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Analysis of the Impact of 800 MHz Rebanding

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EXECUTIVE SUMMARY

Last year the Federal Communications Commission ("*FCC*") issued two orders in its long pending effort to address the ongoing and growing problem of interference to public safety operations in the 800 MHz Private Land Mobile Radio Band ("*PLMRB*" or "*Band*") from Nextel Communications, Inc. and its affiliates ("*Nextel*") and to some extent from cellular operations in the upper portion of the *Band* ("*FCC Orders*"). The plan adopted in the *FCC Orders* involves relocating some of the frequencies used for public safety, business industrial and land transportation ("*B/ILT*") and commercial Specialized Mobile Radio ("*SMR*") operations in the band. The FCC issued SMR licenses through two methods: (1) site-specific licenses, and (2) BEA based auctioned spectrum

The Consensus Parties proposal, which was the basis for the *FCC Orders* and the *Orders* themselves, were based primarily on the assumption that *Nextel* owned or controlled most, if not all, of the 800 MHz SMR spectrum in every Basic Economic Area ("*BEA*") market or City. What the plan failed to take into consideration is that in many markets site-specific and *BEA* licenses occupy the same channels. Therefore, Nextel's relinquishment of a channel still can leave incumbent site-specific channels to remain which can preclude other site-specific licensees from occupying a channel without being at a sufficient distance separation to mitigate co-channel interference.

Concepts To Operations, Inc. ("*CTO*") has examined the impact of the *FCC Orders* when applied to specific markets and Cities using official license data obtained from the *FCC* database. The purpose of the analysis was to provide the following:

1. An engineering analysis of the impact of the plan adopted by the *FCC Orders*. To our knowledge no such analysis was performed by *Nextel* or the *FCC* and was made available for public comments considering the magnitude of the undertaking.

2. Confirmation that the following results claimed in the *FCC Orders* are valid:

   A. There is sufficient spectrum to accommodate every licensee affected by the relocation.
   B. Each such licensee can be provided "comparable facilities" including "coextensive geographical coverage".
   C. There is sufficient spectrum available after implementing the plan to support public safety receiving an average of an additional 2.5 MHz of 800 MHz spectrum.
   D. Day-to-day public safety operations, including regional interoperability, will not be disrupted due to rebanding.

The report is based on license data obtained directly from the *FCC* database as of June 30, 2005. These data were the best currently available to *CTO*. Using the relocation rules set forth in the *FCC Orders*, *CTO* reviewed the implication of rebanding in 578 Cities in the U.S. and its territories with a population of 50,000 or greater ("*Cities*" or, individually, "*City*").

The methodology used for calculating spectrum surplus or deficit, considering co-channel geographic distance, measured in terms of available 800 MHz *Band* channels, in each *City* examined was as follows.

CTO determined the number of:

- Non-*Nextel* and non-Southern LINC ("*Southern*") site-specific channels within channels 001-120 and 401-600 that would be relocated to channels 121-400 within (a) thirty-five (35), (b) fifty (50), and (c) seventy (70) mile radius of each *City* center; and
- Non-*Nextel* site-specific channels that would remain within channels 121-400 within the three radii set forth above from the *City* centers.

Then *CTO* calculated the channel movement, based again on the *FCC Orders*, to determine Channel surplus or deficit. This was measured in each *City* using the following method;

A. Consider channels 001-120 and the National Public Safety Planning Advisory Committee ("*NPSPAC*") channels (channels 601-720) exchange a wash numerically;
B. Calculate the number of incumbent licensed channels in channels 121-400, that remain in place after *Nextel* and *Southern* vacate this spectrum;
C. Calculate the number of additional licensed channels that are to relocate into channels 121-400 from channels 001-120 and 401-600;
D. Add Categories B and C to obtain the total number of channels that require accommodation; and
E. Subtract the resulting number from 280 (the maximum number of channels that are within channels 121-400) to obtain the number of surplus or deficit channels after *Nextel* and *Southern* vacate.

This channel calculation was conducted on 578 Cities in the U.S. and its territories and the resulting analysis supports the following conclusions:

A. Nextel lacks sufficient channels within channels 121-400 to accommodate every non-*Nextel* site-based licensee affected by the relocation. In addition in the *ESMR* block there is insufficient spectrum to accommodate all *BEA* licensees,
B. Contrary to claims, the *Rebanding Order*s do not provide each licensee with "comparable facilities" including "coextensive geographical coverage",
C. There is not sufficient spectrum available after rebanding to support public safety receiving an additional 2.5 MHz of 800 MHz spectrum in every *City*. In fact in 11 of the largest 100 *Cities* public safety actually could lose spectrum, and
D. Day-to-day public safety operations, including regional interoperability, cannot be maintained unless simultaneous frequency reconfiguration of involved public safety agencies occurs.

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Using a 35-mile radius from the center of the 578 Cities, the 280 channels within channels 121-400 are insufficient to accommodate the reconfiguration of site-specific channels in some one of these Cities. For example:

Boston, MA: There are 206 incumbent channels licensed in channels 121-400 that will remain in place post rebanding. In addition, 193 licensed channels will be required to relocate into channels 121-400. The 206 incumbent channels added to 193 relocating channels equals 399 channels. The 280 channels available in channels 121-400, minus 399, equal a deficit of 119 channels that cannot meet the 70-mile requirement for co-channel separation. This means 119 channels owned by various licensees cannot be accommodated in Boston, Furthermore, many of these channels are licensed to public safety agencies (e.g., police, fire, EMS). In addition, Cities near to Boston that are in Massachusetts, Rhode Island and New Hampshire will also have a spectrum shortage of between 35% and nearly 50% of the spectrum allocated for relocation of high-site licensees by the FCC.

Miami, FL: There are 227 incumbent channels licensed in channels 121-400 who will remain in place post rebanding. In addition, 159 licensed channels will be required to relocate into channels 121-400. The 227 incumbent channels added to 159 relocating channels equals 386 channels. The 280 channels available in channels 121-400, minus 386, equal a deficit of 106 channels that cannot meet the 70-mile requirement for co-channel separation. This means 106 channels licensed to various entities cannot be accommodated in Miami. Again many of these channels are licensed to public safety agencies. A similar overall shortage would also occur in Cities near Miami.

In 24 of the 100 largest U.S. Cities there is not sufficient spectrum being vacated by *Nextel* and *Southern* to allow public safety the additional 2.5 MHz of 800 MHz and in 11 of those cities, public safety could actually loose spectrum.

Under the rebanding plan, the upper portion of the band (channels 441 and above) is to be used by "cellular-like" low-site Enhanced Specialized Mobile Radio ("*ESMR*") systems. The *CTO* analysis found that the 280 channels set aside (not including the 40 channel Guard Band channels 401-440) cannot accommodate the 430 BEA channels purchased in the spectrum auctions. This does not allow for "comparable facilities" to be granted to non-Nextel and non-Southern licensees in many *BEA*s. The problem is further exacerbated when the former *NPSPAC* channels (channels 601-720) and 10 MHz of the 1.9 GHz are exclusively reserved for *Nextel*.

Based on the conclusions the following recommendations are presented to accomplish rebanding.

With respect to the high-site portion of the band:

A. The frequency boundary between the non-Cellular Block and ESMR portions of the revamped 800 MHz band should be flexible and allow for accommodation of all existing site-specific licensees. The Commission should amend the plan adopted in the *Rebanding Orders* to require coordination for the licensed channels to be relocated to

ensure that co-channel interference will not be a problem after band reconfiguration. The Commission, therefore, should grant APCO International, Inc.'s Petition for Partial Reconsideration.

B. To provide "comparable facilities" including "coextensive geographic coverage" a system-by-system examination, comparing present and reconfigured systems, must be made. The additional channels obtained by the flexible boundaries should allow for provision of "comparable facilities".
C. Based on the above recommendations, although solving the spectrum shortage for the 11 Cities on the top 100, an additional 2.5 MHz can only be obtained by further moving the boundary into the present *ESMR* portion of the band.
D. Frequency reconfiguration of agencies requiring regional interoperability should occur simultaneously.

With regard to the ESMR portion of the band:

A. Where the boundaries became flexible to accommodate site-specific licensees, granting of channels 601-720 exclusively to *Nextel* should not occur,
B. The non-*Nextel* non-*Southern BEA* licenses should be allowed to be accommodated above the revised lower frequency boundary in the entire ESMR portion of the band (including channels 601-720) and in the 1.9 GHz band as necessary to provide "comparable facilities" and "coextensive geographic coverage".

The results of the *CTO* analysis for each City and the *BEA*s examined are reflected in the Detailed Analysis which follows.

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DETAILED ANALYSIS

Concepts To Operations, Inc. is a telecommunications and information systems engineering and consulting firm that has been in business since 1990 and *CTO*'s qualifications are a matter of record with the *FCC* and NTIA. *CTO*'s engineers have had experience ranging from 11 to 54 years. *CTO*'s engineering expertise includes both Federal Government and non-Federal radio spectrum management and radio engineering, particularly land mobile radio, both commercial and public safety. *CTO* engineers have served as members of FCC Advisory Committees. *CTO* has participated in and is on record in many FCC filings and proceedings and has been active in APCO and NENA activities and initiatives. In addition, from the beginning *CTO*, on behalf of its public safety as well as commercial clients, has actively participated and has provided advice and analyses concerning the FCC's reconfiguration of the 800 MHz band ("*Rebanding Proceeding*"), including input and data to be used in various filings in this proceeding. This advice and analysis has included an assessment of the requirements and impact of the two FCC orders adopting a specific reconfiguration process for the 800 MHz Band.[1] *CTO* provided a Rebanding Cost Analysis which concluded that the real cost associated with rebanding is approximately $3.5 Billion rather than under $1.0 Billon. The *FCC* ultimately required Nextel to place a $2.8 Billion letter of credit.

In November of 2004, *CTO* prepared an analysis of the relocation of public safety, non-Nextel SMR and B/ILT licenses in portions of the 800 MHz band (specifically Channels 001-150 and 401-600) under the Commission's *Initial Report and Order*. That analysis raised serious questions about the sufficiency of available spectrum to accommodate certain public safety, SMR and B/ILT licensees that were required, under the terms of the *Initial Report and Order*, to be relocated to Channels 151-400 as part of the rebanding process. To CTO's knowledge, the concerns reflected in that report remain unrefuted.

CTO has conducted a further, extensive two part review of the impact of the *Rebanding Orders* on relocation of commercial and public safety licensees.[2]

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1 *In the Matter of Improving Public Safety Communications in the 800 MHz Band, Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order, and Order*, 19 FCC Rcd. 14969 (2004), as amended by *Erratum*, released September 10, 2004, *Erratum*, DA 04-3208, 19 FCC Rcd. 19651 and *Erratum*, DA 04-3459, released October 29, 2004, *recon. and appeal pending ("Initial Report and Order"); Supplemental Order and Order On Reconsideration*, 19 FCC Rcd. 25120 (2004), *recon. and appeal pending ("Supplemental Order")* (collectively, *"Rebanding Orders")*.

2 In this analysis CTO has used the existing numbers for channels 001-600 and have used and numbered 25 kHz channels above 600. These channel numbers are continued in the rebanded spectrum rather than the new FCC channel numbers for clarity.

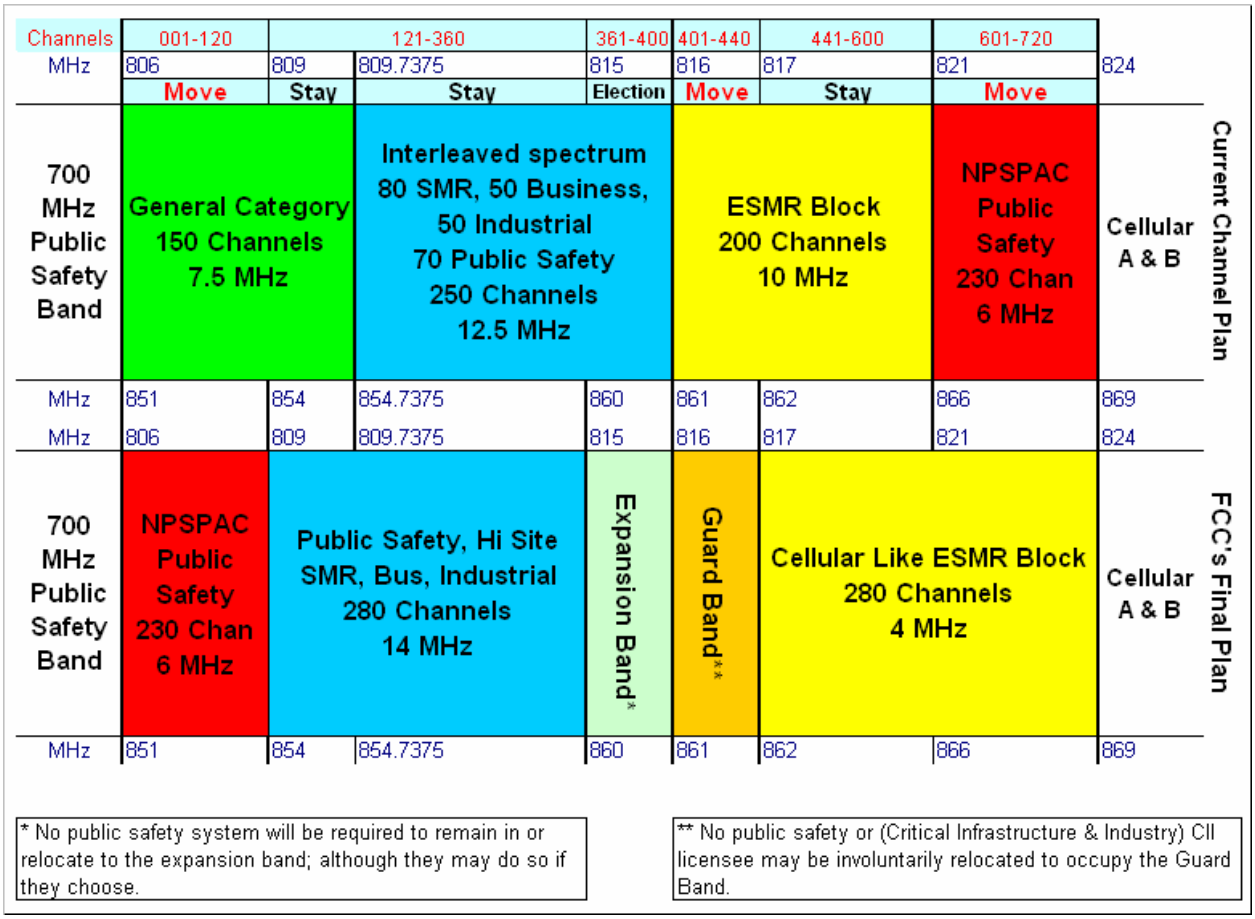
METHODOLOGY

In developing this Report, CTO downloaded the FCC's Public Land Mobile Radio Band ("PLMRB") database as of June 30, 2005.

CTO initially determined the identity and location of the five hundred seventy-eight (578) Cities in the U.S. and its territories with a population of 50,000 or greater. CTO then determined the number of:

1. Non-Nextel and non-Southern site-specific channels within channels 001-120 and 401-600 that would be relocated (see **Figure 1** for 800 MHz Band Relocation Plan) to channels 121-400 within (a) thirty-five (35), (b) fifty (50), and (c) seventy (70) mile radius of each of the City centers; and
2. Non-Nextel site-specific channels that would remain within channels 121-400 within the three radii set forth above from the City centers.

FIGURE 1



The FCC's rules require co-channel coordination of site-specific licenses whose base stations are within 70 miles of each other. We therefore initially determined which licenses would remain or be relocated within a 35-mile radius of each City center. Any license within this radius from a particular City's center generally would preclude use of such frequency within 70 miles of the first licensee's channel. Thus, a 70-mile radius circle with its center at any given point:

1. on the circumference of; or
2. within the thirty-five (35) mile radius circle from a particular City's center encompasses the entire thirty-five (35) mile radius circle and precludes the use of the co-channel within that circle.

Further, location of a base station at a 70 miles distance from the center of a City will require coordination with existing stations that are at or within a 70 mile radius of the City center. Thus the 50 and 70 mile radii circle used provide an indication of additional channels for which coordination is required. This is illustrated in **Figures 2, 3** and **4**.

FIGURE 2 shows the required 70-mile coordination distance for a co-channel at a site on the circumference of 35-mile radius circle centered at the center of a City. The 70-mile radius circle encompasses the entire 35-mile radius circle which shows that coordination is required for any site located within the 35-mile circle.

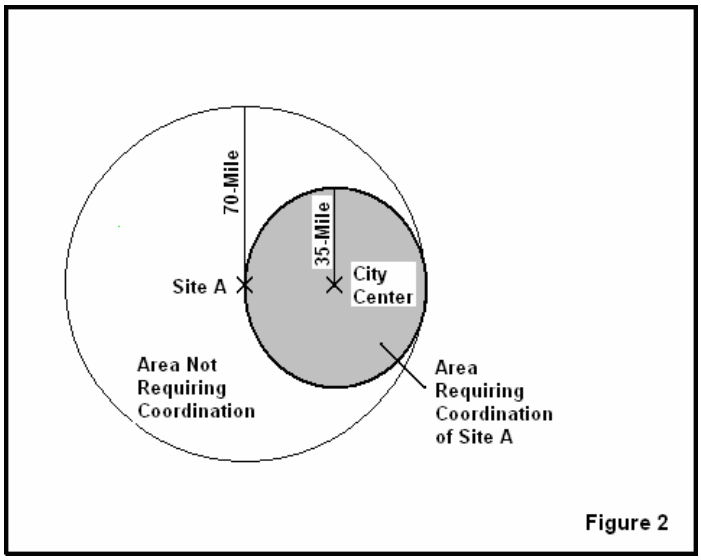


Figure 2

FIGURE 3 shows the 70-mile coordination distance with a site located on the circumference of 50-mile radius circle centered at the center of a City. Only a portion of the 50-mile circle requires coordination.

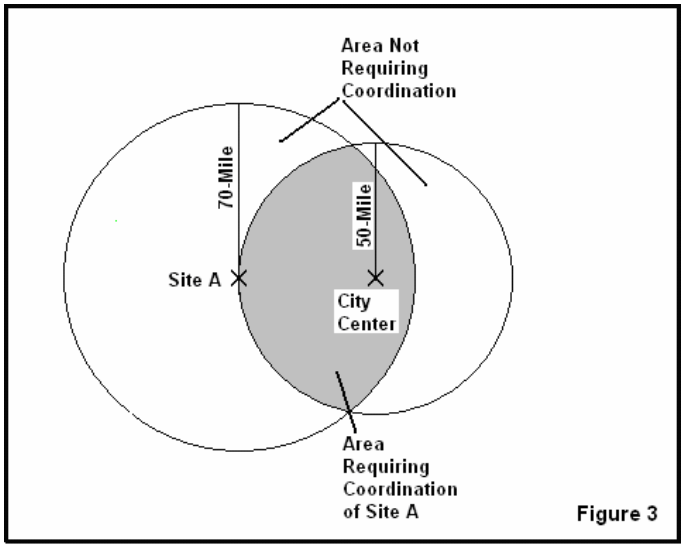
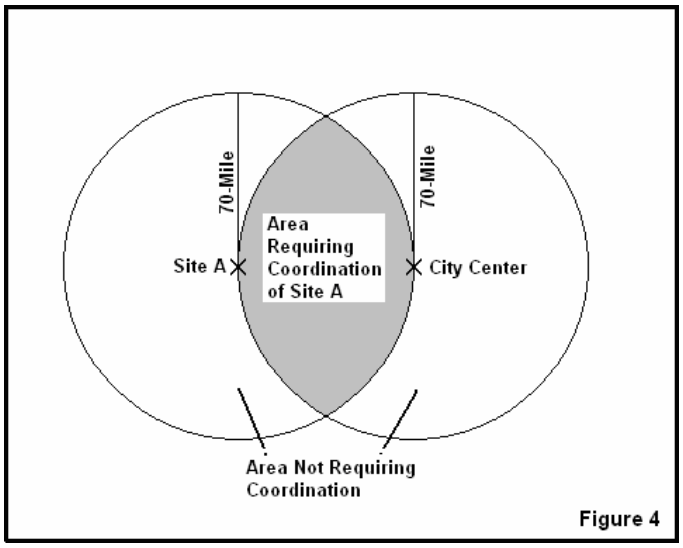


FIGURE 4 shows the 70-mile coordination distance with a site located on the circumference of a site at a 70 mile radius circle centered at City center. Coordination is required for an even smaller portion of this circle.



CTO then determined whether the vacated Nextel BEA and site licensed channels and the vacant channels in channels 121-400 within the three radii set forth above from a particular City center are sufficient for the *Rebanding Orders* to provide the relocated public safety and non-Nextel and non-Southern site-specific SMR, B/ILT licensees with "comparable facilities".

CTO then performed a similar analysis for the ESMR portion of the band, channels 400-720, based on BEAs.

First, CTO examined the required high-site relocations, considering site specific license channels that are to remain in or be relocated to frequencies between 806/851 and 816/861 MHz (channels 001 to 400) within several circles of different radii from the center of the Cities. The purpose of the analysis is to determine if there are a sufficient number of channels in this portion of the 800 MHz band to accommodate and provide "comparable facilities" to these licensees. This portion of the band has 400 channels including a 40 channel "Expansion Band" (channels 361-400) in the upper portion.

Second, CTO examined the upper portion of the 800 MHz band between 816/861 and 824/869 MHz (channels 401 to 720) that is to be used for ESMR systems. This portion of the band contains 320 channels including a 40 channel "Guard Band" (channels 401-440). This portion of the analysis was done on a BEA basis rather than a City basis because this conforms to the manner in which licenses were auctioned by the FCC.

1. Spectrum Availability For Relocation Of Certain Public Safety, SMR and B/ILT Licensees To Comparable Facilities

CTO initially investigated the availability of spectrum in the 806/851 to 816/861 MHz band (channels 001–400), which is to support and provide "comparable facilities" to public safety, SMR, and B/ILT licensees after rebanding occurs. This portion of the 800 MHz band, which contains 400 duplex channels, must accommodate present non-Nextel and non-Southern users, such users from channels 001–120, and such users holding site-specific channels in channels 401–600. Nextel and Southern are to relocate from channels 001–400 to make spectrum available to those present and relocated channels. Nextel and Southern also must vacate channels 401–440 (the Guard Band). The public safety licensees presently in the NPSPAC portion of the band (821/866–824/869 MHz) (channels 601-720) are to relocate to 806/851–809/834 MHz (channels 001-120) the 120 channels vacated by other licensees.

The FCC requires co-channel coordination of licensees whose base stations are within 70 miles of each other. This first part of our analysis initially used a circle of a 35-mile radius around each City, which was examined to determine which channels would remain or be relocated in this circle. Any of these located within the 35-mile radius circle generally would preclude the use of a co-channel licensee's frequency within 70 miles of the first licensee's channel. Thus a 70-mile radius circle with its center at any given point on the circumference of or within the 35-mile radius circle would encompass the entire 35-mile radius circle and preclude the use of the channel unless an engineering study can show that co-channel interference will not occur, because of terrain shielding, use of directional antennas and/or reduced power.

TABLE 1 shows (for selected Cities) the City and state examined, the non-Nextel/non-Southern site-specific incumbents licensed for channels 121–400 within 35 miles of the City center and those non-Nextel/non-Southern site-specific channels licensed on channels 001–120, and channels 401–600. There are 280 channels within channels 121–400.

If the site-specific channels presently within channels 121–400 and those to be relocated to channels 121–400 exceed 280 then a spectrum or channel deficit exists and some of the site-specific channels cannot be accommodated in the 280 channels between channels 121–400. The following sample reflects the significant channel deficits found in BEA's 3 (including Boston), 31 (including Miami), and 174 (including major Cities in Puerto Rico).

For example, Boston, MA, the largest City in BEA 3, has 206 site-specific non-Nextel/non-Southern incumbent channels within a 35-mile radius of the City center. In addition, 73 non-Nextel/non-Southern site-specific incumbent channels relocating from channels 001–120, and 120 channels relocating from channels 401–600 are to be accommodated. The total requirement is 399 channels, but since there are only 280 channels, 119 incumbent site-specific licensed channels cannot be accommodated, which is the deficit as shown. Similarly, for Miami, FL the largest City in BEA 31, a deficit of 106 channels exists.

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TABLE 1: SELECTED CITIES WITH CHANNEL DEFICIT

City Name	BEA #	Non-Nextel/Non-Southern Site-Specific Incumbent Channels within	Non-Nextel/Non-Southern Site-Specific Channels to Move-in within		Site-Specific Channel Deficit within
		35-mile radius *	35-mile radius *		35-mile radius *
		Chan 121-400	Chan 001-120	Chan 401-600	Chan 121-400
Pawtucket, RI	3	213	83	123	(139)
Taunton, MA	3	208	83	123	(134)
Brockton, MA	3	212	80	120	(132)
Quincy, MA	3	212	78	120	(130)
Providence, RI	3	207	77	123	(127)
Newton, MA	3	211	74	120	(125)
Lowell, MA	3	210	71	120	(121)
Boston, MA	3	206	73	120	(119)
Cambridge, MA	3	203	73	120	(116)
Waltham, MA	3	205	71	120	(116)
Cranston, RI	3	197	75	123	(115)
Lawrence, MA	3	202	67	124	(113)
Malden, MA	3	200	72	120	(112)
Medford, MA	3	200	72	120	(112)
Somerville, MA	3	198	71	120	(109)
Haverhill, MA	3	196	67	124	(107)
Nashua, NH	3	195	68	119	(102)
Lynn, MA	3	192	68	120	(100)
Fall River, MA	3	178	78	123	(99)
Warwick, RI	3	165	72	123	(80)
New Bedford, MA	3	145	62	123	(50)
Manchester, NH	3	132	51	119	(22)
Hollywood, FL	31	232	85	79	(116)
Pembroke Pines, FL	31	232	85	79	(116)
Miramar, FL	31	232	84	79	(115)
Hialeah, FL	31	227	83	79	(109)
North Miami, FL	31	227	83	79	(109)
Miami Beach, FL	31	227	81	79	(107)
Miami, FL	31	227	80	79	(106)
Coral Springs, FL	31	181	90	10	(1)
Margate, FL	31	181	90	10	(1)
Pompano Beach, FL	31	181	90	10	(1)
Bayamon, PR	174	176	57	134	(87)
Guaynabo, PR	174	176	56	134	(86)
Caguas, PR	174	173	56	134	(83)
San Juan, PR	174	173	56	134	(83)
Carolina, PR	174	154	56	114	(44)
Ponce, PR	174	148	62	99	(29)

* From center of City.

As another example one non-Nextel/non-Southern licensee holds both the BEA authorizations (125 channels), which were acquired during FCC auction No. 34, and site-specific channel licenses in the Puerto Rico BEA market. Using the methods described above, **TABLE 1** shows that for six (6) Cities in Puerto Rico (BEA 174) a deficit ranging from 29 to 87 channels exists for site-specific licenses. The conclusion is that this licensee's channels cannot be accommodated in the Puerto Rico BEA because the relocations, due to rebanding, cannot even accommodate the existing non-Nextel/non-Southern site-specific licensed channels, let alone these 125 BEA licensed channels.

In the cases of Boston, Miami and Puerto Rico, much of the 35-mile radius circle covers water, where licensed channels will not be located. Thus, the density of licensed channels will be increased in the land areas. In such cases only a portion of the 35-mile radius will contain the licensed site-specific channels and the 70-mile distance required for interference protection would only need to cover land areas rather than the 35-mile radius around the Cities centers. This, in effect, means that the center of a 70-mile radius circle can be further away from the center of the City to preclude the use of a channel or can preclude use in a portion of the area surrounding the City center.

In order to account for this deficit, determinations were made for 50-mile and 70-mile radius circles. These are shown along with the 35-mile circle deficit (see Figures 1, 2, and 3). The data are shown in **TABLE 2** as an exhibit for all Cities with a population of 50,000 or more within all BEA's. These data are current as of June 30, 2005. Regarding elections in BEA's, for example, only one (1) licensee in BEA 003 (Boston, Worcester, Lawrence, Lowell, and Brockton) elected to move ten (10) channels from the Interleaved Band (channels 121-360) to the Guard Band (channels 401-440). This would only reduce the site-specific deficit by ten (10) channels, leaving deficits ranging from 12 to 129 channels for various Cities in the BEA within channels 121-400. Several other BEA licensees have elected to move to the Guard Band involving BEA's 113, 114, 092, and 002. In these BEA's there is no site-specific channel deficit even before the requested election. One (1) site-specific licensee has also elected to move to the Guard Band.

In addition to the incumbents, any non-Nextel BEA license that does not qualify as an ESMR would also need to be accommodated in channels 121-400, which may reduce the channel surplus in many of the Cities. In cases with only a small surplus this may result in a channel deficit. In cases where a deficit has been found; the deficit could increase due to inclusion of non-ESMR BEA licenses.

Considering Miami and the surrounding Cities, one BEA license of five (5) channels exists but cannot meet the ESMR criteria specified in the Orders.[3] Thus it must be relocated in channels 121-400 and might raise the deficit by five (5) channels. For Miami the deficit may rise from 106 to 111 channels.

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[3] In the Initial Report and Order, the Commission defines cellular like systems as "a system having more than five overlapping interactive sites featuring hand-off capability; and any one of such sites has an antenna height of less than 100 feet above ground level with an antenna height above average terrain (HAAT) of less than 500 feet and more than twenty paired frequencies." Id., at ¶ 172.

Note that the Cities within the Southern area and the areas bordering Canada and Mexico have been treated in the same manner as used in the rest of the areas analyzed. These areas require different relocation considerations, which were not included in the analysis. The analysis also did not take into account the differences because of the use of narrow channel spacing in California.

Furthermore, rebanding is intended to separate the low-site ESMR portion of the band from the high-site (non-ESMR) portion in order to reduce adjacent channel and intermodulation interference to public safety. However, the relocation and retention of high-site SMR and B/ILT licensees in channels 001–400 can also produce unacceptable adjacent channel and intermodulation interference to public safety systems operating in that portion of the 800 MHz band.

Although some transmissions are of short duration, those systems that are trunked have continuous transmissions on the control channel. Also, systems for mobile data operations are transmitting most of the time. Both types of signals can cause unacceptable adjacent channel interference and can also, in combination with other transmissions, cause unacceptable intermodulation interference.

Attention must be paid to the frequency assignment of all relocated systems to ensure that interference is minimized particularly in high density environments. Additional filters and other interference suppression equipment can also be necessary. These are costs which Nextel has no obligation to reimburse to those licensees being relocated or remaining.

Interoperability has been cited as a requirement for public safety communications. A sufficient number of channels must be made available to be used for interoperability whether it involves communications between agencies within a jurisdiction or between agencies of different jurisdictions. The events of 9/11, the recent hurricanes in Louisiana, Mississippi and Texas and the forest fires in California underscore the need for interoperable communications.

The Orders point to retuning and reprogramming mobile and portable equipment as part of the reconfiguration process. If this does not occur simultaneously for all public safety systems which require communication during emergencies, interoperability can not occur. If an emergency occurs during the reconfiguration process the consequences of not having full interoperability can cost lifes. Thus, public safety systems of cooperating jurisdictions must be reconfigured simultaneously.

This situation can be even more serious when cooperating agencies are in different reconfiguration waves.

The Transition Administrator ("TA") has stated that they will provide a Frequency Proposal Report ("FPR") containing new frequencies proposed for each reconfiguring frequency. The TA states that these "…will have no co-channel licensees and locations that are not in compliance with FCC short-spacing rules…" The short-spacing rules require a minimum separation of 55 miles if reduced antenna height above average terrain and lower than maximum authorized effective radiated power of the short-spaced station is used. Where deficits or small surpluses in channels 121-400

(see Table 2) have been found, it is extremely unlikely that the coverage area of relocating channels can be retained to provide comparable "coextensive geographic coverage".

Based on the short-spacing 55-mile coordination requirement on examination was made of Boston and Miami assuming that all licensees use lower power and/or antenna height that allow for short spacing.

For Boston within 27.5 miles of the center of the City there are 182 incumbent channels within channels 121 to 400. These and the incumbent 63 channels in channels 001 to 120 and the 120 incumbent channels in channels 401 to 600 that would both relocate to channels 121 to 400 leaves a deficit of 85 channels.

For Miami there are 222 incumbent channels in channel121-400 within 27.5 miles of the center of the City. This plus 77 incumbents in channels 001 to 120 and 79 incumbents in channels 401 to 600 that would relocate to channels 121 to 400 results in a deficit of 98 channels.

Thus, even if all incumbents were short-spaced in either of these Cities a channel deficit would exist after rebanding occurs.

It has been stated that rebanding will provide additional spectrum to Public Safety. "…Nextel states that through its relinquishment of 800 MHz General Category and interleaved spectrum, it is giving up an average of 8.5 megahertz of bandwidth, resulting in an average net gain of 2.5 megahertz to public safety. Combined with the two megahertz of spectrum that Nextel is giving up from its spectrum holdings in the Upper 200 block, the average net amount of spectrum being relinquished by Nextel is 4.5 megahertz."[4]

TABLE-2 shows the deficit or surplus of channels which includes use of the Interleaved (channels 121-360) and Expansion (channels 361-400) Bands. This table includes non-Nextel incumbent channels that will remain in these Bands. These incumbent licensed channels preclude the use of the channels by others generally within a 35-mile radius of the Cities examined and in some cases within a 70-mile radius of the Cities.

Considering only the 35-mile radius case, 418 out of 578 or 72.3% of the Cities would be able to use all of the 2.5 MHz for public safety operations. The analysis did not take into account the Southern area and the Canadian and Mexican border areas difference in the relocation plans. However, the analysis does show that in many cities considerably less spectrum is available to public safety than the additional 2.5 MHz that was contemplated by the *Rebanding Orders*. Over twenty-five percent (25%) of the Cities would not have full use and some of these Cities would not have use of any of the 2.5 MHz of spectrum available for public safety use.

Using the 35-mile radius, CTO found that in the 100 largest Cities, in terms of population, 24 Cities cannot use the full 2.5 MHz because of incumbent licensees. Of these 24 Cities, 11 cannot have access to any of the 2.5 MHz vacated by Nextel because of non-Nextel incumbents remaining

4 See FCC 04-168, paragraph 307.

in the area. As noted previously, Boston, MA, San Juan, PR, and Miami, FL have deficits of channels and can use none of the 2.5 MHz. But New York, NY can only use 2.4 MHz or 96% of the 2.5 MHz for public safety. Similarly, Memphis, TN can only use 1.1 MHz or 44% of the 2.5 MHz; Las Vegas, NV can only use 1.55 MHz or 62% while Minneapolis, MN, Anchorage, AK, and Greensboro, NC can use none of the 2.5 MHz for public safety.

Regarding the two (2) MHz from the holdings that Nextel is giving up in the Upper 200 Block, this forms the Guard Band (channels 401-440). If public safety were to use these channels they could be subject to the same type of interference problems that resulted in the interference mitigation steps taken in the *Initial Report and Order*.

Yet many of these large Cities have the greatest need for additional public safety spectrum.

2. Spectrum Availability For Relocation of BEA Licensees To Comparable Facilities

In the second part of its analysis CTO examined the relocation requirements specified by the FCC in the *Rebanding Orders* for BEA licenses obtained during the FCC's auctions. The ESMR licensed channels are to stay in or relocate to channels within the frequency range 817/862–824/869 MHz (channels 441–720). The present NPSPAC public safety channels in the range 821/866–824/869 MHz (channels 601–720) are to be vacated by public safety and relocated 15 MHz below present frequency assignments. This vacated portion of the band, containing 120 channels, is to be used by Nextel and/or Southern to relocate channels from below 817/862 MHz (channels 440 and below). In addition, 10 MHz of the 1.9 GHz band is to be made available to Nextel for use in its operations.

Simply put, 430 channels were purchased by BEA licensees in each of the 175 BEA markets during the FCC auctions and only 280 channels (not including the 40 channel Guard Band) are to be made available in the 800 MHz band to accommodate them. Nextel is given preference in rebanding, which allows them exclusive use of the top 120 channels (6 MHz) in the 800 MHz band and the full 10 MHz in the 1.9 GHz band. The remaining channels in the 800 MHz band available for non-Nextel and non-Southern licensees cannot accommodate these other licensees, with "comparable facilities" without use of the 1.9 GHz or some other frequencies by non-Nextel and non-Southern licensees.

If Nextel would vacate channels 441-600 to accommodate non-Nextel BEA licensees, all but BEA 174 could be accommodated in these 160 channels. BEA 174 has non-Nextel licensees having 265 channels. To accommodate these non-Nextel BEA licensees Nextel would have to provide additional spectrum by relinquishing some of the channels in the 601-720 channel range in the 800 MHz band and the remainder in a portion of the 1.9 GHz band. These would be used by non-Nextel BEA licensees in BEA 174.

However, there will be a deficit of site-specific channels for Cities in BEA 174 which will require Nextel to relinquish additional channels in the 800 MHz or 1.9 GHz band.

CONCLUSIONS

1. After a careful review of the data and examination of the concepts set forth in the Rebanding Orders, the approach to be taken for reconfiguring the 800 MHz band cannot be accomplished and provide "comparable facilities" to all licensees. Even if all incumbents were short-spaced a number of Cities will still suffer spectrum shortage.

2. In many of the 578 Cities examined the number of site-specific licensed channels to remain in channels 121-400 and those to be relocated to these channels exceed the 280 channels available and therefore cannot provide "comparable facilities" including required spectrum and "coextensive geographic coverage".

3. In 24 of the largest 100 U.S. Cities full access to the 2.5 MHz to be used by public safety after being vacated by Nextel is not possible and 11 of these Cities cannot have any access to these 2.5 MHz and have a deficit instead.

4. The two (2) MHz given up by Nextel in the Upper 200 Block is to form a Guard Band where interference can occur and therefore is not suitable for Public Safety operations.

5. Additional spectrum is needed to provide for public safety interoperability, particularly in larger Cities, to aid in coping with terrorist and natural disasters. For example Boston, MA, Miami, FL, and San Juan, PR can be vulnerable to natural disasters from hurricanes or storms in the Atlantic Ocean and have a shortage of public safety frequencies.

6. Coordination is required to ensure that co-channel interference will not be a problem in channels 121-400 after reconfiguration occurs.

7. Relocation of *BEA* licensees to the *ESMR* portion of the band, with Nextel having exclusive use of the upper six (6) MHz of the band, does not provide sufficient spectrum for the non-Nextel BEA licensees. Additional spectrum is therefore required to provide the *BEA* licensees, with "comparable facilities".

8. Exclusive use of the vacated *NPSPAC* channels provides Nextel with better-than "comparable facilities" because they will obtain a block of contiguous unencumbered channels.

9. Regional interoperability must be maintained during the reconfiguration. It is imperative that frequency reconfiguration of agencies requiring regional interoperability occur simultaneously even if the agencies are in different Waves.

10. Regional interoperability cannot be maintained unless simultaneous frequency reconfiguration of the involved agencies occurs.

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11. There is not sufficient spectrum to accommodate every licensee affected by the relocation. Therefore, contrary to claims, the Rebanding Orders do not provide each licensee with “comparable facilities” including “coextensive geographical coverage”, and

12. There is not sufficient spectrum available after rebanding to support public safety receiving and additional 2.5 MHz of 800 MHz spectrum in every City.

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RECOMMENDATIONS

1. The frequency boundary between the non-Cellular Block and *ESMR* portions of the revamped 800 MHz band should be flexible and allow for accommodation of all existing site-specific licensees.

2. The exclusive use of the upper portion of the *ESMR* portion of the 800 MHz band should therefore not be granted to Nextel at the expense of other BEA licensees.

3. As an alternative, Nextel could vacate a sufficient number of channels in each *BEA* to accommodate non-*Nextel BEA* licensees in the 817/862–824/869 MHz band, or non-*Nextel BEA* licensees could be given equivalent spectrum in the 10 MHz of the 1.9 GHz band. In the case of BEA 174 access to the 1.9 GHz band should be granted to accommodate the *BEA* channels which can not be accommodated in the 800 MHz band.

4. Frequency reconfiguration of agencies requiring regional interoperability should occur simultaneously.

5. Reinstate frequency coordination to ensure that Public Safety, Business, Industrial and Land Transportation and *SMR* Site-Licensed Channels receive comparable facilities.

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Table 2 - Channel Deficit or Surplus for All Cities Over 50,000 Population

City Name	State	BEA #	City Center		Non-Nextel Site-Specific Incumbents within			Non-Nextel Site-Specific Licensees Move-in within						Nextel Site-Specific Licensed Channels within			Site-Specific Channel Deficit or Surplus within Channels 121-400		
					35 mi radius *	50 mi radius *	70 mi radius *	35 mi radius *		50 mi radius *		70 mi radius *		35 mi radius *	50 mi radius *	70 mi radius *			
			Longitude	Latitude	Chan 121-400	Chan 121-400	Chan 121-400	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 121-400			35 mi radius *	50 mi radius *	70 mi radius *
Bangor	ME	1	-68.789	44.8297	34	39	60	5	21	12	22	15	22	103	135	164	220	207	183
Portland	ME	2	-70.2115	43.6663	115	141	178	32	134	58	138	63	140	178	226	227	(1)	(57)	(101)
Boston	MA	3	-70.9703	42.3143	206	220	243	73	120	81	120	115	124	138	173	186	(119)	(141)	(202)
Brockton	MA	3	-71.0275	42.0842	212	222	243	80	120	91	123	116	124	164	171	186	(132)	(156)	(203)
Cambridge	MA	3	-71.1122	42.3781	203	221	244	73	120	82	120	117	124	138	173	186	(116)	(143)	(205)
Cranston	RI	3	-71.4682	41.7687	197	223	229	75	123	91	123	94	123	141	147	180	(115)	(157)	(166)
Fall River	MA	3	-71.0707	41.6853	178	223	243	78	123	88	123	117	123	139	171	183	(99)	(154)	(203)
Haverhill	MA	3	-71.0904	42.7828	196	222	260	67	124	82	124	117	133	151	171	189	(107)	(148)	(230)
Lawrence	MA	3	-71.1621	42.6996	202	221	260	67	124	83	124	117	133	145	172	188	(113)	(148)	(230)
Lowell	MA	3	-71.3269	42.6369	210	221	254	71	120	83	124	103	133	145	169	219	(121)	(148)	(210)
Lynn	MA	3	-70.9565	42.4753	192	222	242	68	120	83	124	115	124	141	173	185	(100)	(149)	(201)
Malden	MA	3	-71.0546	42.4287	200	226	244	72	120	84	124	117	124	141	173	185	(112)	(154)	(205)
Manchester	NH	3	-71.4441	42.9704	132	225	253	51	119	97	128	102	128	160	173	252	(22)	(170)	(203)
Medford	MA	3	-71.1108	42.4247	200	223	244	72	120	84	124	117	124	141	176	185	(112)	(151)	(205)
Nashua	NH	3	-71.4967	42.7528	195	228	244	68	119	99	124	102	128	160	174	220	(102)	(171)	(194)
New Bedford	MA	3	-70.928	41.6635	145	237	243	62	123	112	123	116	123	163	178	183	(50)	(192)	(202)
Newton	MA	3	-71.2136	42.3252	211	222	244	74	120	83	120	116	124	138	172	189	(125)	(145)	(204)
Pawtucket	RI	3	-71.3779	41.8773	213	223	229	83	123	90	123	94	123	142	148	181	(139)	(156)	(166)
Providence	RI	3	-71.4208	41.8169	207	223	229	77	123	91	123	94	123	143	148	182	(127)	(157)	(166)
Quincy	MA	3	-71.0154	42.259	212	222	243	78	120	91	120	115	124	138	169	186	(130)	(153)	(202)
Somerville	MA	3	-71.1037	42.3955	198	223	244	71	120	84	124	117	124	139	173	186	(109)	(151)	(205)
Taunton	MA	3	-71.0845	41.9164	208	224	243	83	123	91	123	117	123	140	171	183	(134)	(158)	(203)
Waltham	MA	3	-71.2399	42.3889	205	224	244	71	120	85	124	117	124	139	172	189	(116)	(153)	(205)
Warwick	RI	3	-71.4221	41.6987	165	222	229	72	123	87	123	94	123	142	147	181	(80)	(152)	(166)
Worcester	MA	3	-71.8078	42.2755	104	222	234	54	19	83	120	96	124	144	158	188	103	(145)	(174)
Albany	NY	5	-73.8114	42.6681	146	156	195	14	0	15	5	34	10	131	173	244	120	104	41
Schenectady	NY	5	-73.9383	42.8037	144	153	214	14	0	14	5	68	10	143	167	243	122	108	(12)
Syracuse	NY	6	-76.1393	43.0353	31	92	147	54	7	81	9	91	23	204	244	258	188	98	19
Utica	NY	6	-75.228	43.0984	60	108	143	46	3	77	4	91	21	239	251	255	171	91	25
Rochester	NY	7	-77.6179	43.1863	54	55	127	65	10	66	10	107	14	88	90	180	151	149	32
Buffalo	NY	8	-78.8761	42.8961	0	50	61	54	4	89	6	110	10	13	13	22	222	135	99
Niagara Falls	NY	8	-79.0088	43.0995	0	0	58	40	4	55	6	110	11	13	13	13	236	219	101
Allentown	PA	10	-75.4837	40.5927	150	178	207	38	14	56	18	77	27	148	177	189	78	28	(31)
Bangor	PA	10	-75.2085	40.867	116	159	211	18	0	43	18	70	27	166	172	186	146	60	(28)
Bayonne	NJ	10	-74.1054	40.6715	172	192	218	54	0	63	4	89	18	117	144	168	54	21	(45)
Bethlehem	PA	10	-75.3668	40.6253	144	179	207	37	8	58	18	80	27	149	176	190	91	25	(34)
Bridgeport	CT	10	-73.199	41.1847	160	205	223	39	0	71	0	84	20	148	164	178	81	4	(47)
Bristol	CT	10	-72.941	41.6816	131	181	242	30	15	48	20	90	30	159	173	181	104	31	(82)
Chicopee	MA	10	-72.5713	42.1711	142	159	201	35	25	51	37	77	50	150	172	187	78	33	(48)
Clifton	NJ	10	-74.1577	40.8597	174	199	220	53	0	58	4	82	13	118	152	162	53	19	(35)
Danbury	CT	10	-73.4724	41.3954	166	214	225	37	0	72	0	77	20	146	173	180	77	(6)	(42)
East Orange	NJ	10	-74.2142	40.7665	175	193	218	56	0	62	2	82	18	122	150	163	49	23	(38)
Elizabeth	NJ	10	-74.1954	40.6661	173	190	216	56	0	63	4	88	18	122	152	168	51	23	(42)
Hartford	CT	10	-72.6801	41.7657	148	171	219	44	15	56	30	89	39	166	171	176	73	23	(67)
Hempstead	NY	10	-73.6207	40.7029	178	195	218	52	0	67	2	86	11	122	149	175	50	16	(35)
Jersey City	NJ	10	-74.0687	40.7151	172	193	218	54	0	62	4	92	18	117	144	167	54	21	(48)
Meriden	CT	10	-72.8019	41.5372	124	178	226	30	0	57	20	85	30	154	171	176	126	25	(61)
Milford city (remainder)	CT	10	-73.0563	41.2226	135	189	220	38	0	49	0	84	20	153	162	178	107	42	(44)
Mount Vernon	NY	10	-73.8292	40.9123	186	207	220	54	0	61	0	81	8	120	145	171	40	12	(29)
New Britain	CT	10	-72.7871	41.6805	137	175	227	41	15	49	25	75	30	160	174	176	87	31	(52)
New Haven	CT	10	-72.9291	41.2983	138	188	229	42	0	48	0	85	25	153	159	179	100	44	(59)
New Rochelle	NY	10	-73.7739	40.9302	187	207	220	54	0	62	0	80	8	121	148	171	39	11	(28)
New York	NY	10	-73.9793	40.6974	178	189	215	54	0	59	2	86	18	116	145	168	48	30	(39)
Newark	NJ	10	-74.182	40.7316	175	193	218	54	0	62	4	86	18	121	143	167	51	21	(42)
Norwalk	CT	10	-73.4276	41.096	183	214	220	58	0	73	0	79	15	140	164	178	39	(7)	(34)
Passaic	NJ	10	-74.1266	40.8555	174	199	220	53	0	58	4	82	13	118	152	164	53	19	(35)

Table 2 - Channel Deficit or Surplus for All Cities Over 50,000 Population

City Name	State	BEA #	City Center		Non-Nextel Site-Specific Incumbents within			Non-Nextel Site-Specific Licensees Move-in within						Nextel Site-Specific Licensed Channels within			Site-Specific Channel Deficit or Surplus within Channels 121-400		
					35 mi radius *	50 mi radius *	70 mi radius *	35 mi radius *		50 mi radius *		70 mi radius *		35 mi radius *	50 mi radius *	70 mi radius *			
			Longitude	Latitude	Chan 121-400	Chan 121-400	Chan 121-400	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 121-400			35 mi radius *	50 mi radius *	70 mi radius *
Paterson	NJ	10	-74.1678	40.9151	179	204	219	54	0	60	4	81	8	118	152	162	47	12	(28)
Scranton	PA	10	-75.6619	41.4045	104	144	172	0	5	8	5	33	18	162	175	230	171	123	57
Springfield	MA	10	-72.5463	42.1128	145	157	205	40	25	54	30	77	50	154	170	187	70	39	(52)
Stamford	CT	10	-73.5645	41.0927	196	216	220	53	0	72	0	78	19	123	163	178	31	(8)	(37)
Trenton	NJ	10	-74.751	40.216	161	186	211	57	14	85	14	89	18	137	148	182	48	(5)	(38)
Union City	NJ	10	-74.0303	40.7668	180	192	217	54	0	59	0	84	18	117	144	164	46	29	(39)
Waterbury	CT	10	-73.0254	41.5647	109	193	237	30	0	59	15	91	30	158	171	181	141	13	(78)
West Haven	CT	10	-72.9574	41.273	138	187	229	42	0	50	0	85	25	153	159	178	100	43	(59)
White Plains	NY	10	-73.7547	41.0259	190	207	220	51	0	62	0	80	8	122	151	172	39	11	(28)
Yonkers	NY	10	-73.8646	40.9443	187	203	218	54	0	58	4	79	8	125	145	171	39	15	(25)
Camden	NJ	12	-75.1012	39.9342	163	192	217	54	7	72	16	90	26	134	157	177	56	0	(53)
Lancaster	PA	12	-76.3001	40.0397	132	184	227	34	31	54	31	91	31	161	168	195	83	11	(69)
Philadelphia	PA	12	-75.1179	40.0018	164	193	219	55	7	74	11	90	26	133	157	179	54	2	(55)
Reading	PA	12	-75.9253	40.3337	117	188	218	27	18	59	23	80	31	151	174	194	118	10	(49)
Vineland	NJ	12	-74.9923	39.4732	161	184	222	43	8	71	15	102	29	154	163	175	68	10	(73)
Wilmington	DE	12	-75.5298	39.7299	158	173	215	47	11	62	18	91	24	140	167	188	64	27	(50)
Alexandria	VA	13	-77.09	38.8158	162	170	182	55	5	61	10	70	15	151	176	194	58	39	13
Baltimore	MD	13	-76.6205	39.2847	169	175	224	53	0	62	11	98	44	160	176	188	58	32	(86)
Bowie	MD	13	-76.7472	38.9511	158	170	195	58	5	64	5	90	26	150	178	197	59	41	(31)
Frederick	MD	13	-77.4174	39.4319	112	175	222	43	10	65	20	94	35	149	185	195	115	20	(71)
Gaithersburg	MD	13	-77.1933	39.136	157	171	202	50	5	66	15	88	32	156	171	196	68	28	(42)
Washington	DC	13	-77.0146	38.8933	161	170	191	59	5	62	10	89	20	148	178	195	55	38	(20)
Richmond	VA	15	-77.4932	37.5242	133	140	178	48	18	48	18	77	53	154	170	186	81	74	(28)
Lynchburg	VA	17	-79.1785	37.4009	97	143	172	1	0	7	33	20	38	130	145	158	182	97	50
Roanoke	VA	17	-79.9579	37.2742	100	156	193	17	0	19	0	35	2	131	138	147	163	105	50
Greensboro	NC	18	-79.8422	36.11	181	220	254	22	79	25	81	55	114	108	136	154	(2)	(46)	(143)
High Point	NC	18	-79.9879	35.9892	194	238	258	21	79	33	86	48	99	103	142	151	(14)	(77)	(125)
Winston-Salem	NC	18	-80.2485	36.1094	204	230	255	22	79	24	79	59	86	108	137	152	(25)	(53)	(120)
Cary	NC	19	-78.758	35.799	162	185	215	17	99	18	104	33	104	124	136	170	2	(27)	(72)
Durham	NC	19	-78.9109	35.9872	175	189	217	17	97	19	99	30	104	125	137	163	(9)	(27)	(71)
Raleigh	NC	19	-78.6611	35.8167	161	186	216	17	97	20	104	28	104	121	136	165	5	(30)	(68)
Rocky Mount	NC	19	-77.809	35.977	87	139	203	10	0	25	72	34	102	125	162	163	183	44	(59)
Chesapeake	VA	20	-76.2785	36.7085	181	185	197	31	0	36	0	53	3	134	143	163	68	59	27
Hampton	VA	20	-76.2925	37.023	180	188	192	32	0	35	0	46	3	142	143	162	68	57	39
Newport News	VA	20	-76.5039	37.0756	175	188	208	33	0	35	0	87	8	130	159	174	72	57	(23)
Norfolk	VA	20	-76.2397	36.9312	174	188	192	31	0	35	0	46	3	142	142	162	75	57	39
Portsmouth	VA	20	-76.3552	36.8686	177	191	192	33	0	36	0	56	3	134	143	164	70	53	29
Suffolk	VA	20	-76.6653	36.7461	172	182	209	33	0	44	3	80	18	135	154	170	75	51	(27)
Virginia Beach	VA	20	-76.0126	36.7957	159	185	192	31	0	33	0	45	0	133	142	150	90	62	43
Jacksonville	NC	21	-77.3503	34.7228	130	175	202	7	0	11	0	15	0	112	119	133	143	94	63
Fayetteville	NC	22	-78.9128	35.083	94	167	225	11	77	17	84	37	104	125	143	148	98	12	(86)
Charlotte	NC	23	-80.8286	35.2038	188	206	251	38	7	46	101	60	101	120	143	161	47	(73)	(132)
Gastonia	NC	23	-81.1785	35.2459	170	203	239	40	16	41	23	64	101	128	143	162	54	13	(124)
Columbia	SC	24	-80.9376	34.0372	140	164	205	18	0	24	7	51	17	110	129	162	122	85	7
Wilmington	NC	25	-77.9048	34.2116	117	138	219	4	0	5	0	26	5	106	118	135	159	137	30
Charleston	SC	26	-79.9819	32.8215	158	190	243	5	0	6	4	41	9	98	117	137	117	80	(13)
North Charleston	SC	26	-80.041	32.9111	157	201	236	5	4	6	4	35	12	98	117	137	114	69	(3)
Savannah	GA	28	-81.1411	32.0203	203	216	230	26	4	28	4	35	9	81	101	134	47	32	6
Gainesville	FL	29	-82.3197	29.692	126	163	218	20	16	63	21	80	63	180	188	191	118	33	(81)
Jacksonville city (remain	FL	29	-81.6831	30.3449	141	168	231	59	17	66	23	72	28	163	177	191	63	23	(51)
Daytona Beach	FL	30	-81.0967	29.2103	101	152	193	24	9	49	31	88	38	173	185	194	146	48	(39)
Lakeland	FL	30	-81.9723	28.0607	136	171	191	52	21	78	27	80	35	174	189	194	71	4	(26)
Melbourne	FL	30	-80.6473	28.1135	103	138	153	38	2	56	26	67	30	180	186	193	137	60	30
Orlando	FL	30	-81.309	28.4811	132	170	183	44	26	69	26	77	38	177	193	193	78	15	(18)
Palm Bay	FL	30	-80.6491	27.9869	100	133	163	38	2	56	21	69	30	179	188	193	140	70	18
Boca Raton	FL	31	-80.1174	26.3728	167	185	252	85	10	93	10	104	84	156	170	179	18	(8)	(160)

Table 2 - Channel Deficit or Surplus for All Cities Over 50,000 Population

City Name	State	BEA #	City Center		Non-Nextel Site-Specific Incumbents within			Non-Nextel Site-Specific Licensees Move-in within						Nextel Site-Specific Licensed Channels within			Site-Specific Channel Deficit or Surplus within Channels 121-400		
					35 mi radius *	50 mi radius *	70 mi radius *	35 mi radius *		50 mi radius *		70 mi radius *		35 mi radius *	50 mi radius *	70 mi radius *			
			Longitude	Latitude	Chan 121-400	Chan 121-400	Chan 121-400	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 121-400			35 mi radius *	50 mi radius *	70 mi radius *
Boynton Beach	FL	31	-80.0819	26.5281	152	183	252	83	10	94	10	104	84	155	171	179	35	(7)	(160)
Coral Springs	FL	31	-80.25	26.2657	181	250	252	90	10	102	84	105	92	161	169	181	(1)	(156)	(169)
Davie	FL	31	-80.2764	26.0761	168	250	252	75	5	100	84	103	92	158	168	180	32	(154)	(167)
Deerfield Beach	FL	31	-80.1224	26.3084	180	185	251	88	10	93	10	104	84	158	167	179	2	(8)	(159)
Delray Beach	FL	31	-80.0918	26.4562	162	183	252	83	10	94	10	104	84	156	169	179	25	(7)	(160)
Fort Lauderdale	FL	31	-80.1443	26.141	172	250	251	87	5	102	84	103	84	162	168	179	16	(156)	(158)
Hialeah	FL	31	-80.3048	25.8526	227	239	251	83	79	90	79	102	92	153	174	178	(109)	(128)	(165)
Hollywood	FL	31	-80.1755	26.0396	232	250	252	85	79	100	84	103	84	159	168	177	(116)	(154)	(159)
Lauderhill	FL	31	-80.2301	26.165	172	250	252	88	5	102	84	104	92	162	168	179	15	(156)	(168)
Margate	FL	31	-80.2119	26.2423	181	250	252	90	10	102	84	105	84	158	168	179	(1)	(156)	(161)
Miami	FL	31	-80.2296	25.7824	227	237	250	80	79	85	79	101	92	150	160	174	(106)	(121)	(163)
Miami Beach	FL	31	-80.1401	25.8101	227	237	251	81	79	88	79	102	84	150	162	174	(107)	(124)	(157)
Miramar	FL	31	-80.3231	25.9761	232	250	251	84	79	99	84	103	92	152	174	178	(115)	(153)	(166)
North Miami	FL	31	-80.1776	25.9057	227	241	251	83	79	98	79	102	84	149	169	175	(109)	(138)	(157)
Pembroke Pines	FL	31	-80.3278	26.0234	232	250	252	85	79	99	84	103	92	158	173	178	(116)	(153)	(167)
Plantation	FL	31	-80.2638	26.1267	171	250	252	85	5	102	84	104	92	163	168	180	19	(156)	(168)
Pompano Beach	FL	31	-80.1371	26.2404	181	250	251	90	10	102	84	104	84	158	168	179	(1)	(156)	(159)
Port St. Lucie	FL	31	-80.3387	27.29	96	149	176	32	5	67	5	87	9	169	182	194	147	59	8
Sunrise	FL	31	-80.2307	26.1478	172	250	252	87	5	102	84	104	92	162	168	179	16	(156)	(168)
Tamarac	FL	31	-80.271	26.2045	173	250	252	88	5	102	84	104	92	161	168	180	14	(156)	(168)
West Palm Beach	FL	31	-80.1295	26.7415	136	174	188	66	5	88	10	95	10	165	171	182	73	8	(13)
Cape Coral	FL	32	-81.9978	26.6416	126	143	168	47	15	52	21	67	23	173	185	190	92	64	22
Clearwater	FL	34	-82.7109	27.9928	118	144	165	46	0	60	4	66	5	161	179	191	116	72	44
Largo	FL	34	-82.7846	27.9077	124	134	163	43	0	54	4	64	5	161	187	190	113	88	48
St. Petersburg	FL	34	-82.6548	27.7682	123	157	172	44	0	59	2	78	9	163	188	192	113	62	21
Tampa	FL	34	-82.4683	27.9888	136	152	174	54	0	64	4	78	28	165	179	192	90	60	0
Tallahassee	FL	35	-84.2568	30.4819	143	199	235	49	25	56	30	74	41	106	124	130	63	(5)	(70)
Dothan	AL	36	-85.405	31.2425	172	202	237	32	5	40	5	92	17	99	100	130	71	33	(66)
Albany	GA	37	-84.1675	31.572	133	155	219	11	0	12	15	65	56	82	97	136	136	98	(60)
Macon	GA	38	-83.6426	32.8323	169	193	253	25	0	43	5	98	47	94	113	117	86	39	(118)
Columbus city (remainde	GA	39	-84.8741	32.491	148	155	204	25	20	26	20	63	26	105	108	118	87	79	(13)
Athens-Clarke County (r	GA	40	-83.3891	33.9443	119	167	263	24	0	56	2	101	51	108	120	127	137	55	(135)
Atlanta	GA	40	-84.4178	33.7678	207	214	232	89	47	93	49	101	56	97	111	120	(63)	(76)	(109)
Roswell	GA	40	-84.3441	34.0484	205	216	233	87	44	93	49	100	55	95	109	123	(56)	(78)	(108)
Greenville	SC	41	-82.3705	34.8334	175	219	237	7	0	14	0	39	16	88	124	153	98	47	(12)
Asheville	NC	42	-82.5219	35.5629	103	201	250	5	0	23	0	45	31	83	105	132	172	56	(46)
Chattanooga	TN	43	-85.2617	35.0835	145	181	248	23	7	27	15	56	40	92	103	125	105	57	(64)
Knoxville	TN	44	-83.9635	35.9583	166	186	249	26	20	29	20	33	20	53	74	120	68	45	(22)
Johnson City	TN	45	-82.3605	36.3471	153	205	230	26	0	36	9	40	9	74	109	128	101	30	1
Lexington-Fayette	KY	47	-84.4715	38.0283	89	127	178	3	0	5	0	25	0	192	193	201	188	148	77
Charleston	WV	48	-81.633	38.3492	111	139	180	2	6	13	11	94	11	94	113	142	161	117	(5)
Huntington	WV	48	-82.4417	38.4077	123	157	179	8	5	11	5	12	11	108	108	130	144	107	78
Cincinnati	OH	49	-84.5404	39.1364	169	187	218	30	0	39	0	53	0	115	149	191	81	54	9
Hamilton	OH	49	-84.5605	39.3884	179	190	208	33	0	39	0	52	0	122	126	181	68	51	20
Dayton	OH	50	-84.2021	39.7795	174	190	194	18	0	36	0	43	0	102	124	219	88	54	43
Kettering	OH	50	-84.1593	39.695	179	191	199	20	0	35	0	50	1	103	124	176	81	54	30
Springfield	OH	50	-83.7861	39.9371	148	192	207	10	0	34	0	48	6	108	171	220	122	54	19
Columbus	OH	51	-82.9789	39.9957	145	176	200	16	0	22	1	30	9	121	183	221	119	81	41
Pittsburgh	PA	53	-79.9805	40.4314	107	160	191	24	0	34	5	46	13	162	226	238	149	81	30
Erie	PA	54	-80.0787	42.1252	4	7	50	65	7	68	9	85	13	13	109	223	204	196	132
Akron	OH	55	-81.5131	41.0843	111	150	177	95	21	103	24	105	27	194	214	231	53	3	(29)
Canton	OH	55	-81.3667	40.8127	124	170	192	70	9	102	21	105	27	205	224	231	77	(13)	(44)
Cleveland	OH	55	-81.701	41.5012	81	107	153	97	22	101	27	105	27	164	176	227	80	45	(5)
Cuyahoga Falls	OH	55	-81.4904	41.1601	105	149	175	96	24	103	24	105	27	173	208	231	55	4	(27)
Elyria	OH	55	-82.1205	41.3773	55	107	155	69	21	100	25	104	32	163	195	228	135	48	(11)
Euclid	OH	55	-81.5207	41.5902	75	112	147	91	22	103	24	104	27	166	176	231	92	41	2

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City Name	State	BEA #	City Center		Non-Nextel Site-Specific Incumbents within			Non-Nextel Site-Specific Licensees Move-in within						Nextel Site-Specific Licensed Channels within			Site-Specific Channel Deficit or Surplus within Channels 121-400		
					35 mi radius *	50 mi radius *	70 mi radius *	35 mi radius *		50 mi radius *		70 mi radius *		35 mi radius *	50 mi radius *	70 mi radius *			
			Longitude	Latitude	Chan 121-400	Chan 121-400	Chan 121-400	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 121-400			35 mi radius *	50 mi radius *	70 mi radius *
Lakewood	OH	55	-81.8064	41.4816	79	108	155	95	22	101	27	104	29	168	173	222	84	44	(8)
Lorain	OH	55	-82.1955	41.4448	42	101	153	57	21	92	24	107	36	114	180	229	160	63	(16)
Mansfield	OH	55	-82.5308	40.7664	55	167	207	6	5	64	22	99	26	206	221	235	214	27	(52)
Mentor	OH	55	-81.3408	41.6985	87	100	128	80	22	101	22	104	27	165	201	235	91	57	21
Parma	OH	55	-81.7349	41.3851	84	111	157	97	22	101	27	105	27	168	199	229	77	41	(9)
Youngstown	OH	55	-80.6396	41.093	48	155	207	22	2	76	9	110	18	213	225	245	208	40	(55)
Toledo	OH	56	-83.574	41.6565	60	98	148	53	21	82	26	88	31	131	200	246	146	74	13
Ann Arbor	MI	57	-83.7372	42.2732	70	109	144	72	15	86	27	91	29	163	212	240	123	58	16
Dearborn	MI	57	-83.2136	42.3146	80	88	116	85	20	87	25	97	29	124	182	232	95	80	38
Dearborn Heights	MI	57	-83.2987	42.3126	84	88	120	86	20	87	25	93	29	126	182	231	90	80	38
Detroit	MI	57	-83.0992	42.3527	73	86	115	79	20	87	25	97	29	126	184	227	108	82	39
Farmington Hills	MI	57	-83.3771	42.4839	84	96	138	86	20	89	21	93	29	173	191	241	90	74	20
Flint	MI	57	-83.6958	43.0123	80	133	155	52	9	89	23	89	23	215	235	242	139	35	13
Lansing	MI	57	-84.5582	42.7088	59	93	187	26	3	44	4	68	14	211	245	259	192	139	11
Livonia	MI	57	-83.3731	42.3971	84	89	131	86	20	87	25	93	29	126	187	240	90	79	27
Pontiac	MI	57	-83.2911	42.6516	86	102	135	86	20	89	21	90	28	177	196	236	88	68	27
Rochester Hills	MI	57	-83.1523	42.6666	82	100	130	86	20	89	21	90	28	175	193	224	92	70	32
Royal Oak	MI	57	-83.1574	42.5074	79	93	132	86	20	86	21	97	29	128	191	227	95	80	22
Saginaw	MI	57	-83.9485	43.4246	79	117	155	20	2	49	5	89	23	208	233	242	179	109	13
Southfield	MI	57	-83.26	42.4796	84	94	136	86	20	86	20	93	29	127	191	237	90	80	22
St. Clair Shores	MI	57	-82.8919	42.4957	61	82	111	72	18	85	21	100	34	126	179	202	129	92	35
Sterling Heights	MI	57	-83.0303	42.581	76	86	113	80	20	86	21	97	26	127	191	221	104	87	44
Taylor	MI	57	-83.2685	42.2256	84	86	123	84	20	87	25	93	32	129	167	213	92	82	32
Troy	MI	57	-83.1478	42.5789	82	99	133	85	20	89	21	97	28	173	193	226	93	71	22
Warren	MI	57	-83.0266	42.4927	72	86	113	80	20	86	21	97	27	127	191	223	108	87	43
Westland	MI	57	-83.4012	42.3111	85	89	130	86	20	87	25	93	29	126	188	234	89	79	28
Green Bay	WI	59	-88.0125	44.5234	59	68	92	5	0	6	0	6	0	171	182	185	216	206	182
Appleton	WI	60	-88.4024	44.2708	69	91	115	5	0	5	0	7	0	176	183	191	206	184	158
Oshkosh	WI	60	-88.5602	44.0179	69	84	152	5	0	5	0	16	0	171	188	193	206	191	112
Bangor	MI	62	-86.1147	42.309	106	175	194	11	0	19	0	27	0	154	170	183	163	86	59
Battle Creek	MI	62	-85.2147	42.3028	97	171	206	14	1	26	1	42	3	221	242	257	168	82	29
Grand Rapids	MI	62	-85.6599	42.9565	102	145	174	4	0	14	0	22	6	153	169	242	174	121	78
Kalamazoo	MI	62	-85.597	42.2741	104	173	207	16	0	25	0	34	1	135	214	238	160	82	38
Wyoming	MI	62	-85.7089	42.8987	97	151	171	3	0	13	0	21	6	155	164	239	180	116	82
Milwaukee	WI	63	-87.9672	43.0568	114	129	159	9	0	14	0	22	0	168	188	194	157	137	99
Racine	WI	63	-87.8178	42.726	117	139	162	12	0	19	0	33	0	180	184	194	151	122	85
Sheboygan	WI	63	-87.7303	43.7444	37	115	133	0	0	12	0	15	0	168	191	194	243	153	132
Waukesha	WI	63	-88.233	43.0115	119	141	167	11	0	14	0	31	0	173	189	194	150	125	82
West Allis	WI	63	-88.0224	43.006	115	130	166	11	0	14	0	31	0	173	188	194	154	136	83
Arlington Heights	IL	64	-87.9857	42.0933	132	150	176	26	0	27	0	38	0	159	186	193	122	103	66
Aurora	IL	64	-88.301	41.7728	116	152	174	12	0	32	0	39	0	165	172	188	152	96	67
Berwyn	IL	64	-87.791	41.8432	134	146	170	23	0	30	0	36	0	154	167	187	123	104	74
Bloomington	IL	64	-88.9718	40.4782	137	230	237	10	0	25	0	35	0	122	152	167	133	25	8
Bolingbrook	IL	64	-88.1024	41.6856	132	153	168	27	0	31	0	36	0	154	168	189	121	96	76
Chicago	IL	64	-87.732	41.8337	134	146	167	23	0	30	0	35	0	154	166	187	123	104	78
Cicero	IL	64	-87.7588	41.8437	134	146	167	23	0	30	0	35	0	154	166	187	123	104	78
Des Plaines	IL	64	-87.9048	42.0375	133	139	179	25	0	27	0	40	0	159	184	193	122	114	61
Elgin	IL	64	-88.2881	42.0449	111	148	178	15	0	29	0	39	0	162	187	192	154	103	63
Evanston	IL	64	-87.699	42.0454	136	139	174	23	0	26	0	39	0	154	179	191	121	115	67
Gary	IN	64	-87.3278	41.5886	127	150	173	23	0	28	0	40	7	156	166	185	130	102	60
Hammond	IN	64	-87.5074	41.6425	139	148	159	24	0	28	0	39	0	161	161	183	117	104	82
Janesville	WI	64	-89.0148	42.6831	110	136	169	2	0	7	0	23	0	168	182	194	168	137	88
Joliet	IL	64	-88.1109	41.5251	139	154	183	27	0	31	0	38	0	156	167	185	114	95	59
Kenosha	WI	64	-87.8798	42.588	117	155	164	13	0	31	0	33	0	179	188	193	150	94	83
Mount Prospect	IL	64	-87.9321	42.0623	134	141	179	25	0	28	0	39	0	159	184	193	121	111	62
Naperville	IL	64	-88.1601	41.7481	133	156	173	24	0	31	0	35	0	164	168	189	123	93	72

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					35 mi radius *	50 mi radius *	70 mi radius *	35 mi radius *		50 mi radius *		70 mi radius *		35 mi radius *	50 mi radius *	70 mi radius *			
			Longitude	Latitude	Chan 121-400	Chan 121-400	Chan 121-400	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 121-400			35 mi radius *	50 mi radius *	70 mi radius *
Oak Lawn	IL	64	-87.7596	41.7127	133	149	161	26	0	31	0	37	0	154	167	185	121	100	82
Oak Park	IL	64	-87.79	41.8871	133	146	179	25	0	30	0	42	0	154	172	191	122	104	59
Palatine	IL	64	-88.049	42.1084	132	151	176	26	0	27	0	38	0	164	186	193	122	102	66
Rockford	IL	64	-89.0498	42.2587	68	123	189	3	0	6	0	24	0	156	181	193	209	151	67
Schaumburg	IL	64	-88.0574	42.0325	132	145	179	26	0	28	0	40	0	160	184	193	122	107	61
Skokie	IL	64	-87.7447	42.0341	133	139	175	24	0	27	0	39	0	154	179	191	123	114	66
Waukegan	IL	64	-87.8847	42.3708	132	159	172	23	0	31	0	35	0	177	188	193	125	90	73
Elkhart	IN	65	-85.9578	41.6882	153	186	195	17	0	26	0	35	0	126	153	214	110	68	50
South Bend	IN	65	-86.269	41.6741	115	172	195	10	0	22	0	33	0	133	158	184	155	86	52
Fort Wayne	IN	66	-85.137	41.0649	132	162	209	13	0	17	0	44	1	158	204	228	135	101	26
Anderson	IN	67	-85.6754	40.0979	177	195	205	28	0	33	0	47	0	106	130	149	75	52	28
Bloomington	IN	67	-86.532	39.1649	118	176	214	18	0	22	0	37	0	134	174	185	144	82	29
Indianapolis city (remain	IN	67	-86.1328	39.7795	158	197	204	27	0	35	7	38	7	120	149	159	95	41	31
Muncie	IN	67	-85.3949	40.1933	135	191	211	21	0	31	0	58	0	106	138	157	124	58	11
Terre Haute	IN	67	-87.3768	39.4651	110	142	192	10	0	19	0	32	7	147	156	163	160	119	49
Champaign	IL	68	-88.2713	40.1203	92	190	205	9	0	15	0	34	0	122	154	165	179	75	41
Decatur	IL	68	-88.9185	39.8571	139	229	235	10	0	25	0	31	0	115	145	162	131	26	14
Evansville	IN	69	-87.5439	37.9916	113	140	203	2	0	5	0	62	10	133	154	163	165	135	5
Owensboro	KY	69	-87.1246	37.7612	111	129	169	3	0	4	5	61	5	135	168	173	166	142	45
Louisville	KY	70	-85.72	38.2144	145	155	196	12	0	14	0	25	0	151	167	192	123	111	59
Clarksville	TN	71	-87.3481	36.5602	125	178	198	63	10	69	15	69	20	116	146	155	82	18	(7)
Murfreesboro	TN	71	-86.404	35.8532	190	191	226	22	12	22	17	74	29	105	116	118	56	50	(49)
Nashville-Davidson (rem	TN	71	-86.7852	36.1866	175	193	203	22	10	69	17	69	27	110	116	146	73	1	(19)
Jackson	TN	73	-88.8389	35.6332	55	182	226	6	100	12	108	40	122	100	110	112	119	(22)	(108)
Memphis	TN	73	-90.025	35.1294	175	233	235	35	48	51	113	57	114	109	113	116	22	(117)	(126)
Decatur	AL	74	-86.9996	34.5793	162	184	210	21	0	24	6	60	12	91	103	114	97	66	(2)
Huntsville	AL	74	-86.6943	34.7014	165	182	213	21	5	26	5	58	13	88	105	116	89	67	(4)
Jackson	MS	77	-90.1979	32.2819	152	173	198	29	0	39	5	57	16	96	96	99	99	63	9
Birmingham	AL	78	-86.8501	33.5312	171	188	214	37	6	40	6	74	9	69	84	101	66	46	(17)
Hoover	AL	78	-86.8471	33.3503	172	185	207	40	6	40	6	75	8	69	100	101	62	49	(10)
Tuscaloosa	AL	78	-87.5027	33.2972	139	178	192	5	0	41	7	43	10	77	81	109	136	54	35
Montgomery	AL	79	-86.2713	32.3438	166	171	202	37	2	40	2	62	15	83	91	111	75	67	1
Mobile	AL	80	-88.0888	30.7018	165	192	211	32	0	47	0	63	7	74	101	103	83	41	(1)
Pensacola	FL	81	-87.1929	30.4474	154	188	210	28	1	40	2	59	3	72	79	97	97	50	8
Gulfport	MS	82	-89.0687	30.4216	131	172	216	40	5	44	5	105	10	84	109	121	104	59	(51)
Kenner	LA	83	-90.2508	30.0102	175	195	215	80	0	92	10	100	11	109	120	121	25	(17)	(46)
New Orleans	LA	83	-89.8826	30.033	166	189	211	72	0	83	5	100	10	108	117	123	42	3	(41)
Baton Rouge	LA	84	-91.1115	30.4571	169	185	218	41	10	67	17	99	17	88	99	119	60	11	(54)
Lafayette	LA	85	-92.0385	30.2173	111	161	225	24	7	30	7	69	17	104	107	109	138	82	(31)
Lake Charles	LA	86	-93.1994	30.2152	151	205	236	28	0	36	0	78	0	73	97	109	101	39	(34)
Beaumont	TX	87	-94.1291	30.081	158	195	233	41	0	44	0	72	0	82	118	132	81	41	(25)
Port Arthur	TX	87	-93.9419	29.8079	165	223	232	39	0	46	0	50	5	82	96	123	76	11	(7)
Shreveport	LA	88	-93.7515	32.4796	191	218	233	31	0	35	5	58	18	83	88	119	58	22	(29)
Monroe	LA	89	-92.025	32.519	167	189	206	27	2	32	12	64	22	83	90	103	84	47	(12)
Little Rock	AR	90	-92.3253	34.7235	185	203	218	28	20	35	30	104	37	87	92	109	47	12	(79)
North Little Rock	AR	90	-92.255	34.7915	190	202	218	27	20	35	33	104	37	87	92	107	43	10	(79)
Pine Bluff	AR	90	-92.0131	34.2118	177	199	207	23	23	43	27	51	44	94	102	107	57	11	(22)
Fort Smith	AR	91	-94.3694	35.3647	105	170	199	16	15	20	18	31	18	112	118	126	144	72	32
Springfield	MO	94	-93.2993	37.1766	72	90	158	13	0	16	0	28	0	86	112	124	195	174	94
Jonesboro	AR	95	-90.6687	35.8194	92	198	266	16	24	45	59	100	78	103	111	113	148	(22)	(164)
St. Louis	MO	96	-90.2435	38.6531	190	198	218	32	0	32	5	41	5	106	128	148	58	45	16
Springfield	IL	97	-89.5878	39.7638	103	201	250	13	0	21	0	42	0	102	147	156	164	58	(12)
Columbia	MO	98	-92.3314	38.9542	75	89	104	5	0	5	0	5	0	108	112	118	200	186	171
Independence	MO	99	-94.3489	39.0788	139	162	162	13	0	17	0	18	0	144	148	149	128	101	100
Kansas City	MO	99	-94.5763	39.0922	143	160	163	17	0	18	0	19	0	140	149	193	120	102	98
Kansas City	KS	99	-94.7492	39.1227	143	160	163	18	0	18	0	19	0	141	161	193	119	102	98

Table 2 - Channel Deficit or Surplus for All Cities Over 50,000 Population

City Name	State	BEA #	City Center		Non-Nextel Site-Specific Incumbents within			Non-Nextel Site-Specific Licensees Move-in within						Nextel Site-Specific Licensed Channels within			Site-Specific Channel Deficit or Surplus within Channels 121-400		
					35 mi radius *	50 mi radius *	70 mi radius *	35 mi radius *		50 mi radius *		70 mi radius *		35 mi radius *	50 mi radius *	70 mi radius *			
			Longitude	Latitude	Chan 121-400	Chan 121-400	Chan 121-400	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 121-400			35 mi radius *	50 mi radius *	70 mi radius *
Lawrence	KS	99	-95.2617	38.9748	74	146	161	5	0	15	0	19	0	193	193	193	201	119	100
Lee's Summit	MO	99	-94.3941	38.9256	144	149	163	16	0	17	0	18	0	144	147	149	120	114	99
Olathe	KS	99	-94.7987	38.8841	143	143	164	17	0	18	0	19	0	146	161	193	120	119	97
Overland Park	KS	99	-94.6753	38.9348	143	147	164	17	0	18	0	19	0	141	149	193	120	115	97
St. Joseph	MO	99	-94.8214	39.7591	61	157	169	5	0	15	0	19	0	128	161	193	214	108	92
Ames	IA	100	-93.6275	42.0183	155	189	210	4	5	4	5	9	10	122	122	142	116	82	51
Des Moines	IA	100	-93.6181	41.5797	158	168	192	3	5	3	5	4	5	112	127	142	114	104	79
Waterloo	IA	100	-92.3431	42.4963	91	155	197	0	0	9	15	12	25	101	136	162	189	101	46
Peoria	IL	101	-89.6215	40.748	135	222	257	5	0	13	0	21	0	103	146	161	140	45	2
Davenport	IA	102	-90.589	41.541	126	170	242	7	0	7	0	18	5	109	151	187	147	103	15
Cedar Rapids	IA	103	-91.6607	41.9644	124	153	211	9	5	9	10	9	10	108	136	172	142	108	50
Iowa City	IA	103	-91.5364	41.6457	133	155	221	8	5	8	5	13	10	105	152	172	134	112	36
Dubuque	IA	104	-90.6983	42.5064	82	124	214	0	0	0	5	13	15	129	174	189	198	151	38
Madison	WI	104	-89.4084	43.0894	102	115	144	3	0	3	0	5	0	153	169	188	175	162	131
Bangor	WI	105	-90.9906	43.8935	77	100	130	1	0	1	5	5	10	146	146	159	202	174	135
La Crosse	WI	105	-91.2268	43.8097	83	108	134	1	5	1	5	6	10	144	156	159	191	166	130
Rochester	MN	106	-92.4679	43.9909	85	149	250	4	10	15	10	63	42	115	116	166	181	106	(75)
Bloomington	MN	107	-93.2982	44.8243	195	211	233	60	27	62	32	63	42	108	123	123	(2)	(25)	(58)
Brooklyn Park	MN	107	-93.3405	45.1088	189	203	220	57	32	61	32	62	37	107	122	124	2	(16)	(39)
Burnsville	MN	107	-93.2757	44.7732	195	210	230	60	27	62	32	63	42	108	123	123	(2)	(24)	(55)
Coon Rapids	IA	107	-93.3198	45.1653	189	203	220	57	32	59	32	62	37	113	122	124	2	(14)	(39)
Eagan	MN	107	-93.167	44.8188	193	210	230	59	27	62	37	63	42	108	123	123	1	(29)	(55)
Eau Claire	WI	107	-91.5018	44.82	41	46	134	4	0	5	0	7	5	148	158	164	235	229	134
Eden Prairie	MN	107	-93.4598	44.8454	196	208	227	59	27	62	32	63	49	108	123	123	(2)	(22)	(59)
Maple Grove	MN	107	-93.4617	45.1085	188	200	224	56	32	62	32	62	44	113	122	124	4	(14)	(50)
Minneapolis	MN	107	-93.2614	44.9707	194	208	217	57	32	61	32	62	37	108	123	124	(3)	(21)	(36)
Minnetonka	MN	107	-93.4612	44.935	196	206	224	56	27	62	32	62	44	108	123	124	1	(20)	(50)
Plymouth	WI	107	-93.4614	45.0222	196	201	224	56	32	62	32	62	44	114	123	124	(4)	(15)	(50)
St. Paul	MN	107	-93.1061	44.9398	193	203	217	57	27	61	32	62	37	110	122	123	3	(16)	(36)
Duluth	MN	109	-92.1109	46.765	13	13	15	5	0	7	0	7	2	178	180	180	262	260	256
Fargo	ND	113	-96.8184	46.8679	46	53	93	0	21	0	26	9	67	105	105	169	213	201	111
Rapid City	SD	115	-103.238	44.0754	68	73	77	0	0	0	0	0	0	9	9	9	212	207	203
Sioux Falls	SD	116	-96.7389	43.546	84	100	140	0	0	0	5	3	10	94	110	110	196	175	127
Sioux City	IA	117	-96.3582	42.4722	66	92	155	2	0	3	10	4	10	95	97	149	212	175	111
Council Bluffs	IA	118	-95.8515	41.2327	125	152	179	12	10	20	10	21	15	123	148	155	133	98	65
Omaha	NE	118	-96.0408	41.2918	135	163	175	13	5	21	10	21	15	124	145	155	127	86	69
Lincoln	NE	119	-96.6992	40.8103	115	159	167	9	10	21	15	21	15	138	148	155	146	85	77
Wichita	KS	122	-97.3441	37.6797	94	104	117	14	0	14	0	14	0	147	152	166	172	162	149
Topeka	KS	123	-95.7008	39.0391	23	43	150	2	0	6	0	14	0	184	189	193	255	231	116
Broken Arrow	OK	124	-95.7617	36.0112	154	178	212	1	0	11	0	24	0	128	148	159	125	91	44
Tulsa	OK	124	-95.8976	36.1451	159	176	207	1	0	2	0	12	0	116	148	168	120	102	61
Edmond	OK	125	-97.4072	35.6672	107	136	184	8	0	11	0	22	0	154	160	168	165	133	74
Lawton	OK	125	-98.4254	34.5907	115	149	184	58	5	94	5	116	5	100	113	158	102	32	(25)
Midwest City	OK	125	-97.3577	35.474	104	133	185	7	0	19	0	25	0	155	162	168	169	128	70
Norman	OK	125	-97.3623	35.2469	99	129	184	7	0	18	0	25	0	158	158	176	174	133	71
Oklahoma City	OK	125	-97.4789	35.4826	106	136	185	7	0	12	0	25	0	153	158	167	167	132	70
Arlington	TX	127	-97.1355	32.6979	135	138	186	30	0	33	5	69	5	159	162	163	115	104	20
Carrollton	TX	127	-96.8986	32.9891	140	160	170	33	0	58	5	69	5	151	161	164	107	57	36
Dallas	TX	127	-96.7317	32.8212	133	153	174	27	0	58	5	69	5	156	162	165	120	64	32
Denton	TX	127	-97.1397	33.2386	157	161	192	55	5	59	5	74	5	151	155	164	63	55	9
Fort Worth	TX	127	-97.2914	32.7831	129	142	174	29	0	37	5	70	5	159	162	163	122	96	31
Garland	TX	127	-96.6049	32.9079	130	158	210	27	0	58	0	74	5	152	162	164	123	64	(9)
Grand Prairie	TX	127	-97.0024	32.6576	135	135	180	30	0	30	5	60	5	161	162	163	115	110	35
Irving	TX	127	-96.9615	32.8628	135	158	165	30	0	58	5	62	5	156	162	164	115	59	48
Killeen	TX	127	-97.7316	31.0972	110	182	206	4	0	17	15	19	15	113	126	137	166	66	40
Lewisville	TX	127	-96.973	33.043	146	159	168	33	5	58	5	62	5	151	161	164	96	58	45

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					35 mi radius *	50 mi radius *	70 mi radius *	35 mi radius *		50 mi radius *		70 mi radius *		35 mi radius *	50 mi radius *	70 mi radius *			
			Longitude	Latitude	Chan 121-400	Chan 121-400	Chan 121-400	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 121-400			35 mi radius *	50 mi radius *	70 mi radius *
Longview	TX	127	-94.7534	32.5066	121	137	225	16	0	21	10	59	18	107	119	126	143	112	(22)
McKinney	TX	127	-96.6534	33.2091	150	156	210	56	0	60	0	73	5	148	154	179	74	64	(8)
Mesquite	TX	127	-96.6018	32.7666	130	144	196	27	0	33	0	68	5	161	163	164	123	103	11
North Richland Hills	TX	127	-97.2251	32.8601	130	158	169	30	5	57	5	71	5	159	162	164	115	60	35
Plano	TX	127	-96.7365	33.0604	152	155	184	58	0	58	5	73	5	148	161	179	70	62	18
Richardson	TX	127	-96.6911	32.964	137	155	190	30	0	58	0	73	5	151	161	179	113	67	12
Temple	TX	127	-97.387	31.0974	121	195	213	4	0	17	15	20	25	117	125	138	155	53	22
Tyler	TX	127	-95.2904	32.3325	119	144	159	9	0	34	5	34	18	110	124	139	152	97	69
Waco	TX	127	-97.1876	31.5534	95	152	196	2	0	2	0	7	0	97	142	163	183	126	77
Wichita Falls	TX	127	-98.523	33.9159	92	150	159	62	5	78	5	117	10	49	76	152	121	47	(6)
Abilene	TX	128	-99.7471	32.4876	104	124	143	70	0	103	0	104	5	117	120	130	106	53	28
San Angelo	TX	129	-100.453	31.4411	99	114	163	0	13	28	16	113	41	113	130	137	168	122	(37)
Austin	TX	130	-97.7558	30.2979	132	199	222	18	15	78	15	80	25	120	135	145	115	(12)	(47)
Baytown	TX	131	-94.9546	29.7431	160	194	208	26	10	40	10	53	15	140	149	149	84	36	4
Bryan	TX	131	-96.3597	30.665	130	164	214	1	10	5	10	30	25	106	135	148	139	101	11
College Station	TX	131	-96.2946	30.603	135	173	214	2	10	8	15	30	25	109	136	148	133	84	11
Galveston	TX	131	-94.8733	29.2333	150	176	207	24	10	26	10	52	10	140	148	149	96	68	11
Houston	TX	131	-95.4628	29.824	157	173	205	24	10	27	10	30	25	141	147	151	89	70	20
Missouri City	TX	131	-95.5341	29.5743	144	169	203	24	10	29	10	29	25	142	148	155	102	72	23
Pasadena	TX	131	-95.1592	29.6488	157	169	203	26	10	26	10	49	15	140	149	149	87	75	13
Victoria	TX	131	-96.9672	28.8295	90	92	171	1	0	2	0	15	10	132	137	143	189	186	84
Corpus Christi	TX	132	-97.3897	27.7	152	179	215	7	5	78	5	102	24	111	123	178	116	18	(61)
Brownsville	TX	133	-97.4704	25.9408	87	102	112	0	40	0	45	0	45	95	98	100	153	133	123
Harlingen	TX	133	-97.6869	26.1869	97	112	208	0	45	0	45	76	51	95	100	150	138	123	(55)
McAllen	TX	133	-98.2586	26.206	93	108	201	0	35	0	46	76	51	100	100	155	152	126	(48)
Laredo	TX	134	-99.4705	27.5577	54	64	108	0	19	0	20	23	34	100	100	127	207	196	115
San Antonio	TX	134	-98.4933	29.4811	197	214	253	69	10	72	10	89	37	104	140	165	4	(16)	(99)
Midland	TX	135	-102.126	32.0289	105	188	228	12	0	21	5	45	16	89	120	140	163	66	(9)
Odessa	TX	135	-102.343	31.8782	119	178	227	16	5	20	8	49	13	111	115	139	140	74	(9)
Lubbock	TX	137	-101.887	33.5915	131	160	192	19	0	19	0	24	0	96	124	133	130	101	64
Amarillo	TX	138	-101.798	35.202	48	67	137	10	0	12	0	33	0	84	115	126	222	201	110
Santa Fe	NM	139	-105.983	35.683	128	149	156	7	0	9	0	9	0	105	122	122	145	122	115
Pueblo	CO	140	-104.591	38.2698	81	92	99	2	0	2	0	5	5	152	163	174	197	186	171
Arvada	CO	141	-105.095	39.8338	169	182	186	36	0	37	0	38	0	138	155	179	75	61	56
Aurora	CO	141	-104.687	39.7069	141	176	186	13	0	37	0	38	5	141	156	183	126	67	51
Boulder	CO	141	-105.254	40.022	182	182	183	37	0	37	0	37	0	143	151	159	61	61	60
Colorado Springs	CO	141	-104.756	38.8751	90	131	169	2	0	11	0	35	5	161	176	180	188	138	71
Denver	CO	141	-104.955	39.7643	163	182	186	36	0	37	0	38	0	136	157	182	81	61	56
Fort Collins	CO	141	-105.068	40.5595	62	124	182	5	0	27	0	37	0	143	154	157	213	129	61
Greeley	CO	141	-104.754	40.4331	77	173	182	22	0	34	0	37	5	138	155	156	181	73	56
Lakewood	CO	141	-105.126	39.6983	163	181	186	36	0	36	0	38	0	136	154	182	81	63	56
Longmont	CO	141	-105.109	40.1672	173	182	182	34	0	37	0	37	0	143	149	159	73	61	61
Loveland	CO	141	-105.1	40.4146	91	179	182	25	0	34	0	37	0	132	154	157	164	67	61
Thornton	CO	141	-104.949	39.9157	174	182	185	36	0	37	0	37	5	140	155	180	70	61	53
Westminster	CO	141	-105.068	39.8937	169	182	186	36	0	37	0	38	0	138	153	179	75	61	56
Cheyenne	WY	143	-104.795	41.1486	31	49	83	0	0	2	0	5	0	128	135	149	249	229	192
Billings	MT	144	-108.474	45.7927	94	94	95	14	0	14	0	14	0	11	11	11	172	172	171
Spokane	WA	147	-117.412	47.6728	86	88	116	7	0	10	0	16	8	123	123	165	187	182	140
Boise City	ID	150	-116.231	43.6006	103	135	135	6	0	7	0	7	0	98	108	112	171	138	138
Carson City	NV	151	-119.776	39.1678	177	180	187	14	0	17	0	35	0	102	108	165	89	83	58
Reno	NV	151	-119.819	39.5134	176	180	189	14	0	17	0	25	0	103	103	138	90	83	66
Sparks	NV	151	-119.737	39.5553	174	179	183	14	0	15	0	22	0	103	103	135	92	86	75
Layton	UT	152	-111.968	41.0771	141	170	179	6	0	6	0	6	0	155	155	160	133	104	95
Ogden	UT	152	-111.973	41.223	143	158	178	6	0	6	0	6	0	154	155	160	131	116	96
Orem	UT	152	-111.692	40.2961	150	152	174	6	0	6	0	6	0	134	145	161	124	122	100
Provo	UT	152	-111.643	40.2582	149	152	174	6	0	6	0	6	0	134	145	161	125	122	100

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					35 mi radius *	50 mi radius *	70 mi radius *	35 mi radius *		50 mi radius *		70 mi radius *		35 mi radius *	50 mi radius *	70 mi radius *			
			Longitude	Latitude	Chan 121-400	Chan 121-400	Chan 121-400	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 121-400			35 mi radius *	50 mi radius *	70 mi radius *
Salt Lake City	UT	152	-111.92	40.7766	159	163	180	6	0	6	0	6	0	150	155	161	115	111	94
Sandy	UT	152	-111.854	40.5711	151	163	179	6	0	6	0	6	0	140	150	161	123	111	95
West Jordan	UT	152	-111.997	40.603	149	164	179	6	0	6	0	6	0	145	150	160	125	110	95
West Valley City	UT	152	-112.007	40.6822	159	164	179	6	0	6	0	6	0	150	155	160	115	110	95
Henderson	NV	153	-115.029	36.0457	180	196	220	67	5	70	5	84	5	113	157	164	28	9	(29)
Las Vegas	NV	153	-115.24	36.2333	177	183	204	67	5	67	5	73	5	113	156	163	31	25	(2)
North Las Vegas	NV	153	-115.137	36.2605	177	183	204	67	5	67	5	73	5	122	156	163	31	25	(2)
Flagstaff	AZ	154	-111.608	35.1812	83	100	108	21	0	21	0	23	0	44	72	92	176	159	149
Albuquerque	NM	156	-106.654	35.0824	121	137	153	5	0	7	0	17	0	117	117	150	154	136	110
El Paso	TX	157	-106.444	31.8109	65	65	72	0	4	0	4	0	4	120	120	225	211	211	204
Las Cruces	NM	157	-106.767	32.3308	65	65	81	0	4	0	4	2	5	120	225	230	211	211	192
Chandler	AZ	158	-111.881	33.2821	138	147	236	33	0	36	0	37	36	157	171	268	109	97	(29)
Gilbert	AZ	158	-111.764	33.3171	133	147	237	33	0	37	0	46	35	157	161	268	114	96	(38)
Glendale	AZ	158	-112.186	33.603	132	150	173	37	0	37	0	37	0	161	171	213	111	93	70
Mesa	AZ	158	-111.737	33.3955	133	152	228	33	0	37	0	46	29	157	162	263	114	91	(23)
Peoria	AZ	158	-112.239	33.6961	133	146	173	37	0	37	0	37	0	161	193	213	110	97	70
Phoenix	AZ	158	-112.125	33.5477	132	152	181	37	0	37	0	37	0	165	171	216	111	91	62
Scottsdale	AZ	158	-111.858	33.6741	141	160	168	34	0	37	0	37	0	153	172	172	105	83	75
Tempe	AZ	158	-111.928	33.3921	134	152	224	33	0	37	0	37	29	157	171	263	113	91	(10)
Tucson	AZ	159	-110.891	32.1715	118	137	192	11	48	11	48	27	48	197	238	265	103	84	13
Alhambra	CA	160	-118.137	34.0856	174	195	263	75	15	80	18	81	43	129	178	239	16	(13)	(107)
Anaheim	CA	160	-117.712	33.8352	201	245	308	78	13	78	42	80	54	190	226	263	(12)	(85)	(162)
Apple Valley	CA	160	-117.218	34.5367	117	178	263	40	5	51	10	81	36	120	148	227	118	41	(100)
Arcadia	CA	160	-118.031	34.1334	179	208	277	79	15	80	23	80	48	132	182	244	7	(31)	(125)
Bakersfield	CA	160	-119.019	35.3502	111	144	193	27	0	34	1	85	26	121	160	190	142	101	(24)
Baldwin Park	CA	160	-117.975	34.0812	177	219	291	78	15	80	33	80	51	135	187	245	10	(52)	(142)
Bellflower	CA	160	-118.129	33.888	184	210	286	75	15	80	29	81	46	166	188	249	6	(39)	(133)
Buena Park	CA	160	-118.006	33.8527	192	228	291	79	3	80	34	80	51	169	213	255	6	(62)	(142)
Burbank	CA	160	-118.325	34.1821	150	192	236	70	15	80	18	82	34	131	174	230	45	(10)	(72)
Carson	CA	160	-118.247	33.8395	174	194	264	75	0	80	18	82	39	129	173	247	31	(12)	(105)
Cerritos	CA	160	-118.069	33.8669	190	220	292	79	3	80	34	80	50	169	197	254	8	(54)	(142)
Chino	CA	160	-117.682	34.0062	183	236	299	78	15	78	39	80	53	159	214	253	4	(73)	(152)
Chino Hills	CA	160	-117.729	33.9473	200	237	302	78	25	78	41	80	53	180	225	257	(23)	(76)	(155)
Compton	CA	160	-118.222	33.8932	177	194	265	76	15	80	18	81	42	129	173	236	12	(12)	(108)
Corona	CA	160	-117.567	33.8639	178	246	302	64	13	78	43	80	58	179	234	266	25	(87)	(160)
Costa Mesa	CA	160	-117.91	33.6637	193	251	296	70	14	79	34	80	53	174	230	258	3	(84)	(149)
Diamond Bar	CA	160	-117.815	34.0006	181	228	294	78	15	79	34	80	51	152	210	245	6	(61)	(145)
Downey	CA	160	-118.13	33.9377	184	210	286	75	15	80	29	81	46	166	188	249	6	(39)	(133)
El Monte	CA	160	-118.035	34.0712	181	208	285	79	15	80	23	80	50	135	181	241	5	(31)	(135)
Fontana	CA	160	-117.409	34.1069	158	243	297	63	5	78	38	79	57	136	216	261	54	(79)	(153)
Fountain Valley	CA	160	-117.948	33.7097	189	220	296	78	3	79	29	80	53	172	226	258	10	(48)	(149)
Fullerton	CA	160	-117.925	33.8888	189	230	297	78	18	79	34	80	51	169	222	252	(5)	(63)	(148)
Garden Grove	CA	160	-117.969	33.7691	188	228	296	78	3	80	34	80	52	169	215	256	11	(62)	(148)
Gardena	CA	160	-118.308	33.8908	172	194	261	73	15	80	18	82	39	131	173	232	20	(12)	(102)
Glendale	CA	160	-118.245	34.1929	172	191	236	75	15	80	15	82	34	129	174	237	18	(6)	(72)
Glendora	CA	160	-117.841	34.1442	188	231	286	78	20	79	33	80	48	139	187	248	(6)	(63)	(134)
Hawthorne	CA	160	-118.346	33.9139	151	192	261	70	15	80	18	82	39	131	173	232	44	(10)	(102)
Hemet	CA	160	-116.991	33.7293	202	275	307	55	27	69	39	70	60	225	244	258	(4)	(103)	(157)
Hesperia	CA	160	-117.323	34.3893	155	190	287	48	5	64	20	81	44	121	147	248	72	6	(132)
Huntington Beach	CA	160	-118.012	33.6918	188	219	288	78	3	80	29	80	53	169	223	256	11	(48)	(141)
Huntington Park	CA	160	-118.214	33.979	177	194	265	76	15	80	18	81	42	128	174	236	12	(12)	(108)
Inglewood	CA	160	-118.348	33.9536	151	192	261	70	15	80	18	82	39	131	173	235	44	(10)	(102)
Irvine	CA	160	-117.784	33.6655	191	264	299	69	14	79	41	80	53	180	234	257	6	(104)	(152)
La Habra	CA	160	-117.948	33.9261	189	229	297	78	18	79	34	80	51	169	216	252	(5)	(62)	(148)
Laguna Niguel	CA	160	-117.707	33.5287	191	271	301	62	14	78	30	80	55	198	248	257	13	(99)	(156)
Lake Forest	CA	160	-117.683	33.6441	202	270	301	64	14	78	46	80	55	204	235	262	0	(114)	(156)

Table 2 - Channel Deficit or Surplus for All Cities Over 50,000 Population

City Name	State	BEA #	City Center		Non-Nextel Site-Specific Incumbents within			Non-Nextel Site-Specific Licensees Move-in within						Nextel Site-Specific Licensed Channels within			Site-Specific Channel Deficit or Surplus within Channels 121-400		
					35 mi radius *	50 mi radius *	70 mi radius *	35 mi radius *		50 mi radius *		70 mi radius *		35 mi radius *	50 mi radius *	70 mi radius *			
			Longitude	Latitude	Chan 121-400	Chan 121-400	Chan 121-400	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 121-400			35 mi radius *	50 mi radius *	70 mi radius *
Lakewood	CA	160	-118.113	33.8447	186	220	285	76	0	80	34	81	46	167	197	254	18	(54)	(132)
Lancaster	CA	160	-118.132	34.7005	118	211	243	72	15	84	15	90	20	138	158	175	75	(30)	(73)
Long Beach	CA	160	-118.12	33.7913	184	210	277	75	0	80	29	81	47	166	188	256	21	(39)	(125)
Los Angeles	CA	160	-118.412	34.0205	150	182	224	70	15	76	15	82	34	129	172	209	45	7	(60)
Lynwood	CA	160	-118.203	33.9253	177	194	265	76	15	80	18	81	42	128	173	233	12	(12)	(108)
Mission Viejo	CA	160	-117.657	33.6032	195	277	302	64	14	78	31	80	55	202	247	261	7	(106)	(157)
Montebello	CA	160	-118.109	34.0104	179	218	279	76	15	80	34	81	46	144	189	242	10	(52)	(126)
Monterey Park	CA	160	-118.132	34.0494	176	208	280	75	15	80	28	81	46	132	179	242	14	(36)	(127)
Moreno Valley	CA	160	-117.192	33.9218	183	224	322	63	17	65	32	81	59	174	237	266	17	(41)	(182)
Newport Beach	CA	160	-117.914	33.6036	191	251	296	69	14	79	19	80	53	172	230	257	6	(69)	(149)
Norwalk	CA	160	-118.077	33.9072	190	220	292	79	18	80	34	80	50	169	195	249	(7)	(54)	(142)
Ontario	CA	160	-117.604	34.0489	180	237	299	64	20	78	38	79	53	146	214	254	16	(73)	(151)
Orange	CA	160	-117.824	33.8105	189	231	306	78	3	79	37	80	52	181	225	257	10	(67)	(158)
Oxnard	CA	160	-119.225	34.1827	65	133	186	11	0	25	5	74	25	109	130	162	204	117	(5)
Palmdale	CA	160	-118.102	34.5881	124	208	246	72	15	81	20	90	20	131	152	191	69	(29)	(76)
Paramount	CA	160	-118.165	33.8991	177	207	276	75	15	80	29	81	42	166	188	249	13	(36)	(119)
Pasadena	CA	160	-118.101	34.1845	176	208	253	76	15	80	20	81	38	130	180	239	13	(28)	(92)
Pico Rivera	CA	160	-118.087	33.987	182	218	288	79	15	80	34	80	50	169	197	242	4	(52)	(138)
Pomona	CA	160	-117.77	34.0656	190	222	298	78	20	79	33	80	51	143	198	251	(8)	(54)	(149)
Rancho Cucamonga	CA	160	-117.558	34.1243	161	239	299	64	20	78	38	80	57	132	214	263	35	(75)	(156)
Redlands	CA	160	-117.148	34.0527	167	217	324	63	5	64	28	81	59	156	221	268	45	(29)	(184)
Redondo Beach	CA	160	-118.384	33.8547	150	181	253	70	0	76	15	82	39	129	172	217	60	8	(94)
Rialto	CA	160	-117.389	34.1034	158	239	297	63	5	65	38	79	57	136	212	261	54	(62)	(153)
Riverside	CA	160	-117.4	33.9497	177	248	300	63	14	78	42	79	58	174	235	263	26	(88)	(157)
Rosemead	CA	160	-118.082	34.0653	181	208	286	79	15	80	23	80	50	135	187	242	5	(31)	(136)
San Bernardino	CA	160	-117.285	34.1404	165	220	317	63	5	64	38	81	55	132	189	267	47	(42)	(173)
San Buenaventura (Vent	CA	160	-119.249	34.2705	72	121	204	9	0	25	5	82	10	107	131	173	199	129	(16)
Santa Ana	CA	160	-117.887	33.7381	200	239	301	78	14	79	37	80	52	186	224	258	(12)	(75)	(153)
Santa Barbara	CA	160	-119.703	34.3985	64	98	186	3	10	15	10	50	10	126	144	173	203	157	34
Santa Clarita	CA	160	-118.5	34.4023	154	181	232	67	15	77	15	92	18	132	140	206	44	7	(62)
Santa Maria	CA	160	-120.419	34.9321	85	122	145	9	10	21	10	23	10	124	142	157	176	127	102
Santa Monica	CA	160	-118.498	34.0085	152	179	211	68	15	76	15	82	29	130	134	200	45	10	(42)
Simi Valley	CA	160	-118.73	34.2657	133	161	207	69	0	71	15	86	15	131	135	196	78	33	(28)
South Gate	CA	160	-118.194	33.9382	175	194	276	75	15	80	18	81	42	140	174	236	15	(12)	(119)
Temecula	CA	160	-117.132	33.5012	225	258	325	58	33	64	39	81	61	216	251	270	(36)	(81)	(187)
Thousand Oaks	CA	160	-118.893	34.1879	105	161	193	35	0	70	15	79	20	121	136	160	140	34	(12)
Torrance	CA	160	-118.351	33.8335	151	190	254	70	0	77	15	82	39	129	171	229	59	(2)	(95)
Tustin	CA	160	-117.802	33.7354	199	239	301	78	14	79	38	80	52	191	227	257	(11)	(76)	(153)
Upland	CA	160	-117.662	34.119	189	239	300	78	20	78	38	80	52	143	214	255	(7)	(75)	(152)
Victorville	CA	160	-117.361	34.5272	117	205	274	39	5	64	20	81	40	120	148	224	119	(9)	(115)
West Covina	CA	160	-117.913	34.0471	177	220	291	78	15	79	33	80	51	140	195	246	10	(52)	(142)
Westminster	CA	160	-117.994	33.7469	188	219	298	78	3	80	29	80	52	169	216	258	11	(48)	(150)
Whittier	CA	160	-118.019	33.9669	182	219	290	79	15	80	34	80	51	169	199	242	4	(53)	(141)
Yorba Linda	CA	160	-117.765	33.8897	200	244	302	78	28	79	42	80	52	179	226	257	(26)	(85)	(154)
Yuma	AZ	160	-114.625	32.6791	106	106	145	0	74	0	75	1	96	63	97	203	100	99	38
Carlsbad	CA	161	-117.291	33.122	203	247	320	50	33	59	35	81	41	224	240	270	(6)	(61)	(162)
Chula Vista	CA	161	-117.027	32.6309	91	133	230	0	31	2	35	51	35	109	152	247	158	110	(36)
El Cajon	CA	161	-116.954	32.7989	102	143	298	0	35	3	35	65	41	117	204	251	143	99	(124)
Encinitas	CA	161	-117.257	33.0442	145	220	305	3	33	57	35	73	41	184	243	254	99	(32)	(139)
Escondido	CA	161	-117.071	33.1344	195	248	319	48	34	60	40	81	41	206	244	270	3	(68)	(161)
La Mesa	CA	161	-117.018	32.7698	97	148	284	0	31	3	35	66	41	117	190	251	152	94	(111)
National City	CA	161	-117.1	32.6482	91	133	265	0	31	2	35	57	36	109	152	251	158	110	(78)
Oceanside	CA	161	-117.317	33.226	204	254	320	51	32	61	35	81	41	227	241	268	(7)	(70)	(162)
Poway	CA	161	-117.013	32.9968	135	249	295	1	35	55	36	67	41	152	245	251	109	(60)	(123)
San Diego	CA	161	-117.109	32.8246	109	156	285	0	35	4	35	66	41	117	199	253	136	85	(112)
San Marcos	CA	161	-117.171	33.1343	195	248	317	49	33	60	40	81	41	224	244	270	3	(68)	(159)

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					35 mi radius *	50 mi radius *	70 mi radius *	35 mi radius *		50 mi radius *		70 mi radius *		35 mi radius *	50 mi radius *	70 mi radius *			
			Longitude	Latitude	Chan 121-400	Chan 121-400	Chan 121-400	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 121-400			35 mi radius *	50 mi radius *	70 mi radius *
Santee	CA	161	-116.988	32.8581	109	148	287	0	35	3	35	66	41	117	203	251	136	94	(114)
Vista	CA	161	-117.241	33.1851	200	249	315	49	32	61	40	81	41	225	243	270	(1)	(70)	(157)
Clovis	CA	162	-119.694	36.821	58	108	126	19	0	38	15	50	16	162	175	180	203	119	88
Fresno	CA	162	-119.795	36.7827	56	101	128	19	0	38	15	51	16	168	176	182	205	126	85
Visalia	CA	162	-119.327	36.3149	64	79	163	17	4	34	4	57	8	165	173	183	195	163	52
Alameda	CA	163	-122.282	37.7541	146	161	174	32	0	40	0	48	0	136	153	169	102	79	58
Antioch	CA	163	-121.797	37.9811	139	171	176	28	0	46	0	49	0	150	170	178	113	63	55
Berkeley	CA	163	-122.301	37.8708	154	159	174	34	0	41	0	48	0	144	151	169	92	80	58
Concord	CA	163	-121.999	37.9735	142	170	172	33	0	46	0	47	0	135	163	173	105	64	61
Daly City	CA	163	-122.483	37.6787	143	158	173	33	0	39	0	48	0	134	149	167	104	83	59
Fairfield	CA	163	-122.078	38.2326	145	165	176	29	0	42	0	51	0	145	164	172	106	73	53
Fremont	CA	163	-121.943	37.5294	159	164	174	38	0	44	0	48	0	148	160	174	83	72	58
Hayward	CA	163	-122.071	37.6179	152	168	174	34	0	44	0	49	0	136	162	171	94	68	57
Livermore	CA	163	-121.773	37.6793	139	169	177	32	0	44	0	53	0	148	164	178	109	67	50
Lodi	CA	163	-121.279	38.128	107	160	202	7	0	27	0	55	0	168	177	195	166	93	23
Merced	CA	163	-120.42	37.2841	56	89	170	15	8	28	8	55	12	161	178	191	201	155	43
Milpitas	CA	163	-121.885	37.4315	159	164	174	38	0	44	0	50	0	149	160	172	83	72	56
Modesto	CA	163	-120.996	37.651	66	112	186	11	0	24	0	52	8	157	177	194	203	144	34
Mountain View	CA	163	-122.081	37.4132	151	164	173	34	0	44	0	47	0	138	157	170	95	72	60
Napa	CA	163	-122.307	38.2886	133	152	175	28	0	36	0	50	0	146	153	166	119	92	55
Novato	CA	163	-122.552	38.0931	139	155	166	26	0	37	0	47	0	146	149	159	115	88	67
Oakland	CA	163	-122.173	37.7585	146	169	174	32	0	43	0	48	0	136	165	169	102	68	58
Palo Alto	CA	163	-122.179	37.3816	151	163	171	34	0	40	0	47	0	137	156	165	95	77	62
Petaluma	CA	163	-122.633	38.2441	135	151	164	26	0	35	0	47	0	144	148	154	119	94	69
Pittsburg	CA	163	-121.911	38.0215	156	171	172	38	0	44	0	47	0	152	164	174	86	65	61
Pleasanton	CA	163	-121.878	37.6615	155	169	177	39	0	44	0	53	0	144	161	178	86	67	50
Redwood City	CA	163	-122.214	37.5081	152	155	173	34	0	39	0	48	0	142	144	169	94	86	59
Richmond	CA	163	-122.343	37.9553	150	156	171	33	0	40	0	46	0	145	151	169	97	84	63
Salinas	CA	163	-121.638	36.6865	102	139	166	12	0	27	0	42	0	133	150	170	166	114	72
San Francisco	CA	163	-122.447	37.8183	152	158	173	32	0	40	0	47	0	143	148	169	96	82	60
San Jose	CA	163	-121.875	37.297	160	164	175	36	0	42	0	50	0	150	159	175	84	74	55
San Leandro	CA	163	-122.166	37.7046	146	167	174	35	0	43	0	48	0	136	163	169	99	70	58
San Mateo	CA	163	-122.316	37.5565	152	158	174	34	0	39	0	48	0	136	146	168	94	83	58
San Rafael	CA	163	-122.514	37.9823	136	155	170	29	0	41	0	45	0	144	149	168	115	84	65
Santa Clara	CA	163	-121.968	37.3709	148	164	171	34	0	41	0	47	0	138	159	169	98	75	62
Santa Cruz	CA	163	-122.036	36.9759	112	160	167	24	0	36	0	42	0	135	152	166	144	84	71
Santa Rosa	CA	163	-122.676	38.4521	89	147	162	10	0	30	0	42	0	142	147	155	181	103	76
South San Francisco	CA	163	-122.346	37.6534	151	158	174	37	0	39	0	49	0	136	149	168	92	83	57
Stockton	CA	163	-121.289	37.9728	98	162	199	18	0	33	0	50	0	162	179	189	164	85	31
Sunnyvale	CA	163	-122.024	37.3972	152	164	171	34	0	42	0	47	0	138	159	168	94	74	62
Tracy	CA	163	-121.428	37.7291	113	159	179	25	0	35	0	50	0	149	167	182	142	86	51
Union City	CA	163	-122.019	37.6007	152	166	174	34	0	44	0	49	0	136	162	171	94	70	57
Vacaville	CA	163	-121.965	38.3631	119	161	175	25	0	33	0	49	0	142	163	175	136	86	56
Vallejo	CA	163	-122.231	38.1146	148	160	176	29	0	38	0	50	0	146	154	170	103	82	54
Walnut Creek	CA	163	-122.04	37.8942	154	171	174	34	0	45	0	49	0	138	163	172	92	64	57
Davis	CA	164	-121.735	38.5556	102	155	177	11	0	36	0	50	0	146	162	180	167	89	53
Folsom	CA	164	-121.149	38.6747	116	142	202	8	0	20	0	48	8	162	170	192	156	118	22
Roseville	CA	164	-121.288	38.7627	121	147	194	10	0	20	0	48	0	146	168	190	149	113	38
Sacramento	CA	164	-121.462	38.5604	102	156	177	6	0	27	0	49	0	146	172	182	172	97	54
Redding	CA	165	-122.363	40.5819	50	60	89	1	0	6	0	7	0	101	113	114	229	214	184
Eugene	OR	166	-123.121	44.0498	46	68	94	8	0	11	0	20	0	140	144	179	226	201	166
Medford	OR	166	-122.846	42.3453	52	55	67	7	0	7	0	11	0	86	90	109	221	218	202
Beaverton	OR	167	-122.814	45.4828	135	149	169	29	0	39	0	40	0	145	158	188	116	92	71
Gresham	OR	167	-122.433	45.511	131	153	170	35	0	38	0	39	0	138	162	185	114	89	71
Hillsboro	OR	167	-122.935	45.5318	126	149	167	24	0	39	0	41	0	148	162	185	130	92	72
Portland	OR	167	-122.654	45.5429	135	148	169	35	0	39	0	40	0	144	162	185	110	93	71

Table 2 - Channel Deficit or Surplus for All Cities Over 50,000 Population

City Name	State	BEA #	City Center		Non-Nextel Site-Specific Incumbents within			Non-Nextel Site-Specific Licensees Move-in within						Nextel Site-Specific Licensed Channels within			Site-Specific Channel Deficit or Surplus within Channels 121-400		
					35 mi radius *	50 mi radius *	70 mi radius *	35 mi radius *		50 mi radius *		70 mi radius *		35 mi radius *	50 mi radius *	70 mi radius *			
			Longitude	Latitude	Chan 121-400	Chan 121-400	Chan 121-400	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 001-120	Chan 401-600	Chan 121-400			35 mi radius *	50 mi radius *	70 mi radius *
Salem	OR	167	-123.028	44.933	116	156	186	18	0	36	0	45	0	148	180	184	146	88	49
Vancouver	WA	167	-122.661	45.6461	130	147	164	35	0	39	0	40	0	144	158	186	115	94	76
Yakima	WA	169	-120.529	46.5947	38	98	169	9	0	13	0	16	0	112	123	138	233	169	95
Bellevue	WA	170	-122.151	47.5999	70	84	110	89	14	93	26	95	30	177	191	199	107	77	45
Bellingham	WA	170	-122.459	48.7476	10	14	48	43	21	70	24	98	31	85	113	124	206	172	103
Everett	WA	170	-122.228	47.9607	37	75	110	93	24	95	32	101	34	117	176	198	126	78	35
Federal Way	WA	170	-122.349	47.3078	74	83	105	87	14	92	16	93	26	188	196	200	105	89	56
Seattle	WA	170	-122.342	47.613	77	84	99	91	14	93	26	95	32	180	195	199	98	77	54
Tacoma	WA	170	-122.461	47.2494	46	83	110	87	14	92	16	92	25	188	193	202	133	89	53
Anchorage	AK	171	-149.44	61.1089	164	170	171	73	147	73	152	73	152	0	0	0	(104)	(115)	(116)
Honolulu	HI	172	-157.804	21.3283	101	101	111	30	0	30	0	38	0	130	130	141	149	149	131
Bayamon	PR	174	-66.1595	18.3804	176	177	181	57	134	57	139	63	139	64	64	64	(87)	(93)	(103)
Caguas	PR	174	-66.0419	18.2372	173	176	183	56	134	57	134	73	144	64	64	69	(83)	(87)	(120)
Carolina	PR	174	-65.981	18.406	154	176	183	56	114	57	134	68	144	64	64	69	(44)	(87)	(115)
Guaynabo	PR	174	-66.1152	18.3866	176	176	183	56	134	57	134	73	144	64	64	69	(86)	(87)	(120)
Mayaguez	PR	174	-67.1358	18.2018	84	91	159	14	75	15	80	62	104	34	63	64	107	94	(45)
Ponce	PR	174	-66.6196	17.9997	148	178	181	62	99	63	109	63	139	64	64	64	(29)	(70)	(103)
San Juan	PR	174	-66.0605	18.4049	173	176	183	56	134	57	134	73	144	64	64	69	(83)	(87)	(120)

* From center of the City