broadband technology was conducted using current generation CDMA 1xRTT technology in the benchmark for highest and best use of spectrum. However, as noted in the industry review (Appendix A of this report), the trend is clearly toward wide band CDMA or W-CDMA which makes the impairment even greater. While one can argue that next generation technology could be developed for iDEN, it would most likely be further down the road, more costly and less efficient than W-CDMA. This is because Nextel is dependent on a sole source vendor, Motorola, and with the exception of Nextel Partners and Telus in Canada, is the only customer Motorola has for this technology. Clearly the development efforts on a worldwide basis are focused on broadband technologies which require contiguous spectrum which Nextel does not currently have.
- The industry trend in applications is toward high-speed data, which iDEN cannot support as efficiently as wideband technologies can. This represents a growing part of future wireless revenues and cash flows and directly affects value of the business enterprise and the company's spectrum, adversely if it can not facilitate this growth efficiently.
- Economy of scale penalties will be incurred by companies with a relatively small application base when compared to the U.S. wireless industry and the worldwide wireless industry. Table 10 provides an overview of some of the infrastructure cost disadvantages that Nextel currently has relative to the weighted average industry norm. The relative cost differences would add to the impairment values calculated in Table 7, but have not been included for conservatism.

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<sup>14</sup> Here, we assume a linear spending schedule over the four years and a discount rate equal to the industry cost of capital (Table 1) of 11%

- Nextel's Gross PP&E and Net PP&E per subscriber are 36% and 41% higher, respectively, than the average for all cellular and PCS companies (i.e. excluding Nextel & Nextel Partners).
- Nextel's 1.54 cell sites per 1,000 subscribers is 61% higher than the cellular/PCS average of 0.95.
- However, Nextel customers have higher average minutes of use, so Nextel's cell site utilization, or cell sites per one million MOUs per month, is only 13% higher than the Cellular/PCS average.
- Table 11 provides a summary of the worldwide wireless industry OEM infrastructure equipment by vendor and shows 1) the trend by "all" vendors to support W-CDMA technology and 2) the relative isolation of Nextel's iDEN Motorola technology.

In summary, although Nextel at present garners high usage, revenues, and operating cash flow per subscriber from its largely business/urban corridor customer base, it also has had to invest more heavily in its asset base, and pays more to acquire new subscribers. In particular, it is the sole user of iDEN telephones, and Motorola is the sole iDEN producer, so Nextel will suffer economies-of-scale penalties as the industry adopts CDMA1XRTT and WCDMA technologies, i.e. its equipment costs are likely to remain high relative to the rest of the industry.

Nextel's current non-contiguous spectrum impairs Nextel's ability to service high-speed data customers, and Nextel is also disadvantaged by its current spectrum in competing for lower-use casual/residential customers: it has to incur comparatively higher costs for expanding its network (e.g. more cell sites per sub required), and its higher equipment cost, necessitated by more expensive and unique equipment, mean that it cannot compete as efficiently for new data application services and lower-usage voice subscribers.

Our Valuation analysis has determined the average domestic wireless industry spectrum value of \$1.82 per MHz Pop as of December 31, 2002. This date was selected for convenience since many of the public SEC & FCC documents portray financial and operational parameters as of the year end date. However, it is our opinion

**Table 10**

**Nextel vs. Cellular & PCS Companies: Key Cost Data  
As of Year-End 2002 and Calendar Year 2002**

Company	000s	\$millions	Gross PP&E Per Sub	\$millions	Net PP&E Per Sub	Yearend 2002 Cell Sites	Cell Sites per 1000 subs	4th qtr 2002	000s	4th qtr 2002
	Yearend 2002 Subscribers	2002 Gross PP&E		2002 Net PP&E				average # of Cell Sites	MOU/CellSite per month	Cell Sites million
Nextel	10,612	13,925	1,312	8,918	\$ 840	16,300	1.54	16,190	407	2.46
Nextel Partners	878	1,222	1,392	1,000	1,139	3,317	3.78	3,262	155	6.45
Sprint PCS	14,760	16,978	1,150	11,897	806	19,300	1.31	19,000	500	2.00
T-Mobile	9,916	6,895	695	4,488	453	17,600	1.77	17,600	311	3.22
Leap Wireless	1,600	1,505	941	1,107	692	2,446	1.53	2,435	787	1.27
Triton PCS	830	1,140	1,373	797	960	2,218	2.67	2,199	220	4.55
Alamosa	622	581	934	459	738	1,509	2.43	1,496	181	5.52
Airgate/iPCS	555	512	923	399	719	807	1.45	805	377	2.65
US Unwired	551	670	1,216	484	878	1,796	3.26	NA	NA	NA
Ubiquitel	257	339	1,319	276	1,074	826	3.21	821	193	5.18
Verizon Wireless	32,491	30,642	943	17,073	525	18,457	0.57	18,379	675	1.48
Cingular	21,925	19,450	887	11,144	508	20,112	0.92	20,112	444	2.25
AT&T Wireless	20,859	24,073	1,154	16,263	780	21,064	1.01	20,374	494	2.02
Alltel Wireless	7,602	6,300	829	2,999	394	NA	NA	NA	NA	NA
US Cellular	4,103	3,057	745	2,008	489	3,914	0.95	3,832	367	2.72
Western Wireless	1,198	1,595	1,331	861	719	1,250	1.04	1,250	378	2.65
Dobson	880	519	590	301	342	945	1.07	936	152	6.58
Rural Cellular	667	413	619	241	361	732	1.10	722	NA	NA
Centennial Cellular	603	NA	NA	388	643	704	1.17	701	848	1.18
Totals/Weighted Averages	130,909	\$ 129,816	\$ 996	\$ 81,101	\$ 620	133,297	1.02	130,113	455	2.20
Totals/Avgs Cellular&PCS	119,419	\$ 114,669	\$ 965	\$ 71,183	\$ 596	113,680	0.95	110,661	471	2.12
Nextel	10,612	\$ 13,925	\$ 1,312	\$ 8,918	\$ 840	16,300	1.54	16,190	407	2.46
Nextel vs. Cellular & PCS average, higher by:			<b>36%</b>		<b>41%</b>		<b>61%</b>			<b>16%</b>

# OEM INFRASTRUCTURE EQUIPMENT BY VENDOR

	Ericsson Sweden	Nokia Finland	Motorola United States	Nortel Networks Canada	Lucent United States	Siemens/NEC Germany/Japan	Alcatel/Fujitsu France/Japan	Samsung Korea	LG Elect. Korea	ZTE China	Daewoo China	Huawei China	UTStarcom United States
PHS 1900					PHS 1900					PHS 1900			PHS 1900
PDC 1700	PDC 1700		PDC 1700		PDC 1700		PDC 1700						
TDMA 800	TDMA 800		TDMA 800	TDMA 800									
TDMA 1900	TDMA 1900		TDMA 1900	TDMA 1900									
IDEN			IDEN										
GSM 800	GSM 800	GSM 800			GSM 800	GSM 800	GSM 800						
GSM 900	GSM 900	GSM 900			GSM 900	GSM 900	GSM 900						
GSM 1800	GSM 1800	GSM 1800	GSM 800	GSM 800	GSM 1800	GSM 1800	GSM 1800	GSM 900	GSM 900	GSM 1800	GSM 1800	GSM 900	GSM 900
GSM 1900	GSM 1900	GSM 1900	GSM 1900	GSM 1900	GSM 1900	GSM 1900	GSM 1900						
CDMA 450				CDMA 450								CDMA 450	
CDMA 800	CDMA 800		CDMA 800	CDMA 800								CDMA 800	
CDMA 1700	CDMA 1700												
CDMA 1900	CDMA 1900		CDMA 1900	CDMA 1900				CDMA 1700	CDMA 1700			CDMA 1900	
GPRS Core	GPRS Core	GPRS Core	GPRS Core	GPRS Core	GPRS Core	GPRS Core	GPRS Core	GPRS Core	GPRS Core	GPRS Core	GPRS Core	GPRS Core	GPRS Core
EDGE	EDGE	EDGE	EDGE	EDGE	EDGE	EDGE							
cdma 1xRTT	cdma 1xRTT	cdma 1xRTT	cdma 1xRTT	cdma 1xRTT	cdma 1xRTT			cdma 1xRTT	cdma 1xRTT	cdma 1xRTT		cdma 1xRTT	
cdma2000	cdma2000	cdma2000	cdma2000	cdma2000	cdma2000			cdma2000	cdma2000	cdma2000		cdma2000	
TD-SCDMA					TD-SCDMA						TD-SCDMA		
W-CDMA	W-CDMA	W-CDMA	W-CDMA	W-CDMA	W-CDMA	W-CDMA**	W-CDMA**	W-CDMA	W-CDMA	W-CDMA	W-CDMA	W-CDMA	W-CDMA

that our value conclusion is conservative relative to the time of issue of this report. In fact, December 2002 was probably a low point in wireless industry equity valuations and some modest recovery has been made since. Therefore, it is likely that the average MHz Pop spectrum value of \$1.82 would increase as of today's date, creating an even greater windfall to Nextel under its spectrum proposal.

As further support to our premise that the Nextel spectrum proposed to be given up in the FCC proposal is impaired in value in certain respects, the following commentary has been extracted from several Analyst Reports concerning Nextel's growth limitations due to its unique spectrum:

- Lehman Brothers, April 10, 2003: Telecommunications Wireless Services:
  - “In terms of absolute levels and type of spectrum, Nextel has one of the weaker portfolios in the U.S. wireless industry. While not apparent today, it is possible that without additional spectrum, Nextel will have difficulty maintaining its current quality of service. In addition, its spectrum is different from the standards used by the other national players, which operate in the Cellular (850 MHz) and PCS (1900 MHz) spectrum bands. Nextel is at a relative disadvantage in terms of being an acquisition target due to this incompatible spectrum portfolio. However, we believe Nextel will likely have the opportunity to acquire additional spectrum in the not-to-distant future, whether by way of its 800 MHz Consensus Swap plan or NextWave's spectrum coming to market.”
  - “Nextel's competitors have currently deployed or are in the process of deploying higher-speed networks. These upgrades (CDMA2000 1x or GPRS) provide the customer with average data speeds of around 40-70 Kbps versus iDEN at around 20 Kbps. Nextel recognizes that its data product provides slower transmission speeds than its competitors, but claims that its customers are not currently demanding faster speeds. As evidence of this, Nextel reports that 20% of its subscriber base uses wireless data, giving it one of the highest levels of wireless data adoption in the industry. However, if wireless data takes off and customers begin demanding higher speeds, then Nextel could be at a disadvantage. At that time, the company would need to upgrade its network to remain competitive.
- UBS Warburg, March 3, 2003; Nextel: Imitation is the Sincerest Form of Flattery.

- “We believe a positive outcome for Nextel on the spectrum swap proposal would be further catalyst for the stock. We expect a decision from the FCC in the next few months.”
- “Why is this important? Larger blocks of contiguous spectrum should enable Nextel to have more flexibility in terms of next-generation technologies. Also, contiguous channels should reduce network operating costs and capital expenditures (contiguous radio channels are generally less expensive than non-contiguous ones). And, from a strategic standpoint, Nextel would have similar frequencies to the other national operators (frequencies in the cellular (800 MHz) and PCS (1.9GHz) bands).”
- Investment concerns
  - “Uncertainty regarding the timing and cost of Nextel’s upgrade to next generation.”
  - “iDEN is a proprietary technology.”
- Morgan Stanley, April 23, 2003: Nextel IQ 2003 – “No Boogie Man: Results Speak the Loudest” :
  - Despite the strong operating performance, we still believe that the company has to address the following issues:
    - “Nextel needs to strengthen its **spectrum** position. The proposed spectrum-swap would help the company considerably if approved by the FCC, but a positive decision on the issue is not certain and is not expected for at least 3 more months;
    - Sooner or later, Nextel will have to deploy a network solution that allows the company to provide higher-speed data services to its customers. As wireless data becomes more important, pressure on Nextel might increase”;
  - “In our view, for the stock to reach our target price, it is important that the management team of Nextel continue to focus on the following key areas: .....
    - Increase clarity on the potential network overlays/upgrades for higher-speed data services;
    - Continue to work hard to obtain additional spectrum, even if the outcome of the current spectrum-swap proposal is not entirely favorable for the company.
- Key Investment Risks
  - *Cost of technology conversion.* Nextel is the only operator using iDEN, which has no clearly defined path to 3G. Conversion to CDMA2000 could be complex and costly. We

believe that Nextel will eventually upgrade its network to CDMA2000, but not until 2005-2006.”

- Bear Sterns, May 2003: Wireless Services, Nextel Communications
  - “Unfortunately (and like TDMA), Nextel’s iDEN technology does not offer the company a viable upgrade path to 3G. While competitors are busy upgrading networks and seeing average data download speed as high as 60-80 kbps, Nextel has a natural download speed of only 10-20 kbps and sees only up to 40 kbps using compression technology. Eventually, Nextel will likely build a 3G CDMA network to offer faster data speeds, which could cost the company in the range of \$2-\$3 billion in capital spending over and above the cost of keeping the iDEN network running.”
  - “Nextel’s iDEN technology allows the company to operate in small chunks of spectrum through the 800 and 900 MHz bands. In total, the company has about 22 MHz of this spectrum (18 at 800 MHz and 4 at 900 MHz), as well as 4 MHz in the 700 MHz band, which cannot currently be used.”
  - “Nextel purchased more than \$600 million in additional spectrum in 2002 and already has bought \$203 million in spectrum this year through the acquisition of NeoWorld Communications in January. The company has provided guidance that it will continue to buy approximately \$200 million in spectrum per year.”

The significance of the above extracts from analyst reports is that Nextel’s current spectrum capacity is limited by its unique narrowband, channelized, non-contiguous, and interference prone spectrum licenses. The market has placed some probability of Nextel obtaining spectrum through its spectrum realignment proposal before the FCC and/or through purchases. The spectrum Nextel proposes to give up, (in particular its 700 and 900 MHz bands spectrum) is worth little on a fair market value basis due to its limitations. While Motorola’s iDEN proprietary technology has served Nextel well, it is clear that the industry is moving beyond TDMA to wide-band CDMA and/or GSM solutions and the utility and value of the Nextel spectrum proposed to be given up is limited.

## **APPRAISAL CERTIFICATE**

The determination of the Fair Market Value of the Certain Portions of FCC Licensed Wireless Spectrum Proposed for Realignment by Nextel Communications, Inc. Under FCC WT Docket No. 02-55 as of December 31, 2002 has been appraised by Robert E. Ott, James W. Cuddihy, David K. Bivins, Brian K. Dougherty, Dennis W. Elliot and Brian Withka of Kane Reece Associates, Inc., Westfield, New Jersey. The effective date of the appraisal is December 31, 2002.

We certify that, to the best of our knowledge and belief:

- The statements of fact contained in this report are true and correct.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, unbiased professional analyses, opinions, and conclusions.
- Neither Kane Reece Associates, Inc. nor we have any present or prospective interest in the property that is the subject of this report, nor do we have any personal interest with respect to the parties involved.
- Kane Reece Associates, Inc. and we have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment. Principals and/or staff of Kane Reece Associates, Inc. may hold small amounts of publicly traded securities, either directly or indirectly through mutual funds for investment purposes, in the parties involved. However, any such holdings are de minimus in nature and in no way compromise Kane Reece Associates, Inc.'s or the appraisers' independence in rendering an unbiased appraisal of the property that is the subject of this report.
- Kane Reece Associates, Inc.'s and our compensation are not contingent on an action or event resulting from the analyses, opinions, or conclusions in, or the use of, this report.
- Our analyses, opinions, and conclusions were developed, and this report has been prepared in conformity with the Uniform Standards of Professional Appraisal Practice.
- No one provided significant professional assistance to the persons signing this report.

The appraisal of the Nextel proposed transaction is based on financial and operating information available from public industry documents, and other information listed in Appendix B. We have relied on this public information without independent analysis or verification by Kane Reece Associates, Inc..

The appraiser did not visit with Nextel regarding this engagement. However, the appraisers did visit and discussed the Nextel proposal with Verizon Wireless during the course of this engagement, solely for the purpose of our analysis of the Nextel Proposal.

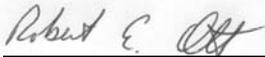
No investigation has been made of the title to or the liabilities against the assets, which have been appraised.

Kane Reece Associates, Inc. is not responsible for the impact of economic events occurring after the date of this report and we have no obligation to update this report unless subsequently engaged to do so.

Kane Reece Associates, Inc. is not required to give testimony in court, or be in attendance during any hearings or depositions, with reference to the company being appraised, unless previous arrangements have been made.

This appraisal is valid only for the purpose(s) stated herein, for the appraisal date or dates specified herein, and no one may rely on the report for any other purpose(s). You may show our report in its entirety to those third parties that need to review the information contained therein. You agree to hold Kane Reece Associates, Inc. harmless from any liability, including attorney's fees, damages or cost that may result from any improper use or reliance by you or third parties. No reference to our name or our report, in whole or in part, in any document you prepare and/or distribute to third parties may be made without our prior written consent. We will maintain the confidentiality of all conversations, documents provided to us, and the contents of our reports, subject to legal or administrative process or proceedings. These conditions can be modified only by written documents executed by both parties.

KANE REECE ASSOCIATES, INC.



Robert E. Ott, Principal



James W. Cuddihy, Vice President – Engineering



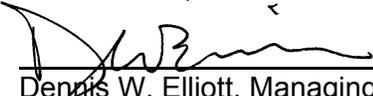
David K. Bivins PhD, Senior Consultant



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October 23, 2003

**EXHIBIT A**

**Cash Flow Projection Assumptions**

## EXHIBIT A

### **Cash Flow Projection Assumptions for the 10MHz Spectrum at 1.9 GHz As of December 31, 2002**

#### **Introduction**

Cash flow projections have been developed for a hypothetical buyer of a 10 MHz spectrum block in the 1.9 GHz band, covering all of the United States. Specifically, this is the paired spectrum at 1910-1915 MHz uplink and 1990-1995 MHz downlink now being sought by Nextel. The licenses for this national spectrum are valued as of the valuation date, utilizing a “start-up” model, which phases in incremental subscribers over a ten-year model period, as portrayed in Exhibit B, “Discounted Cash Flow Valuation Model for the 10 MHz Spectrum at 1.9 GHz”.

This model assumes that the subject spectrum was acquired on the valuation date by an existing U.S. wireless operator, not a new start-up company, so it represents the initial or “start-up” use of this new spectrum by an existing operator to add incremental subscribers to his existing subscriber base. The hypothetical buyer is not necessarily Nextel, i.e. the model is used to determine a fair market value indication, not investor value.

The acquired spectrum is further assumed to be fully unencumbered and available to the buyer as of the valuation date. As this is the only asset for this start-up venture, other than the buyer’s existing infrastructure assets, which any of the hypothetical buyers would possess, the model’s business enterprise value (BEV) indication effectively represents the value of the sole incremental asset of the venture, i.e. the acquired national license. Since we have used industry norms for revenue growth, expenses, and capital, we have fully “charged” the “start-up” for its fair share of the hypothetical buyers costs, and we do not consider any goodwill and/or going concern value to be material.

Table 12 provides a summary of the wireless industry forecasts and composite average forecasts for the industry parameters described below and used in the DCF model in Exhibit B. The following provides an overview of the assumptions and projections used in this model, shown in Exhibit B.

#### **Population**

Population (POPs) are based upon the estimated population in 2002 for the United States of 286.8 million, and an industry average population forecast through 2010 (Year 8), extended through 2012 (Year 10) at an annual rate of growth (CAGR) of .94%.

#### **U.S. Wireless Customers**

Total U.S. wireless customers are forecasted to increase from approximately 139 million at the end of 2002 to 215 million by the end of year 10, based upon the industry analyst composite forecast.

Table 12

**Wireless Industry Statistics Forecast**

	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
<b>U.S. Population (Millions)</b>													
Goldman Sachs	281.000	283.000	285.000	286.000	291.000	294.000	297.000	300.000	303.000	306.000	309.000		
Lehman		285.671	288.453	291.058	293.677	296.320	298.987	301.678	304.393	307.133	309.897		
Kagan 12/10/02		288.500	291.300	294.300	297.200	300.200	303.200	306.200	309.300	312.400	315.500	318.600	
Claritas*			286.817	289.511	292.229	294.973	297.743	300.539					
<b>Estimate Used: Goldman Sachs/Lehmann avg.</b>			<b>286.727</b>	<b>288.529</b>	<b>292.339</b>	<b>295.160</b>	<b>297.994</b>	<b>300.839</b>	<b>303.697</b>	<b>306.567</b>	<b>309.449</b>	<b>312.358</b>	<b>315.294</b>
<b>Subscribers (Thousands)</b>													
Goldman Sachs	109,478	128,375	140,455	150,527	159,652	168,004	175,499	181,749	186,593	189,987	191,979		
JP Morgan	98,869	118,283	134,007	144,806	154,168	161,670							
Deutsche Bank	100,807	122,072	138,783	153,615	167,882	180,593	191,537	200,358	207,091	212,860	218,585	224,297	
Bear, Stearns	110,000	125,000	140,000	150,000	160,000	170,000	178,000	185,000	190,000	195,000	200,000	205,000	210,000
Lehman	109,478	128,375	140,767	151,714	162,330	172,755	182,681	192,244	201,052	209,465			
Kagan 12/10/02		<u>127,300</u>	<u>140,200</u>	<u>153,400</u>	<u>165,600</u>	<u>177,000</u>	<u>187,600</u>	<u>197,500</u>	<u>206,800</u>	<u>215,500</u>	<u>224,100</u>	<u>232,800</u>	
Average		124,901	139,035	150,677	161,605	171,670	183,063	191,370	198,307	204,562	208,666	220,699	210,000
<b>Smoothed/Trended Average</b>		<b>124,901</b>	<b>139,035</b>	<b>150,677</b>	<b>161,605</b>	<b>171,670</b>	<b>181,600</b>	<b>191,370</b>	<b>198,307</b>	<b>204,562</b>	<b>208,666</b>	<b>212,000</b>	<b>215,000</b>
Annual growth			11.3%	8.4%	7.3%	6.2%	5.8%	5.4%	3.6%	3.2%	2.0%	1.6%	1.4%
<b>Churn %</b>													
JP Morgan	2.6	2.7	2.7	2.6	2.5	2.5							
Merrill Lynch													
Deutsche Bank	3.3	3.1	3.0	2.7	2.6	2.4	2.3	2.3	2.3	2.3	2.3	2.3	
Bear, Stearns			2.5										2.0
Lehman		2.6	2.7	2.6	2.7	2.6	2.6	2.5	2.5	2.5	2.5		
Kagan 7/12/02		<u>2.6</u>	<u>2.6</u>	<u>2.5</u>									
Average	2.95	2.76	2.70	2.60	2.58	2.50	2.47	2.43	2.43	2.43	2.43	2.40	2.00
<b>Smoothed/Trended Average</b>				<b>2.60</b>	<b>2.58</b>	<b>2.50</b>	<b>2.47</b>	<b>2.43</b>	<b>2.43</b>	<b>2.43</b>	<b>2.43</b>	<b>2.40</b>	<b>2.40</b>
<b>ARPU (\$)</b>													
Goldman Sachs	50.26	52.39	52.26	52.71	53.02	52.76	53.11	52.91	52.52	52.18	51.76		
JP Morgan	55.33	55.12	54.65	54.23	54.05	53.82							
Deutsche Bank	57.50	57.20	55.40	53.60	51.20	49.60	48.70	48.30	48.30	48.70	49.20	49.50	
Bear, Stearns													50-52
Lehman		54.00	54.00	54.00	53.00								
Kagan 7/02 w/o WLL		<u>53.93</u>	<u>53.85</u>	<u>54.52</u>	<u>55.52</u>	<u>55.53</u>	<u>55.65</u>	<u>56.94</u>	<u>56.94</u>	<u>57.35</u>	<u>57.81</u>	<u>58.26</u>	
Average		54.53	54.03	53.81	53.36	52.93	52.49	52.72	52.59	52.74	52.92	53.88	
<b>Smoothed/Trended Average</b>			<b>54.03</b>	<b>53.81</b>	<b>53.36</b>	<b>52.93</b>	<b>52.49</b>	<b>52.54</b>	<b>52.59</b>	<b>52.74</b>	<b>52.92</b>	<b>53.10</b>	<b>53.30</b>

\* Forecast through 2007 from "Sales & Marketing Management 2002 Survey of Buying Power". S&MM is a sister company of Claritas, and is owned by VNU.

Table 12

Wireless Industry Statistics Forecast

	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
<b>The following three parameters were forecasted by only one analyst source, Kagan Associates July 12, 2002</b>													
<b>Minutes of Use per Customer</b>		327	403	468	536	601	653	730	730	766	801	838	
<b>Operating Expense - % of Total Revenue</b>		24.8%	24.8%	24.7%	25.0%	25.2%	25.4%	25.1%	25.1%	24.9%	24.7%	24.5%	
<b>G&amp;A expense - % of Total Revenue</b>		19.5%	18.4%	17.7%	16.9%	16.3%	15.9%	14.5%	14.5%	13.6%	12.9%	12.1%	
<b>Cust. Acq. Cost (CPGA)(\$Ave.)</b>													
Goldman Sachs			368										
JP Morgan	350	336	355	364									
Merrill Lynch					354	344	334						
Deutsche Bank(avg top 7 companies)			353	354	354	353	352	350	347	344	340	337	
Bear, Stearns	362	343	373										
Lehman	315	332	346	360	342								
Average	342	337	359	359	350	349	343	350	347	344	340	337	
<b>Smoothed/Trended Average</b>				<b>359</b>	<b>352</b>	<b>349</b>	<b>347</b>	<b>346</b>	<b>345</b>	<b>344</b>	<b>343</b>	<b>342</b>	<b>341</b>
<b>EBITDA Margin</b>		<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
Kagan 2002		24.2%	28.4%	30.0%	31.8%	32.8%	33.4%	35.7%	35.7%	37.0%	38.1%	39.1%	
JP Morgan		26.2%	29.6%	32.9%	34.9%	36.7%							
Deutsche Bank		26.0%	30.0%	32.0%	33.0%	33.0%	34.0%	35.0%	36.0%	36.0%	37.0%	37.0%	
Lehmann		28.0%	31.0%	32.0%	33.0%								
Average		26.1%	29.8%	31.7%	33.2%	34.2%	33.7%	35.4%	35.9%	36.5%	37.6%	38.1%	
<b>Smoothed/Trended Average</b>			<b>30.0%</b>	<b>31.7%</b>	<b>33.2%</b>	<b>34.2%</b>	<b>34.8%</b>	<b>35.4%</b>	<b>35.9%</b>	<b>36.5%</b>	<b>37.6%</b>	<b>38.1%</b>	<b>38.6%</b>
<b>Capital Expenditures as % of svce revenue</b>													
Lehmann Bros				22.0%	19.0%	18.0%	17.0%	16.0%	15.0%	15.0%	15.0%		
Deutsche Bank (for top 7 wireless operat)	40.1%	37.3%	28.6%	22.6%	20.0%	19.7%	20.5%	20.6%	19.9%	18.6%	17.7%	17.3%	
JP Morgan (Capex report)	<u>37.4%</u>	<u>34.7%</u>	<u>26.4%</u>	<u>21.2%</u>	<u>18.2%</u>								
Average	38.8%	36.0%	27.5%	21.9%	19.1%	18.9%	18.8%	18.3%	17.5%	16.8%	16.4%	17.3%	
<b>Smoothed/Trended Average</b>	<b>38.8%</b>	<b>36.0%</b>	<b>27.5%</b>	<b>21.9%</b>	<b>19.1%</b>	<b>18.9%</b>	<b>18.8%</b>	<b>18.3%</b>	<b>17.5%</b>	<b>16.8%</b>	<b>16.4%</b>	<b>16.0%</b>	<b>15.6%</b>

## **New Spectrum Customers**

This national license is undeveloped, i.e. there are no customers at the start of the model period. Our model projects that the new spectrum infrastructure will be built during Years 1 through 3, with 40% completion by the end of year 2 and 80% by the end of Year 3. It assumes that the license will achieve a one-eighth share (we have assumed an average of eight wireless carrier competitors serving the U.S. market) of new wireless customers added annually in the U.S. by Year 4 of our analysis, factored down by the estimated percent of build-out in years 2 and 3. Thus, time is allowed to expand the hypothetical buyer's wireless network to service the market. In addition, an annual market share growth is added, based upon the prior year customer base times a percent growth factor, so that the spectrum's total penetration of the U.S. wireless market reaches a stable 4.5% in Year 10, i.e. 9.7 million customers out of the 215 million total. This terminal share results in a spectrum utilization measure of 3.07 customers per 1,000 MHz Pops, comparable to the current industry average of 3.03 (see also Exhibit F).

Net customers at the end of each model year are forecasted as the sum of prior period customers plus the added customers as calculated from the penetration and population increase in that year. Based on industry composite average projected churn rates, the total customer defections and gross additional customers are then determined, for the purpose of calculating marketing costs (see "Operating Expenses" below).

## **Customer Revenue**

Average revenue per customer per month (ARPU) is made up of four components:

- Local service which includes air time, monthly access fees, long distance fees, and activation and other customer fees.
- Roaming (outcollect)
- Data including web and transaction services
- Advertising and other revenue

Industry forecasts are, for the most part, not made at this level of detail, and we have relied upon a composite industry forecast for total ARPU, decreasing slightly from \$53.81 in Year 1 to \$53.30 in Year 10. This is a result of several trends in the wireless industry pricing strategy. The largest impact has been the offerings of national and/or regional rate plans with large bulk minutes offering and little or no roaming or long distance charges. This is facilitated by the assemblage of national networks with expanded coverage footprints. These pricing plans have resulted in price elasticity where volume of traffic has increased significantly, prompting some customers to use their wireless phone more than their wireline phone. This is reflected in growth of the usage per customer and is projected to largely offset over time the decrease in prices per minute of use. Additionally, data services including internet access, offer new sources of revenue.

Total revenue in each year is the product of the average number of customers, times the ARPU as determined above, times twelve.

### **Operating Margins**

The operating margin is a function of the above revenue forecast and the cost of providing services. Expenses have been forecasted for three summary categories for the Year 1 to Year 3 “startup period” and the Year 4 to Year 6 period: (1) operating network expense; (2) general & administrative expense; and (3) marketing expenses, including the net equipment subsidy. Operating and G&A expenses are forecasted as a percentage of revenue, based upon U.S. industry forecasts, adjusted for startup expenses in Years 1 to 3. Marketing costs are based upon an initial acquisition cost per gross added customer of \$359, consistent with the industry’s experience, and declining to \$345 by Year 6. Overall operating margins as a percentage of revenue are projected to be negative in the first three years, and then to reach 28.8% by Year 6, and thereafter to increase from 36.5% in Year 7 to 38.6% in Year 10, consistent with expected industry long-term operating margins.

### **Operating Cash Flow (EBITDA)**

This is the computational result of “total revenues” less “total expenses”, and equivalently the product of operating margin % times revenue.

### **Income Taxes**

Income taxes are calculated at an estimated federal and state combined tax rate of 40.0%. We have calculated the taxable basis by adjusting operating income for projected depreciation based on the projected capital expenditures, and assuming no tangible asset basis at the start of the model period. Amortization of intangible assets over a 15-year period is also used to adjust taxable income, and is determined, based upon using simultaneous equations to calculate the total amortizable intangible assets, by subtracting the tangible and other assets from the System BEV. In the subject valuation of the license, there are no other acquired assets besides the license, and therefore the amortized intangible asset value is identical to the System BEV. The depreciation calculations are shown on page 3 of Exhibit B.

### **Capital Expenditures**

Capital expenditures for additional cell sites and equipment are forecasted based on Kane Reece’s estimate of the average capital expense required to expand the capacity of the buyer’s existing network, and upon the industry average of approximately 1,000 customers served per cell site. The forecasted \$300,000 new capital expenditure per added cell site, equivalent to \$300 per net added customer is provided in the year prior to the cell sites’ operation, i.e. one year prior to the addition of the new customers, and an additional provision of \$50 per net added customer is made for other required system enhancements. In addition, replacement capital is provided for beginning in

year 6, normalizing the total capital expenditures (as a % of revenue) at industry forecast levels.

### **Free Cash Flow**

The free cash flow is calculated by subtracting capital expenditures, working capital requirements and income taxes from operating cash flow. Working capital requirements are estimated based on industry levels at 2% of revenue, and are therefore increased by 2% of the incremental revenue in each year.

### **Present Value Factors**

11.0% mid-year convention, based on the cost of capital.

### **Present Value Cash Flow**

This is the sum of the yearly cash flows over the model period times the present value factors.

### **Continuing Value**

The residual value assumes a continued operation with the developed license beyond the end of the cash flow model horizon. This value is calculated using a 14.3 times multiple of year eleven normalized operating cash flow (pre-tax), using the dividend discount model (“DDM”) as a proxy, as discussed in Part III of the report and as shown on Page 4 of Exhibit B. Income taxes on the projected future earnings, adjusted for an estimated tax basis, are deducted and the after tax proceeds are then discounted to present value at the cost of capital rate.

### **Value Indication**

The business enterprise value indication, using this discounted cash flow model, is the sum of the present value of the model period cash flows (Years 1-10), plus the continuing value. Given that our model assumes a hypothetical start-up business operation, the BEV represents the value of the business’ initial asset, the national licenses. We have not allocated any capital or operating costs for the hypothetical buyers existing network, so the BEV does not reflect any nominal going concern value.

### **Value per POP**

This is the BEV indication divided by the U.S. population at year-end 2002.

### **MHZ Pop**

This is the average spectrum, here 10 MHz, times the U.S. population at year-end 2002.

### **Value per MHz Pop**

This is the BEV indication divided by MHz Pops.

**EXHIBIT B**

**DCF Analysis for a Start-up Model Employing 10MHz Spectrum at 1.9 GHz**

## Discounted Cash Flow Valuation Model for the 10MHz Spectrum at 1.9 GHz

Dollars in Thousands

Year ending	2002	Year 1 2003	Year 2 2004	Year 3 2005	Year 4 2006	Year 5 2007	Year 6 2008	Year 7 2009	Year 8 2010	Year 9 2011	Year 10 2012
U.S. Population (000s)	286,727	288,529	292,339	295,160	297,994	300,839	303,697	306,567	309,449	312,358	315,294
U.S. Wireless Penetration	48.5%	52.2%	55.3%	58.2%	60.9%	63.6%	65.3%	66.7%	67.4%	67.9%	68.2%
U.S. Wireless Penetration yr to yr increase		3.7%	3.1%	2.9%	2.8%	2.7%	1.7%	1.4%	0.7%	0.4%	0.3%
U.S. Wireless Customers(industry composite forecast)	139,035	150,677	161,605	171,670	181,600	191,370	198,307	204,562	208,666	212,000	215,000
U.S. Wireless Customers Growth Rate	11.3%	8.4%	7.3%	6.2%	5.8%	5.4%	3.6%	3.2%	2.0%	1.6%	1.4%
<b>New Spectrum Customers(000s)</b>											
Potential share of wireless yr. to yr. increase		12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
% completed footprint build-out		0%	40%	80%	100%	100%	100%	100%	100%	100%	100%
Achieved share of wireless yr. to yr. increase		0.0%	5.0%	10.0%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Annual growth in customer base (market share growth)				50%	30%	25%	20%	15%	10%	5%	1%
Customers Beginning of Year		0	0	441	1,504	2,981	4,721	6,299	7,786	8,835	9,447
Customers End of Year		0	441	1,504	2,981	4,721	6,299	7,786	8,835	9,447	9,666
% Change Year to Year				241.0%	98.2%	58.4%	33.4%	23.6%	13.5%	6.9%	2.3%
Penetration of US Wireless market		0.00%	0.27%	0.88%	1.64%	2.47%	3.18%	3.81%	4.23%	4.46%	4.50%
Penetration of US population		0.00%	0.15%	0.51%	1.00%	1.57%	2.07%	2.54%	2.86%	3.02%	3.07%
MHz*POPs coverage(000s)		-	1,169,354	2,361,280	2,979,935	3,008,390	3,036,965	3,065,665	3,094,485	3,123,576	3,152,940
Subscribers per 1,000 MHzPOPs			0.377	0.637	1.000	1.569	2.074	2.540	2.855	3.024	3.066
Industry average Subs per 1000 MHz POPs(YE 2002)	3.03										
Average New Spectrum Customers	-	0	221	973	2,242	3,851	5,510	7,043	8,311	9,141	9,556
Gross Additions	-	0	507	1,351	2,131	2,865	3,187	3,544	3,442	3,244	2,971
Deactivations	-	0	66	288	655	1,124	1,609	2,056	2,393	2,633	2,752
Average Monthly Churn (Industry composite forecast)	2.6%	2.6%	2.5%	2.5%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
Net Additions	-	0	441	1,063	1,477	1,740	1,578	1,487	1,049	612	219
Minutes of Use per Customer(Kagan estimate)	403	468	536	601	653	730	730	766	801	838	858
Average Revenue per MOU	\$0.134	\$0.115	\$0.100	\$0.088	\$0.080	\$0.072	\$0.072	\$0.069	\$0.066	\$0.063	\$0.062
ARPU per customer per month(ind. composite forecast)	\$ 54.03	\$ 53.81	\$ 53.36	\$ 52.93	\$ 52.49	\$ 52.54	\$ 52.59	\$ 52.74	\$ 52.92	\$ 53.10	\$ 53.30
<b>Total Revenue(\$000s)</b>		\$0	\$141,224	\$617,728	\$1,412,336	\$2,427,825	\$3,476,952	\$4,457,391	\$5,277,887	\$5,824,491	\$6,112,139
% Change Year to Year				337.4%	128.6%	71.9%	43.2%	28.2%	18.4%	10.4%	4.9%
<-----Startup Period-----> <--Grow to Industry Performance Levels--> <-----At Industry EBITDA Performance Levels----->											
<b>Operating Expenses</b>		89,683	179,367	269,050	358,733	609,384	872,715				
Industry forecast % of Total Revenue(Kagan)			25.0%	25.2%	25.4%	25.1%	25.1%				
% of total revenue		NA	127.0%	43.6%	25.4%	25.1%	25.1%				
Operating Exp. Per Avg. Customer		NA	\$813	\$277	\$160	\$158	\$158				
Gross Profit		(\$89,683)	(\$38,142)	\$348,678	\$1,053,603	\$1,818,441	\$2,604,237				
Margin on Total Rev.			-27.0%	56.4%	74.6%	74.9%	74.9%				
<b>General and Administrative</b>		56,140	112,281	168,421	224,561	352,035	504,158				
Industry forecast % of Total Revenue(Kagan)	18.4%	17.7%	16.9%	16.3%	15.9%	14.5%	14.5%				
% of total revenue		NA	79.5%	27.3%	15.9%	14.5%	14.5%				
G&A per Avg Cust.			\$509	\$173	\$100	\$91	\$92				
Income Before Marketing		(145,824)	(150,423)	180,257	829,041	1,466,406	2,100,079				
Margin on Total Rev.			-106.5%	29.2%	58.7%	60.4%	60.4%				
<b>Marketing Expenses (incl equip subsidy)</b>		0	178,589	470,770	738,516	989,720	1,097,902				
% of Total Revenue(calculated)			126.5%	76.2%	52.3%	40.8%	31.6%				
Marketing per Gross Add ( smoothed analyst Industry avg.)		\$ 359	\$ 352	\$ 349	\$ 347	\$ 346	\$ 345	\$ 344	\$ 343	\$ 342	\$ 341
memo: Marketing Per Net Addition			\$ 405	\$ 443	\$ 500	\$ 569	\$ 696				
Total Expenses		145,824	470,237	908,241	1,321,811	1,951,139	2,474,775				
<b>Operating Cash Flow (EBITDA) to maturity</b>		(\$145,824)	(\$329,012)	(\$290,514)	\$90,525	\$476,686	\$1,002,177				
Margin on Total Revenue		NA	-233.0%	-47.0%	6.4%	19.6%	28.8%				
Industry Composite EBITDA margin projection		31.7%	33.2%	34.2%	34.8%	35.4%	35.9%	36.5%	37.6%	38.1%	38.6%
<b>Operating Cash Flow (EBITDA)</b>		(\$145,824)	(\$329,012)	(\$290,514)	\$90,525	\$476,686	\$1,002,177	\$1,626,948	\$1,981,846	\$2,216,219	\$2,356,229
<b>EBITDA Margin</b>			-233.0%	-47.0%	6.4%	19.6%	28.8%	36.5%	37.6%	38.1%	38.6%

## Discounted Cash Flow Valuation Model for the 10MHz Spectrum at 1.9 GHz

Dollars in Thousands

Year ending	2002	Year 1 2003	Year 2 2004	Year 3 2005	Year 4 2006	Year 5 2007	Year 6 2008	Year 7 2009	Year 8 2010	Year 9 2011	Year 10 2012
Depreciation		(18,906)	(81,123)	(177,553)	(282,833)	(367,195)	(432,386)	(514,574)	(616,637)	(713,555)	(787,298)
Amortization		(332,000)	(332,000)	(332,000)	(332,000)	(332,000)	(332,000)	(332,000)	(332,000)	(332,000)	(332,000)
<b>EBIT</b>		(496,729)	(742,135)	(800,067)	(524,308)	(222,508)	237,791	780,373	1,033,209	1,170,664	1,236,931
Interest Income (Expense)	0	0	0	0	0	0	0	0	0	0	0
<b>Pretax Income</b>	\$0	(496,729)	(742,135)	(800,067)	(524,308)	(222,508)	237,791	780,373	1,033,209	1,170,664	1,236,931
Cumulative		(496,729)	(1,238,865)	(2,038,932)	(2,563,239)	(2,785,747)	(2,547,956)	(1,767,583)	(734,374)	436,291	1,673,222
Income Taxes	40.0%	0	0	0	0	0	0	0	0	174,516	494,772
<b>Net After-Tax Income</b>	\$0	(\$496,729)	(\$742,135)	(\$800,067)	(\$524,308)	(\$222,508)	\$237,791	\$780,373	\$1,033,209	\$996,148	\$742,159
<b>Addback</b>											
Depreciation		18,906	81,123	177,553	282,833	367,195	432,386	514,574	616,637	713,555	787,298
Amortization		332,000	332,000	332,000	332,000	332,000	332,000	332,000	332,000	332,000	332,000
Cash Flow from Operations		(145,824)	(329,012)	(290,514)	90,525	476,686	1,002,177	1,626,948	1,981,846	2,041,703	1,861,457
<b>Less</b>											
Addition to Working Capital at 2% of incr revenue	2%	-	2,824	9,530	15,892	20,310	20,983	19,609	16,410	10,932	5,753
<b>Less</b>											
Cap Ex for cell sites @ \$300,000		132,300	318,900	443,100	522,000	473,400	446,100	314,700	183,600	65,700	33,600
Addl. Cap Ex for net additional customers@\$50 per cust.			22,056	53,148	73,829	87,009	78,903	74,368	52,433	30,585	10,958
Replacement Capital Exp.		-	-	-	-	-	81,725	359,774	626,902	832,722	905,879
Total Capital Expenditures		132,300	340,956	496,248	595,829	560,409	606,728	748,842	862,934	929,006	950,438
memo: Cap Ex per net added customer			773	467	404	322	384	503	823	1,519	4,337
memo:new Cap Ex % of Revenue			241.4%	80.3%	42.2%	23.1%	15.1%	8.7%	4.5%	1.7%	0.7%
Total (New + Repl.) Cap Ex % of Revenue			241.4%	80.3%	42.2%	23.1%	17.5%	16.8%	16.4%	16.0%	15.6%
<i>Composite industry forecast</i>		27.5%	21.9%	19.1%	18.9%	18.8%	18.3%	17.5%	16.8%	16.0%	15.6%
memo: cumulative Cap Ex			473,256	969,504	1,565,333	2,125,742	2,732,471	3,481,312	4,344,247	5,273,253	6,223,691
memo: cumulative Cap Ex per customer			1,073	645	525	450	434	447	492	558	644
Free Cash Flow		\$ (278,124)	\$ (672,793)	\$ (796,292)	\$ (521,196)	\$ (104,033)	\$ 374,467	\$ 858,497	\$ 1,102,502	\$ 1,101,764	\$ 905,266
Discount Rate and Factors	11.0%	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710
PV of Cash Flow:		\$ (263,983)	\$ (575,304)	\$ (613,429)	\$ (361,719)	\$ (65,045)	\$ 210,929	\$ 435,652	\$ 504,031	\$ 453,778	\$ 335,899
Years 1-10	60,808										
Beyond Year 10	4,904,529										
Total Enterprise Value	\$	4,965,337									
Rounded	\$	4,970,000									
			Continuing Value				DDM:	I=	g=		
			Year 11 normalized free CF	\$	925,260		14.3	11.0%	4.0%		
			Multiple		14.3						
Multiple Yr 0 Op CF	NA		Gross Proceeds		13,217,997		Normalized Free Cash Flow				
Multiple Yr 1 Op CF	NA		Taxes		0		EBITDA Yr 11		2,431,912		
Pretax Contin Value Mult of Yr.10 Ebitda	5.61						Deprec & Amort		1,027,042		
Value per POP	\$	17.33					EBIT		1,404,870		
Value per POP per MHz	\$	1.73					Tax	40%	561,948		
Subs per 1000 MHz*POPs, Year 10		3.07					Aftertax		842,922		
			After Tax Proceeds		13,217,997		Addback Deprec & Amort		1,027,042		
			PV Factor		0.3710		Less Norm. Capex		944,704		
			PV Continuing Value	\$	4,904,529		Normalized FCF	\$	925,260		
Tangible Assets											
Working Capital		-									
FCC Licenses		4,970,000									
Customer Base		-									
Goodwill & other intang @zero		-									
Total Intangibles		4,970,000									
Total BEV		4,970,000									

Discounted Cash Flow Valuation Model for the 10MHz Spectrum at 1.9 GHz

Dollars in Thousands

Year ending	2002	Year 1 2003	Year 2 2004	Year 3 2005	Year 4 2006	Year 5 2007	Year 6 2008	Year 7 2009	Year 8 2010	Year 9 2011	Year 10 2012
<b>Calculation Of Long Term Growth</b>											
<b>CONCLUSION -</b>	<b>4.00%</b>										
g0	4.0%										
g1	6.3% (growth in first five years)										
g2	3.0% (growth thereafter)										
r	11.0% (discount rate)										
Year Beyond Year Ten via FCF Growth rate	1	2	3	4	5	Residual					
Formula Calculation	9.3%	7.8%	6.3%	4.8%	3.3%						
Sum	0.957	0.917	0.878	0.840	0.804	10.356					
g0	3.953%										

Use Goalseek here, setting Cell --- equal to the value in Cell --- by changing est % growth  
14.751

**Capital Expenditure Drivers**

Cap Ex per cell site(added CDMA channels)(\$000s)	\$	250	cell sites capital expended one year in advance of customers added									
Cap Ex for switches, per cell site:(\$000s)	\$	50										
Average customers supportable per cell site:		1,000										
Addl Cap Ex per net added customer	\$	50										
Number of cell sites required based on projections above		-	441	1,504	2,981	4,721	6,299	7,786	8,835	9,447	9,666	
Incremental cell sites			441	1,063	1,477	1,740	1,578	1,487	1,049	612	219	

**Depreciation Calculation**

Year		1	2	3	4	5	6	7	8	9	10	
	MACRS Depreciation Factors:	Depreciation Life( Yrs) = 7										
		14.29%	24.5%	17.5%	12.5%	8.9%	8.9%	8.93%	4.46%	0.00%		
1	132,300	18,906	32,400	23,139	16,524	11,814	11,801	11,814	5,901	0		
2	340,956		48,723	83,500	59,633	42,585	30,447	30,413	30,447	15,207	0	
3	496,248			70,914	121,531	86,794	61,981	44,315	44,265	44,315	22,133	
4	595,829				85,144	145,919	104,211	74,419	53,208	53,148	53,208	
5	560,409					80,082	137,244	98,016	69,995	50,045	49,988	
6	606,728						86,701	148,588	106,117	75,780	54,181	
7	748,842							107,009	183,391	130,972	93,530	
8	862,934								123,313	211,333	150,927	
9	929,006									132,755	227,514	
10	950,438										135,818	
11	944,704											
	7,036,095											
Total Depreciation New Capital		18,906	81,123	177,553	282,833	367,195	432,386	514,574	616,637	713,555	787,298	
Depreciation For Existing Tang.Basis												
Existing Tangible Assets Base Depreciation		-	0	0	0	0	0	0	0	0	0	

## EXHIBIT C

### DCF Valuation Models for:

- C-1: Verizon Wireless
- C-2: Cingular
- C-3: T-Mobile
- C-4: Nextel Communications

**Verizon Wireless Analysis and License Valuation**  
**Summary of Analyst Report Forecasts and DCF Valuation Analysis**

**As of Dec. 31, 2002**

**Exhibit C-1**

	Year <u>2001A</u>	Year <u>2002A</u>	1 <u>2003E</u>	2 <u>2004E</u>	3 <u>2005E</u>	4 <u>2006E</u>	5 <u>2007E</u>	6 <u>2008E</u>	7 <u>2009E</u>	8 <u>2010E</u>
<u>Cost Per gross Add</u>										
Goldman	212	243	232							
Merrill Lynch										
Deutsche Bk		327	320	318	316	314	309	307	304	300
Avg		285	276	318	316	314	309	307	304	300
<u>Subscribers</u>										
Goldman		32,336	34,571	36,659	38,636	40,416	41,969	43,166	44,003	44,497
Merrill Lynch	29,397	32,491	34,791	36,407	37,582	38,419	38,814	39,368		
Deutsche Bk		32,491	35,339	37,793	39,954	41,814	43,314	44,458	45,439	46,412
Avg		32,439	34,900	36,953	38,724	40,216	41,366	42,331	44,721	45,455
<u>ARPU</u>										
Goldman		47.33	47.20	48.57	49.76	50.95	51.68	52.41	52.78	53.02
Merrill Lynch	48.00	48.00	49.00	49.00	49.00	48.19	48.05	49.00		
Deutsche Bk		47.80	47.10	45.50	44.60	44.10	43.90	43.90	44.20	44.70
Avg		47.71	47.77	47.69	47.79	47.75	47.88	48.44	48.49	48.86
<u>Revenues</u>										
Goldman		17,531	18,947	20,760	22,478	24,165	25,545	26,773	27,606	28,154
Merrill Lynch	17,393	19,260	21,065	22,219	22,984	23,559	23,890	24,225		
Deutsche Bk	17,393	19,260	20,809	21,784	22,754	23,569	24,325	24,925	25,675	26,483
Avg		18,684	20,274	21,588	22,739	23,764	24,587	25,308	26,641	27,319
<u>EBITDA</u>										
Goldman	5,783	6,498	7,184	7,673	8,253	8,890	9,477	10,077	10,469	10,776
Merrill Lynch	6,014	6,933	7,726	8,359	8,897	9,386	9,592	9,716		
Deutsche Bk	6,014	6,933	7,783	8,242	8,724	9,271	9,791	10,199	10,609	11,027
Avg		6,788	7,564	8,091	8,625	9,182	9,620	9,997	10,539	10,902
EBITDA Margin		36.3%	37.3%	37.5%	37.9%	38.6%	39.1%	39.5%	39.6%	39.9%
<u>Depreciation &amp; Amortization</u>										
Goldman		8,100	5,542	2,911	3,708	3,873	3,224	3,206	3,129	2,903
Merrill Lynch										
Deutsche Bk	3,790	3,293	3,608	3,918	4,263	4,320	4,635	5,087	4,953	4,822
Avg		5,697	4,575	3,414	3,986	4,097	3,929	4,146	4,041	3,862

**Verizon Wireless Analysis and License Valuation**  
**Summary of Analyst Report Forecasts and DCF Valuation Analysis**

**As of Dec. 31, 2002**

**Exhibit C-1**

	Year <u>2001A</u>	Year <u>2002A</u>	1 <u>2003E</u>	2 <u>2004E</u>	3 <u>2005E</u>	4 <u>2006E</u>	5 <u>2007E</u>	6 <u>2008E</u>	7 <u>2009E</u>	8 <u>2010E</u>
<u>Gain (Loss) from Operations(EBIT)</u>										
Goldman	5,783	(1,602)	1,642	4,762	4,545	5,017	6,253	6,871	7,340	7,874
Merrill Lynch	6,014	6,933	7,726	8,359	8,897	9,386	9,592	9,716		
Deutsche Bk	2,224	3,640	4,175	4,324	4,461	4,951	5,156	5,112	5,656	6,205
Avg		2,990	4,514	5,815	5,968	6,451	7,000	7,233	6,498	7,039
<u>Inc Taxes Paid</u>										
Goldman										
Merrill Lynch										
Deutsche Bk	62	100	115	119	123	136	142	140	155	170
Avg		100	115	119	123	136	142	140	155	170
<u>Working Capital Req'd</u>										
Goldman										
Merrill Lynch										
Deutsche Bk	527	(18)	266	206	363	252	67	55	36	32
Avg		(18)	266	206	363	252	67	55	36	32
As % rev		-0.1%	1.3%	1.0%	1.6%	1.1%	0.3%	0.2%	0.1%	0.1%
<u>Domestic Capital Expenditures(\$M)</u>										
Goldman	5,006	4,500	4,263	3,234	3,708	3,873	3,582	3,562	3,477	3,225
Merrill Lynch	5,006	4,354	4,400	3,777	3,677	3,521	3,583	3,627		
Deutsche Bk	5006	4,400	4,340	3,830	3,748	4,054	4,206	4,036	4,058	4,231
Avg		4,418	4,334	3,614	3,711	3,816	3,790	3,742	3,768	3,728
<u>License Payments</u>										
Goldman										
Merrill Lynch										
Deutsche Bk	1,620	800	1,500	-	1,500					
Avg		800	1,500	-	1,500					
<u>Free Cash Flow Calculated</u>										
Goldman		1,998	2,921	4,439	4,545	5,017	5,895	6,515	6,992	7,551
Merrill Lynch			3,326	4,582	5,220	5,865	6,010	6,089		
Deutsche Bk			1,562	4,087	2,990	4,829	5,376	5,968	6,360	6,594
<b>Avg</b>		<b>1,998</b>	<b>2,603</b>	<b>4,369</b>	<b>4,252</b>	<b>5,237</b>	<b>5,760</b>	<b>6,191</b>	<b>6,676</b>	<b>7,073</b>

**Verizon Wireless Analysis and License Valuation**  
**Summary of Analyst Report Forecasts and DCF Valuation Analysis**

**As of Dec. 31, 2002**

**Exhibit C-1**

	Year <u>2001A</u>	Year <u>2002A</u>	1 <u>2003E</u>	2 <u>2004E</u>	3 <u>2005E</u>	4 <u>2006E</u>	5 <u>2007E</u>	6 <u>2008E</u>	7 <u>2009E</u>	8 <u>2010E</u>
Avg Free Cash Flow (Calc'd Analyst's Consensus)		\$ 2,603	\$ 4,369	\$ 4,252	\$ 5,237	\$ 5,760	\$ 6,191	\$ 6,676	\$ 7,073	
Discount Rate		11.0%								
Present Value Factors	Mid-Yr	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	
Present Value Free Cash Flow		2,471	3,736	3,275	3,635	3,602	3,487	3,388	3,233	
Sum PV Yrs 1 Through 8		26,826								
PV Continuing Value > Yr 8		30,052								
Total BEV		<u>\$ 56,878</u>								
Plus Extraord. Wk Cap		0								
Total Assets		<u>\$ 56,878</u>								
Mult '02 EBITDA		8.4								
Mult '03 EBITDA		7.5								
Per Subscriber		\$ 1,753								
Per Pop		\$ 217								
					Year 9 Normalized FCF	4,601				
					Multiple of FCF	14.3				
					Proceeds	65,734				
					PV Factor	0.4572				
					PV Factor	30,052				
					Proceeds/Yr 9 EBITDA	5.9				
					BEV/Yr 9 EBITDA	5.1				

i =	11.0%
g =	4.0%
DDM =	14.3

Normalized Free Cash Flow	
EBITDA Yr N+1	11,097
Deprec & Amort	3,870
EBIT	7,227
Tax	38.0% 2,746
Aftertax	4,481
Addback Deprec & Amort	3,870
Less Norm. Capex	3,749
Normalized FCF	4,601

**Cingular Wireless Analysis and License Valuation**  
**Summary of Analyst Report Forecasts and DCF Valuation Analysis**

**As of Dec. 31, 2002**

**Exhibit C-2**

	Year <u>2001A</u>	Year <u>2002A</u>	1 <u>2003E</u>	2 <u>2004E</u>	3 <u>2005E</u>	4 <u>2006E</u>	5 <u>2007E</u>	6 <u>2008E</u>	7 <u>2009E</u>	8 <u>2010E</u>
<u>Cost Per gross Add</u>										
Morgan Qtrly Statement	368	410								
Goldman										
Merrill Lynch										
Deutsche Bk										
Avg	368	410								
<u>Subscribers</u>										
Goldman	21,596	22,125	23,075	24,028	24,883	25,639	26,267	26,751	27,089	27,333
Merrill Lynch	21,596	21,925	22,113	22,560	23,114	23,682	24,192	24,641		
Deutsche Bk	21,596	21,954	22,696	23,980	25,632	27,109	28,344	29,287	30,095	30,896
Avg		22,001	22,628	23,523	24,543	25,477	26,268	26,893	28,592	29,115
<u>ARPU</u>										
Goldman	53.37	52.63	52.31	52.70	52.63	52.57	52.53	52.24	51.95	51.67
Merrill Lynch										
Deutsche Bk	53.40	52.60	51.30	49.60	48.20	47.50	47.20	47.10	47.50	48.00
Avg		52.62	51.81	51.15	50.42	50.04	49.87	49.67	49.73	49.84
<u>Revenues</u>										
Goldman	13,217	13,805	14,186	14,893	15,445	15,936	16,359	16,618	16,783	16,872
Merrill Lynch	14,268	14,727	14,397	14,463	14,612	14,850	15,181	15,520		
Deutsche Bk	13,217	13,748	13,753	13,886	14,361	15,043	15,689	16,294	16,913	17,550
Avg		14,093	14,112	14,414	14,806	15,276	15,743	16,144	16,848	17,211
<u>EBITDA</u>										
Goldman	4,504	4,526	4,706	4,738	4,931	5,252	5,513	5,648	5,732	5,867
Merrill Lynch	4,504	4,371	4,197	4,394	4,594	4,757	4,964	5,180		
Deutsche Bk	4,504	4,565	4,527	4,606	4,789	5,182	5,565	5,966	6,361	6,718
Avg		4,487	4,477	4,579	4,771	5,064	5,347	5,598	6,047	6,293
EBITDA Margin		31.8%	31.7%	31.8%	32.2%	33.1%	34.0%	34.7%	35.9%	36.6%
<u>Depreciation &amp; Amortization</u>										
Goldman	8,213	9,660	6,843	3,176	2,658	2,305	2,006	1,922	1,872	1,881
Merrill Lynch										
Deutsche Bk	1,970	1,850	2,179	2,499	2,800	3,107	3,446	3,829	4,020	4,083
Avg		5,755	4,511	2,837	2,729	2,706	2,726	2,876	2,946	2,982

**Cingular Wireless Analysis and License Valuation**  
**Summary of Analyst Report Forecasts and DCF Valuation Analysis**

**As of Dec. 31, 2002**

**Exhibit C-2**

	Year <u>2001A</u>	Year <u>2002A</u>	1 <u>2003E</u>	2 <u>2004E</u>	3 <u>2005E</u>	4 <u>2006E</u>	5 <u>2007E</u>	6 <u>2008E</u>	7 <u>2009E</u>	8 <u>2010E</u>
<u>Gain (Loss) from Operations(EBIT)</u>										
Goldman	(3,709)	(5,134)	(2,137)	1,562	2,273	2,947	3,507	3,726	3,860	3,986
Merrill Lynch	4,504	4,371	4,197	4,394	4,594	4,757	4,964	5,180	-	-
Deutsche Bk	2,534	2,715	2,348	2,107	1,989	2,075	2,119	2,137	2,341	2,635
Avg		651	1,470	2,688	2,952	3,260	3,530	3,681	2,067	2,207
<u>Inc Taxes Paid</u>										
Goldman										
Merrill Lynch										
Deutsche Bk	8	10	10	10	10	10	10	10	10	10
Avg		10	10	10	10	10	10	10	10	10
<u>Working Capital Req'd</u>										
Goldman										
Merrill Lynch										
Deutsche Bk	193	297	31	(53)	(119)	(36)	49	48	51	45
Avg		297	31	(53)	(119)	(36)	49	48	51	45
As % rev		2.1%	0.2%	-0.4%	-0.8%	-0.2%	0.3%	0.3%	0.3%	0.3%
<u>Domestic Capital Expenditures(\$M)</u>										
Goldman	3,422	4,200	4,025	2,887	2,658	2,561	2,508	2,403	2,340	2,351
Merrill Lynch	3,399	3,944	3,300	2,748	2,411	2,229	2,277	2,320		
Deutsche Bk	3422	4,130	3,873	3,427	3,146	3,166	3,382	3,646	3,416	3,241
Avg		4,091	3,733	3,021	2,738	2,652	2,722	2,790	2,878	2,796
<u>License Payments</u>										
Goldman										
Merrill Lynch										
Deutsche Bk	500	200	500	500	2,500	0	0	0	0	0
Avg		200	500	500	2,500	0	0	0	0	0
<u>Free Cash Flow Calculated</u>										
Goldman		326	681	1,851	2,273	2,691	3,005	3,245	3,392	3,516
Merrill Lynch		427	897	1,646	2,183	2,529	2,687	2,860		
Deutsche Bk		(72)	113	722	(748)	2,042	2,124	2,262	2,884	3,422
<b>Avg</b>		<b>227</b>	<b>564</b>	<b>1,406</b>	<b>1,236</b>	<b>2,421</b>	<b>2,605</b>	<b>2,789</b>	<b>3,138</b>	<b>3,469</b>



**T Mobile Analysis and License Valuation**  
**Summary of Analyst Report Forecasts and DCF Valuation Analysis**

As of Dec. 31, 2002

Exhibit C-3

	Year <u>2001A</u>	Year <u>2002A</u>	1 <u>2003E</u>	2 <u>2004E</u>	3 <u>2005E</u>	4 <u>2006E</u>	5 <u>2007E</u>	6 <u>2008E</u>	7 <u>2009E</u>	8 <u>2010E</u>
<u>Cost Per gross Add</u>										
T-Mobile Qtrly Statement		323								
Goldman	330	309	324							
Merrill Lynch										
Deutsche Bk										
Avg	330	316	324							
<u>Subscribers</u>										
Goldman	6,993	9,625	11,475	13,063	14,513	15,934	16,950	17,813	18,416	18,778
Merrill Lynch	6,993	9,913	12,217	14,034	15,724	17,256	18,592	19,752		
Deutsche Bk	6,993	9,903	12,128	13,954	15,479	16,792	17,851	18,659	19,351	20,038
Avg		9,814	11,940	13,684	15,239	16,661	17,798	18,741	18,884	19,408
<u>ARPU</u>										
Goldman	46.28	46.26	45.46	43.62	41.89	40.64	39.44	38.33	37.60	36.91
Merrill Lynch										
Deutsche Bk	50.40	48.40	47.20	46.10	45.60	44.80	44.50	44.40	44.80	45.20
Avg		47.33	46.33	44.86	43.75	42.72	41.97	41.37	41.20	41.06
<u>Revenues</u>										
Goldman	3,271	4,539	5,725	6,422	6,931	7,400	7,757	7,994	8,173	8,238
Merrill Lynch	3,998	5,618	7,288	8,597	9,603	10,573	11,430	12,184		
Deutsche Bk	3,998	5,508	5,919	7,979	8,908	9,565	10,092	10,547	11,006	11,489
Avg		5,222	6,311	7,666	8,481	9,179	9,760	10,242	9,590	9,864
<u>EBITDA</u>										
Goldman	(482)	391	989	1,372	1,721	2,181	2,518	2,762	3,000	3,200
Merrill Lynch	(472)	431	1,049	1,857	2,602	3,282	3,515	3,976		
Deutsche Bk	(459)	445	1,225	1,805	2,281	2,557	2,837	3,069	3,288	3,500
Avg		422	1,088	1,678	2,201	2,673	2,957	3,269	3,144	3,350
EBITDA Margin		8.1%	17.2%	21.9%	26.0%	29.1%	30.3%	31.9%	32.8%	34.0%
<u>Depreciation &amp; Amortization</u>										
Goldman	3,570	3,392	2,771	1,692	1,421	1,400	1,336	1,313	1,274	1,208
Merrill Lynch										
Deutsche Bk	2,460	1,414	1,533	1,662	1,804	1,977	2,183	2,407	2,432	2,441
Avg		2,403	2,152	1,677	1,613	1,689	1,759	1,860	1,853	1,824

**T Mobile Analysis and License Valuation**  
**Summary of Analyst Report Forecasts and DCF Valuation Analysis**

**As of Dec. 31, 2002**

**Exhibit C-3**

	Year <u>2001A</u>	Year <u>2002A</u>	1 <u>2003E</u>	2 <u>2004E</u>	3 <u>2005E</u>	4 <u>2006E</u>	5 <u>2007E</u>	6 <u>2008E</u>	7 <u>2009E</u>	8 <u>2010E</u>
<u>Gain (Loss) from Operations(EBIT)</u>										
Goldman	(4,052)	(3,001)	(1,782)	(320)	300	781	1,182	1,449	1,726	1,992
Merrill Lynch	(472)	431	1,049	1,857	2,602	3,282	3,515	3,976	-	-
Deutsche Bk	(2,919)	(969)	(308)	143	477	580	654	662	856	1,059
Avg		(1,180)	(347)	560	1,126	1,547	1,784	2,029	861	1,017
<u>Inc Taxes Paid</u>										
Goldman										
Merrill Lynch										
Deutsche Bk	588	200	0	0	0	0	0	0	0	0
Avg		200	-	-	-	-	-	-	-	-
<u>Working Capital Req'd</u>										
Goldman										
Merrill Lynch										
Deutsche Bk	12	80	72	(24)	51	21	20	50	46	44
Avg		80	72	(24)	51	21	20	50	46	44
As % rev		1.5%	1.1%	-0.3%	0.6%	0.2%	0.2%	0.5%	0.5%	0.4%
<u>Domestic Capital Expenditures(\$M)</u>										
Goldman	1,785	1,995	1,979	1,692	1,579	1,556	1,484	1,459	1,416	1,342
Merrill Lynch	1,755	1,900	2,000	2,063	1,921	1,799	1,708	1,826		
Deutsche Bk	1755	1,874	1,881	1,775	1,840	2,084	2,186	2,219	2,088	2,023
Avg		1,923	1,953	1,843	1,780	1,813	1,793	1,835	1,752	1,683
<u>License Payments</u>										
Goldman										
Merrill Lynch										
Deutsche Bk		270								
Avg		270								
<u>Free Cash Flow Calculated</u>										
Goldman		(1,604)	(990)	(320)	142	625	1,034	1,303	1,584	1,858
Merrill Lynch		(1,469)	(951)	(206)	681	1,483	1,808	2,150		
Deutsche Bk		(1,979)	(728)	54	390	452	631	800	1,154	1,433
<b>Avg</b>		<b>(1,684)</b>	<b>(890)</b>	<b>(157)</b>	<b>404</b>	<b>853</b>	<b>1,158</b>	<b>1,418</b>	<b>1,369</b>	<b>1,646</b>

**T Mobile Analysis and License Valuation**  
**Summary of Analyst Report Forecasts and DCF Valuation Analysis**

**As of Dec. 31, 2002**

**Exhibit C-3**

	Year <u>2001A</u>	Year <u>2002A</u>	1 <u>2003E</u>	2 <u>2004E</u>	3 <u>2005E</u>	4 <u>2006E</u>	5 <u>2007E</u>	6 <u>2008E</u>	7 <u>2009E</u>	8 <u>2010E</u>							
Avg Free Cash Flow (Calc'd Analyst's Consensus)		\$	(890)	\$	(157)	\$	404	\$	853	\$	1,158	\$	1,418	\$	1,369	\$	1,646
Discount Rate			11.0%														
Present Value Factors		Mid-Yr	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572							
Present Value Free Cash Flow			(1,188)	(487)	(37)	86	256	356	489	578							
Sum PV Yrs 1 Through 8			53														
PV Continuing Value > Yr 8			10,209														
Total BEV			<u>\$ 10,262</u>														
Plus Extraord. Wk Cap			0														
Total Assets			<u>\$ 10,262</u>														
Mult '02 EBITDA			24.3														
Mult '03 EBITDA			9.4														
Per Subscriber			\$ 1,046														
Per Pop			\$ 47														

Year 9 Normalized FCF	1,563	I =	11.0%
Multiple of FCF	14.3	g =	4.0%
Proceeds	22,331	DDM =	14.3
PV Factor	0.4572		
PV Factor	10,209		

Normalized Free Cash Flow	
EBITDA Yr N+1	3,481
Deprec & Amort	1,769
EBIT	1,712
Tax 10.0%	171
Aftertax	1,540
Addback Deprec & Amort	1,769
Less Norm. Capex	1,746
Normalized FCF	1,563

**Nextel Analysis and License Valuation**  
**Summary of Analyst Report Forecasts as of 1Q 2003**

**Exhibit C-4**

	Year 2001A	Year 2002A	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E
<u>Cost Per gross Add</u>										
Morgan Stanley	494	463	454	470	467	468	468	467	468	467
Bear Sterns		473	501	509	505	477	474	469	465	461
UBS Warburg										
Deutsche Bk	500	456	449	459	464	460	457	455	448	439
JP Morgan										
Lehman Brothers	<u>463</u>	<u>472</u>	<u>464</u>	<u>455</u>	<u>450</u>	<u>445</u>	<u>440</u>	<u>435</u>	<u>430</u>	<u>425</u>
Avg		466	467	473	472	463	460	457	453	448
<u>Subscribers</u>										
Morgan Stanley	8,667	10,612	12,310	13,541	14,624	15,502	16,277	16,928	17,436	17,872
Bear Sterns	8,666	10,612	12,291	13,593	14,729	15,666	16,428	17,109	17,710	18,231
UBS Warburg										
Deutsche Bk	8,667	10,607	12,283	13,710	14,981	16,075	16,957	17,631	18,208	18,780
JP Morgan	8,667	10,612	12,312	13,782			16,646			
Lehman Brothers	<u>8,667</u>	<u>10,612</u>	<u>12,312</u>	<u>13,829</u>	<u>15,054</u>	<u>16,056</u>	<u>16,871</u>	<u>17,524</u>	<u>18,044</u>	<u>18,419</u>
Avg		10,611	12,302	13,691	14,847	15,825	16,636	17,298	17,850	18,326
<u>MOU/Month/Sub</u>										
Morgan Stanley	565	630	668	691	712	730	748	767	786	805
Bear Sterns		632	660	674	690	720	750	751	752	753
UBS Warburg										
Deutsche Bk	564	642	708	743	748	737	711	698	690	697
JP Morgan	561	630	665	698			698			
Lehman Brothers	<u>566</u>	<u>633</u>	<u>689</u>	<u>723</u>	<u>752</u>	<u>777</u>	<u>798</u>	<u>818</u>	<u>834</u>	<u>846</u>
Avg		633	678	706	726	741	741	759	766	775
<u>ARPU</u>										
Morgan Stanley	\$ 71.40	\$ 70.00	\$ 67.60	\$ 65.70	\$ 64.30	\$ 63.30	\$ 32.40	\$ 61.50	\$ 60.60	\$ 59.70
Bear Sterns	70.00	69.00	67.00	65.00	63.00	61.00	59.00	57.00	56.00	54.00
UBS Warburg										
Deutsche Bk	71.20	71.00	68.10	64.40	61.60	60.00	59.10	58.50	58.50	59.10
JP Morgan	71.18	70.77	68.76	67.02			66.24			
Lehman Brothers	<u>71.00</u>	<u>71.00</u>	<u>68.00</u>	<u>67.00</u>	<u>66.00</u>	<u>66.00</u>	<u>65.00</u>	<u>64.00</u>	<u>63.00</u>	<u>62.00</u>
Avg		\$ 70.35	\$ 67.89	\$ 65.82	\$ 63.73	\$ 62.58	\$ 56.35	\$ 60.25	\$ 59.53	\$ 58.70
<u>Pops</u>										
Morgan Stanley	284	287	290	293	296	299	302	305	308	311
Bear Sterns	221	223	225	228	230	232	235	264	239	242
UBS Warburg										
Deutsche Bk										
JP Morgan	204	206	208	210			216			
Lehman Brothers	<u>234</u>	<u>236</u>	<u>238</u>	<u>241</u>	<u>243</u>	<u>245</u>	<u>247</u>	<u>249</u>	<u>252</u>	<u>254</u>
Avg		238	240	243	256	259	250	273	266	269

**Nextel Analysis and License Valuation**  
**Summary of Analyst Report Forecasts as of 1Q 2003**

**Exhibit C-4**

	Year 2001A	Year 2002A	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E
<b>Revenues</b>										
Morgan Stanley	7,014	8,721	9,966	10,878	11,575	12,160	12,619	12,976	13,217	13,370
Bear Sterns	7,013	8,721	9,984	11,031	11,665	11,978	12,258	12,403	12,470	12,514
UBS Warburg			10,053	11,126	11,893	12,389	12,656	12,833	12,995	13,133
Deutsche Bk	7,014	8,742	9,916	10,620	11,196	11,801	12,344	12,800	13,252	13,818
JP Morgan (see page 49 for 2007)	7,211	8,379	9,457	10,493	11,418	12,224	13,071			
Lehman Brothers	7,180	8,357	9,354	10,457	11,506	12,252	12,784	13,154	13,413	13,657
Avg		8,584	9,788	10,768	11,542	12,134	12,622	12,833	13,069	13,298
<b>EBITDA</b>										
Morgan Stanley	1,900	3,166	3,834	4,450	4,829	5,176	5,424	5,613	5,766	5,844
Bear Sterns	1,900	3,166	3,891	4,270	4,525	4,652	4,870	4,972	4,989	5,070
UBS Warburg			3,919	4,746	5,241	5,520	5,650	5,690	5,738	5,759
Deutsche Bk	1,901	3,165	3,807	4,111	4,291	4,518	4,727	4,912	5,093	5,348
JP Morgan	1,825	3,191	3,863	4,274	4,768	4,972	5,900			
Lehman Brothers	1,901	3,138	3,833	4,374	5,006	5,427	5,684	5,849	5,973	6,078
Avg		3,165	3,858	4,371	4,777	5,044	5,376	5,407	5,512	5,620
EBITDA Margin Avg		36.9%	39.4%	40.6%	41.4%	41.6%	42.6%	42.1%	42.2%	42.3%
<b>Depreciation &amp; Amortization</b>										
Morgan Stanley	1,512	1,595	1,744	1,848	1,894	1,941	1,924	1,884	1,848	1,813
Bear Sterns	1,512	1,595	1,824	1,959	2,042	2,000	1,959	1,795	1,689	1,653
UBS Warburg			1,696	2,002	2,090	2,132	2,096	2,039	1,917	1,764
Deutsche Bk	1,511	1,608	1,790	1,951	2,089	2,312	2,585	2,596	2,354	2,412
JP Morgan	1,746	1,612	1,756	1,911	2,029	2,153	2,059			
Lehman Brothers	1,746	1,612	1,969	2,199	1,994	2,010	2,027	2,055	2,113	2,229
Avg		1,604	1,797	1,978	2,023	2,091	2,108	2,074	1,984	1,974
<b>Gain (Loss) from Operations(EBIT)</b>										
Morgan Stanley	388	1,571	2,090	2,602	2,935	3,235	3,500	3,729	3,918	4,031
Bear Sterns	388	1,571	2,067	2,311	2,483	2,652	2,911	3,177	3,300	3,417
UBS Warburg			2,223	2,744	3,151	3,388	3,554	3,651	3,821	3,995
Deutsche Bk	390	1,557	2,017	2,160	2,202	2,206	2,142	2,316	2,739	2,936
JP Morgan	79	1,579	2,107	2,363	2,739	2,819	3,841			
Lehman Brothers(excl restructure)	155	1,526	1,864	2,175	3,012	3,417	3,657	3,794	3,860	3,849
Avg		1,561	2,061	2,393	2,754	2,953	3,268	3,333	3,528	3,646
<b>Inc Taxes Paid</b>										
Morgan Stanley	(33)	56	100	304	465	666	954	1,115	1,305	1,385
Bear Sterns	(92)	394	100	200	437	686	791	935	1,018	1,096
UBS Warburg			0	0	600	1,288	1,351	1,387	1,452	1,518
Deutsche Bk			686	734	748	750	728	787	931	998
JP Morgan	(135)	41	100	150	200	300	409			
Lehman Brothers	(135)	394	98	100	100	753	1,347	1,449	1,491	1,506
Avg		221	181	248	425	740	930	1,135	1,239	1,301
Avg Effective Tax Rate		14.2%	8.8%	10.4%	15.4%	25.1%	28.5%	34.0%	35.1%	35.7%

**Nextel Analysis and License Valuation  
Summary of Analyst Report Forecasts as of 1Q 2003**

**Exhibit C-4**

	<u>Year 2001A</u>	<u>Year 2002A</u>	<u>2003E</u>	<u>2004E</u>	<u>2005E</u>	<u>2006E</u>	<u>2007E</u>	<u>2008E</u>	<u>2009E</u>	<u>2010E</u>
<u>Working Capital Req'd</u>										
Morgan Stanley	(2,052)	(782)	186	204	217	229	238	245	250	253
Bear Sterns		314	49	50	50	40	30	20	10	10
UBS Warburg			(10)	153	63	9	(10)	(41)	(34)	(38)
Deutsche Bk	108	713	68	(82)	(59)	36	33	29	27	38
JP Morgan	191	598	160	105	114	122	131			
Lehman Brothers										
Avg		211	91	86	77	87	84	63	63	66
<u>Domestic Capital Expenditures(\$M)</u>										
Morgan Stanley	3,418	1,856	1,740	1,666	2,384	1,803	1,315	1,360	1,340	1,326
Bear Sterns	NA	1,868	1,805	1,400	1,513	1,576	1,614	1,632	1,640	1,646
UBS Warburg			1,780	1,602	1,500	1,500	1,500	1,500	1,500	1,500
Deutsche Bk		1,894	1,802	1,500	2,003	2,584	2,619	2,409	2,274	2,195
JP Morgan		1,879	1,800	1,700	1,800	1,900	2,000			
Lehman Brothers(domestic 01-02)	<u>2,384</u>	<u>1,856</u>	<u>1,800</u>	<u>1,294</u>	<u>1,467</u>	<u>1,562</u>	<u>1,630</u>	<u>1,776</u>	<u>1,978</u>	<u>1,980</u>
Avg		1,871	1,788	1,527	1,778	1,821	1,780	1,735	1,746	1,729
<u>License Payments</u>										
Morgan Stanley	877	541	400	200	250	300	-	-	-	-
Bear Sterns		559	300	600	550	500	100	100	100	100
UBS Warburg			153	300	200	150	150	25	25	25
Deutsche Bk			376	375	375	-	-	-	-	-
JP Morgan(assets acq/cap. Calls,Spe	197	200	350	400						
Lehman Brothers	<u>425</u>	<u>1,129</u>	<u>351</u>							
Avg		607	322	375	344	238	63	31	31	31
<u>Free Cash Flow Calculated</u>										
Morgan Stanley		1,495	1,408	2,076	1,513	2,178	2,917	2,893	2,871	2,880
Bear Sterns		31	1,637	2,020	1,975	1,850	2,335	2,285	2,221	2,218
UBS Warburg			1,996	2,691	2,877	2,574	2,659	2,819	2,795	2,754
Deutsche Bk		558	875	1,584	1,224	1,148	1,347	1,687	1,861	2,117
JP Morgan		473	1,453	1,919	2,654	2,650	3,361			
Lehman Brothers		(241)	1,584	2,980	3,439	3,112	2,707	2,624	2,504	2,592
<b>Avg</b>		<b>463</b>	<b>1,492</b>	<b>2,212</b>	<b>2,280</b>	<b>2,252</b>	<b>2,554</b>	<b>2,462</b>	<b>2,450</b>	<b>2,512</b>
		<u>Disc. Rate</u>	<u>Lg Term q</u>		<u>Mkt Eqty</u>	<u>Prefr'd</u>	<u>Bk LTD</u>	<u>EV</u>		
Morgan Stanley(from wireless tracker page 9)										
Bear Sterns		10.2%	2.5%		14,980	-893	10,763	24,850		
UBS Warburg		10.6%	2.0%		15,810		13,422	29,232		
Deutsche Bk		10.0%	2.5%		10,568	1701	11,131	23,400		
JP Morgan					13,800		12,550	26,350		
Lehman Brothers		<u>12.0%</u>	<u>5.0%</u>		19,095		9,998	<u>29,093</u>		
Avg		10.7%	3.0%					26,585		

**Nextel Analysis and License Valuation  
Summary of Analyst Report Forecasts as of 1Q 2003**

**Exhibit C-4**

	Year 2001A	Year 2002A	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E							
Avg Free Cash Flow (Analyst's Consensus)		\$	1,492	\$	2,212	\$	2,280	\$	2,252	\$	2,554	\$	2,462	\$	2,450	\$	2,512
Discount Rate	10.7%																
Present Value Factors	Mid-Yr		0.9504		0.8586		0.7756		0.7006		0.6329		0.5717		0.5165		0.4665
Present Value Free Cash Flow			<u>1,418</u>		<u>1,899</u>		<u>1,769</u>		<u>1,578</u>		<u>1,617</u>		<u>1,407</u>		<u>1,266</u>		<u>1,172</u>
Sum PV Yrs 1 Through 8			12,125			Year 9 Free CF			2,671								i = 10.7%
PV Continuing Value > Yr 8			<u>16,185</u>			Multiple of FCF			13.0								g = 3.0%
Total BEV			28,310			Proceeds			34,691								DDM = 13.0
Per Mult '03 EBITDA			7.3			PV Factor			0.4665								
Per Mult '02 EBITDA			8.9			PV Factor			16,185								
Per Pop		\$	121														
Per Subscriber		\$	2,668			Proceeds/Yr 9 EBITDA BEV/Yr 9 EBITDA			6.0 4.9								

Normalized Free Cash Flow	
EBITDA Yr N+1	5,788
Deprec & Amort	1,964
EBIT	3,824
Tax 36%	1,364
Aftertax	2,460
Addback Deprec & Amort	1,964
Less Norm. Capex	1,753
Normalized FCF	2,671

**EXHIBIT D**

**Guideline Company Analysis**

**Wireless Industry Business Enterprise Value  
Public Guideline Company Approach**

**Exhibit D**

**As of December 31, 2002  
(\$million's)**

	Nextel Communications <u>NXTL</u>	Nextel Partners <u>NXTP</u>	Sprint PCS <u>PCS</u>	Leap Wireless Intl <u>3LWINQ</u>	Triton PCS Holdings <u>TPC</u>	Alamosa Holdings <u>3ALMO</u>	Airgate PCS <u>3PCSA</u>	US Unwired <u>UNWR</u>
# Shares Common Stock O/S [a]	1,004.00	249.85	1,021.35	58.70	68.22	94.17	25.84	128.83
Price @ close 12/31/02 [b]	\$ 11.55	\$ 6.07	\$ 4.38	\$ 0.15	\$ 3.93	\$ 0.52	\$ 0.62	\$ 0.49
Freely Traded Value / Market Value of Equity	\$ 11,596	\$ 1,517	\$ 4,474	\$ 9	\$ 268	\$ 49	\$ 16	\$ 63
Control Premium @ 30%	\$ 3,479	\$ 455	\$ 1,342	\$ 3	\$ 80	\$ 15	\$ 5	\$ 19
Control Value of Equity	\$ 15,075	\$ 1,972	\$ 5,816	\$ 11	\$ 349	\$ 64	\$ 21	\$ 82
Book Debt and Preferred Stock (includes current portion ltd)	14,650	1,484	19,015	2,260	1,637	882	748	806
Total Capitalization / Market Value of Invested Capital	\$ 29,725	\$ 3,456	\$ 24,831	\$ 2,272	\$ 1,986	\$ 946	\$ 769	\$ 888
<b>Latest 12 Months Ending</b>	(12/31/02)	(12/31/02)	(12/31/02)	(12/31/02)	(12/31/02)	(12/31/02)	(12/31/02)	(12/31/02)
Total Assets	\$ 21,484	\$ 1,736	\$ 23,022	\$ 2,164	\$ 1,618	\$ 1,172	\$ 526	\$ 831
Book Value of Common Equity	2,710	76	480	(297)	(164)	135	(340)	(70)
Sales	8,721	671	12,074	618	715	556	508	534
EBITDA	3,166	(10)	2,886	(123)	145	27	(23)	2
Depreciation & Amortization	1,595	101	2,267	288	131	105	119	111
EBIT	1,571	(111)	619	(411)	14	(78)	(142)	(109)
Interest Expense	1,093	165	1,447	230	-	103	72	74
Pretax Earnings	1,777	(264)	(1,024)	(641)	(135)	(470)	(1,026)	(583)
Net Income	1,175	(286)	(592)	(665)	(149)	(403)	(1,015)	(582)
Cash Flow [c]	2,770	(185)	1,675	(377)	(18)	(298)	(896)	(472)
EBITDA Margin (%)	36.3%	-1.5%	23.9%	-19.9%	20.3%	4.8%	-4.6%	0.4%
EBIT Margin (%)	18.0%	-16.6%	5.1%	-66.5%	1.9%	-14.1%	-28.0%	-20.4%
Net Income Margin (%)	13.5%	-42.7%	-4.9%	-107.5%	-20.8%	-72.6%	-199.7%	-109.1%
Asset Turnover	0.41	0.39	0.52	0.29	0.44	0.47	0.97	0.64
Inventory Turnover	10.07	29.36	13.22	11.62	12.23	6.72	62.32	42.51
Return on Assets (%)	5.5%	-16.5%	-2.6%	-30.7%	-9.2%	-34.4%	-193.0%	-70.1%
Leverage Ratio	7.93	22.73	47.96	(7.29)	(9.89)	8.71	(1.54)	(11.84)
Return on Equity (%)	43.4%	-375.0%	-123.3%	224.0%	91.0%	-299.6%	298.0%	829.3%
Debt to Equity [d]	5.41	19.43	39.61	(7.62)	(10.01)	6.55	(2.20)	(11.47)
Current Ratio	1.69	2.21	0.80	0.11	1.98	1.42	1.10	1.65
Latest 12 Months EPS from Operations	\$ 0.08	\$ (1.19)	\$ (0.63)	\$ (15.97)	\$ (2.21)	\$ (1.18)	\$ (18.70)	\$ (2.73)
Latest 12 Months Cash Flow per Share	\$ 3.13	\$ (0.76)	\$ 1.65	\$ (8.45)	\$ (0.27)	\$ (3.21)	\$ (37.72)	\$ (3.99)

**Wireless Industry Business Enterprise Value  
Public Guideline Company Approach**

**As of December 31, 2002  
(\$million's)**

	Nextel Communications <u>NXTL</u>	Nextel Partners <u>NXTP</u>	Sprint PCS <u>PCS</u>	Leap Wireless Intl <u>3LWINQ</u>	Triton PCS Holdings <u>TPC</u>	Alamosa Holdings <u>3ALMO</u>	Airgate PCS <u>3PCSA</u>	US Unwired <u>UNWR</u>
<b>Relative Prices:</b>								
Price / Latest Year End Book Equity	4.28	19.86	9.32	(0.03)	(1.64)	0.36	(0.05)	(0.90)
Invested Capital / Latest Year End Book Equity	10.97	45.25	51.73	(7.65)	(12.14)	7.02	(2.26)	(12.64)
Indicated Dividend Yield	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Invested Capital / Earnings	25.30	(12.07)	(41.94)	(3.42)	(13.34)	(2.34)	(0.76)	(1.52)
Invested Capital / Sales	3.41	5.15	2.06	3.67	2.78	1.70	1.51	1.66
Invested Capital / EBITDA	9.39	(344.02)	8.60	(18.43)	13.69	35.13	(32.85)	441.90
Invested Capital / Subscriber	2,801	3,936	1,682	1,420	2,393	1,520	1,385	1,611
Invested Capital / Licensed Pop	127	66	116	42	146	60	52	50
<b>POPs</b>								
Total Licensed	234,851,000	52,000,000	213,265,000	53,545,000	13,600,000	15,845,000	14,835,000	17,600,000
MHz	<u>26.0</u>	<u>15.0</u>	<u>25.6</u>	<u>14.2</u>	<u>23.7</u>	<u>27.2</u>	<u>17.7</u>	<u>26.4</u>
MHz POPs	6,106,126,000	780,000,000	5,459,584,000	760,339,000	322,320,000	430,984,000	262,579,500	464,640,000
Net Tangible Assets (in millions)	8,918	1,000	11,897	1,107	797	459	384	484
Net Working Capital (including cash)(in millions)	<u>2,145</u>	<u>201</u>	<u>0</u>	<u>66</u>	<u>215</u>	<u>56</u>	<u>0</u>	<u>71</u>
MVIC less NTA and NWC	\$ 18,662	\$ 2,255	\$ 12,934	\$ 1,099	\$ 974	\$ 431	\$ 385	\$ 333
Subscribers ('000)	10,612	878	14,760	1,600	830	622	555	551
CPGA	<u>444</u>	<u>448</u>	<u>353</u>	<u>297</u>	<u>422</u>	<u>395</u>	<u>386</u>	<u>361</u>
Customer Relationship Value (in millions)	\$ 4,712	\$ 393	\$ 5,210	\$ 475	\$ 350	\$ 246	\$ 214	\$ 199
<u>License Value</u>	\$ 13,950	\$ 1,862	\$ 7,723	\$ 624	\$ 624	\$ 185	\$ 171	\$ 134
Per:								
Total Licensed Pops	\$ 59.40	\$ 35.80	\$ 36.21	\$ 11.65	\$ 45.87	\$ 11.69	\$ 11.51	\$ 7.62

## Notes:

- [a] At the end of the latest 12 months available  
 [b] The December 31, 2002 calculated per share price  
 [c] Net income plus depreciation and amortization  
 [d] The ratio of long-term debt to book value of common equity

**Wireless Industry Business Enterprise Value  
Public Guideline Company Approach**

**As of December 31, 2002  
(\$million's)**

	Ubiquitel <u>UPCS</u>	AT&T Wireless Services <u>AWE</u>	United States Cellular <u>USM</u>	Western Wireless <u>WWCA</u>	Dobson Communications <u>DCEL</u>	Rural Cellular <u>3RCCC</u>	Centennial Communications <u>CYCL</u>	<b>Total Wireless</b>
# Shares Common Stock O/S [a]	81.43	2,303.00	86.12	79.00	90.11	11.92	95.70	
Price @ close 12/31/02 [b]	\$ 0.40	\$ 5.65	\$ 25.02	\$ 5.30	\$ 2.21	\$ 0.85	\$ 2.61	
Freely Traded Value / Market Value of Equity	\$ 33	\$ 13,012	\$ 2,155	\$ 419	\$ 199	\$ 10	\$ 250	
Control Premium @ 30%	\$ 10	\$ 3,904	\$ 646	\$ 126	\$ 60	\$ 3	\$ 75	
Control Value of Equity	\$ 42	\$ 16,916	\$ 2,801	\$ 544	\$ 259	\$ 13	\$ 325	
Book Debt and Preferred Stock (includes current portion ltd)	461	19,180	1,331	2,466	2,035	1,844	1,777	
Total Capitalization / Market Value of Invested Capital	\$ 504	\$ 36,096	\$ 4,132	\$ 3,010	\$ 2,294	\$ 1,857	\$ 2,102	\$ 114,866
<b>Latest 12 Months Ending</b>	(12/31/02)	(12/31/02)	(12/31/02)	(12/31/02)	(12/31/02)	(12/31/02)	(12/31/02)	(12/31/02)
Total Assets	\$ 538	\$ 45,806	\$ 4,700	\$ 2,399	\$ 1,961	\$ 1,463	\$ 1,643	
Book Value of Common Equity	22	19,697	2,415	(486)	(409)	(483)	(483)	
Sales	221	15,631	2,184	1,187	616	458	741	
EBITDA	(34)	3,822	594	313	259	218	273	
Depreciation & Amortization	52	2,751	297	240	86	82	158	
EBIT	(85)	1,071	297	73	172	135	115	
Interest Expense	46	669	48	157	118	111	151	
Pretax Earnings	(129)	(2,150)	(12)	(100)	(131)	24	(67)	
Net Income	(117)	(2,223)	(18)	(215)	(190)	(36)	(62)	
Cash Flow [c]	(66)	528	279	25	(104)	46	96	
EBITDA Margin (%)	-15.2%	24.5%	27.2%	26.4%	42.0%	47.5%	36.8%	
EBIT Margin (%)	-38.5%	6.9%	13.6%	6.1%	28.0%	29.5%	15.5%	
Net Income Margin (%)	-53.0%	-14.2%	-0.8%	-18.1%	-30.9%	-7.9%	-8.4%	
Asset Turnover	0.41	0.34	0.46	0.49	0.31	0.31	0.45	
Inventory Turnover	68.91	3.02	18.08	19.88	11.79	2.63	17.49	
Return on Assets (%)	-21.8%	-4.9%	-0.4%	-9.0%	-9.7%	-2.5%	-3.8%	
Leverage Ratio	24.91	2.33	1.95	(4.93)	(4.80)	(3.03)	(3.40)	
Return on Equity (%)	-543.2%	-11.3%	-0.7%	44.3%	46.5%	7.5%	12.9%	
Debt to Equity [d]	21.34	0.97	0.55	(5.07)	(4.98)	(3.82)	(3.68)	
Current Ratio	2.21	1.71	0.46	0.71	1.87	0.66	0.63	
Latest 12 Months EPS from Operations	\$ (1.45)	\$ (0.44)	\$ 2.02	\$ (2.57)	\$ (1.32)	\$ (3.02)	\$ (0.42)	
Latest 12 Months Cash Flow per Share	\$ (0.81)	\$ 0.20	\$ 3.24	\$ 0.32	\$ (1.15)	\$ 3.89	\$ 1.00	

**Wireless Industry Business Enterprise Value  
Public Guideline Company Approach**

**As of December 31, 2002  
(\$million's)**

	Ubiquitel <u>UPCS</u>	AT&T Wireless Services <u>AWE</u>	United States Cellular <u>USM</u>	Western Wireless <u>WWCA</u>	Dobson Communications <u>DCEL</u>	Rural Cellular <u>3RCCC</u>	Centennial Communications <u>CYCL</u>	<b>Total Wireless</b>
<b>Relative Prices:</b>								
Price / Latest Year End Book Equity	1.51	0.66	0.89	(0.86)	(0.49)	(0.02)	(0.52)	
Invested Capital / Latest Year End Book Equity	23.30	1.83	1.71	(6.19)	(5.61)	(3.84)	(4.35)	
Indicated Dividend Yield	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Invested Capital / Earnings	(4.29)	(16.24)	(231.06)	(13.98)	(12.07)	(51.48)	(33.80)	
Invested Capital / Sales	2.28	2.31	1.89	2.54	3.73	4.05	2.84	
Invested Capital / EBITDA	(14.99)	9.44	6.96	9.62	8.87	8.54	7.71	
Invested Capital / Subscriber	1,959	1,730	1,007	2,513	2,607	2,784	3,486	
Invested Capital / Licensed Pop	45	132	101	284	361	254	295	
<b>POPs</b>								
Total Licensed	11,082,000	274,000,000	41,000,000	10,582,000	6,354,000	7,319,000	7,134,000	973,012,000
MHz	<u>29.4</u>	<u>33.0</u>	<u>25.0</u>	<u>25.0</u>	<u>25.0</u>	<u>24.4</u>	<u>25.0</u>	
MHz POPs	325,810,800	9,042,000,000	1,025,000,000	264,550,000	158,850,000	178,583,600	178,350,000	25,759,716,900
Net Tangible Assets (in millions)	284	16,263	2,008	856	301	241	667	45,664
Net Working Capital (including cash)(in millions)	<u>69</u>	<u>2,188</u>	<u>0</u>	<u>24</u>	<u>228</u>	<u>24</u>	<u>0</u>	<u>5,286</u>
MVIC less NTA and NWC	\$ 151	\$ 17,645	\$ 2,125	\$ 2,131	\$ 1,766	\$ 1,593	\$ 1,435	\$ 63,917
Subscribers ('000)	257	20,859	4,103	1,198	880	667	603	58,975
CPGA	<u>400</u>	<u>377</u>	<u>365</u>	<u>424</u>	<u>354</u>	<u>354</u>	<u>354</u>	<u>382</u>
Customer Relationship Value (in millions)	\$ 103	\$ 7,864	\$ 1,498	\$ 508	\$ 312	\$ 236	\$ 213	\$ 22,533
<u>License Value</u>	\$ 48	\$ 9,781	\$ 627	\$ 1,623	\$ 1,454	\$ 1,357	\$ 1,221	\$ 41,384
Per:								
Total Licensed Pops	\$ 4.38	\$ 35.70	\$ 15.29	\$ 153.33	\$ 228.84	\$ 185.39	\$ 171.17	\$ 42.53

<b>Total per MHz*Licensed Pops</b>	<b>\$ 1.61</b>
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## Notes:

- [a] At the end of the latest 12 months available  
 [b] The December 31, 2002 calculated per share price  
 [c] Net income plus depreciation and amortization  
 [d] The ratio of long-term debt to book value of common equ

**EXHIBIT E**

**Enterprise Value and Corresponding License Value per MHz Pop for the Wireless Industry**

**Enterprise Value, MHz\*POPs and Value per MHz\*POP  
for Continental U.S. ESMR, PCS and Cellular Operators  
Detail by Company**

**Exhibit E  
Page 1 of 2**

<u>Company</u>	<u>Nextel</u>	<u>Nextel Partners</u>	<u>Sprint PCS</u>	<u>T-Mobile</u>	<u>Leap Wireless</u>	<u>Triton PCS</u>	<u>Alamosa</u>	<u>iPCS Airgate</u>	<u>US Unwired</u>	<u>Ubiquitel</u>
Stock Price at December 31, 2002	\$ 11.55	\$ 6.07	\$ 4.38	Valued by	\$ 0.15	\$ 3.93	\$ 0.52	\$ 0.62	\$ 0.49	\$ 0.40
FD Shares Outstanding ( Mil)	1,004.0	269.4	1,021.4	Kane Reece	58.7	68.2	94.2	25.8	128.8	81.4
Freely Traded Market Cap Equity (w/o control premium)	\$ 11,596	\$ 1,635	\$ 4,474		\$ 9	\$ 268	\$ 49	\$ 16	\$ 63	\$ 33
Control Market Cap Equity (w. control premium)	30% \$ 15,075	\$ 2,126	\$ 5,816		\$ 11	\$ 348	\$ 64	\$ 21	\$ 82	\$ 42
Plus: Pref Stk Value	1,799	37	526		0	127	0	0	0	-
Plus: Long-Term Debt	<u>12,851</u>	<u>1,421</u>	<u>18,489</u>		<u>2,260</u>	<u>1,510</u>	<u>882</u>	<u>748</u>	<u>806</u>	<u>461</u>
MVIC	29,725	3,584	24,831		2,272	1,986	946	769	888	504
Adjustments:										
Plus: Working (Capital) Deficit	(3,382)	20	152		-	(180)	(36)	353	(89)	(114)
Less: International & non-related assets	<u>688</u>	<u>93</u>	<u>450</u>		<u>490</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>204</u>	<u>-</u>
Nextel Value by Market Method(50% weight)	25,655									
Nextel Value by Kane Reece (50% weight)	<u>27,550</u>									
Net Wireless Enterprise Value (\$ Mil)	<u>26,603</u>	<u>3,511</u>	<u>24,533</u>	<u>9,800</u>	<u>1,782</u>	<u>1,806</u>	<u>910</u>	<u>1,122</u>	<u>595</u>	<u>390</u>
Less: Net PP&E	8,918	1,000	11,897	4,488	1,107	797	459	399	484	276
Less: Customer Relationship Asset (CPGA * Subs)	<u>4,712</u>	<u>393</u>	<u>5,210</u>	<u>3,133</u>	<u>475</u>	<u>350</u>	<u>246</u>	<u>214</u>	<u>199</u>	<u>103</u>
License Value Indication(\$ Mil)	12,973	2,117	7,426	2,179	199	659	205	508	(88)	11
Avg MHZ (for licensed POPs)	26.0	15.0	25.6	24.3	14.2	23.7	27.2	17.7	26.4	29.4
MHz*POPs(millions)	6,106	780	5,460	5,297	762	322	431	263	465	326
<u>Memo Items:</u>										
Licensed Pops (000)	234,851	52,000	213,265	218,000	53,545	13,600	15,845	14,835	17,600	11,082
Net Wireless Value per Licensed Pop	\$ 113	\$ 68	\$ 115	\$ 45	\$ 33	\$ 133	\$ 57	\$ 76	\$ 34	\$ 35
Less: Net PP&E/Pop	38	19	56	21	21	59	29	27	28	25
Less: Customer Relationship per POP	<u>20</u>	<u>8</u>	<u>24</u>	<u>14</u>	<u>9</u>	<u>26</u>	<u>16</u>	<u>14</u>	<u>11</u>	<u>9</u>
License Value/Pop	\$ 55	\$ 41	\$ 35	\$ 10	\$ 4	\$ 48	\$ 13	\$ 34	\$ (5)	\$ 1
Service Revenue 2002 (\$millions)	8,186	647	10,866	5,698	583	683	536	463	526	214
EBITDA 2002 (\$millions)	3,166	1	2,857	449	(124)	166	23	(46)	(14)	(33)
EV/Revenue multiple	3.2	5.4	2.3	1.7	3.1	2.6	1.7	2.4	1.1	1.8
EV/EBITDA multiple	8.4	NA	8.6	21.8	(14.4)	10.9	39.5	(24.4)	(42.5)	(11.8)
Subscribers at 12/31/02 (000s)	10,612	878	14,760	9,916	1,600	830	622	555	551	257
Wireless BEV Value per sub	\$ 2,507	\$ 3,999	\$ 1,662	\$ 988	\$ 1,114	\$ 2,176	\$ 1,462	\$ 2,021	\$ 1,079	\$ 1,516
Net PP&E per sub	840	1,139	806	453	692	960	738	719	878	1,074
Subscribers Per 1000 MHz Pops	1.74	1.13	2.70	1.87	2.10	2.58	1.44	2.11	1.19	0.79
Cost per Gross Add(CPGA) incl equip subsidy	444	448	353	316	297	422	395	386	361	400

**Enterprise Value, MHz\*POPs and Value per MHz\*POP  
for Continental U.S. ESMR, PCS and Cellular Operators  
Detail by Company**

**Exhibit E  
Page 2 of 2**

<u>Company</u>	<u>Verizon Wireless</u>	<u>Cingular</u>	<u>AT&amp;T Wireless</u>	<u>Alltel Wireless</u>	<u>US Cellular</u>	<u>Western Wireless</u>	<u>Dobson</u>	<u>Rural Cellular</u>	<u>Centennial</u>	<u>All Wireless Total/Avg.</u>
Stock Price at December 31, 2002	Valued by Kane Reece	Valued by Kane Reece	\$ 5.65	\$ 51.00	\$ 25.02	\$ 5.30	\$ 2.21	\$ 0.85	\$ 2.61	
FD Shares Outstanding ( Mil)			2,303.0	324.2	86.1	79.0	90.1	11.9	95.7	
Freely Traded Market Cap Equity (w/o control premium)			\$ 13,012	\$ 16,534	\$ 2,154	\$ 419	\$ 199	\$ 10	\$ 250	
Control Market Cap Equity (w. control premium)	30%		\$ 16,916	\$ 21,494	\$ 2,800	\$ 544	\$ 259	\$ 13	\$ 325	
Plus: Pref Stk Value *			7,815	-	0	0	758	661	0	
Plus: Long-Term Debt			11,365	6,146	1,331	2,466	1,277	1,183	1,777	
MVIC			36,096	27,640	4,132	3,010	2,294	1,857	2,102	
Adjustments:										
Plus: Working (Capital) Deficit			(2,891)	(1,302)	(3)	56	(176)	55	(3)	
Less: International & non-related assets			1,079	11,913	290	703	735	-	964	
<b>Net Wireless Enterprise Value (\$ Mil)</b>	<b>\$ 56,150</b>	<b>\$ 26,550</b>	<b>\$ 32,126</b>	<b>\$ 14,425</b>	<b>\$ 3,839</b>	<b>\$ 2,363</b>	<b>\$ 1,383</b>	<b>\$ 1,913</b>	<b>\$ 1,135</b>	<b>\$ 210,932</b>
Less: Net PP&E	17,073	11,144	16,263	2,999	2,008	861	301	241	388	81,101
Less: Customer Relationship Asset (CPGA * Subs)	10,625	8,989	7,864	2,311	1,498	508	312	236	213	47,591
License Value Indication(\$ Mil)	28,452	6,417	7,999	9,116	333	995	770	1,436	534	\$ 82,240
Avg MHZ (for licensed POPs)	29.0	22.9	33.0	25.0	25.0	25.0	25.0	24.4	25.0	26.1
MHz*POPs(millions)	7,598	5,015	9,042	1,475	1,025	265	159	178	178	45,147
										<b>License Value per MHz*POP \$ 1.82</b>
<b>Memo Items:</b>										
Licensed Pops (000)	262,000	219,000	274,000	59,008	41,000	10,582	6,354	7,319	7,134	1,731,020
Net Wireless Value per Licensed Pop	\$ 214	\$ 121	\$ 117	\$ 244	\$ 94	\$ 223	\$ 218	\$ 261	\$ 159	\$ 122
Less: Net PP&E/Pop	65	51	59	51	49	81	47	33	54	47
Less: Customer Relationship per POP	41	41	29	39	37	48	49	32	30	27
License Value/Pop	\$ 109	\$ 29	\$ 29	\$ 154	\$ 8	\$ 94	\$ 121	\$ 196	\$ 75	\$ 48
Service Revenue 2002 (\$millions)	17,747	13,746	14,278	3,999	2,099	838	719	438	361	82,627
EBITDA 2002 (\$millions)	6,933	4,371	3,839	1,529	632	368	316	218	156	24,807
Subscribers at 12/31/02 (000s)	32,491	21,925	20,859	7,602	4,103	1,198	880	667	603	130,909
Wireless BEV Value per sub	\$ 1,728	\$ 1,211	\$ 1,540	\$ 1,898	\$ 936	\$ 1,973	\$ 1,571	\$ 2,867	\$ 1,882	\$ 1,611
Net PP&E per sub	525	508	780	394	489	719	342	361	643	620
Subscribers Per 1000 MHz Pops	4.28	4.37	2.31	5.15	4.00	4.53	5.54	3.74	3.38	2.90
Cost per Gross Add(CPGA) incl equip subsidy	327	410	377	304	365	424	354	354	354	364

\* For AT&T, incl's mandatory redeemable common

**EXHIBIT F**

**Comparable Spectrum Transaction Sales**

Market Transactions

Exhibit F

Date	BTA / MTA	Description	Seller	Buyer	Spectrum Only?	Total Price (\$M)	Spectrum Price (\$M)	Pops (k)	Block	MHz	Price per Pop	Price per MHz Pop	Source
Mar-03		NOTE: US Cellular and AWE annouced late April 2003 a swap of AWE PCS licenses (spectrum only) for USC cellular markets with licenses, customers and network AWE gave up 16.8M PCS Pops. While no financial detail was released - if you value the USC cellular properties at an estimated multiple of EBITDA - the value for the spectrum is \$.66 - 1.11 / MHz Pop											
May-03	BTA	Lebanon, NH	Devon	VZW	Yes/No	\$0.6	\$0.4	184	F	10	\$2.40	\$0.24	Press release
May-03	BTA	Pittsburgh, Pa	Devon	VZW	Yes/No	\$10.5	\$10.5	2,500	F	10	\$4.20	\$0.42	Press release
Dec-02	BTAs	Various incl. NY	Northcoast	VZW	Yes	\$750.0	\$750.0	47,500	F/D/E	10	\$15.79	\$1.58	Press release
Oct-02	BTAs	Fayetteville, NC	Northcoast	Triton PCS	Yes	\$19.0	\$5.6	669	F	10	\$8.37	\$0.84	Company 10K 2002
Aug-02	BTAs	Nine BTAs in PA	D&E Communication	Keystone Wireless	No	\$19.0	\$1.2	1,024	C/D	20.7	\$1.17	\$0.06	Kagan - 9/02, corrected
Jul-02	3 BTAs	Richmond, Norfolk & Roanoke	AWE	Triton PCS	Yes	\$63.0	\$63.0	3,705	B	10	\$17.00	\$1.70	Company Press releases
May-02	MTA	Chicago MTA	Clarity Partners	US Cellular	No	\$610.0	\$375.0	13,200	B	20	\$28.41	\$1.42	Kagan - 5/02
May-01	BTA	14 BTAs in IA, IL & NE Incl. Des Moines, Omaha & Peoria	McLeod	US Cellular	Yes	\$74.0	\$74.0	4,756	D & E	10	\$15.56	\$1.56	Company Press releases
Jan-02	BTA	Cincinnati, Oh, Beckley, WV	NTELOS	Highland Cellular	Yes	\$7.0	\$7.0	580	A/B, F	10	\$12.07	\$1.21	Kagan 1/10/02
Jul-01	BTA	Kingsport, TN	NTELOS	Lafayette	Yes	\$11.6	\$11.6	700	F	10	\$16.57	\$1.66	Company Press releases
Aug-02	BTAs	Nine BTAs in GA, VA, TN incl. Kingsport, Augusta and Savannah	Lafayette	Triton PCS	Yes	\$23.5	\$23.5	2,854	C/F	15.3	\$8.23	\$0.54	Kagan - 8/02
Sep-01	BTA	Salt Lake City and Provo	Leap	Cingular	Yes	\$139.7	\$139.7	1,967	C	15	\$71.02	\$4.73	Company Press releases
Dec-01	BTA	Altoona, Pa, Johnstown, PA, Wheeling, WV	NTELOS	AWE	Yes	\$7.4	\$7.4	670	D,E,F	10	\$11.00	\$1.10	Kagan 1/02
		Total/ Average				\$1,735.3	\$1,468.9	80,309		12.09	\$18.29	<u>\$1.51</u>	
										Median		<u>\$1.21</u>	
		Memo:											
01-May-03		Proposed Acquisition of PCS Spectrum	NextWave	Cingular	Yes	Unkn	Unkn			10		1.86	Press Release
05-Aug-03		Proposed Acquisition of PCS Spectrum	NextWave	Cingular	Yes		\$1,400.0	83,000		10* \$	16.87	\$1.69	Telephony Online

\* Est'd

## **EXHIBIT G**

### **Licensed Pops and MHz by Top 100 Markets**

- **Verizon Compilation of Verizon, AT&T, Cingular & T-Mobile**
- **Nextel Report to FCC and Congress, July 2002**

## Spectrum Use and Interleaving in the 800 MHz Band by top 100 Urban Areas Summary Report

Exhibit G

Rank	Urban Area	2000 Pops	Channels				Spectrum (MHz)				Nationwide Spectrum Share (MHz)			
			Nextel	Public Safety	SMR	Business/ H.T	Nextel	Public Safety	SMR	Business/ H.T	Nextel	Public Safety	SMR	Business/ H.T
1	New York--Newark, NY--NJ--CT	17,799,861	427	81	56	148	21.35	4.05	2.80	7.40	2.5	0.5	0.3	0.9
2	Los Angeles--Long Beach--Santa Ana, CA	11,789,487	329	75	9	47	16.45	3.75	0.45	2.35	1.3	0.3	0.0	0.2
3	Chicago, IL--IN	8,307,904	437	82	15	73	21.85	4.10	0.75	3.65	1.2	0.2	0.0	0.2
4	Philadelphia, PA--NJ--DE--MD	5,149,079	397	60	20	89	19.85	3.00	1.00	4.45	0.7	0.1	0.0	0.1
5	Miami, FL	4,919,036	461	159	1	64	23.05	7.95	0.05	3.20	0.7	0.3	0.0	0.1
6	Dallas--Fort Worth--Arlington, TX	4,145,659	438	81	10	48	21.90	4.05	0.50	2.40	0.6	0.1	0.0	0.1
7	Boston, MA--NH--RI	4,032,484	432	89	6	46	21.60	4.45	0.30	2.30	0.6	0.1	0.0	0.1
8	Washington, DC--VA--MD	3,933,920	386	71	1	51	19.30	3.55	0.05	2.55	0.5	0.1	0.0	0.1
9	Detroit, MI	3,903,377	274	73	-	78	13.70	3.65	-	3.90	0.3	0.1	-	0.1
10	Houston, TX	3,822,509	424	69	4	77	21.20	3.45	0.20	3.85	0.5	0.1	0.0	0.1
11	Atlanta, GA	3,499,840	321	140	91	48	16.05	7.00	4.55	2.40	0.4	0.2	0.1	0.1
12	San Francisco--Oakland, CA	2,995,769	352	48	1	50	17.60	2.40	0.05	2.50	0.3	0.0	0.0	0.0
13	Phoenix--Mesa, AZ	2,907,049	384	66	9	41	19.20	3.30	0.45	2.05	0.4	0.1	0.0	0.0
14	Seattle, WA	2,712,205	369	59	5	61	18.45	2.95	0.25	3.05	0.3	0.1	0.0	0.1
15	San Diego, CA	2,674,436	141	66	-	19	7.05	3.30	-	0.95	0.1	0.1	-	0.0
16	Minneapolis--St. Paul, MN	2,388,593	324	82	77	87	16.20	4.10	3.85	4.35	0.3	0.1	0.1	0.1
17	San Juan, PR	2,216,616	70	17	134	32	3.50	0.85	6.70	1.60	0.1	0.0	0.1	0.0
18	St. Louis, MO--IL	2,077,662	383	54	22	101	19.15	2.70	1.10	5.05	0.3	0.0	0.0	0.1
19	Baltimore, MD	2,076,354	342	66	1	40	17.10	3.30	0.05	2.00	0.2	0.0	0.0	0.0
20	Tampa--St. Petersburg, FL	2,062,339	428	88	3	42	21.40	4.40	0.15	2.10	0.3	0.1	0.0	0.0
21	Denver--Aurora, CO	1,984,887	381	52	-	34	19.05	2.60	-	1.70	0.2	0.0	-	0.0
22	Cleveland, OH	1,786,647	260	68	-	57	13.00	3.40	-	2.85	0.2	0.0	-	0.0
23	Pittsburgh, PA	1,753,136	466	56	-	36	23.30	2.80	-	1.80	0.3	0.0	-	0.0
24	Portland, OR--WA	1,583,138	407	65	13	41	20.35	3.25	0.65	2.05	0.2	0.0	0.0	0.0
25	San Jose, CA	1,538,312	286	9	-	4	14.30	0.45	-	0.20	0.1	0.0	-	0.0
26	Riverside--San Bernardino, CA	1,506,816	279	35	2	9	13.95	1.75	0.10	0.45	0.1	0.0	0.0	0.0
27	Cincinnati, OH--KY--IN	1,503,262	391	62	-	51	19.55	3.10	-	2.55	0.2	0.0	-	0.0
28	Virginia Beach, VA	1,394,439	410	78	38	47	20.50	3.90	1.90	2.35	0.2	0.0	0.0	0.0
29	Sacramento, CA	1,393,498	308	33	7	8	15.40	1.65	0.35	0.40	0.1	0.0	0.0	0.0
30	Kansas City, MO--KS	1,361,744	430	77	16	48	21.50	3.85	0.80	2.40	0.2	0.0	0.0	0.0
31	San Antonio, TX	1,327,554	402	51	26	46	20.10	2.55	1.30	2.30	0.2	0.0	0.0	0.0
32	Las Vegas, NV	1,314,357	407	28	32	65	20.35	1.40	1.60	3.25	0.2	0.0	0.0	0.0
33	Milwaukee, WI	1,308,913	425	23	27	28	21.25	1.15	1.35	1.40	0.2	0.0	0.0	0.0
34	Indianapolis, IN	1,218,919	359	52	2	63	17.95	2.60	0.10	3.15	0.1	0.0	0.0	0.0
35	Providence, RI--MA	1,174,548	423	-	-	2	21.15	-	-	0.10	0.2	-	-	0.0
36	Orlando, FL	1,157,431	413	51	8	19	20.65	2.55	0.40	0.95	0.2	0.0	0.0	0.0
37	Columbus, OH	1,133,193	414	57	5	44	20.70	2.85	0.25	2.20	0.2	0.0	0.0	0.0
38	New Orleans, LA	1,009,283	366	104	-	48	18.30	5.20	-	2.40	0.1	0.0	-	0.0
39	Buffalo, NY	976,703	152	30	-	10	7.60	1.50	-	0.50	0.0	0.0	-	0.0
40	Memphis, TN--MS--AR	972,091	372	53	23	53	18.60	2.65	1.15	2.65	0.1	0.0	0.0	0.0
41	Austin, TX	901,920	327	20	86	30	16.35	1.00	4.30	1.50	0.1	0.0	0.0	0.0
42	Bridgeport--Stamford, CT--NY	888,890	320	1	1	32	16.00	0.05	0.05	1.60	0.1	0.0	0.0	0.0
43	Salt Lake City, UT	887,650	395	26	1	14	19.75	1.30	0.05	0.70	0.1	0.0	0.0	0.0
44	Jacksonville, FL	882,295	429	100	14	29	21.45	5.00	0.70	1.45	0.1	0.0	0.0	0.0
45	Louisville, KY--IN	863,582	427	30	22	44	21.35	1.50	1.10	2.20	0.1	0.0	0.0	0.0
46	Hartford, CT	851,535	270	2	-	5	13.50	0.10	-	0.25	0.1	0.0	-	0.0
47	Richmond, VA	818,836	367	62	4	25	18.35	3.10	0.20	1.25	0.1	0.0	0.0	0.0
48	Charlotte, NC--SC	758,927	357	50	20	54	17.85	2.50	1.00	2.70	0.1	0.0	0.0	0.0
49	Nashville--Davidson, TN	749,935	397	64	17	46	19.85	3.20	0.85	2.30	0.1	0.0	0.0	0.0
50	Oklahoma City, OK	747,003	438	12	3	19	21.90	0.60	0.15	0.95	0.1	0.0	0.0	0.0
51	Tucson, AZ	720,425	375	28	-	10	18.75	1.40	-	0.50	0.1	0.0	-	0.0
52	Honolulu, HI	718,182	414	16	49	43	20.70	0.80	2.45	2.15	0.1	0.0	0.0	0.0

Spectrum Use and Interleaving in the 800 MHz Band by top 100 Urban Areas Summary Report

Exhibit G

Rank	Urban Area	2000 Pops	Channels				Spectrum (MHz)				Nationwide Spectrum Share (MHz)			
			Nextel	Public Safety	SMR	Business/H.T	Nextel	Public Safety	SMR	Business/H.T	Nextel	Public Safety	SMR	Business/H.T
53	Dayton, OH	703,444	395	49	18	22	19.75	2.45	0.90	1.10	0.1	0.0	0.0	0.0
54	Rochester, NY	694,396	140	10	-	23	7.00	0.50	-	1.15	0.0	0.0	-	0.0
55	El Paso, TX--NM	674,801	185	31	-	36	9.25	1.55	-	1.80	0.0	0.0	-	0.0
56	Birmingham, AL	663,615	308	41	117	27	15.40	2.05	5.85	1.35	0.1	0.0	0.0	0.0
57	Omaha, NE--IA	626,623	370	31	87	29	18.50	1.55	4.35	1.45	0.1	0.0	0.0	0.0
58	Albuquerque, NM	598,191	396	23	10	15	19.80	1.15	0.50	0.75	0.1	0.0	0.0	0.0
59	Allentown--Bethlehem, PA--NJ	576,408	373	15	10	4	18.65	0.75	0.50	0.20	0.1	0.0	0.0	0.0
60	Springfield, MA--CT	573,610	267	-	-	2	13.35	-	-	0.10	0.1	-	-	0.0
61	Akron, OH	570,215	254	38	-	9	12.70	1.90	-	0.45	0.0	0.0	-	0.0
62	Sarasota--Bradenton, FL	559,229	464	42	-	5	23.20	2.10	-	0.25	0.1	0.0	-	0.0
63	Albany, NY	558,947	456	51	7	8	22.80	2.55	0.35	0.40	0.1	0.0	0.0	0.0
64	Tulsa, OK	558,329	409	45	45	35	20.45	2.25	2.25	1.75	0.1	0.0	0.0	0.0
65	Fresno, CA	554,923	298	5	3	12	14.90	0.25	0.15	0.60	0.1	0.0	0.0	0.0
66	Concord, CA	552,624	316	9	-	3	15.80	0.45	-	0.15	0.1	0.0	-	0.0
67	Raleigh, NC	541,527	373	7	1	10	18.65	0.35	0.05	0.50	0.1	0.0	0.0	0.0
68	Grand Rapids, MI	539,080	352	21	6	26	17.60	1.05	0.30	1.30	0.1	0.0	0.0	0.0
69	Mission Viejo, CA	533,015	277	26	2	12	13.85	1.30	0.10	0.60	0.0	0.0	0.0	0.0
70	New Haven, CT	531,314	342	10	-	4	17.10	0.50	-	0.20	0.1	0.0	-	0.0
71	McAllen, TX	523,144	57	19	32	3	2.85	0.95	1.60	0.15	0.0	0.0	0.0	0.0
72	Toledo, OH--MI	503,008	259	21	-	13	12.95	1.05	-	0.65	0.0	0.0	-	0.0
73	Baton Rouge, LA	479,019	329	28	20	44	16.45	1.40	1.00	2.20	0.1	0.0	0.0	0.0
74	Colorado Springs, CO	466,122	376	38	-	8	18.80	1.90	-	0.40	0.1	0.0	-	0.0
75	Worcester, MA--CT	429,882	397	21	-	3	19.85	1.05	-	0.15	0.1	0.0	-	0.0
76	Charleston--North Charleston, SC	423,410	386	43	11	27	19.30	2.15	0.55	1.35	0.1	0.0	0.0	0.0
77	Wichita, KS	422,301	413	26	22	4	20.65	1.30	1.10	0.20	0.1	0.0	0.0	0.0
78	Columbia, SC	420,537	320	25	15	29	16.00	1.25	0.75	1.45	0.0	0.0	0.0	0.0
79	Knoxville, TN	419,830	293	35	22	8	14.65	1.75	1.10	0.40	0.0	0.0	0.0	0.0
80	Ogden--Layton, UT	417,933	398	7	1	3	19.90	0.35	0.05	0.15	0.1	0.0	0.0	0.0
81	Youngstown, OH--PA	417,437	267	8	-	7	13.35	0.40	-	0.35	0.0	0.0	-	0.0
82	Syracuse, NY	402,267	126	8	-	8	6.30	0.40	-	0.40	0.0	0.0	-	0.0
83	Bakersfield, CA	396,125	223	3	8	3	11.15	0.15	0.40	0.15	0.0	0.0	0.0	0.0
84	Palm Bay--Melbourne, FL	393,289	457	29	1	3	22.85	1.45	0.05	0.15	0.1	0.0	0.0	0.0
85	Scranton, PA	385,237	467	-	-	-	23.35	-	-	-	0.1	-	-	-
86	Des Moines, IA	370,505	349	16	80	10	17.45	0.80	4.00	0.50	0.0	0.0	0.0	0.0
87	Flint, MI	365,096	228	-	-	13	11.40	-	-	0.65	0.0	-	-	0.0
88	Harrisburg, PA	362,782	358	4	1	2	17.90	0.20	0.05	0.10	0.0	0.0	0.0	0.0
89	Little Rock, AR	360,331	264	38	6	73	13.20	1.90	0.30	3.65	0.0	0.0	0.0	0.0
90	Poughkeepsie--Newburgh, NY	351,982	273	14	-	7	13.65	0.70	-	0.35	0.0	0.0	-	0.0
91	Chattanooga, TN--GA	343,509	379	34	25	82	18.95	1.70	1.25	4.10	0.0	0.0	0.0	0.0
92	Oxnard, CA	337,591	285	4	-	2	14.25	0.20	-	0.10	0.0	0.0	-	0.0
93	Augusta-Richmond County, GA--SC	335,630	326	23	69	22	16.30	1.15	3.45	1.10	0.0	0.0	0.0	0.0
94	Spokane, WA--ID	334,858	367	3	-	4	18.35	0.15	-	0.20	0.0	0.0	-	0.0
95	Cape Coral, FL	329,757	433	60	4	3	21.65	3.00	0.20	0.15	0.0	0.0	0.0	0.0
96	Madison, WI	329,533	388	25	6	11	19.40	1.25	0.30	0.55	0.0	0.0	0.0	0.0
97	Pensacola, FL--AL	323,783	322	38	71	27	16.10	1.90	3.55	1.35	0.0	0.0	0.0	0.0
98	Lancaster, PA	323,554	338	1	-	2	16.90	0.05	-	0.10	0.0	0.0	-	0.0
99	Mobile, AL	317,605	272	21	61	26	13.60	1.05	3.05	1.30	0.0	0.0	0.0	0.0
100	Stockton, CA	<u>313,392</u>	269	10	1	2	13.45	0.50	0.05	0.10	0.0	0.0	0.0	0.0
		152,811,970									18.4	3.2	1.0	2.8

Source: Nextel Report to Congress and the FCC, July 2002

## EXHIBIT H

### Co-Channel Users Based on Congressional Report Urban Areas

## EXHIBIT H

### Co-Channel Users Based on Congressional Report Urban Areas

<u>Urban Area</u>	<u>Congressional Report Population</u>	<u>Number of General &amp; Interleaved Licensed Nextel channels 851-861 MHz</u>	<u>Number of General &amp; Interleaved Licensed Nextel channels with co- channel users 851- 861 MHz</u>	<u>Nextel MHz-Pops</u>	<u>Co-channel Users MHz- Pops</u>
New York, NY	17,799,861	225	93	200,248,436	82,769,354
Los Angeles, CA	11,789,487	230	29	135,579,101	17,094,756
Chicago, IL	8,307,904	230	44	95,540,896	18,277,389
Phila., PA-Wilmington, DE	5,149,079	220	41	56,639,869	10,555,612
Miami-Fort Lauderdale, FL	4,919,036	225	67	55,339,155	16,478,771
Dallas-Fort Worth, TX	4,145,659	225	33	46,638,664	6,840,337
Boston, MA	4,032,484	220	25	44,357,324	5,040,605
Washington, DC	3,933,920	130	14	25,570,480	2,753,744
Detroit, MI	3,903,377	230	93	44,888,836	18,150,703
Houston, TX	3,822,509	230	22	43,958,854	4,204,760
Atlanta, GA	3,499,840	85	24	14,874,320	4,199,808
San Fran.-Oak.-S.J., CA	2,995,769	225	18	33,702,401	2,696,192
Phoenix, AZ	2,907,049	230	25	33,431,064	3,633,811
Seattle-Tacoma, WA	2,712,205	230	90	31,190,358	12,204,923
San Diego, CA	2,674,436	230	37	30,756,014	4,947,707
Minneapolis-St. Paul, MN	2,388,593	230	72	27,468,820	8,598,935
San Juan, PR	2,216,616	80	15	8,866,464	1,662,462
St. Louis, MO	2,077,662	230	34	23,893,113	3,532,025
Baltimore, MD	2,076,354	130	9	13,496,301	934,359
Tampa-St. Petersburg, FL	2,062,339	175	29	18,045,466	2,990,392
Denver, CO	1,984,887	225	9	22,329,979	893,199
Cleveland-Akron, OH	1,786,647	230	73	20,546,441	6,521,262
Pittsburgh, PA	1,753,136	230	5	20,161,064	438,284
Portland, OR	1,583,138	215	18	17,018,734	1,424,824
San Jose, CA	1,538,312	225	2	17,306,010	153,831
Riverside-San Bernadino, CA	1,506,816	230	8	17,328,384	602,726
Cincinnati, OH	1,503,262	230	24	17,287,513	1,803,914
Norfolk-Virginia Beach, VA	1,394,439	170	20	11,852,732	1,394,439
Sacramento, CA	1,393,498	140	3	9,754,486	209,025
Kansas City, MO	1,361,744	230	17	15,660,056	1,157,482
San Antonio, TX	1,327,554	220	14	14,603,094	929,288
Las Vegas, NV	1,314,357	230	42	15,115,106	2,760,150
Milwaukee, WI	1,308,913	230	12	15,052,500	785,348
Indianapolis, IN	1,218,919	80	0	4,875,676	-
Providence-Pawtucket, RI	1,174,548	220	0	12,920,028	-
Orlando, FL	1,157,431	225	29	13,021,099	1,678,275
Columbus, OH	1,133,193	230	20	13,031,720	1,133,193
New Orleans, LA	1,009,283	215	52	10,849,792	2,624,136
Buffalo-Niagara Falls, NY	976,703	230	35	11,232,085	1,709,230
Memphis, TN	972,091	230	30	11,179,047	1,458,137
Austin, TX	901,920	225	85	10,146,600	3,833,160
Bridgeport-Stamford, CT	888,890	225	4	10,000,013	177,778
Salt Lake City, UT	887,650	230	6	10,207,975	266,295
Jacksonville, FL	882,295	150	21	6,617,213	926,410
Louisville, KY	863,582	180	15	7,772,238	647,687
Hartford, CT	851,535	225	0	9,579,769	-
Richmond-Petersburg, VA	818,836	90	2	3,684,762	81,884
Charlotte-Gastonia, NC	758,927	230	36	8,727,661	1,366,069
Nashville, TN	749,935	230	17	8,624,253	637,445
Oklahoma City, OK	747,003	170	6	6,349,526	224,101
Tucson, AZ	720,425	230	18	8,284,888	648,383
Honolulu, HI	718,182	230	48	8,259,093	1,723,637
Dayton-Springfield, OH	703,444	200	12	7,034,440	422,066
Rochester, NY	694,396	230	27	7,985,554	937,435
El Paso, TX	674,801	155	39	5,229,708	1,315,862
Birmingham, AL	663,615	75	6	2,488,556	199,085
Omaha, NE	626,623	230	37	7,206,165	1,159,253
Albuquerque, NM	598,191	180	10	5,383,719	299,096

## EXHIBIT H

### Co-Channel Users Based on Congressional Report Urban Areas

<u>Urban Area</u>	<u>Congressional Report Population</u>	<u>Number of General &amp; Interleaved Licensed Nextel channels 851-861 MHz</u>	<u>Number of General &amp; Interleaved Licensed Nextel channels with co-channel users 851-861 MHz</u>	<u>Nextel MHz-Pops</u>	<u>Co-channel Users MHz-Pops</u>
Allentown-Bethlehem, PA	576,408	220	5	6,340,488	144,102
Springfield-Holyoke, MA	573,610	220	0	6,309,710	-
Akron, OH	570,215	230	35	6,557,473	997,876
Sarasota-Bradenton, FL	559,229	200	29	5,592,290	810,882
Albany-Schenectady, NY	558,947	230	9	6,427,891	251,526
Tulsa, OK	558,329	200	26	5,583,290	725,828
Fresno, CA	554,923	155	0	4,300,653	-
Concord, CA	552,624	225	3	6,217,020	82,894
Raleigh-Durham, NC	541,527	215	7	5,821,415	189,534
Grand Rapids, MI	529,080	230	8	6,084,420	211,632
Mission Viejo, CA	533,015	230	11	6,129,673	293,158
New Haven-Waterbury, CT	531,314	225	9	5,977,283	239,091
McAllen, TX	523,144	230	12	6,016,156	313,886
Toledo, OH	503,008	230	17	5,784,592	427,557
Baton Rouge, LA	479,019	205	31	4,909,945	742,479
Colorado Springs, CO	466,122	225	2	5,243,873	46,612
Worcester-Fitchburg, MA	429,882	220	7	4,728,702	150,459
Charleston, SC	423,410	145	12	3,069,723	254,046
Wichita, KS	422,301	220	9	4,645,311	190,035
Columbia, SC	420,537	150	6	3,154,028	126,161
Knoxville, TN	419,930	205	17	4,304,283	356,941
Ogden, UT	417,933	230	1	4,806,230	20,897
Youngstown, OH	417,437	230	6	4,800,526	125,231
Syracuse, NY	402,267	230	13	4,626,071	261,474
Bakersfield, CA	396,125	230	9	4,555,438	178,256
Melbourne, FL	393,289	230	23	4,522,824	452,282
Scranton-Wilkes Barre, PA	385,237	220	0	4,237,607	-
Des Moines, IA	370,505	230	20	4,260,808	370,505
Flint, MI	365,096	230	6	4,198,604	109,529
Harrisburg, PA	362,782	200	1	3,627,820	18,139
Little Rock, AR	360,331	230	10	4,143,807	180,166
Poughkeepsie, NY	351,982	225	0	3,959,798	-
Chattanooga, TN	343,509	155	17	2,662,195	291,983
Oxnard, CA	337,591	230	0	3,882,297	-
Augusta, GA	335,630	125	12	2,097,688	201,378
Spokane, WA	334,858	155	0	2,595,150	-
Cape Coral, FL	329,757	200	12	3,297,570	197,854
Madison, WI	329,553	230	5	3,789,860	82,388
Pensacola, FL	323,783	115	9	1,861,752	145,702
Lancaster PA	323,554	220	1	3,559,094	16,178
Mobile, AL	317,605	90	9	1,429,223	142,922
Stockton, CA	303,392	225	1	3,413,160	15,170
<b>Total</b>	<b>152,792,090</b>			<b>1,598,719,335</b>	<b>279,473,782</b>

Percentage of Co-channel MHz-Pops relative to Nextel MHz-Pops

<b>Top 5 markets</b>	<b>26.7%</b>	543,347,457	145,175,881
<b>Top 10 markets</b>	<b>24.3%</b>	748,761,614	182,166,030
<b>Top 100 markets</b>	<b>17.5%</b>	1,598,719,335	279,473,782

## QUALIFICATIONS

## STATEMENT OF BACKGROUND AND EXPERIENCE

### Robert E. Ott CFA

Robert E. Ott is a Principal of Kane Reece Associates, Inc., having joined the Firm in February 1988. Mr. Ott has conducted or managed valuation and appraisal studies to determine the business enterprise value of media, communications, and entertainment businesses with an aggregate value in excess of \$400 Billion. Mr. Ott is responsible for the analysis and evaluation of business operations for purposes of determining fair market value, purchase price allocations, due diligence support, and state and local property tax compliance. He is experienced in valuing both tangible and intangible assets in businesses such as cable television, wireless and wired telecommunications, broadcast radio and television. He has served as a valuation and communications industry expert providing testimony, advice, and litigation support, and has authored industry related articles published in various journals. Mr. Ott is experienced in developing business, marketing, strategic plans, and the implementation and/or acquisition of new businesses, specializing in technology-related fields. He has provided management consulting services to numerous media industry clients ranging from turn-around evaluations to rate base compliance analyses to the valuation of proprietary patents and licenses.

Prior to his current position, Mr. Ott was Vice President and Chief Financial Officer for Satellite Business Network, Inc. (SBN). Prior to SBN, Mr. Ott spent a year with General Electric responsible for the corporate integration of several acquired lines of business. Prior to that, Mr. Ott spent over eleven years with RCA Corporation in both line and staff roles involving technology oriented business. There he last served as Chief Financial Officer for a telecommunications service subsidiary where he was responsible for the accounting, financial planning and analysis, MIS, and purchasing functions. Mr. Ott began his RCA career in 1976 with the start-up of the domestic satellite business (now GE Americom).

Previous experience includes two years in the semi-conductor industry with Burroughs Corp. (UNISYS), and Mr. Ott served as an officer in the US Naval Submarine Force, specializing in the electronics/intelligence field.

Mr. Ott received an undergraduate degree in electrical engineering from Villanova University and a Masters of Business Administration from the University of Connecticut. He was elected a member of Tau Beta Pi, Eta Kappa Nu, and Beta Gamma Sigma, Engineering and Business Honor Societies. Mr. Ott is a member of the Institute of Chartered Financial Analysts (CFA), Association for Investment Management and Research, New York Society of Security Analysts, and Broadcast Cable Financial Management Association. He is a candidate member of the American Society of Appraisers (ASA).

## **STATEMENT OF BACKGROUND AND EXPERIENCE**

### **James W. Cuddihy**

James W. Cuddihy is Vice President – Engineering of Kane Reece Associates, Inc. He has been with the Firm since it was founded in 1986. Mr. Cuddihy is responsible for the Firm's technical consulting practice, as well as the appraisal of tangible assets employed in the media and communications industry. The technical consulting aspects of Mr. Cuddihy's work include the areas of cable television systems, direct broadcast satellite systems, high speed data transmission, satellite program distribution, and television production facilities.

He is responsible for appraising tangible assets for federal and local tax, financing, and other purposes. He has appraised several billion dollars of property. These assets include television and radio stations, cable television systems, television production facilities, cellular telephone and paging systems, international carriers, and other companies. He has also been responsible for the Kane Reece areas of technical consulting which include direct broadcast satellite systems, high speed data networks, cable television system design, advanced television systems, and audience measurement.

Prior to his current position, Mr. Cuddihy was President of Cygnus Satellite Corporation, which was granted conditional authorization by the FCC to launch two international satellites to provide television and data services between the U.S. and Western Europe. Previously, he was Vice President Engineering Development of Group W Cable/Teleprompter Corporation, once one of the largest cable TV operators in the US. In that role he led corporate-wide efforts in new and advanced technologies including the development of new services. He has also been responsible for the design and construction of cable television systems domestically and internationally.

Mr. Cuddihy joined RCA in 1967 and held senior engineering management positions during the design, launch, construction, and operation of the initial Satcom system. Mr. Cuddihy has been involved in the cable television industry since the mid-1970's. At RCA American Communications (Americom) he was extensively involved in the inauguration of Home Box Office and Showtime pay services. He was also responsible for the technical aspects of all FCC filings including petitions to authorize the use of small receive-only earth stations. He has been responsible for the construction of 50 transmit/receive earth stations. He has also served as a U.S. representative to CCIR Study Group 4 on satellite communications.

As a consultant, Mr. Cuddihy has been involved in the design, construction, operation, and evaluation of cable and communication systems throughout the U.S. and overseas.

Mr. Cuddihy received his B.S.E.E. from Manhattan College. He completed graduate work in Electrical Engineering at Polytechnic Institute of Brooklyn and in Business at Baruch College (C.U.N.Y.). He is a member of the Institute of Electrical and Electronic Engineers (I.E.E.E.), the Society of Cable Television Engineers (S.C.T.E.), the Society of Motion Picture and Television Engineers (S.M.P.T.E.), and a candidate for membership in the American Society of Appraisers (ASA).

Mr. Cuddihy is the co-holder of several U.S. patents in the field of television and audience measurement.

## STATEMENT OF BACKGROUND AND EXPERIENCE

### David K. Bivins PhD

David K. Bivins is a Senior Consultant of Kane Reece Associates, Inc. Dr. Bivins joined the Firm in February 1993. His expertise is in financial and intangible asset valuations and in operations and marketing research. His current assignments with Kane Reece include valuation of television station syndicated program rights and working with several Cable Advertising Interconnects on pricing and inventory use, market share, and television revenue share analyses.

Prior to his current position, Dr. Bivins had his own practice, DKB Consulting, specializing in business planning and development. Prior to this he spent 17 years with National Broadcasting Company (NBC) in New York. While at NBC, he served as a Senior Systems Analyst, Manager and Director of Pricing, Director of Financial Forecasting, and Vice President of Finance and Administration for the NBC Television Network. The NBC TV Network sells over \$3 billion in commercial time annually and (through its 210 affiliates) distributes programming for NBC.

Preceding his NBC experience, Dr. Bivins held analyst positions at Mathematica, Inc. and Abt Associates where he developed production planning systems for Olivetti and participated in the economic analysis of the NASA Space Shuttle, as well as other complex projects.

Dr. Bivins received his doctorate in 1969 from Massachusetts Institute of Technology (MIT) in Operations Research, focusing on mathematical programming, facilities location, and transportation/distribution networks. He received his M.S. in Civil Engineering and his B.S. in Mathematics, also from MIT.

Dr. Bivins has lectured and qualified as an expert witness in a number of intangible asset issues involving cable, broadcast, and print media. His expertise is in media intangibles valuation, with particular strength in valuing advertiser/customer/subscriber relationships, network affiliations, and program rights.

He is a member of the Broadcast Financial Management Association and the MIT Clubs of New York and Princeton. Dr. Bivins is a candidate for designation in the Business Valuation section of the American Society of Appraisers (ASA).

## **STATEMENT OF BACKGROUND AND EXPERIENCE**

### **Brian A. Dougherty**

Brian A. Dougherty is a Financial Associate with Kane Reece Associates, Inc. Mr. Dougherty joined the Firm in December of 1999. Mr. Dougherty is responsible for the analysis and evaluation of business operations for purposes of determining fair market value, analysis of/strategic/business plans, market research, property tax assessment analysis, and management consulting.

Mr. Dougherty received an undergraduate degree in Business Finance from Seton Hall University and a Masters Degree in Social Science from Montclair State University.

Mr. Dougherty is a candidate for professional designation of Accredited Senior Appraiser (ASA) in Business Valuation from the American Society of Appraisers.

## STATEMENT OF BACKGROUND AND EXPERIENCE

### Brian Withka

Brian Withka is a Research Associate with Kane Reece Associates, Inc. Mr. Withka joined the firm in June of 1997. Mr. Withka is responsible for the analysis and evaluation of business operations for purposes of determining fair market value, analysis of/strategic/business plans, market research, property tax assessment analysis, and management consulting.

Prior to his current position, Mr. Withka was a data coordinator at Robert Wood Johnson University Hospital. Mr. Withka was responsible for producing financial and statistical analyses for budget and staffing purposes as well as research in health care finance.

Currently, Mr. Withka is pursuing the designation of Accredited Senior Appraiser (ASA) in Business Valuation from the American Society of Appraisers, as well as designation as a Microsoft A+ technician and Microsoft Certified Systems Engineer.

Mr. Withka received his B.A. in Economics with minors in Price Theory, Cost Benefit Analysis, and Public Policy from Rutgers University.

## STATEMENT OF BACKGROUND AND EXPERIENCE

### Dennis W. Elliott

Dennis Elliott brings to Kane Reece clients a combination of management and financial skills with a strong understanding of technology. He offers strategic business development and financing counsel to telecommunications, multimedia and internet companies. He works with both new and established ventures to launch or repair business strategies and operations.

Mr. Elliott was interim Chief Executive of BroadPoint Communications, Inc. where he restructured the advertiser-supported long-distance telephone company.

His vast experience in the telecommunications industry includes six years with Pacific Telecom Inc. as executive vice president, responsible for finance, engineering, IT and marketing. There, he formed competitive telecom ventures, including a submarine fiber optic joint-venture between the U.S. and Japan.

Before joining Pacific Telecom, Mr. Elliott had co-founded what became GE Americom and now SES Americom, a provider of satellite television, voice and data services. As the company's vice president of finance, he helped establish key relationships with HBO, ESPN and Turner Broadcasting.

Dennis Elliott holds an MBA in marketing and finance from the Harvard Business School and an MS and BS in electrical engineering from Stanford and the University of Iowa, respectively.

**APPENDIX A**

**Economic and Industry Review**

## APPENDIX A

### Economic and Industry Review

#### The Economy

The following excerpts from *Trends and Projections* by Standard and Poor's<sup>15</sup> offers a brief overview of the national economy as of the valuation date.

One thing the last few years of the economy and the stock market has taught all of us that both move in cycles. The economy has periods of good times-the booms of the late 1990s, the expansion of the early to mid-1990s-and bad times-the recession of 2001, still not officially declared over.

Business cycles aren't new: they have been traced back to the 1840s in the United States and to earlier periods in other countries. The stock market moves in ups and downs, bull and bear markets. The stock market's moves are often more dramatic than the economy's, especially in the bull market of the 1990s and the subsequent bear market that began in 2000 and is still with us. Despite the long history and experience we all have with cycles in the economy and the market, many people seem to forget about the cycles when we're in the midst of them. On the way up, everyone wants to believe that there is some new and permanent pattern for the economy or the market, and they will rise forever. On the way down, no one will even countenance the idea that we may be seeing a normal cyclical pattern rather than the possible end of the world as we know it. As the economy moves through parts of its cycles, it responds differently to budget deficits. During recession and the initial recovery from recessions, there is excess capacity and deficits are welcome. Currently, the unemployment rate is between 5.5% and 6%, compared with its average of 4% in 2000; capacity utilization was 75.7% in January, compared with a recent peak of 83.5% in May 2000. Given these conditions, the stimulus to the economy from a budget deficit is a good thing. While one can argue about the different impact of military or social spending, the net effect of the deficit will be to spur the economy. One of the positive factors in the current outlook is the combination of modest spending increases and large tax cuts proposed by the administration. The result should be stronger economic growth in the second half of 2003 and into 2004. We now expect that growth will hold near 2.5% in the first half of 2003, close to its 2002 average. The economy will accelerate in the second half as Iraq uncertainties are resolved and the stimulus package (or its remnants) adds to disposable income. The upward revision of fourth-quarter real GDP actually cuts our estimate of growth in early 2003, since it was mostly an upward revision to inventories. The medium-term question is whether business investment will continue to grow after a promising performance in the late 2002. Nonresidential construction remains weak, but spending on capital goods is beginning to wake up. Residential construction, buoyed by the lowest mortgage rates in a generation, remains the brightest spot. Consumers, however, are beginning to show signs of fatigue. Second-half growth will depend heavily on the President's stimulus package. The total proposed tax cuts have now risen to \$1.6 trillion from the \$674 billion that was discussed in the January State of the Union address. We are unsure

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<sup>15</sup> Source: *Trends and Projections*, Standard and Poor's Industry Surveys, March 20, 2003.

whether the increasing ante is just a ploy to get something close to the original package through. We expect the proposals to be watered down thoroughly; a major package still seems probable, but smaller and later than we thought last month.

## **The Wireless Radiotelephone Industry**

### **Cellular Service**<sup>16</sup>

In 1981, the FCC adopted rules creating a commercial cellular radio telephone service. The FCC set aside 50 MHz of spectrum in the 800 MHz frequency band for two competing cellular systems in each market (25 MHz for each system). The FCC encouraged competition in the cellular radio market by dividing the available spectrum into two channel blocks, one for the local wireline telephone companies (“RBOC’s”) and the other for the nonwireline companies, e.g., Radio Common Carriers (“RCC”).

The FCC established rules and procedures for licensing cellular systems in the United States and its Possessions and Territories. These rules designated 305 Metropolitan Statistical Areas (MSAs) defined by counties according to the 1980 census. The FCC revised the MSAs in some of the top 30 markets. The Gulf of Mexico Service Area was added as Market 306. From the remaining counties that were not included in the MSAs the Commission created 428 Rural Service Areas (“RSAs”) for a total of 734 cellular markets. The Commission used comparative hearings to select the licensees in the top 30 markets in cases where there was more than one applicant. In the remaining markets (31 through 734), where there was more than one applicant, lotteries were used to select applicants to process where there was more than one applicant.

A cellular system operates by dividing a large geographical service area into cells and assigning the same channels to multiple, nonadjacent cells. This allows channels to be reused, increasing spectrum efficiency [some newer spread spectrum technologies, such as CDMA, reuse all frequencies]. As a subscriber travels across the service area the call is transferred (handed-off) from one cell to another without noticeable interruption. All the cells in a cellular system are connected to a Mobile Telephone Switching Office (“MTSO”) by landline or microwave links. The MTSO controls the switching between the Public Switched Telephone Network (“PSTN”) and the cell site for all wireline-to-mobile and mobile-to-wireline calls. The MTSO also processes mobile unit status data received from the cell-site controllers, switches calls to other cells, processes diagnostic information, and compiles billing statistics.

Low powered transmitters are an inherent characteristic of cellular radio systems. As a cellular system matures, the effective radiated power of the cell site transmitters is reduced so channels can be reused at closer intervals, thereby increasing subscriber capacity. In order to insure nationwide compatible service, cellular systems must operate in accordance with the technical specifications in the Commission’s Rules.

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<sup>16</sup> Excerpted from the FCC’s “Cellular Summary,” at [wireless.fcc.gov/cellular](http://wireless.fcc.gov/cellular) circa 2002.

In order to meet the future demands for service, the cellular industry developed standards using various digital modulation techniques that have increased spectral efficiency and system capacity, improved service quality and enabled newer services and features such as high speed data and caller ID. Licensees using new digital technology continue to use analog equipment to serve those few customers who have not purchased new digital phones.

### Specialized Mobile Radio (SMR)<sup>17</sup>

The Specialized Mobile Radio (SMR) service was first established by the Commission in 1979 to provide land mobile communications on a commercial (i.e., for profit) basis. A traditional SMR system consists of one or more base station transmitter, one or more antennas, and end user radio equipment that usually consists of a mobile radio unit either provided by the end user or obtained from the SMR operator for a fee. SMR end users may operate in either an "interconnected" mode or a "dispatch" mode. Interconnected mode interconnects mobile radio units with the public switched telephone network (PSTN). An end user may thus transmit a message with its mobile radio unit to the SMR base station. The call will then be routed to the local PSTN. This allows the mobile radio unit to function as a mobile telephone. Dispatch mode allows two-way, over the air, voice communications between two or more mobile units (e.g., between a car and a truck) or between mobile units and fixed units (e.g., between the end user's office and a truck). Typical SMR customers using dispatch communications include construction companies with several trucks at different jobs or on the road, with a dispatch operation in a central office.

Nextel Communications took SMR spectrum and function from a configuration employing one tall antenna connecting to many mobile users (high site) to a cellularized configuration utilizing many smaller cell sites. It began competing in vertical markets employing the elements of traditional SMR and cellular (low site). This type of operation was termed Enhanced Specialized Mobile Radio ("ESMR"). The mixture of traditional high site private mobile operations employed by public safety (and B/ILT operations) and low site cellularized Commercial Mobile Radio Service (CMRS) in the same or nearby spectrum bands has created interference problems that have been elevated in importance since September 11, 2001.

SMR, including Nextel, is allocated bandwidth in the 800 MHz and in the 900 MHz bands.

### Broadband PCS Service<sup>18</sup>

The result of the cellular licensing process was very fragmented ownership of the A Block (non-wireline) licenses. This paved the way for A Block consolidators like McCaw (subsequently acquired by AT&T) to establish large A Block spectrum positions. Additionally, the RBOCs were allowed to purchase out-of-region A

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<sup>17</sup> Excerpted from the FCC's "Specialized Mobile Radio Service Summary," at [www.wireless.fcc.gov/smrs](http://www.wireless.fcc.gov/smrs)

<sup>18</sup> Excerpted from "Mobile Wireless Communications Spectrum," at [pearsoned.com/samplechapter](http://pearsoned.com/samplechapter).

Block licenses from the lottery winners. Several examples of this were SBC Communications, Inc., purchasing licenses in Boston, Washington, and Chicago, and PacTel purchasing licenses in Atlanta, Ohio, and Michigan. This cellular duopoly was allowed to exist for many years. However, there were many complaints that this system did not foster sufficient competition or innovation.

Due to customer complaints and the need for more mobile wireless communications capacity, Congress directed the FCC to make more spectrum available through a competitive auctioning process as part of the 1993 Omnibus Budget Reconciliation Act. Pursuant to this, the FCC announced plans to auction off 120 MHz of the 1850-1990 MHz personal communications services (“PCS”) spectrum. The PCS spectrum was divided into six segments to be auctioned: the A, B, C, D, E, and F blocks.

The A and B blocks were for 30 MHz each in the 51 Major Trading Areas (“MTAs”). MTAs are regions that include multiple cities or states.

The C (30-MHz) and D through F (10-MHz) blocks provided coverage for the 493 Basic Trading Areas (“BTAs”). BTAs are regions that include only one metropolitan area.

Some C block licenses (originally 30 MHz each) were split into multiple licenses. The splits created either C-1 and C-2 (15 MHz each) or C-3, C-4, and C-5 (10 MHz each) license partitions. The C1-C5 delineation is not used for purposes of identifying the licenses.

The primary goals of the PCS auctions were to increase competition in the industry and to raise money for the Treasury. Both of these goals were achieved. To foster further competition, the incumbent cellular providers were prohibited from bidding on the new PCS licenses in that same market. This substantially increased competition, and resulted in most areas having two cellular providers and as many as six new PCS suppliers. The government also raised more than \$20 billion in proceeds.

The auction for the A and B blocks began in December 1994 and lasted 112 rounds, concluding on March 13, 1995. The auction raised \$7.7 billion in proceeds, and the major winners were Sprint PCS and AT&T Wireless.

The C Block auction, which was limited to qualified small businesses by order of Congress, began in December 1995 and ended May 6, 1996, after 184 rounds of bidding. This auction raised about \$10 billion, which was well above expectations. This may have been due to low-cost government financing (6.5-7.0% annual interest rate) that was offered to these entrepreneurs. The biggest winner in this auction was Nextwave Personal Communications.

The D, E, and F blocks (the F Block was restricted, like the C Block, to qualified small businesses) were auctioned from August 1996 until January 14, 1997. After 275 rounds, \$2.5 billion was paid for these licenses. Sprint PCS and AT&T Wireless came away with the most licenses in the D and E block auctions, and NextWave was the big winner in the F Block auction. Through the C and F block auctions, NextWave was able to establish virtually nationwide license coverage.

However, NextWave, along with Urban Comm, another successful bidder in the original PCS auctions, never deployed service and filed for bankruptcy. The FCC maintained the right to take back this auctioned spectrum if service was not deployed according to FCC regulations under Title 47 of the Code of Federal Regulations. These regulations stipulate certain time lines for the build-out of licensed service areas.

NextWave was unable to block the surrender of its licenses, and its C and F block licenses, which were reaucted by the FCC in "Auction 35." Auction 35 began on December 12, 2000 and was completed on January 26, 2001 after 101 rounds of bidding. Net bids for these licenses totaled approximately \$16.9 billion, and averaged \$4.08 per MHz per available customer ("Pop"). (Auction 35 results for the top 10 markets are discussed further in Part II).

However, the United States Court of Appeals for the D.C. Circuit subsequently ruled in NextWave v. FCC that Section 525 of the Bankruptcy Code forbade the FCC from canceling licenses held by NextWave. The United States and the Commission petitioned the Supreme Court to review the case but on January 27, 2003 the Supreme Court decided in NextWave's favor.

#### Obtaining PCS Spectrum in 2003 and Beyond

No additional broadband PCS auctions are scheduled at this time. There are, however, five FCC-authorized methods for obtaining licensed spectrum:

- Assignment of Authorization—Sale of an entire license.
- Partition—Sale of part of a license based on a geographical area.
- Disaggregation—Sale of part of a license's spectrum. For example, selling 5 MHz of a 15 MHz license.
- Partition and Disaggregation—A combination of the sale of a part of a license based on geographical area containing only a part of a license's spectrum.
- Transfer of Control—Acquisition of a company and its assets, including its licenses.

In addition, there are a wide variety of secondary market arrangements, such as spectrum leasing arrangements that would not require licensees to transfer spectrum usage rights permanently in order to promote its efficient use. The Commission has acknowledged that some arrangements may be precluded by existing FCC rules or may be costly to implement because of the need to obtain prior Commission approval. In May 2003, in response to these potential impediments to an efficient secondary market, the FCC has (1) adopted new short-term and long-term spectrum leasing rules, (2) streamlined processing for license transfer and assignment applications and (3) proposed further steps to increase access to spectrum through secondary markets.

## Cellular and Broadband PCS: Comparisons<sup>19</sup>

Cellular and broadband PCS services are comparatively similar in quality, price, value added services, and coverage. Broadband PCS operates in a higher frequency band with additional spectrum capacity and is all digital, although analog is not prohibited. Cellular continues to maintain analog service offered as Advanced Mobile Phone Service or AMPS in addition to digital service.

There are three major digital technologies employed in Cellular and broadband PCS based networks: Time Division Multiple Access ("TDMA"), Code Division Multiple Access ("CDMA"), and Global System for Mobile Communications ("GSM"). The largest Specialized Mobile Radio ("SMR") licensees offering mobile telephone service use the integrated Digital Enhanced Network ("iDEN"). Digital handsets employing only one of these technologies cannot be used to access systems of carriers employing different digital technologies.

Although there are some handsets that work on multiple networks, consumers might not be able to use their existing digital handsets if they travel outside of their home markets, or if they switch carriers. However, while the Commission does not mandate a specific digital technology, the Commission requires that all cellular carriers provide analog service using Advanced Mobile Phone Service ("AMPS") specifications. Accordingly, subscribers with handsets capable of operating in analog mode will generally be able to access service and make 911 calls in most markets in the country.

## 700 MHz Guard Bands<sup>20</sup>

The 700 MHz guard bands consist of a total of six megahertz of paired spectrum that was allocated to protect public safety operations from harmful interference [from future commercial services deployed in immediately adjacent bands] while at the same time promoting the efficient use of this spectrum. These guard bands are licensed to a new class of licensee, Guard Band Manager, engaged in the business of leasing spectrum to third parties on a for-profit basis.

Since its customers operate under the Guard Band Manager's license, the Guard Band Manager is responsible for spectrum management. This includes, but is not limited to, coordinating spectrum use among its customers, public safety users in adjacent bands, and other licensees. It also includes ensuring the Guard Band Manager's customers are in compliance with FCC Rules and resolving interference problems among its customers, as well as interference between its customers and other licensees.

Thus, Guard Band Managers must adhere to strict technical and operational limitations designed to minimize interference to public safety licensees. This includes a prohibition on the use of the band for cellular services. Guard Band Managers can lease their spectrum to an affiliated operator, but it must lease the predominant amount of its spectrum to non-affiliated interests.

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<sup>19</sup> FCC "Cellular Summary", at <http://wireless.gov/cellular> circa 2002.

<sup>20</sup> FCC "700 MHz Guard Bands," at <http://wireless.fcc.gov/services/guard700/about/> circa 2003.

## Wireless Industry Growth and Outlook

The maturing and continuing growth of the cellular telephone market continues to create new marketing opportunities and technical challenges for the industry. The *Cellular Telecommunications Industry Association's* ("CTIA") *End-of-year 2002 Survey* (Table 13) shows that total wireless customers have grown at a compound annual growth rate ("CAGR") of 20.5% between 1997 and 2002. There were approximately 140.7 million wireless customers as of year-end 2002. As of December 2002, there were 139,338 cell sites in operation compared to the 11,033 operating at year-end 1992, representing a CAGR of 29.7%. Currently the average wireless call lasts 2.73 minutes.

According to the CTIA's year-end survey, gross service revenues (excluding roaming) for 2002 rose to \$76.5 billion, representing a 22.7% CAGR from 1997 to 2002. Reported local service revenue increased by 18% from 2001 to 2002. During the same time period, the average monthly local service cellular phone bill increased 2.2% from \$47.37 to \$48.40 (excluding roaming and toll). Reasons for this growth include price elasticity, flat rate marketing plans, and declining per minute rates due to increased competition. Total 2002 roamer revenue decreased by 1%, while roamer service/sub/month decreased from \$2.87 in 2001 to an average of \$2.46 in 2002. The continuing decline in roamer revenue per customer is due to economies of scale, industry consolidation (common ownership of clusters of markets), alliances between same-side carriers and national footprint strategies to drive-up usage, and flat rate pricing plans on a national and/or regional basis.

As shown in Table 13, cumulative capital investment reached \$126.9 billion by the end of 2002, and incremental capital investment per incremental subscriber in 2002 was \$1,767, while total capital investment per subscriber was \$902.

A brief overview of the growth and outlook in the wireless telephone industry is provided from *Standard & Poor's Telecommunications Industry Surveys*:<sup>21</sup>

The U.S. wireless market has entered a transition phase on the path from start-up to maturity. A number of large carriers have emerged as market leaders, offering nationwide service, bundled minutes, and one-rate pricing plans. The improved service and greater affordability has boosted market penetration — more than half of the U.S. population has now signed up for wireless service.

Widespread consumer acceptance has made it harder for carriers to find untapped markets, and subscriber growth rates have slowed. According to data from Cellular Telecommunications & Internet Association (CTIA), a Washington, D.C.-based trade organization, the number of subscribers for all U.S. wireless carriers rose 9.7% to 140.8 million in 2002, following gains of 17% and 27%, respectively, in 2001 and 2000.

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<sup>21</sup> *Industry Survey's Telecommunications: Wireless*, May 29, 2003, Published by Standard & Poor's ("S&P").

**TABLE 13**  
**CTIA END-OF-YEAR DATA SURVEY OF WIRELESS INDUSTRY**

<u>Year End</u>	<u>Subs</u> (000s)	<u>Sub.Gain</u> (000s)	<u>%</u> <u>change</u>	<u>Local</u> <u>Revenue</u> (\$MILL.)	<u>%</u> <u>change</u>	<u>Avg.month</u> <u>Local\$/sub</u>	<u>Roamer</u> <u>Revenue</u> (\$MILL.)	<u>%</u> <u>change</u>	<u>Avg. month</u> <u>Roamer\$/sub</u>
1984	92			178	(6 mo.)				
1985	340	248	270%	482	N.A.				
1986	682	342	101%	823	71%				
1987	1,231	549	80%	1,152	40%	\$96.83			
1988	2,069	838	68%	1,960	70%	98.02		(6 mo.)	\$8.99
1989	3,509	1,440	70%	3,341	70%	89.30	295	N.A.	8.81
1990	5,283	1,774	51%	4,549	36%	80.90	456	55%	8.64
1991	7,557	2,274	43%	5,709	26%	72.74	704	54%	9.14
1992	11,033	3,476	46%	7,823	37%	68.68	974	38%	8.73
1993	16,009	4,976	45%	10,892	39%	61.48	1,361	40%	8.39
1994	24,134	8,125	51%	14,230	31%	56.21	1,831	35%	7.60
1995	33,786	9,652	40%	19,082	34%	51.00	2,542	39%	7.31
1996	44,043	10,257	30%	23,635	24%	47.70	2,781	9%	5.96
1997	55,312	11,269	26%	27,486	16%	42.78	2,974	7%	4.99
1998	69,209	13,897	25%	33,132	21%	39.43	3,501	18%	4.69
1999	86,047	16,838	24%	40,018	21%	41.24	4,085	17%	4.39
2000	109,478	23,431	27%	52,466	31%	45.27	3,883	-5%	3.11
2001	128,375	18,896	17%	65,016	24%	47.37	3,936	1%	2.87
2002	140,767	12,392	10%	76,508	18%	48.40	3,896	-1%	2.46
<b>CAGR 1992-2002:</b>			29.0%	25.6%		-3.4%	14.9%		-11.9%
<b>CAGR 1997-2002:</b>			20.5%	22.7%		2.5%	5.5%		-13.2%

<u>Year</u>	<u>Avg.Call</u> <u>Length</u> (min.)	<u>Cell</u> <u>Sites</u>	<u>Avg. # subs</u> <u>Per Cell</u>	<u>Cumulative</u> <u>Capital Inv.</u> (\$MILL.)	<u>Cap. Inv.</u> <u>per sub.</u>	<u>Incremental</u> <u>Cap. Inv.</u> <u>Per Incr. Sub</u>
1984		346	265	\$355	\$3,873	\$3,873
1985		913	373	911	2,678	2,238
1986		1,531	445	1,437	2,107	1,539
1987	2.33	2,305	534	2,235	1,816	1,453
1988	2.26	3,209	645	3,274	1,582	1,240
1989	2.48	4,169	842	4,480	1,277	838
1990	2.20	5,616	941	6,282	1,189	1,015
1991	2.38	7,847	963	8,672	1,147	1,051
1992	2.58	10,307	1,070	11,262	1,021	745
1993	2.41	12,805	1,250	13,946	871	539
1994	2.24	17,920	1,347	18,940	785	615
1995	2.15	22,663	1,491	24,080	713	533
1996	2.32	30,045	1,466	32,574	740	828
1997	2.31	51,600	1,072	46,058	833	1,197
1998	2.39	65,887	1,050	60,543	875	1,042
1999	2.38	81,698	1,053	71,265	828	637
2000	2.56	104,288	1,050	89,624	819	784
2001	2.74	127,540	1,007	105,030	818	815
2002	2.73	139,338	1,010	126,922	902	1,767
<b>CAGR 1992-2002:</b>		29.7%	-0.6%	27.4%	-1.2%	9.0%
<b>CAGR 1997-2002:</b>		22.0%	-1.2%	22.5%	1.6%	8.1%

Source: Cellular Telecommunications Industry Association, Wireless Industry Indices: 1985-2002

Despite slower subscriber gains, there's still plenty of opportunity for growth in wireless usage. Measured in terms of minutes, wireless use jumped 35% in 2002 from 2001, even after soaring more than 75% in 2001. As Americans continue to make more of their calls on wireless phones, we expect growth in traffic volume and new data services to largely offset price declines, likely enabling the major carriers to generate revenue growth of roughly 8%, on average, in 2003.

In 2002, leading carriers completed a majority of the heavy investment programs to upgrade their networks to the 2.5G technology needed to support Internet and other data-related offerings. Thus, most of these companies will likely see a sharp drop in capital expenditures in 2003. Coupled with healthy revenue gains, this will enable certain operators to cross into new territory: they'll begin generating positive free cash flow. Carriers continue to face an uphill climb, however, with heated competition and rising pressure for launching third-generation (3G) technology.

### **Subscriber growth rates decelerate**

The eight largest domestic carriers accounted for 122.2 million subscribers in 2002, or 88% of the industry's subscriber base. This group saw aggregate subscriber growth of 13% for the year, with the usual seasonal strength in the fourth quarter. Standard & Poor's projects the group will see an 8% rise in subscribers for 2003. Early indications for the first quarter showed gains up about 10% from the comparable year earlier period...

The slower growth in net customer additions (among other factors, including delayed upgrades to 3G) was reflected in the stock prices for the major carriers. In 2002, the S&P Wireless Telecommunications Services stock price index was pummeled, dropping 58.3%, versus a decline of 22.5% in the broader S&P 100 SuperComposite Index...

Investor sentiment toward the group turned somewhat more positive in early 2003, as the wireless index gained 10.7% year-to-date through April 24, versus an increase of 3.2% in the broader market.

### **Where are the new customers?**

The maturation of wireless is underway, with the most eager subscribers-enterprise customers and upper-and-middle-class consumers – already hooked. Carriers are now looking toward the largely untapped lower income and youth markets...

According to the Yankee Group, an independent technology research and consulting firm, roughly 3% of wireless households nationwide, primary young adults that have grown accustomed to their cell phones, have completely replaced their landline connections with a wireless phone. With a large bucket of minutes that can be used for local or long distance calls at an affordable price, voice traffic has started to move to wireless networks.

The Cellular Telecommunications & Internet Association notes that total minutes of wireless phone use jumped 3% in 2002, to 619 billion. According to the Yankee Group, the average U.S. subscriber logged 490 minutes of use per month

in the fourth quarter of 2002. The research firm estimates that the usage surpassed the equivalent 480 minutes per person each month for landline voice usage, based on household landline usage of 1,250 minutes per month and 2.6 people per household. In Standard & Poor's view, as wireless voice service matures and companies continue to expand their packaged minutes at increasingly affordable rates, the industry will see greater substitution...

Standard & Poor's projects that the U.S. wireless telecommunications industry will have about 152 million subscribers at the end of 2003, an 8% increase from the 140.8 million subscribers at year end 2002. Of the 2002 total, almost 89% were digital subscribers, according to data from Cellular Telecommunications & Internet Association (CTIA). The trade organization reports that wireless carriers had made cumulative capital investments of \$127 billion from their inception in the 1980s through 2002.

In 2002, the industry generated \$76.5 billion in service revenues, of which \$3.9 billion was from roaming revenues (paid to a local carrier when a subscriber travels outside of his or her carrier's area). The eight largest carriers accounted for 122.2 million subscribers in 2002, or 86% of the total, and \$74 billion in revenues. In the fourth quarter of 2002, the eight largest service providers had 3.5 million net subscriber additions and generated \$19.9 billion in revenues.

### **Industry Trends**

In the six-year period from 1996 to 2001, the number of wireless subscribers in the United States nearly tripled, from 44 million to an estimated 128 million. With wireless becoming increasingly convenient and affordable, calling volumes are on the rise.

However, subscriber growth rates slackened in 2002, which will weigh upon carriers' future revenue growth. The number of total subscribers for the industry increased by 9.7% in 2002, to an estimated 140.8 million. In the fourth quarter of 2002, net subscriber additions for the eight largest carriers were off 27%, year to year. Indeed, during 2002, two national carriers, Cingular Wireless and Sprint PCS, experienced at least one quarter of net quarterly loss of subscribers.

Amid industry consolidation and an escalating tug-of-war over customers, the average local monthly bill has fallen into an extended decline. The figures reported by the CTIA dropped to \$48.40 a month at the end of 2002, from nearly \$97.00 a month as reported in the 1980s, when industry statistics were first collected. Simplified pricing structures, many of which offer fixed-rate packages of minutes, have contributed to the decline. Cingular, for example, offers 600 anytime minutes for \$39.99 a month, while AT&T Wireless offers 600 anytime minutes for \$49.99.

The declining growth rates indicate that the wireless voice market appears to be approaching maturity. With penetration rates at roughly 53% of the total U.S. population, telecommunications service providers must decide whether to align forces with other companies or stay independent – or even whether to remain in business. With escalating competition, how do they reach new customers and prevent existing customers from shifting to competitors? How do they generate ongoing revenue growth while seeking positive cash flow?

## Profile of Leading U.S. Wireless Carriers

(For fourth-quarter 2002, except as noted)

Carriers	Number of Subscribers*	Market Share(%)	Quarterly Net Adds	% of Total Adds	Service Revenues (Mil \$)	ARPU (\$)	Churn† (%)	Capital Expenditures (Mil \$)
Verizon	32,491,000	26.6	970,000	27.5	4,713.0	49.23	2.10	1,373.0
Cingular	21,925,000	17.9	(121,000)	(3.4)	3,413.0	51.13	2.70	1,313.0
AT&T Wireless	20,859,000	17.1	705,000	20.0	3,738.0	60.00	2.40	2,146.0
Sprint PCS	14,760,000	12.1	250,000	7.1	2,773.0	62.00	3.50	590.0
Nextel	10,612,000	8.7	496,000	14.1	2,184.0	70.00	2.10	545.0
T-Mobile	9,900,000	8.1	1,017,000	28.8	1,408.0	50.00	2.45	1,749.0
Alltel	7,602,000	6.2	51,608	1.5	1,066.0	46.98	2.76	171.6
US Cellular	4,103,000	3.4	160,000	4.5	575.4	47.91	1.80	281.6
Total	122,252,000	100.0	3,528,608	100.0	19,870.4			8,169.2

\*Directly owned customers (excluding proportionate customers in affiliates and equity investments). †Average monthly churn, calculated as the number of customers terminating service in the quarter, divided by 3, as a percentage of total customers for the period. ARPU-Average revenue per user.

Source: Company reports

## Technology<sup>22</sup>

Many countries have adopted a single standard for nationwide use. However, the U.S. market currently employs several standards. Most U.S. carriers chose between two standards: time division multiple access (TDMA) and code division multiple access (CDMA). However, Nextel uses a proprietary iDEN [TDMA based] technology. A review of the technology platforms chosen by the major U.S. carriers can be found in the accompanying table.

While 2G digital infrastructures (GSM, CDMA, TDMA, etc.) focus on voice communications, new value-added services (voice mail, call waiting, short messaging, dial-up online connections, etc.) have been introduced using 2.5G and 3G technologies. Below, we consider the various standards.

**GSM.** As the standard adopted in the European Union, the global system for mobile communications is the most widely used wireless technology in the world. GSM uses digital technology and TDMA transmission methods, digitally encoding voice via a unique encoder that emulates the characteristics of human speech. A very efficient data rate/information content ratio is achieved with this method of transmission.

GSM is used in 149 countries on all continents, by approximately 70% of the world's total digital wireless market as of May 2002.

**TDMA.** Time division multiple access is the U.S. version of GSM. This technology sends multiple signals over a single channel by interweaving them. That is, by allocating time slots to each user within the channel, it allows a large number of users to access (in sequence) a single radio frequency without interference.

<sup>22</sup> Industry Survey's Telecommunications: Wireless, May 29, 2003, Published by Standard & Poor's ("S&P").

### Technology Platforms Currently used by Major U.S. Carriers

<b>TDMA</b>	<b>GSM</b>	<b>CDMA</b>	<b>IDEN</b>
AT&T Wireless	AT&T Wireless	Alltel	Nextel
Cingular Wireless	Cingular Wireless	Sprint PCS	
	T-Mobile	Verizon Wireless	
		U.S. Cellular	

CDMA. The code division multiple access standard, developed by Qualcomm, was first introduced commercially in Hong Kong in 1995. CDMA sends multiple signals using an encryption method based on the unique signal of each handset. It is also known as spread spectrum multiple access (SSMA), because each signal is spread across a broad segment of spectrum...

WCDMA and CDMA2000. To deliver faster data connections, carriers are plotting migration paths toward 3G infrastructure, consisting primarily of 2.5G technologies: wideband CDMA (WCDMA; compatible with current GSM networks), and CDMA2000. These technologies allow value added services such as voice mail and call waiting. Thus, the 3G process has been prolonged, with various intermediate steps being implemented.

The 2.5G solutions generally provide faster data rates and increased voice capacity by deploying infrastructure that segregates data from voice transmissions. For the WCDMA route, this involves an overbuild process referred to as general packet radio service (GPRS). In addition, GSM networks can accelerate data transmission rates through enhanced data for GSM evolution (EDGE) technology. The 2.5G process for CDMA systems, referred to as 1XRTT, is a less costly technology upgrade than WCDMA.

Although these 2.5G technologies are being implemented worldwide, initial 3G service began in Japan in October 2001. This 3G network from NTT DoCoMo offers always connected, high-speed video, data, and voice services.

UMTS. Designed to avoid problems of incompatibility with evolving broadband technology, universal mobile telecommunication system (UMTS) is Europe's approach to standardization for third-generation cellular systems. It allows for the transition from all major existing 2G standards to CDMA based next-generation standards. UMTS was the outcome of a 1999 agreement to define a single standard for 3G telephony, sponsored by the International Telecommunication Union, a public/private association that coordinates global telecom networks.

We note that the S&P document quoted above and other documents referenced in other Parts of this report do not make strict distinctions in the use of the terms 2G, 2.5G and 3G technologies, nor do the documents treat the terms uniformly. Our above source refers to WCDMA, CDMA2000, GPRS, and EDGE as "2.5G" technologies. However, there is some debate about what constitutes a "2.5G" technology vs. a "3G" technology. 3G (or "Third Generation") is the common term used to describe a family of advanced mobile technologies called IMT-2000 which standards were developed by the International Telecommunication Union (ITU). 2.5G refers to advanced mobile technologies that do not meet the IMT-2000 standards but help to bridge the gap between current 2G mobile technologies and the advanced 3G technologies. For example, GPRS and EDGE are 2.5G technologies and are being deployed to evolve current GSM networks to 3G. CDMA2000

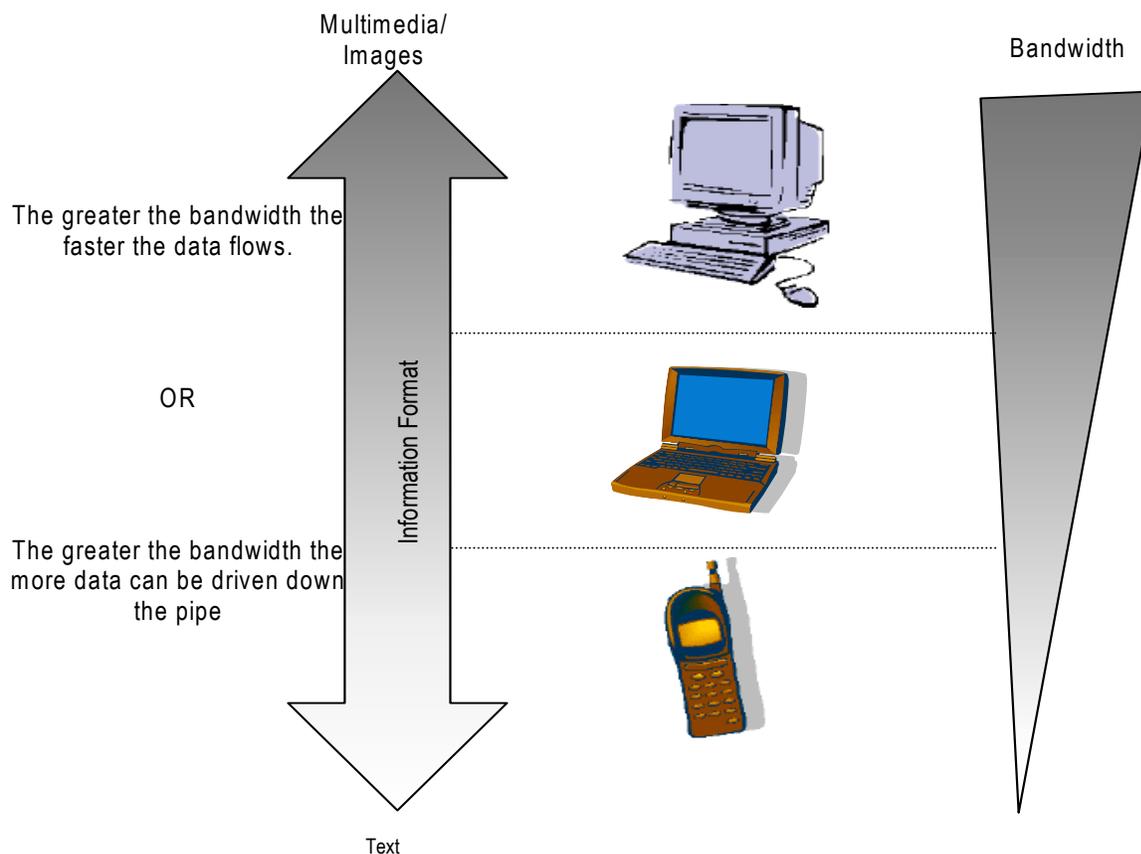
1XRTT is frequently referred to as a 2.5G technology, because it provides comparable capability to GPRS and EDGE. However, CDMA2000 (and WCDMA) is fully compliant with the IMT-2000, and thus, is officially considered a 3G technology.

In summary, Wireless carriers are evolving their network infrastructures to 3G technologies which are based on CDMA. The greater the bandwidth available to mobile phones, the greater the amounts of data or information content that may be provided. This is depicted in the following chart which illustrates the migration of information format delivery to lower level electronic devices, such as mobile phones, as bandwidth availability increases.

A glossary of Wireless Communications Terms, published by Standard and Poors is provided in Appendix C.

**Bandwidth Determines the Depth and Level of the Services a Company can Provide**

**Bandwidth**



Source: S&P Telecommunications: Wireless Industry Survey, May 29, 2003

The following paragraphs discuss factors that influence the value of wireless properties in general and provide some of the reasons why all Pops (and MHz Pops) are not created equal. While these factors have not be used explicitly in our valuation methodology, they help explain why some company's Pops and MHz pops are valued by the marketplace higher or lower than others, based on their network attributes.

### Population and Households Characteristics

The population and related household statistics in the MSA, RSA, MTA or BTA influence the attractiveness of a wireless system for investment purposes. Generally, the larger the population base in the area served, the greater the potential for growth in customers. In most instances, the greater the population density, the more attractive the system is because both service coverage and marketing efforts are facilitated. The historical and forecasted growth rates in population and households provide an indication of the relative growth potential for wireless systems.

### Demographics

Several demographic characteristics relate to the attractiveness of a wireless system. Business executives, salesmen, construction industry, and real estate employees represent attractive segments of the target population base for wireless service. However, as economies of scale and competition drive down the cost of wireless service and as the various wireless carriers continue to expand the network coverage, the residential consumer has become a significant portion of the wireless customer base. The "High Profile Pops (population) as a percent of Employee Base" in a particular market continues to be a valuable indicator of potential customers in any given market, particularly the commercial portion of the market. Other pertinent demographic characteristics in a wireless market include commute time, major highway miles, interstate miles and local interstate traffic density. These characteristics all influence the amount of time that a customer or potential customer is likely to use wireless telephone service. The definitions of these characteristics are listed below:<sup>23</sup>

- Percent Household Income > \$50K: Percent of households in market earning more than \$50,000 of gross income annually, representing the upscale potential customer initially targeted by wireless operators. As the industry evolved to a greater consumer market focus, this parameter has been lowered to a more modest household income.
- Pops Per Square Mile: represents population density.
- Median Household Income: Midpoint household income level of (50% of households in market have higher income, 50% have lower).
- High Profile Pops as % of Employee Base: Potential customers designated as high-profile include those employed in the following fields: construction, transportation, financial, insurance, real estate, and agriculture. These are then measured as a percent of the total employee base. The criteria for

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<sup>23</sup> Kagan's Wireless Telecom Atlas & Databook 2001, Paul Kagan Associates, Inc.

inclusion in this group are the nature of the businesses cited and employment-related time spent in an automobile.

- Travel Time 30 Minutes: Percent of the total employed population from the market whose one-way daily commute is thirty minutes or greater.
- Major Highway Miles: The number of major highway miles in four types of U.S. roadways: rural interstate, urban interstate, urban (other freeways and expressways) and urban OPA (other principal arterials).
- Interstate Miles: Includes rural interstate and urban interstate.
- Local Interstate Traffic Density: Daily vehicle miles traveled (interstate only) divided by interstate highway miles in that market.

Other relevant characteristics include effective buying income (EBI) per household and retail sales per household.

### Tangible Asset Age

Typically a wireless system's tangible assets have a broad range of expected life, ranging in general from 5 to 10 years or more. A system with new tangible assets is obviously more attractive for investment than one that is facing replacement of its tangible assets in the near future.

### Network Capacity

Wireless Systems' revenues are maximized by making high quality signals available to their customers throughout the service area covered by their network facilities.

In urban markets this is accomplished with a large number cell sites that have low power transmitters and antennas at relatively low height. In rural markets adequate coverage may be provided by using few cell sites with higher power and higher antenna locations than in urban markets. A single cell in a rural market could cover a greater geographical area than a single urban cell but it may be serving fewer customers.

### Proximity of Other Owned Systems

The cluster potential of systems can reduce capital, administrative and management costs and enhance the marketability to targeted customers.

**APPENDIX B**

**List of Material Reviewed**

## APPENDIX B

### List of Material Analyzed

- JP Morgan Mobile Metrics, Spring 2003.
- Goldman Sachs Wireless Communications Global, March 21, 2003.
- Morgan Stanley Telcom Wireless, February 27, 2003.
- Lehman Brothers Wireless Services “Gaining Maturity Often Isn’t Pretty” April 10, 2003.
- UBS Warburg Wireless Services Mobile Book, May 29, 2003.
- UBS Warburg Nextel: Imitation is the Sincerest Form of Flattery.
- Merrill Lynch The Next Generation VII – Company European And US Wireless, Feb 21, 2003.
- Kintsheff Research US Wireless Carriers – How we Value Wireless Business, March 14, 2003.
- Motorola Interference Technical Appendix – Issue 1.41, February 2002.
- Comment of Verizon Wireless and Supplemental Comments of the consensus Parties; February 10, 2003.
- Reply comments of the Joint Committees; Supplemental Comments of the Consensus Parties; In the matter of improving Public Safety Communications in the 800 MHz Balance, Consolidating the 900 MHz Industrial / Land Transportation and Business Pool Channels (WT Docket no. 02-55).White Paper by Nextel Communications, Inc., Dated November 21, 2001: Promoting Public Safety Communications – Realigning the 800 MHz Land Mobile Radio Balance and Rectify Commercial Mobile Radio – Public Safety Interference and Allocate additional Spectrum to Meet Contract Public Safety Needs.
- Various Spectrum Allocation Charts of the 700 MHz, 800 MHz, 900 MHz and 1.9 GHz Bands as currently configured and as proposed by Nextel – prepared by Verizon Wireless, IQ 2003.
- SEC 10K and 10Q documents for 2002 and IQ 2003 for the following wireless companies:
  - Airgate PCS
  - Alamosa Holdings Inc.
  - Ubiquel Inc.
  - Nextel Communications, Inc.
  - Nextel Partners
  - Sprint Corporation
  - United States Cellular Corporation
  - AT&T Wireless

- Triton PCS, Inc.
  - US Unwired Inc.
  - Western Wireless Corporation
  - Leap Wireless International, Inc.
  - Rural Cellular Corporation
  - Cingular
  - Verizon Wireless of the East LP
  - Alltel
  - Centennial Communications Corporation
  - Cellco Partnership
- FCC Web sites and various wireless company websites.
  - Morgan Stanley – Nextel – “No Boogie Man: Results Speak the Loudest”, April 23, 2003.
  - Morgan Stanley – Wireless Telecom Services Industry Overview, March 19, 2003.
  - Alltel Corporation Investor Relationships – Alltel Reports Solid First-Quarter Results, April 24, 2003.
  - Morgan Stanley – Cingular 1Q03: First Step to Getting Back on Track, April 23, 2003.
  - Bell South Corporation Investor Relations – 4Q 2002 Results – Cingular Wireless, January 23, 2003.
  - Morgan Stanley – Nextel Partners Inc. 1Q03: Free Cash Flow: Here and Now, April 23, 2003.
  - Morgan Stanley – AT&T Wireless 1Q03 Preview: Staying Ahead, April 21, 2003.
  - Sprint Investor Update – April 21, 2003, Sprint reports First Quarter Results and Updates Guidance for 2003.
  - Sprint Press release – Sprint Reports 4<sup>th</sup> Quarter and Full Year 2002 Results, February , 2003.
  - T-Mobile International Reports – First Quarter 2003, Results of US Operations, May 1, 2003.
  - T-Mobile International Reports – Fourth Quarter and Full Year 2002.
  - T-Mobile International Reports – Fourth Quarter, March 10, 2003.
  - Morgan Stanley – Triton PCS – 1Q03 Preview: Back on Track? May 6, 2003.
  - US Cellular Reports – 1<sup>st</sup> Quarter Results, May , 2003.
  - US Bancorp – Piper Jaffray – 2003 Global Wireless Projections, The Book, May 2003.

- Morgan Stanley – Wireless Telecom Services, Corporate User Survey: Spending Conclusions, March 25, 2003.
- JP Morgan – Global Communications Capex Review, April 7, 2003.
- Wachovia Securities – Wireless Infrastructure Equipment – Fundamentals Working, May 2, 2003.

The following authoritative publications are reasonably relied upon by appraisal experts in forming opinions or inferences.

- Houlihan Lokey Howard & Zukin, Mergerstat, 2002 *Mergerstat Review*.
- Business Valuation Resource, *BV Market Data.com*.
- Ibbotson Associates, *Stocks, Bonds, Bills and Inflation: Valuation Edition 2003 Yearbook*.
- Ibbotson Associates, *Cost of Capital 2002 Yearbook* and *March 2003 Update*.
- Various monthly issues of Wireless Telecom Investor published by Kagan World Media.
- *Wireless Telecom Atlas and Data Book 2001* published by Paul Kagan Associates, Inc.

## APPENDIX C

### Glossary of Wireless Telecommunications Terms

## APPENDIX C

### Glossary of Wireless Telecommunications Terms

**Advanced mobile phone service (AMPS)** – The technological specifications for transmitting signals via analog cellular telephone.

**Airtime** – Duration of a customer's wireless phone calls.

**Average revenue per user (ARPU)** – The average monthly bill per wireless customer; used in sequential fashion to measure price trends.

**Bandwidth** – A measure of the range and capacity of an electronic transmission. Range refers to the spectrum of electrical frequencies (from short to long waves) that a device can handle without distortion: the higher the bandwidth, the better the quality of the voice or data transmission. Capacity concerns the kinds of communications can be carried on a channel (voice, data, video). A voice-grade bandwidth is four kilohertz.

**Broadband** – A transmission facility with a bandwidth greater than four kilohertz (the minimum for transmitting voice communications), which can carry numerous voice, video, and data channels simultaneously.

**Cell site** – The location of the wireless antenna and network communications equipment.

**Churn rate** – The percentage of a carrier's subscribers who terminate wireless service in a given month, or the average monthly rate for a given year.

**Code division multiple access (CDMA)** – A digital cellular system technology invented by Qualcomm Inc. that features up to 10 times the capacity of traditional analog wireless technologies.

**Digital** – Electronic equipment that uses discrete digital signals (a series of 0s and 1s), as opposed to an analog signal (a variable electric signal).

**Distortion** – Loss or corruption of information in a signal.

**Dual band** – A wireless phone that can operate on 800 MHz or 1900 MHz frequencies as needed.

**Dual mode** – A wireless phone that works on both analog and digital networks.

**Enhanced specialized mobile radio (ESMR)** – A digital network providing voice, dispatch, messaging, and data services. It operates with multiple low-power transmitters that reuse frequencies to mimic cellular service.

**Global system for mobile communications (GSM)** – The most widely used digital cellular standard, GSM is similar to TDMA and has been adopted by the European Union.

**Hertz (Hz)** – Cycles per second, a measure of radio frequency. Kiloherz (KHz) = thousands; megahertz (MHz) = millions; gigahertz (GHz) = thousand millions; terahertz (THz) = million millions.

**Local multipoint distribution service (LMDS)** – A wireless cable system that uses very high frequency ranges, from 27.5. GHz to 28.5. GHz.

**Multichannel multipoint distribution service (MMDS)** – A digital wireless transmission system that works in the 2.2 GHz to 2.4 GHz range. It requires a line of sight between transmitter and receiver, which can be 30 or more miles apart. Designed as a one-way service to bring cable TV to subscribers in remote or hard-to-install areas, MMDS in the United States is now open to two-way transmission, and thus to data and Internet services.

**Net subscriber additions** – A growth metric that is equal to the number of wireless customers that add service during the period subtracted by the number of customers that terminate service.

**Personal communications services (PCS)** – A term encompassing a wide range of digital wireless mobile technologies, chiefly two-way paging and cellular phone services. These services are transmitted at lower power and higher frequencies than cellular digital voice services.

**Point of presence (POP)** – the number of potential customers within a licensed area.

**Radio frequency** – The part of the electromagnetic spectrum used for transmitting radio signals.

**Roaming** – Traveling outside a carrier's local network.

**Short message service (SMS)** – A text message service, supported by GSM and other mobile systems, that permits wireless phones to send short messages (140 to 160 characters). Unlike paging services, short messages are stored and forwarded in SMS centers. GSM transmits short messages on a separate signaling path, simultaneously with voice, data, and fax.

**3G** – The third generation of wireless technology, after cellular and PCS. It combines mobile technology with high data transmission capacity, enabling multimedia applications. Under the aegis of the International Telecommunications Union, the universal mobile telecommunications system (UMTS) was adopted, facilitating the transition to 3G from all major existing platforms through transitional (2.5G) technology.

**Time division multiple access (TDMA)** – A digital cellular technology that offers a threefold increase in capacity over analog technology.

**Traffic** – Electronic signals containing sound, data, or visual communications.

**2.5G** – Transitional technologies that enable “always on” connections and the transmission of limited data services via wireless. The main 2.5G standards are enhanced data for GSM evolution (EDGE), general packet radio service (GPRS), and, or CDMA networks, IS-95B and HDR.

**Wireless application protocol (WAP)** – A standard for providing mobile devices with secure access to e-mail and text-based Web pages. It was introduced in 1997 and provides a complete environment for wireless applications, WAP uses wireless markup language (WML) – a streamlined version of HTML for small screen displays – and WML script, a compact JavaScript-like language. WAP runs on all major wireless networks.

Source: Standard & Poor’s Telecommunications: Wireless Industry Survey, May 2003

## APPENDIX D

### Description of Wireless Industry Companies

## APPENDIX D

### Description of Wireless Industry Companies

The following information, extracted from each company's SEC filings, press releases, Hoover's online website and/or Yahoo Market Guideline website provides a description of the business for each respective company used in the industry enterprise value analysis. Financial and market data on these companies are presented in Exhibit E.

- AirGate PCS, Inc. (NasdaqBB:PCSA)

AirGate PCS, Inc. markets and provides digital personal communications services (PCS). The Company is a network partner of Sprint PCS, the personal communications services group of Sprint Corporation. Through the Company's management agreement with Sprint PCS, it has the exclusive right to provide Sprint PCS products and services under the Sprint and Sprint PCS brand names in a territory that covers almost the entire state of South Carolina, parts of North Carolina and the Eastern Georgia cities of Augusta and Savannah. The Company's Sprint PCS territory encompasses 21 contiguous markets. As of December 31, 2002, the Company had approximately 555,000 subscribers and total network coverage of approximately eleven million residents, representing approximately 78% of the 14 million residents in the company's Sprint PCS territory. In the three months ended 3/31/03, revenues totaled \$104.4 million, down 9% from the prior year's quarter. Operating as part of the national Sprint PCS network, AirGate uses Sprint's digital CDMA (code division multiple access) technology and the Sprint PCS brand.

- Alamosa Holdings, Inc. (NasdaqBB: ALMO)

Alamosa Holdings, Inc. provides wireless mobility communications network services under the Sprint brand name in a territory encompassing over 15.6 million residents, primarily located in Texas, New Mexico, Arizona, Colorado, Wisconsin, Illinois, Oklahoma, Kansas, Missouri, Washington, and Oregon. The Company is a Sprint PCS Network Partner and offers products and services marketed by Sprint PCS, the personal communications services group of Sprint Corporation. Alamosa's services are designed to mirror the service offerings of Sprint PCS and to integrate with Sprint's personal communications services (PCS) network. The Sprint PCS service packages that the Company offers include 100% digital wireless network with service across the country, access to the Sprint PCS Wireless Web, third-generation (3G) services, clear pay/account spending limit and other services, such as wireless local loop. For the three months ended 3/31/03, revenues totaled \$141.1 million, up 10% from the prior year's first quarter.

Alamosa is building its own digital CDMA (code division multiple access) network and owns exclusive rights to the Sprint PCS brand in its 15-state territory, mostly in the central and western US. Overall the company serves

more than 551,000 subscribers in more than 20 markets where the company has initiated services.

- Alltel Corp. (NYSE: AT)

All together, ALLTEL offers telecommunications and information services to more than 10 million customers in 23 US states. The company provides local wireline services to 3.2 million customers, primarily in rural areas, in 15 states. It operates as a competitive local-exchange carrier (CLEC) in nine states. ALLTEL's wireless operations serve more than 7.5 million customers. ALLTEL also offers long-distance services to more than a million customers, as well as Internet access and paging services. Additional businesses include phone directory publishing, call center operations, wide-area paging services, information processing management, and retail stores. For the three months ended 3/31/03, revenues totaled \$1.91 billion, up 17% from the prior year's first quarter.

- AT&T Wireless Services (NYSE: AWE)

AT&T's offspring, AT&T Wireless is a leading US mobile phone service provider. It offers service nationwide to more than 22.1 million subscribers using its own network (20.1 million subscribers) and through affiliates in the US and elsewhere. The company formerly traded as a tracking stock of AT&T and was spun off in 2001 as part of AT&T's restructuring. Japan's NTT DoCoMo, which is partnering with AT&T Wireless to develop mobile multimedia services, owns a 17% stake.

The Company provides wireless voice and data services over two separate, overlapping networks. One network uses time division multiple access (TDMA) as its signal transmission technology. As of December 31, 2002, the Company's TDMA network covered an aggregate population (POPS) of approximately 203 million, or 70%, of the United States population. It also provides voice and enhanced data services over a separate network that uses the signal transmission technology known as global system for mobile (GSM) communications and general packet radio service (GPRS). As of December 31, 2002, this network covered approximately 63% of the United States population, or 181 million POPS. As of December 31, 2002, AT&T Wireless's two networks covered an aggregate of approximately 213 million POPS, or 74%, of the United States population, and operated in 83 United States metropolitan areas.

For the three months ended 3/31/03, revenues totaled \$3.95 billion, up 9% from the prior year's first quarter.

- Cingular Wireless

BellSouth and SBC have combined wireless assets to create the second largest wireless carrier in the US, behind Verizon Wireless. With about 22 million customers, the joint venture is 60%-owned by SBC and 40% by BellSouth, according to the contributions made by the two companies, which share control. Eleven brand names used by the SBC and BellSouth wireless units have been replaced by the Cingular Wireless brand.

- Leap Wireless Intl. (NasdaqNM: LWIN)

Leap Wireless International, Inc. is a wireless communications carrier that offers digital wireless service in the United States under the brand Cricket. Cricket service is operated by the Company's wholly owned subsidiary, Cricket Communications, Inc., a wholly owned subsidiary of Cricket Communications Holdings, Inc.

Subsidiary Cricket Communications has more than 1.3 million customers in 40 US markets in 20 states in the US. The Cricket service features unlimited flat-rate local calling but no roaming. Leap, which operates CDMA (code division multiple access) digital networks, is buying licenses in order to expand Cricket's service throughout the US, and it plans to introduce wireless data services. The company has agreed to sell its stake in Pegaso Telecomunicaciones, which provides mobile phone service in Mexico, to Telefónica Móviles. Leap was spun off from Qualcomm in 1998.

For the nine months ended 9/30/02, revenues totaled \$446.5 million, up from \$151.3 million in the nine months of the prior year.

- Nextel Communications Inc. (NasdaqNM: NXTL)

Radio dispatch company Nextel Communications has blossomed into a digital mobile phone operator. Already providing its primarily business customers with wireless phone service, two-way radio dispatch, paging, and text messaging on one handset, Nextel has added wireless Internet access and international roaming. The Company's all-digital packet data network is based on Motorola, Inc.'s integrated digital enhanced network wireless technology. The company has used specialized mobile radio (SMR) spectrum to build its position as a leading mobile phone operator in the US, where it has 10.6 million subscribers. For the three months ended 3/31/03, revenues totaled \$2.37 billion, up from 21% from the prior year's first quarter.

- Nextel Partners (NasdaqNM: NXTP)

Nextel Partners, the only US affiliate of Nextel Communications, holds exclusive rights to provide Nextel's digital wireless communications services in small and mid-sized US markets. Nextel Partners has constructed and operates a digital mobile network compatible with the digital mobile network established and operated by Nextel Communications Inc. (Nextel) in targeted portions of these markets in the United States. The Nextel network uses Motorola's integrated digital enhanced network (Iden) technology to provide cellular, messaging, two-way radio, and Internet access services on a single phone. Nextel Partners is licensed to operate in 30 states in the US, and it has 1 million subscribers. Nextel, the company's largest shareholder, contributed the licenses as well as start-up cash in exchange for a one-third stake. Wireless pioneer Craig McCaw owns a 6% stake in the company; Microsoft cofounder Bill Gates owns 5%; and Motorola owns 5%. For the three months ended 3/31/03, revenues totaled \$ 207.8 million, up 56% from the prior year' first quarter.

- Sprint PCS (NYSE: PCS)

Sprint PCS Group includes Sprint's wireless PCS (personal communications system) operations. As of December 31, 2002, the PCS Group, together with third-party affiliates, operated PCS systems in over 300 metropolitan markets. The PCS Group has licenses to serve the entire United States population, including Puerto Rico and the United States Virgin Islands. The PCS Group supplements its own network through affiliation arrangements with other companies that use CDMA. Under these arrangements, these companies offer PCS services under the Sprint brand name on CDMA networks built and operated at their own expense. The PCS Group also provides PCS services to companies that resell PCS services to their customers on a retail basis under their own brand. These companies bear the costs of acquisition, billing and customer service. For the three months ended 3/31/03, revenues totaled \$2.95 billion, up 3% from the prior year's first quarter.

- T-Mobile

T-Mobile USA, a subsidiary of Deutsche Telecom's T-Mobile International, is the former VoiceStream Wireless. Its 9.9 million customers can use its GSM (global system for mobile communications) network in the US and its parent's GSM network in Europe. Deutsche Telekom's 2001 acquisition of VoiceStream also included southeastern US GSM operator Powertel, which also operates under the T-Mobile brand. VoiceStream, which was spun off from Western Wireless in 1999, had expanded by buying Omnipoint and Aerial Communications in 2000. It acquired Texas-based MobileStar Network in 2002 to expand into wireless broadband services.

- Triton PCS Holdings, Inc. (NYSE:TPC)

Triton PCS Holdings, Inc., together with its wholly owned subsidiaries, is a provider of wireless communications services in the southeastern United States. The Company's wireless communications licenses cover approximately 13.5 million potential customers in a contiguous geographic area encompassing portions of Virginia, North Carolina, South Carolina, Tennessee, Georgia and Kentucky. In February 1998, the Company entered into a joint venture with AT&T Wireless Services, Inc. (AT&T Wireless). As part of the agreement, AT&T Wireless contributed personal communication services licenses for 20 MHz of authorized frequencies covering 11.2 million potential customers within defined areas the Company's region. As part of the transactions with AT&T Wireless, Triton was granted the right to be the exclusive provide of wireless mobility services using equal emphasis co-branding with AT&T within the Company's region. For the three months ended 3/31/03, revenues totaled \$188.5 million, up 20% from the prior year's first quarter.

- Triton PCS services in more than 35 markets and has more than 830,000 subscribers. The first member of the AT&T Wireless network, it operates with two other AT&T affiliates under the brand name SunCom. Triton PCS uses TDMA (time divisions multiple access) digital wireless technology. The company markets handsets and services through company-owned SunCom

retail stores, direct sales, and retailers such as Circuit City, Office Depot, Staples, and Best Buy. AT&T Wireless owns about 18% of the company.

- UbiquiTel Inc. (NasdaqNM:UPCS)

UbiquiTel Inc., through a management agreement between UbiquiTel Operating Company and Sprint PCS, is the exclusive provider of Sprint PCS digital wireless personal communications services (PCS) to markets in the western and Midwestern United States. The markets have a total population of approximately 11.1 million residents. Sprint PCS has PCS license to cover more than 280 million people across all 50 states, Puerto Rico and the US Virgin Islands. Sprint PCS directly operates in States. Sprint PCS also has entered in to independent management agreements with various network partners, such as the Company under which the network partners have agreed to construct and manage the PCS networks under the Sprint PCS brand names in midsize and smaller markets. UbiquiTel Inc. is the exclusive provider of Sprint PCS digital wireless personal communications services (PCS) to four midsize and smaller markets in the western and Midwestern United States. As of December 31, 2002, UbiquiTel had approximately 257,000 customers and total network coverage of approximately 7.1 million residents.

For the three months ended 3/31/03, revenues totaled \$58.5 million, up 27% from the prior year's first quarter.

- US Unwired, Inc. (NasdaqBB:UNWR)

US Unwired, Inc., incorporated as Mercury, Inc. in 1967, provides wireless personal communications services (PCS), primarily in Louisiana, Texas, Florida, Arkansas, Mississippi, and Alabama. The Company is a network partner of Sprint PCS, the personal communications services group of Sprint Corporation. The Company has the exclusive right to provide digital PCS services under the Sprint and Sprint PCS brand names in a service area comprising approximately 9.8 million residents. In addition, the Company provides cellular and paging services in parts of southwest Louisiana. For the three months ended 3/31/03, revenues totaled \$128.7 million, up 40% from the prior year's first quarter.

The company serves more than 350,000 customers in 67 US markets in where it has exclusive rights to the Sprint PCS brand. It has acquired New York-based Sprint PCS affiliate IWO Holdings and has taken over Georgia PCS.

- Verizon Wireless

Cellco Partnership, which does business as Verizon Wireless, is the largest US mobile phone operator serving 32.5 million customers nationwide. Verizon Wireless began operations in 2000 when Bell Atlantic and Vodafone combined their US wireless assets, including their PrimeCo partnership. Verizon Wireless gained GTE's US wireless operations when Bell Atlantic bought GTE to form Verizon Communications which owns 55% of the company; Vodafone owns 45%. Plans for an IPO, postponed in 2001, were revived but finally withdrawn in 2003 citing lack of funding needs

## APPENDIX E

### MergerStat Control Premium Transactions

**Mergerstat Control Premium Transactions 1998 - 2002**

Only Transactions \$100 Million and above  
Only Positive Percent Premiums Offered

**Appendix E**

Announce Date	Buyer	Seller	Seller Annual Revenues (\$ Millions)	Price Offered (\$ Millions)	Method of Payment	P/E Offered	Percent Premium Offered	Price To Book	Assigned Weight	Weighted Average
1/8/1998	AT&T Corp	Teleport Communications Group	431.3	11,294.3	Stock	Neg	0.7%	23.1	1	0.0%
12/11/1998	Olivetti SpA/Mannesmann AG	Cellular Communications In'tl Inc	36.0	1,097.7	Cash	Neg	3.1%	Neg	1	0.0%
3/9/1998	Qwest Communications International	LCI International Inc	1,311.8	3,559.2	Stock	41.2	7.3%	22.0	1	0.1%
12/13/1998	MCI WorldCom Inc	OzEmail Ltd	40.8	274.7	Cash	IRR	12.2%	7.5	1	0.1%
7/2/1998	Welsh, Carson, Anderson, & Stowe	Century Communications Corp	237.5	1,069.6	Cash	Neg	12.2%	Neg	1	0.1%
3/9/1998	American Cellular Corp	Pricellular Corp	162.6	489.4	Cash	Neg	16.7%	3.5	1	0.1%
10/5/1998	AT&T Corp	Vanguard Cellular Systems Inc	410.2	969.3	Combo	26.4	22.8%	60.2	1	0.2%
12/18/1998	ALLTEL Corp	Aliant Communications Inc	324.2	1,394.4	Stock	24.7	26.2%	4.5	1	0.2%
3/16/1998	ALLTEL Corp	360 Communications Co	1,294.9	4,191.8	Stock	64.0	26.3%	Neg	1	0.2%
5/11/1998	SBC Communications Inc	Ameritech Corp	15,998.0	61,338.0	Stock	44.2	26.4%	7.4	1	0.2%
2/4/1998	PRIMUS Telecommunications Group Inc	TresCom International Inc	154.2	132.4	Stock	Neg	30.9%	2.1	1	0.3%
12/8/1998	Global TeleSystems Group Inc	Esprit Telecom Group PLC	73.3	666.4	Stock	Neg	38.9%	13.2	1	0.3%
9/20/1998	Lockheed Martin Corp	Comsat Corp	582.4	2,505.2	Combo	Neg	40.0%	3.8	1	0.3%
1/5/1998	SBC Communications Inc	Southern New England Telecom Corp	1,985.9	5,094.0	Stock	26.9	55.5%	30.6	1	0.5%
4/1/1999	Yahoo! Inc	Broadcast.com Inc	14.0	4,282.5	Stock	Neg	1.0%	74.8	2	0.0%
6/1/1999	AT&T Corp	Assocaited Group Inc	36.3	2,814.6	Stock	Neg	1.9%	2.7	2	0.0%
9/8/1999	Concentric Network Corp	Internet Technology Group PLC	17.7	234.7	Combo	IRR	4.9%	41.8	2	0.1%
4/14/1999	Global TeleSystems Group Inc	Omnicom SA	37.7	427.2	Combo	39.5	10.8%	Neg	2	0.2%
5/3/1999	SBC Communications Inc	Telefonos de Mexico SA	180.2	409.8	Cash	Neg	12.9%	Neg	2	0.2%
12/1/1999	Telscape International Inc	Pointe Communications Corp	47.0	103.5	Stock	Neg	16.0%	13.6	2	0.3%
3/4/1999	AT&T Corp	MetroNet Communications Corp	50.0	2,229.8	Combo	Neg	21.9%	7.2	2	0.4%
6/14/1999	Qwest Communications International	US West Inc	11,006.0	34,748.0	Stock	26.1	28.1%	7.8	2	0.5%
9/23/1999	MindSpring Enterprises Inc	EarthLink Network Inc	136.7	1,704.8	Stock	Neg	28.5%	5.1	2	0.5%
3/17/1999	Global Crossing LTD	Frontier Corp	2,593.6	8,759.7	Stock	49.3	30.7%	14.7	2	0.5%
12/20/1999	World Access Inc	STAR Telecommunications Inc	930.1	627.2	Stock	Neg	36.4%	6.5	2	0.6%
9/20/1999	VoiceStream Wireless Corp	Telephone & Data Systems Inc	193.0	2,959.2	Stock	Neg	36.5%	655.8	2	0.6%
1/15/1999	Vodafone Group	Airtouch Coummunications Inc	4,668.0	62,768.0	Combo	93.5	37.7%	99.3	2	0.6%
10/5/1999	MCI WorldCom Inc	Sprint Corp	18,514.3	115,972.6	Stock	Neg	38.8%	22.2	2	0.7%
7/21/1999	Cincinnati Bell Inc	IXC Communications Inc	672.3	2,382.6	Combo	Neg	39.1%	375.2	2	0.7%
8/23/1999	PSI Net Inc	Transaction Network Services Inc	144.2	721.6	Combo	99.2	65.1%	90.0	2	1.1%
6/23/1999	VoiceStream Wireless Corp	Omnipoint Corp	208.1	1,715.5	Combo	Neg	76.6%	Neg	2	1.3%
10/22/1999	Omnipoint Corp	East/West Communications Inc	0.1	126.0	Combo	Neg	101.0%	224.1	2	1.7%
8/27/1999	Viatel Inc	Destia Communications Inc	241.9	732.9	Stock	Neg	114.0%	Neg	2	1.9%
4/16/1999	MCI WorldCom Inc	CAI Wireless Systems Inc	21.6	482.8	Cash	Neg	122.9%	7.3	2	2.1%
8/28/2000	VoiceStream Wireless Corp	Pwertel Inc	369.7	4,624.7	Stock	Neg	1.3%	Neg	3	0.0%
10/3/2000	McLeodUSA Inc	CapRock Communications Corp	232.0	222.4	Stock	Neg	3.8%	1.3	3	0.1%
6/8/2000	Earthlink Inc	OneMain.com Inc	122.6	253.1	Combo	Neg	28.8%	3.2	3	0.7%
7/24/2000	Deutsche Telekom AG	VoiceStream Wireless Corp	664.8	41,577.3	Combo	Neg	32.9%	Neg	3	0.8%
3/31/2000	AT&T Corp	IDT Corp	48.7	1,117.5	Cash	Neg	51.5%	15.1	3	1.3%
1/10/2000	NEXTLINK Communications Inc	Concentric Network Corp	126.3	2,487.3	Stock	Neg	52.0%	113.6	3	1.3%

**Mergerstat Control Premium Transactions 1998 - 2002**

Only Transactions \$100 Million and above  
Only Positive Percent Premiums Offered

**Appendix E**

Announce Date	Buyer	Seller	Seller Annual Revenues (\$ Millions)	Price Offered (\$ Millions)	Method of Payment	P/E Offered	Percent Premium Offered	Price To Book	Assigned Weight	Weighted Average
10/2/2000	Genesys SA	Vialong Corp	73.3	130.0	Stock	Neg	73.9%	Neg	3	1.9%
8/21/2000	NEXTEL Communications	Chadmoore Wireless Group Inc	7.0	113.5	Stock	Neg	80.8%	Neg	3	2.0%
9/5/2000	WorldCom Inc	Intermedia Communications Inc	992.5	2,112.4	Stock	15.3	97.5%	(1.9)	3	2.5%
11/27/2000	Telephone & Data Systems Inc	Chorus Communications Group Ltd	47.2	172.4	Cash	IRR	100.4%	7.0	3	2.5%
4/24/2000	Qualcomm Inc	NetZero Inc	24.5	143.8	Cash	Neg	132.3%	7.5	3	3.3%
1/7/2000	McLeodUSA Inc	Splitrock Services Inc	74.0	2,596.7	Stock	Neg	146.7%	Neg	3	3.7%
9/24/2001	Verisign Inc	Illuminet Holdings	174.1	1,245.4	Stock	33.0	11.4%	6.2	4	0.4%
9/21/2001	SBC Communications Inc	Prodigy Communication Corp	435.0	269.8	Cash	Neg	25.7%	Neg	4	0.9%
4/2/2001	Private Group	Global TeleSystems Inc	113.1	125.1	Cash	Neg	26.1%	N/A	4	0.9%
2/6/2001	ALLTEL Corp	CenturyTel Inc	2,044.8	5,991.9	Combo	18.4	36.5%	2.7	4	1.2%
10/8/2001	AT&T Corp	TeleCorp PCS Inc	535.9	1,929.9	Stock	Neg	45.0%	1.9	4	1.5%
11/21/2001	D&E Communications Inc	Conestoga Enterprises Inc	86.4	199.6	Combo	Neg	81.0%	3.7	4	2.7%
7/18/2002	Brascan Corp	AT&T	993.9	1,996.3	N/A	Neg	0.1%	Neg	5	0.0%
									119	44.4%
						<b>Mean</b>	<b>41.0%</b>			
						<b>Median</b>	<b>30.7%</b>			