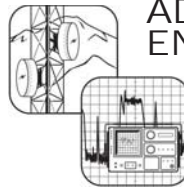


# Talk Group



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## Bellevue Builds

—Tom Manley

Several years ago, the City of Bellevue, Washington, embarked on a journey to provide its citizens and employees with improved facilities for city administrative, police, and emergency services. A somewhat forlorn gray structure, hulking next to the Meydenbauer Center in the downtown area was transformed into a striking architectural vision that opened to the public February 2006.

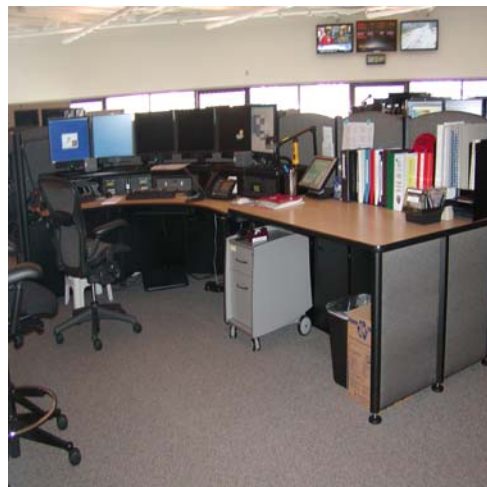
ADCOMM Engineering was favored to play a part in the transformation by providing engineering consulting services, installation management, system testing, and cutover services to the new Bellevue Dispatch Center home. The Center serves the cities of Bellevue and environs, Bothell, Kirkland, and Issaquah as part of the Eastside Dispatch Center. The Center provides call-taking and Police, Fire, and Medical dispatching services for Bellevue and the immediate area while Bothell, Kirkland, and Issaquah use remote radio console communication links through Bellevue to access the Regional Trunked Radio System (TRS) thus augmenting their own call-taking and dispatch facilities.

Over the last 25 years, ADCOMM has been involved in the design, upgrade, and cutover of more than 43 9-1-1 dispatch centers. We have lengthy relationships built with many public safety agencies and have been involved in several projects that have evolved as the agencies have grown or adopted new systems and equipment. Such was the case with Bellevue, where ADCOMM helped design and implement the previous dispatch center sometime in the middle 1980s.

The previous Center was housed in the windowless and well-worn basement of a fire station with a somewhat subdued ambiance, one could say. The new Center is the antithesis of the old location, situated with a broad view of the downtown core through an abundance of windows and with elbow-room, too. Careful choice of a conference room provides a captivating view of Mt. Rainier on an occasional sunny day. Separate rooms dedicated to Supervisor office space and Training are a welcome addition.

Along with the operational amenities comes a new electronic equipment room housing an expanded Motorola Gold Elite radio control system, the Dictaphone logging recorder, Tritech CAD server, Positron Life-line systems, Nortel main and backup PBXs, microwave equipment to link the Center with the TRS, control station combiners, and various ancillary equipment. In addition, the electronics room is home to other users such as Transportation and a host of servers supporting other City functions. With all these tenants, there is still ample room for growth.

ADCOMM was deeply involved with defining the systems at the fire station as the baseline for the new center, providing specifications for virtually all of them. We coordinated or provided specifications for the systems as they evolved to meet the new center's needs. ADCOMM provided consulting and specifications for some ancillary building systems such as a DAS (Distributed Antenna System) supporting Nextel and the TRS and a system of control stations throughout the building that communicate with the TRS. We proposed the design for



PLEASE SEE *Builds* ON PAGE 2

# Thinking About ...

## Builds

CONTINUED FROM PAGE 1

the rooftop antenna installation that was incorporated into the architectural plans and provides ample opportunity to place antennas of all types. The superstructure hides behind RF-transparent panels that completely surround it and greatly reduce the visual impact an antenna farm would typically have. We were likewise involved all the way down to the tiny details of console cable routing. The odd task such as incorporating TV audio into the consoles and modifying the backup phone switch were on our plate, too.

The Dispatch room itself is triangular in shape and sports three Symon 64x128 LED readerboards each flanked by two 42-inch plasma displays. The displays have access to broadcast and cable TV as well as to feeds from the Transportation Department's traffic cameras. There are also GPS-synchronized clocks at each location. A readerboard and clock are installed in the Supervisor's office area and the Break room.

The Training room has expanded considerably. There are six individual desks provided by Watson Furniture Group in Kitsap County with dedicated Positron and CAD support. There is an instructor's area at the head of the class with built-in Audio Visual facilities.

Furniture from Watson is also used for the Dispatch floor consoles. There are two Police Dispatch consoles, three Fire Dispatch consoles, and four Call-taker positions all of which are configured as progressive additions to a circular pod capability of the furniture system. In addition are individual radio and phone equipped consoles for Supervisor, Lead, and Training. The consoles have two motor-adjustable surfaces. The upper surface that supports the LCD displays is equipped with a shelf that permits the installation of 19-inch-wide rack mount equipment up to five rack units high.

A Dispatch position has a total of six 19-inch LCD monitors: one for Positron phone, one for ALI mapping, three for CAD, and one for the Motorola Gold Elite radio system. The Call-taker positions have five since the radio LCD is not needed. Dispatch positions have one Motorola XTL2500 control station for Police and two for Fire, two Zetron 3022 Instant Recall recorders for phone and radio. The Positron PC-based phone system is backed up by a Nortel 2616 deskset that is able to take over an existing Positron call or be switched to the backup PBX. A new feature at each position is the ability to choose audio sources from an AV selector so that TV and FM radio audio can be heard by the operator.

ADCOMM provided technical support for the 9-1-1 Center cutover that occurred the wee hours of Sunday, April 23, 2006. The Center has been operating since then as part of Bellevue's newest civic pride.

## Meet ADCOMM's Newest Staff Additions

**Norbert O'Donnell, E.N.P.**, is a new member of the ADCOMM team. Norbert started with ADCOMM in May 2006. He is a native of Pennsylvania and is now living in Richland, Washington.

Norbert has 9 years of experience in 9-1-1 call center management and 10 years' experience in private call center management. He has moved up through the ranks of technical support specialist/supervisor, deputy director, and executive director. His most recent role was as the SECOMM Communications Manager for Benton County, Washington. He brings to ADCOMM his many years of call center experience and his project management expertise.

In his spare time, he spends time with his wife of 25 years, Jeannie, and their two teenage sons, Corrigan and Rory. He also enjoys fly fishing, cycling, and running.

**Mike Norin** also recently joined the ADCOMM team. Mike has been involved

extensively in the design, optimization, and performance management of wireless telecommunication networks for over 10 years. Projects have included both voice and data networks for commercial operators including Sprint, Qwest, and BellSouth International. He was instrumental in the design of one of the first PCS networks in Washington state. Mike's primary expertise is in RF systems and propagation, and he has a degree in electrical engineering from the University of Arizona.

Mike lives with his wife and cat in North Bend, Washington, where he is an avid hiker, geocacher, and computer nut.

## Remember! Narrowband is a Few Short Years Away

—Joe Blaschka, Jr., P.E.

The FCC's Third Memorandum Opinion and Order for mandatory narrowband operation has not gone away. The dates are as follows:

- **All radio systems operating below 512 MHz must be narrowband by January 1, 2013.**
- **No new wideband system license applications will be accepted after January 1, 2011.**
- **No new wideband capable equipment may be manufactured or imported after January 1, 2011.**
- **Paging only channels are exempt from the narrowband requirements.**

Additional information is included below.

## Discussion

The FCC has given radio system licensees several chances over the past 15 years or so to make the transition to narrowband on their own. This did not happen for a variety of reasons; however, it appears these dates are firm. Narrowband operation will affect the operation of VHF and UHF systems.

Some of the issues confronting users are:

- Reduced audio quality and coverage.
- Mixed bandwidth equipment is still being used on many channels and the conversion to narrowband cannot occur until all the older wideband equipment has been replaced.
- Users have confused narrowband with Project 25 digital, thinking they have to convert to digital to go to narrowband.
- Most of the "narrowband" channels either receive interference from or cause interference to wideband channels making them usable only in a few areas.
- Funding to make major system changes can take time to secure and plan for.
- Conversion may require additional sites or the use of simulcast technology with their associated schedule and budget considerations.

While the actual mandatory cutover date is January 1, 2013 (less than 7 years away!), new wideband equipment will generally not be available after January 1, 2011. That means any new mobiles or portables purchased after 2011 will be narrowband only. This will cause significant operational problems if users have not converted to narrowband by 2011 and purchase new equipment. January 1, 2011, is less than 5 years away!

The actual FCC text is as follows:

**All users of spectrum below 512 MHz have a migration deadline of January 1, 2013.**

*ADCOMM Note:* At this point existing systems may remain at 25 kHz (so called "wideband") until 2013.

The FCC text reads:

**\* For licensees in the Industrial/Business Radio Pool operating in the 150-174 MHz and 421-512 MHz bands, we affirm the Second Report and Order's January 1, 2013, deadline for migration to 12.5 kHz technology, or a technology that achieves the**

**narrowband equivalent of one channel per 12.5 kHz of channel bandwidth (voice) or 4800 bits per second per 6.25 kHz (data) if the bandwidth for transmissions specified in the modification application is greater than 12.5 kHz.**

**\* For Public Safety Radio Pool licensees operating PLMR services in the same bands, we also establish a January 1, 2013, deadline for migration to 12.5 kHz technology, or a technology that achieves the narrowband equivalent of one channel per 12.5 kHz of channel bandwidth (voice) or 4800 bits per second per 6.25 kHz (data) if the bandwidth for transmissions specified in the modification application is greater than 12.5 kHz.**

*ADCOMM Note:* This sets the final date for migration to 12.5 kHz narrowband as January 1, 2013. After that date, systems must be operating in a narrowband mode not just starting the conversion. Note also that anyone operating a mobile data system in the VHF/UHF bands must also have an equivalent spectrum efficiency of 9.6 kbps in a 12.5 kHz channel. This means many of the existing systems will also need to be upgraded.

**\* We revise the interim dates established in the Second Report and Order as follows:**

**- Applications for new operations using 25 kHz channels will be accepted until January 1, 2011. After January 1, 2011, applications for new operations using a bandwidth greater than 12.5 kHz will be accepted only to the extent that the equipment meets the spectrum efficiency standard of one channel per 12.5 kHz of channel bandwidth (voice) or 4800 bits per second per 6.25 kHz (data).**

**- Applications for modification of operations that expand the authorized contour of an existing station using 25 kHz channels will be accepted until January 1, 2011. After January 1, 2011, applications for modification of operations that expand the authorized contour of an existing station will be accepted only to the extent that the equipment meets the spectrum efficiency standard of one channel per 12.5 kHz of channel bandwidth (voice) or 4800 bits per second per 6.25 kHz (data) if the bandwidth for transmissions specified in the modification application is greater than 12.5 kHz.**

*ADCOMM Note:* This means license applications and modifications for wideband systems (25 kHz) will be accepted until January 1, 2011. After January 1, 2011, essentially all applications will need to be for narrowband systems. Possible exceptions are minor modifications to existing wideband systems. While this is allowed, in 2 years the system will need to be converted to narrowband anyway.

**- Manufacture and importation of any 150-174 MHz and 421-512 MHz band equipment operating on a channel bandwidth up to 25 kHz will be permitted until January 1, 2011. After January 1, 2011, manufacture and importation of any 150-174 MHz and 421-512 MHz band equipment operating on a channel bandwidth greater than 12.5 kHz will be accepted only to the extent that the equipment meets the spectrum efficiency standard of one channel per 12.5 kHz of channel bandwidth (voice) or 4800 bits per second per 6.25 kHz (data).**

*ADCOMM Note:* This means after January 1, 2011, wideband equipment will not be able to be built or imported. Existing stocks of equipment could still be sold but effectively this means you will not be able to buy new equipment capable of operating in the wideband mode after this date.

**The FCC also decided not to apply the narrowband requirements to the paging only channels, (e.g., 152.0075 MHz and 163.250 MHz).**

*ADCOMM Note:* This is a relief for owners of paging systems as there is no "graceful" conversion to narrowband on the paging channels.

### Equipment Comments

**This ruling is not forcing anyone to digital or APCO25 compatible radios. While APCO25 is compatible with the narrowband channels, a conversion to digital is not necessary as part of the narrowband conversion process.** Any conversion to digital should be done for its own reasons. In addition, having an APCO25 radio does not guarantee interoperability. An APCO25 VHF radio still will not talk to an APCO25 UHF radio or an APCO25 800 MHz radio.

## THE LAST BYTE

### “The Times They Are A-Changin’”

Bob Dylan is one of my favorite singer/songwriters. Surprised? Some of you who know me might be, some of you who know me well won't be. The lyrics are inter-generational, no... trans-generational. Change is the only constant. The times for public safety communications are “A-Changin’” faster than ever before. 800 MHz users are faced with massive retuning and possible reconfigurations of their systems

over the next 2 to 5 years. Glad you are not on 800 MHz? Narrowbanding for VHF/UHF will be here between 2011 and 2013. Not worried about radio? How about VOIP? Advanced wireless services? Pre-schoolers with cellphones? Things we haven't even thought about yet? A decade will go by like it was a couple of months. Hang on, it will be a wild ride.

—Joe Blaschka, Jr., P.E.

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