



Town of Andover

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To: Andover Town and Schools
From: Paul J. Puzanghera, Chief Information Officer
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Subject: Status of Unified Communications Upgrade

Unified Communications FAQ

What is the basic status of the Unified Communications (UC) initiative?

The central core of the new UC is established and working. We have all of our master servers working at the School Administration building and at our secondary data center at Public Safety. The Bancroft School has been operating since June as our first site with 70 new phones installed. Verizon recently installed the upgraded centralized communications connections that will enable us to replace the aging Centrex architecture. We are hoping to begin transitioning buildings to the new system in 2-3 weeks.

Why do you keep talking about Unified Communications rather than phones?

While traditional voice/handset type communication is a central part of this process the new system is designed to eventually integrate email, voice mail, on-line chat, emergency notification, paging, video calling, video conferencing and many other features into a single integrated platform. It will work identically on a "phone", a computer, a mobile device or via the web.

You will also here the term VoIP (Voice over IP) which refers to the basic process of making phone calls work on a digital network.

Who did we choose as a vendor?

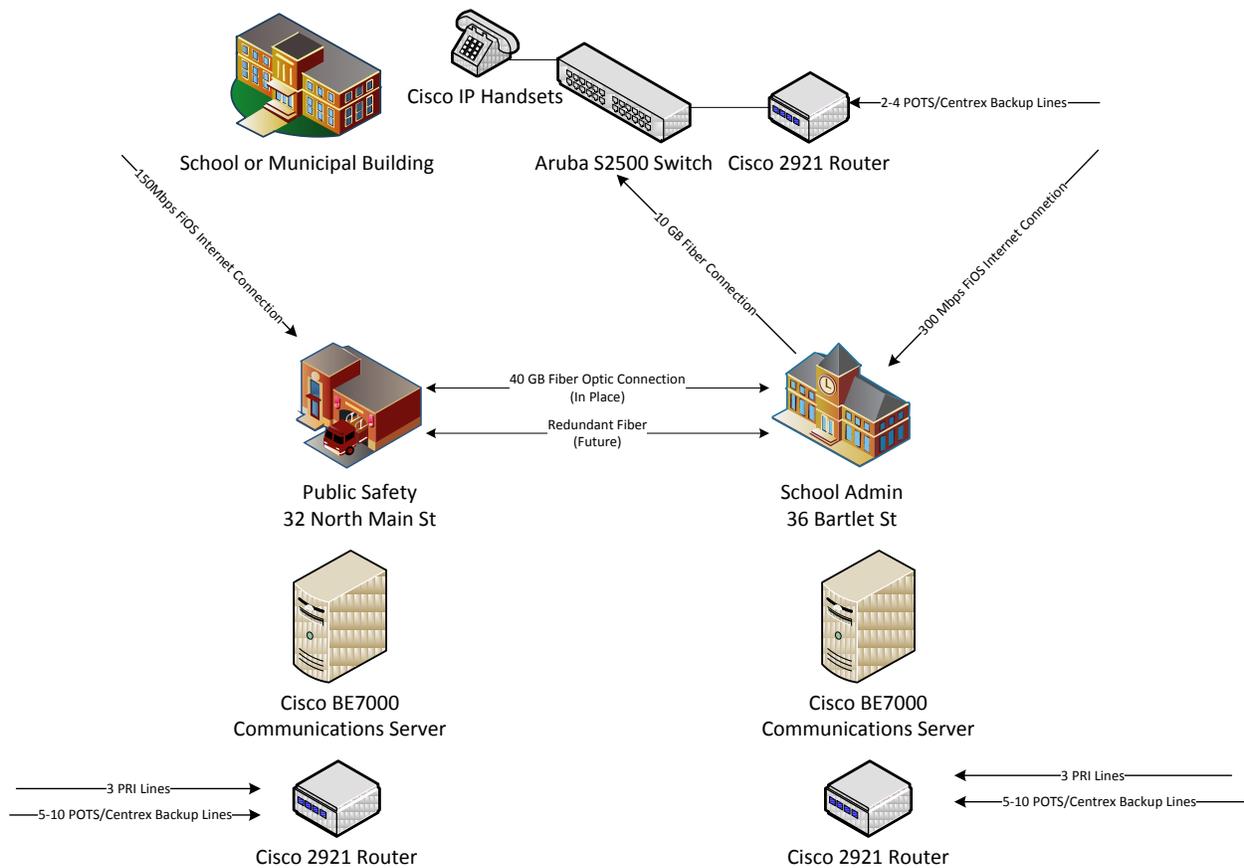
We have selected the [Cisco Unified Communications](#) system which is the industry leader in next generation enterprise communication.

Why is this different than our current system?

- Our current system, which is called Centrex, is 100% analog and relies on the same "Ma Bell" technology that has been in place since WWII. Centrex is a combination of POTS ("Plain Old Telephone Service") phones and special services like voice mail that Verizon bundles in. The new system is 100% digital and uses the same technology as our data network.
- The old system uses a completely separate set of wires, jacks and connections unique to voice communication. The new system uses the same wiring and jacks as our computers and plugs

into our newly improved town wide data network. In most cases your phone will be plugged directly into the same jack as your computer.

- In the old system each user has a dedicated pair of wires to the “phone company” that costs us \$250/per line/per year. The new system uses two large shared Internet connections that are vastly less expensive.
- Currently we rely on hundreds of separate lines that extend from each building to Verizon call centers. The new system utilizes our existing town wide fiber optic network.
- Many of our buildings also own standalone telephone systems that supplement the Verizon service. Each building has a separate system, with unique features and we pay individual maintenance contracts on each one.
- In the Centrex environment the “brains” are provided by Verizon which is very expensive. The new system relies on two specialized servers maintained at our data centers. Below is a basic picture:



Two master servers are located at each of our data centers; large data pipes connect the servers to the PSTN (Public Switched Telephone Network); phone calls are converted to digital packets and routed over our local fiber network; small “gateways” are located at all large building to provide additional redundancy.

So the benefits to me are ...?

The Town and Schools will save a minimum of \$50,000 per year and likely much more in reduced line fees and by eliminating all of the specialized service contracts. There is no incremental operating cost to adding new phones. You simply buy a handset and license (\$200-300) and that's it.

You will benefit by having a single inbox for all your communication, unified access to Town and School staff, on line directories, full integration with your mobile devices and much more. People who previously were not part of the system call also get their own extensions and mailboxes at no extra cost.

Who does this affect?

This affects virtually every user who has a phone today (600+) in 23 Town and School buildings plus it will update every fax and copy machine. It will not affect classrooms and other areas that do not currently have phones. We have created an article for Town Meeting to expand the use of the new system to embrace other areas that were previously too costly to provide phone service.

As part of this many of you will be receiving a new extension and phone number. Since we need to create a unique extension for everyone in town our current numbering system is insufficient. Town departments will be less affected because they will require limited expansion but to expand the use to all classrooms in all school buildings requires an overall renumbering.

If your department has a proprietary phone system it will be deactivated.

Will the faxes be affected?

Yes. Fax, while still required in many situations, is a fading technology. We are taking several steps to modernize our faxing infrastructure:

- All faxes will be converted via a special box called an ATA from analog to digital. This means we no longer need to pay for separate fax lines.
- Anything that you have in digital form on your computer no longer needs to be printed, scanned and then faxed. You can simply print or email documents directly to a fax number.
- Incoming faxes can be digitized and sent to you (or a group) via email. This means they can be stored, searched, and archived digitally. They can be printed on any office or they can also be printed just as you do today.

All of these features will be available on the networked copiers as well as the standalone fax machines. Our goal is clearly to reduce the effort associated with copying, printing and storing faxes to a large degree however we promise not to take away your fax machines for all of your "special" circumstances.

How does this integrate with my mobile phone?

The new system can be aligned with your mobile phone to allow you to make and receive business calls directly on your mobile phone without exposing your personal mobile numbers. Callers simply dial your

work number and the call is also available on your mobile. You control this feature and can activate when and if you want. Your phone also has access to town directories, mobile chat and other features.

The extent to which mobile phones are integrated are a management decision and not an IT decision. IT is providing a platform for integration and will counsel the various stakeholders on usage scenarios. Whether you continue to have a town owned phone, whether you are required to answer your phone after hours, how anyone is compensated etc. is an issue for senior management, department heads and the unions to discuss.

How does this integrate with Outlook?

Voice messages will be able to be retrieved and saved in Outlook in your inbox just like your regular emails.

Can I have any phone/handset I want?

IT has selected a modest range of phones that we think meet all of the obvious usage scenarios. To use any phone a user must have a Cisco license (\$135) which in general will be paid for by IT. Individual departments/users may then work with IT regarding specific handsets. IT has selected a higher end video phone for managers (\$175) and a mid range black and white LCD phone (\$85) for the average knowledge worker as well as specialized phones for “operators”, conference rooms, etc. Departments may be asked to contribute if they wish to purchase higher quality phones for staff. Phones and licenses will be available in the IT store for purchase at any time. Providing phone access to a user is as simple as buying a phone. There are no on-going charges.

Is this safe? What happens in the network fails or the power goes out or ...?

There are four levels of redundancy and backup built into the new phone architecture:

1. To ensure high levels of redundancy we have two of everything. We have matching servers located in our two data centers (School Administration and Public Safety). Each is fed by a different connection to the outside world. If either server fails the other takes over automatically. If either Verizon connection fails the other takes over automatically. All systems also have redundant power backup.
2. We will install an independent “gateway” in all locations. The gateway will be connected separately to 2-4 standard phone lines so if there is a fiber failure or other massive calamity each building can operate autonomously in “survivability” mode.
3. We will leave at least one current standard “analog” phone at each location that is not connected to the new system.
4. And of course, most of you have cell phones.

The current phone architecture has no redundancy. Any Verizon failure or line failure eliminates your communications capability entirely.

What's the overall plan? What happens next?

These are the major steps in our transition over the next 6 months:

- This week you will receive a notification that I have assigned preliminary phone captains (phone czars) for buildings and some groups of departments. This person will be responsible for collecting information and making decisions about phone operations for each team they represent. If you don't like my proposal please free to let me know who you would like to be the lead from your team. It's totally up to you.
- This week each Phone Czar will receive a preliminary list of all users, phones, and phone lines that I have been able to find. I have looked in phone directories, phone bills, talked to users, talked to P&F etc. to compile a town wide list. It is most assuredly still not correct. I will need your immediate help in trying to get a complete phone inventory so I can order handsets for the remaining locations.
- After we have completed the overall inventory I will start meeting in a more detailed way to plan the transition with buildings that are early in the proposed cutover list. During these Transition Planning Meetings we will meet with all stakeholders in the coming weeks. At that time we will record detailed information on your use of automated attendants, your voice mail preferences, your calling patterns, etc.
- Those of you in the first group of buildings are invited to a one hour preliminary phone training on Tuesday October 28th. A second training will be held in late November/early December.
- Buildings will start being converted the weekend of October 29th and we will convert 2-4 per week. We hope to be done before the Christmas holidays. During each cutover, IT technicians will install and configure new phones during the week. These phones will be immediately available for outgoing calls. Over the weekend Verizon will reassign your incoming calls and your old phones will be deactivated and removed. Any lines that we cannot associate with an active phone will be deactivated completely. On the following Monday IT technicians will be available to answer your questions as acclimate yourself to the new phones.
- 30-45 days after each building is converted I will schedule a follow-up meeting with you. At that time you will tell us all the things we didn't get right the first time and give you an opportunity to make changes after you have had a few weeks of experience. We will be reluctant to make individual changes during the initial days after a cutover since these systems require some "settling in" time and we want to collect all the feedback at once.
- In January we will install and configure all of the fax servers to meet your needs. We will also activate the mobile components of this as well as finalize Outlook integration.

What specifically do you need to know in the Phone Inventory?

Some general thought on what we are trying to collect:

- Each row represents a person, device or auto-attendant who has or needs UC access. We are trying to collect user information for their directory listing as well as a clear selection for what

type of handset hardware they should get. Enclosed in the spreadsheet you will receive are pictures and data sheets about all approved handsets/phones.

- Every user gets a personal extension. Secretaries no longer should share an extension with the main department number. Every line has to have a purpose. If we don't know what it's for we will shut it off.
- Each row represents a "user". This is either a person, an auto attendant or a device
- Multiple "lines" can appear on a single phone. A secretary can have their boss's number or a group with a common purpose (e.g. IT Support) can all have a special line ring on their individual phones.
- If several people share a physical phone because they are they're on different shifts or they really are a "bullpen" that's fine. But each user should get a personal extension for voice mail at a minimum. If you wish for each person to have their own phone that can be arranged and then we can determine an order in which they ring.
- We need to provide extensions for all principals and department heads. They do not have to be listed in the on-line directory but they need to have standalone extensions.
- Please make sure that all fax numbers are listed. Make sure than any copiers that are connected to phone lines are listed.
- Please list all lines connected to "answering machines" if you use such things for example to allow parents to call in attendance.
- Please list any special lines for alarms, elevator or any other special purpose device you use.
- Please list any wireless phones that are used and the phone number they are associated with
- You can have an auto-attendant for every department. That should be the first thing that is heard when you call most departments.
- We need to determine what handset each person should use. The mid range phones are good solid everyday phones but the video phones are clearly more extensible. You can also order phones for conference rooms and wireless phones. Please note if a phone should be wall mounted. If a person and handset are not listed they will not get a phone. This is the final list.
- For larger departments "operators" can get larger phones with lots of transfer buttons. Operator phones can have up to 4 "side cars" and 96 buttons.
- Each person's phone information will be linked to their login address so make sure we have the correct computer login information. This will enable them to be linked to Outlook, on-line directories etc.
- Each phone has a set of "uses". Make sure to set the correct one. In particular please mark "classroom phones" because they will be treated differently.
- If you change an entry please click the Edit/Delete button in the first column. The row will highlight and we will know to include the changes.

The spreadsheet will have several tabs:

School/Town/Police Directory – Pick the sheet that applies to you. All schools plus central office are in the SCHOOL tab. All town departments are in the TOWN tab. Just fill out the information for your school or department.

Centex Use – The Town and Schools own all the numbers from (978) 623 8200 to (978) 623 8999. We have cross referenced the first 3 sheets to determine which of those numbers are currently in use. All items that are marked “Unknown User” do not currently have a directory name associated with them so we assume they are not in use. Unless you tell us otherwise those numbers will all be deactivated and converted to the main Cisco switch for later reuse. For the 8200-8500 numbers we were also able to determine if they appear on a recent bill. Those marked UNKNOWN AND ON BILL are worrisome because they have had recent activity but we don’t know who they belong to. So take a look at numbers in your range and let us know what you know about them.

Handsets – This is the catalog of handsets you may choose from. It has pictures, prices and links to more detailed data sheets.

Instructions – Instructions for filling out the sheet

Captains – Current list of Phone Captains

Specific instructions for filling out each row of the spreadsheet:

Column	Description
Edit/ Delete	Each row represents a person, device or auto-attendant. If the information is correct leave as "No Change". If this person or device is not active the enter "Delete". If you have updated the information enter "Edit". Setting this vale will highlight all rows that you change
Name	The name of the person or a description of the device
Building	Physical building
Floor	The "ground floor" should be 1. A level below ground is "A", two levels below are "B"
Room Number/ID	If the room has a where the person or device is located has an official room number please use it. If not use a name or description (e.g. Dressing room behind auditorium)
Room Type	Select what the room s primarily used for (e.g. Office, Classroom, etc.)
Description	Anything else you want to tell us about the person or location
Department	What department is this person/phone located in
Title	If a person what is the Title you would like listed in the on-line directory. (e.g. DPW Business Manager)
User ID	What is the login ID this person uses to access the Andover network. This will be used to provide access to on-line tools
Direct Dial Phone	What number would a citizen or parent use to reach this person or device today. If they don't have a direct number, use the department or building main number.
Internal Extension	What number would an employee use to reach this person or device today from within the building. If Centrex user this is their 4 digit extension. If not Centrex this will vary from building to building.
Cell Phone/ Pager	Does this person have a cell phone or pager that should be included in the on-line directory

Column	Description
Disposition of Phone Line	<p>"Transfer to Cisco" means that this line should be transferred from Centrex or from an existing phone system to the new Cisco phone system for incoming calls. This should include fax machines. "Do not change" is for lines that have a special use and need to stay in their present format such as alarm lines. "Eliminate" is for lines that are no longer in use.</p> <p>Tell us what the new phone will be used for:</p>
Phone Type	<p>Auto Attendant - This line is not a physical phone but is used to start a "voice tree".</p> <p>Attendant - This is an "operator" person who will be triaging calls for a group or department</p> <p>Single User - Standard phone for one user</p> <p>Shared User - Phone will be used by different people at different times. Bullpen, break room, shift users, etc. If a phone is to be shared by 2 people select SHARED 2 USER, if 3 people will share SHARED 3 USER etc.</p> <p>Classroom - This is a classroom phone</p> <p>Public - This is a phone in a foyer or open area and can be used by visitors</p> <p>Conference Room - Multiuser conference room</p> <p>Fax - A line attached to a standalone single function fax machine or to a multifunction desktop printer</p> <p>Copier - A networked high volume copy machine with fax capability</p> <p>VM Only - This user should not have a physical phone but simply a voice mail box</p> <p>Info Line - This number will have recorded information or to collect information (e.g. Attendance Line, Recycling Line, Hours of Operation, etc.)</p> <p>Paging Zone - Dialing this extension executes a "page" on your overhead speakers</p> <p>Alarm/Security - A line hardwired to a security device</p> <p>Elevator - A line hardwired to a phone in an elevator</p> <p>HVAC - A line hardwired to an heating or other environmental device</p> <p>Other Digital - Something else but in the new phone system</p> <p>Other Analog - Something else that will stay outside the new phone system</p> <p>Please refer to the enclosed list of phones:</p>
Handset	<p>7821 - Standard phone. B/W LCD keypad</p> <p>8945 - Video phone for managers or staff that will utilize video communication</p> <p>9971 - Operator console. Select one with 36 buttons or one with 72 buttons</p> <p>3905 - Very low end phone for public areas, custodial closets etc.</p> <p>7925 - Wireless phone for roaming within the building</p> <p>8831 - A "Polycomm" style conference phone that allows 10-15 people to participate in a conference call</p>
Wall mount Comment	<p>Will the handset need to be mounted?</p> <p>Anything else you want us to know</p>

What about new users?

As mentioned, Phase 1 is designed to replace existing analog phones with new Cisco digital phones. IT is putting forth an article for consideration in the FY16 budget (April '15 Town Meeting) to provide physical phones in all classrooms and in critical spaces not served by phones today.

There is space at the bottom of the spreadsheet to enter we have missed or to request additional phones. If you have an existing phone or phone line that we have not included enter the information directly. If you have additional users or spaces that you think could use UC service in the future include that information also. For new users, we can create an extension and give them access to Voice Mail immediately so mark them VM Only. Then in the HANDSET column indicate what type of handset they should have in the future. We will use this to create a final count of phones that we will request from Town Meeting.

What about intercoms and paging?

To the best of our ability we will attempt to link the phone system into the paging system to allow you to do a simple "All Page" directly from the phones. This will be dependent on the features of your specific intercom/paging system.

IT is putting forth an article for consideration in the FY16 budget (April '15 Town Meeting) to replace all paging systems in all Town and School buildings with a new digital paging system that will replace all of the paging, intercom, bell and clock systems with a single digital device in each room. If we are successful these will be completely integrated into the new Cisco system to allow paging within a building, into another building, etc. These will be key components of our emerging school safety strategies to improve communication in the event of fire or an intruder.

What will we talk about in the Transition Planning Meeting?

- What users should be listed in the directory?
- What do your "phone trees" look like?
- What "lines" should ring on what "phones"?
- How do calls get picked up in departments with multiple staff?
- What happens if someone presses "0"?
- Policy on long distance (In general all phones will be allowed to dial within North America. Long Distance charges are negligible.)
- Should certain phones (such as classrooms) not ring?
- Do you have an unusual schedule that requires different greetings on certain days?
- And much more ...

What is the preliminary schedule?

The preliminary schedule for each location is as follows. Phones are installed the week preceding the cutover; phone lines are transferred on Friday evening; new phone system up on Monday morning. The

date shown is the Friday of the actual line transfer. This schedule is subject to change. It is extremely aggressive and we will determine if we can deliver at this pace after the initial conversions.

Preliminary Date	Building/Dept
Cutover #1 October 31	Information Technology Andover High School Bancroft
Cutover #2 November 7	Doherty Middle School West Middle School Sanborn Elementary School South Elementary School
Cutover #3 November 14	Wood Hill Middle School High Plain Elementary School West Elementary School Shawsheen Elementary School
Cutover #4 November 21	Memorial Hall Library Water Treatment Plant Red Spring Road Old Town Hall Town Yard Water Town Yard Vehicle
Cutover #5 December 5	Town Offices Senior Center School Offices
Cutover #6 December 12	Public Safety Center PS West Side Fire Substation PS Ballardvale Substation
Future - TBD	Youth Center

Do you have any final advice during this transition?

Yes. Change is hard. We understand this. We expect you are not going to be happy during the first month because we are asking you to do things differently. Many of you have been using these existing phones for 20+ years. Ultimately the new UC environment will be cheaper for the town; simpler to use and provide a platform for a whole new level of communication. Bear with us as we help you during this transition. We have planned for many months to undertake this change but we will get some things wrong and we will work with you to rectify them as quickly as possible.