Agenda Item No. 6
Request for Town Council Action

TO: **The Honorable Mayor and Town Council**

FROM: **Arosha Jayawickrema, Town Manager**

DATE: **April 21, 2020**

SUBJECT: **Request to award the replacement and upgrading of the Fire Department and Public Works radio system to Marcus Communications of Manchester, CT.**

Summary of Agenda Item:
The Fire Department received approval to move forward with replacing and upgrading the Fire Departments radio system. The current system is 20 years old and is showing signs of failure that concerns emergency services. In the past our radio system was combined with the DPW Departments and Emergency Management, so it made sense to continue this partnership with those agencies and provide a complete replacement/upgrade of the entire system.

Surveys of all of the departments needs were made, and the committee sat down with the major players in the industry within Connecticut. Walkthroughs and additional meetings were held over the summer and into early fall. Unfortunately, after openly discussing our wants and needs most of the vendors were not forthcoming with solutions.

An RFP was created and advertised in February with an opening date of April 1, 2020. Again, unfortunately only 2 bids were returned. Those vendors were Marcus Communication and Utility Communications. Utility Communications bid was only partially covering the portable and mobile radios.

Marcus Communications provided a very comprehensive proposal covering all of the requirements of the RFP. The committee reviewed, and met listing the pros and cons, reviewed the coverage maps, the proposed equipment and upgrades to the system.

The proposed communication system has the following features:

1. A 2 channel, 4 site simulcast system with sites at the Eversource main complex, Elwood Rd tank site, South Kensington FD and Berlin FD. This will improve coverage for the entire town. The goal is to have 99% coverage with a portable radio. The four sites will be interconnected by a microwave system that is backed up by State fiber optic that creates redundancy in the event of failure from equipment or natural events.
2. The system shall have the capabilities of analog, digital P25 and encryption. This will meet our needs not only today, but into the future.
3. Interoperability with the Berlin Police Department, all of our surrounding towns, statewide 800 systems, Interoperability stocks radio systems and intercity mutual aid radio system (both North and South) and CMED (CT medical network).
4. Re-configuring the FCC licenses, as our current licensing does not reflect actual usage.
5. Creating a true simplex fire ground channel that will be recorded at Dispatch HQ.

6. Installation of base stations at the 4 firehouses, Town Hall Public Works, Highway Department and the Fleet Garage.
7. Replacing all the mobile radios in the Fire Apparatus, Highway and Public Grounds dump trucks, Fire Marshals and Emergency Management vehicles.
8. Replacing the back-up dispatch console at the Towns primary EOC, this is located at the Berlin Firehouse.
9. Upgrading the Elwood Road tank site, installing a concrete vault to provide a secure, climate controlled location for both the Police and Fire Departments main transmitters. Also, installing a standalone generator system. This would make all of the simulcast sites NFPA compliant.
10. Installation of 11 "Securekey" Knox box key lock systems for Fire Apparatus.
11. Creation of 2 mobile interoperability systems. This allows for additional agency communications. There would also be one Tactical unit (Tac 11). This unit is the interoperability unit for our Fire Department Task Force. The 2nd unit would be installed in a Command vehicle for in Town use.

Funding for this project was provided by the issuance of bonds for $1.4 million dollars. Those proceeds are located in account #134.15.1531.0.54000.0114

Outstanding expenses not accounted for within Marcus Communications proposal are:

- Site work at Elwood Road. Stone pad and fencing.
- Connecting to the existing Main Dispatch console at the Police Station.
- Coaxial Cable replacement (if needed) on vehicles and base station sites.

Jim Simons, Fire Administrator is recommending the awarding for the radio systems to Marcus Communications to replace/ upgrade the Fire and DPW radio system for an estimated amount of $1,120,254. We are including an initial request of 15% ($168,038) contingency for a total request of $1,288,292

Action Needed:

Move to approve awarding the contract for the radio systems replacement/upgrading to Marcus Communications for an estimated amount of $1,288,292 (includes 15% contingency).

Attachments:

RFP proposal

Prepared By:

James C. Simons, Fleet Manager

MARCUS
communications

April 1,2020

Maryssa Tsolis
Purchasing Agent
Town of Berlin
240 Kensington Road
Berlin, CT 06037

Subject: Bid# 2020-15 Radio Communications Upgrade for Fire Department and Public Works

Dear Ms. Tsolis,

Marcus Communications is excited to provide the Town of Berlin with our best in class system engineering and design knowledge as we propose to build the towns next P25 two-way radio system. We have teamed up with our partners at Tait, Harris and Kenwood to provide the solution in this proposal. With over fifty years in the communications business, we feel uniquely able to provide the very best systems and unsurpassed value to the customer. Marcus Communications has been a national leader in radio systems engineering and design assisting manufactures with this cutting-edge technology as they developed their products.

As requested in the RFP our proposal consists of the following main categories:

- 4 Site 2 Channel P25 Tait Simulcast System
- An advanced microwave backhaul system
- Back up dispatch console position at the Berlin Fire House
- Mobile portable and radios
- Frequency coordination engineering and licensing
- A propagation analysis and prediction as well as a verification

Our quality control program that will be employed to meet and exceed industry norms and the sample plans are included in the proposal and will be fully developed in conjunction with the town representative to suit the needs of the town.

33 Mitchell Drive Manchester, CT 06045
Office 860-646-1839 Fax 860-649-8492

MARCUS
communications

Marcus Communication prides itself on total satisfaction of our customers and have included system support plans as well as a training plan. All plans in this RFP are designed to be modified to meet the needs of the Town.

While we have included certain features in this proposal and included the associated costs and coordination labor to complete the prosed feature, but some conditions must be met that are outside of Marcus Communications control, such as the following:

- The ability to obtain licensing and coordination
- The approval from various agencies to approve construction

In closing we also have a more detailed line item price breakdown beyond what is requested in the RFP. We are willing to discuss this proprietary information with the Town of Berlin if Marcus Communications is selected for an interview. Engineering drawings and diagrams will be prepared after a design review meeting for the town's approval prior to material ordering.

Our company is based upon the principles of honesty, quality, and exceeding the customer's expectations. One hundred percent customer satisfaction is our standard from routine repairs to complex system integrations. We guarantee all our installations meets or exceeds established industry quality standards. We employ the best in the industry technicians and engineering staff and heavily invest in state-of-the-art service and test equipment. Helping to ensure rapid analysis and repairs to ensure maximum system up time and customer satisfaction.

We sincerely thank you for the opportunity to furnish the Town of Berlin with this best in class solution and we hope to strengthen our relationship by implementing this project. Our goal is to provide you with the best products and services available in the communications industry.

We are in receipt of addendums 1-4.

Sincerely,

John Butler
Business Relationship Manager
john@marcusradio.com
(O) 860-646-1839 ext.111
(C) 860-983-6975

RADIO COMMUNICATIONS UPGRADE PROJECT

Prepared for

The Berlin Fire Department

April 1, 2020

CONTACT INFORMATION

Marcus Communications
33 Mitchell Drive
Manchester, CT 06042
860-646-1839

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SYSTEM PROPOSAL SUMMARY

Marcus Communications is proposing to provide a Tait based Analog and P25 Simulcast IP based system (AS-IP) for VHF. We shall provide 2 channels for a four (4) site system. Marcus will also provide for VHF Fire paging and a fire ground receiving (at dispatch) and recording system. The system will also utilize the town's fiber optic network at the fire house and Police department sites as a backup to the microwave system.

. The Elwood Tower Site

- 2 frequency channels – TB9400 VHF analog base stations/P25 capable, AC/-48VDC power redundant power systems.
- 1 channel Kenwood voting receive station for fireground recording.
- Spectracom SecureSync frequency references
- Cisco Switch
- Combiner/Multicoupler system
- Antenna and transmission subsystems
- Microwave system

South Kensington Fire House Tower Site

- 2 frequency channels – TB9400 VHF analog base stations/P25 capable, AC/-48VDC power redundant power systems.
- 1 channel Kenwood voting receive station for fireground recording.
- Spectracom SecureSync frequency references
- Cisco Switch
- Combiner/Multicoupler system
- Antenna and transmission subsystems
- Microwave system
- Fiber network backup

Berlin Fire House Tower Site

- 2 frequency channels – TB9400 VHF analog base stations/P25 capable, AC/-48VDC power redundant power systems.
- 1 channel Kenwood voting receive station for fireground recording.
- Spectracom SecureSync frequency references
- Cisco Switch
- Combiner/Multicoupler system
- Antenna and transmission subsystems

- Microwave system
- Fiber network backup

Eversource Building Site

- 2 frequency channels – TB9400 VHF analog base stations/P25 capable, AC/-48VDC power redundant power systems
- 1 channel Kenwood voting receive station for fireground recording
- Spectracom SecureSync frequency references
- Cisco Switch
- Combiner/Multicoupler system
- Antenna and transmission subsystems
- Microwave system

Marcus Communications reserves the right to substitute minor like components due to availability issues at time of purchase.

Police Dispatch

The dispatch connection to the radios system will utilize the Police Department's existing Microwave system. (by the Police's vendor - costs not included in this proposal). Marcus will provide all necessary support to the PD vendor.

Site improvements

Marcus will conduct a structural analysis of all towers as modifications or new equipment are required at all sites. If structural modifications are required to any tower, Marcus is not responsible for those structural reinforcements as there is no way to determine if this is required until an analysis if completed and meets approval by the site owner.

While we have included certain features in this proposal and included the associated costs and coordination time to complete the proposed features, some conditions must be met that are outside of Marcus Communications control. Such as the following:

- The ability to obtain licensing and coordination of established frequencies for transmit at the stated sites. Marcus will provide all best efforts to accomplish this task.
- Structural evaluations of the existing towers will be conducted- any required structural modifications will be a change order to this proposal as it is not possible to know if a structure will fail to meet the needs at the time of bid.
- Construction approval from various agencies.

In addition:

- All sites to be powered by AC main and ELTEK Flatpack S 2U power system, this provides for parallel redundant powers supply see attached data sheets for specifications.
- A redundant point to point configuration microwave system between RF sites provided by SAIE.
- Integration into the existing console system (by the Police department's vendor - PD costs not included in this proposal). Marcus will work closely with the Police Departments vendor to ensure a smooth integration.
- Integration into existing logging recorder system (by the Police department's vendor - costs not included in this proposal). Marcus will work closely with the Police Departments vendor to ensure a smooth integration.
- Marcus Communications will supply all technical support, equipment, material and labor necessary to develop each proposed simulcast infrastructure site. Marcus will perform all required site modifications, building permits if required, final inspections, etc., related to the installation of system components, as deemed appropriate after consultation with the Town.
- Marcus will utilize licensed electricians to install new services at the sites, when required.
- The Marcus team will develop appropriate drawings that clearly illustrate site improvements for site owner/landlord and Town review and approval after the final design review meeting. No work will be initiated until the Town has reviewed and approved, in writing, all construction plans.

The Elwood site build out includes the items below and costed in this proposal.

- Used and refurbed 10x20 pad mounted equipment shelter. Utilizing this used shelter will provide a cost saving of approximately $50,000.
- New electrical service to the shelter, grounding and ice bridge included.
- Crane and transport cost included.
- Concrete slab for the shelter - *This is provided by the town* (per Addendum #2)
- New mounting hardware for antennas and cables on the tower.
- New chain link fence around new build. *This is provided by the town* (per Addendum #2)
- Stone cover for the newly developed compound. *This is provided by the town* (per Addendum #2)

Lease terms and conditions and rent are the responsibility of the Berlin Fire Department for the use of the Eversource site.

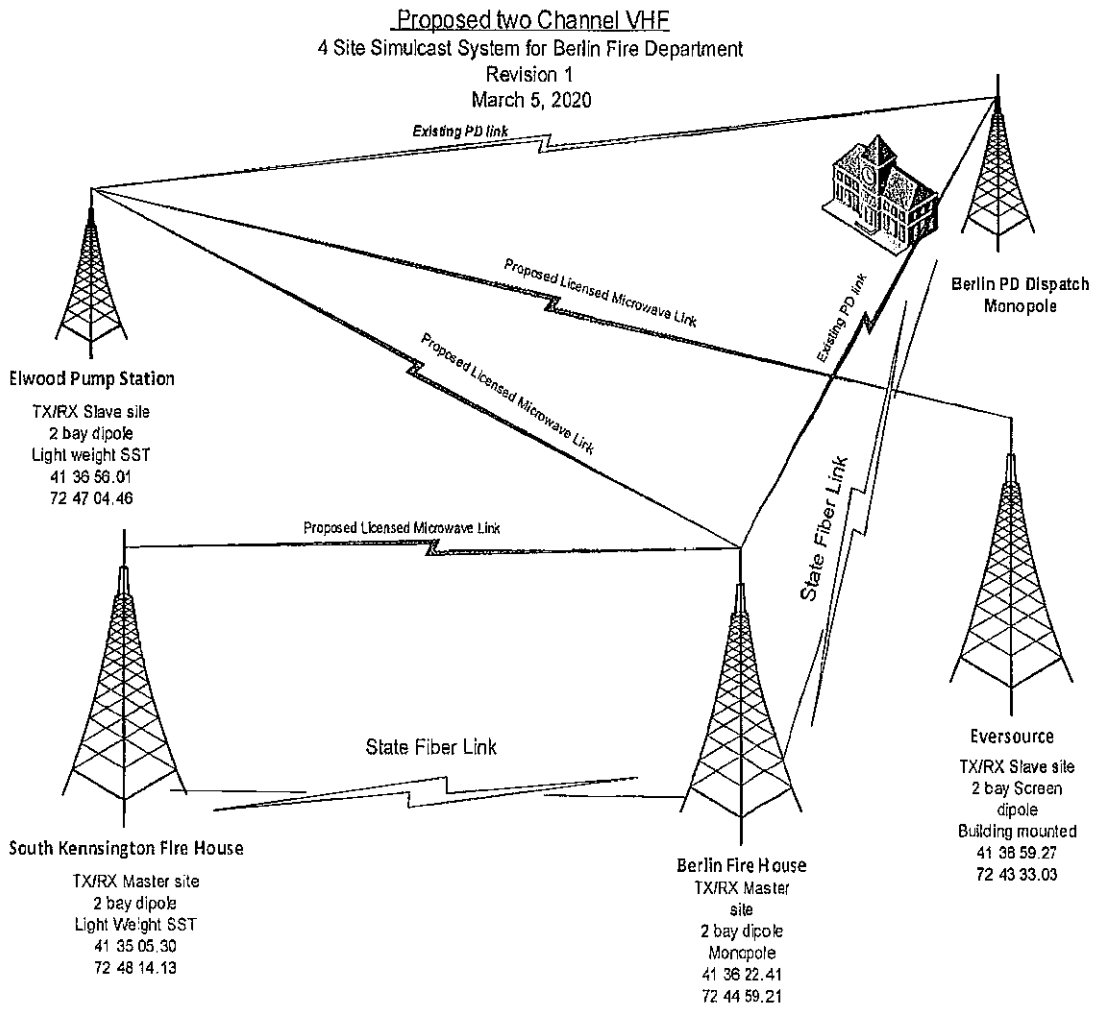
FCC licensing

FCC licensing and frequency coordination are needed to correct existing license issues and add the transmit sites of the new simulcast locations to the existing license and also change the emission designator on the P25 channels. Also included are the licensing and coordination services for a simplex fire ground channel. Marcus has included these services as part of this proposal.

This process must begin and be accomplished before work can begin on the project.

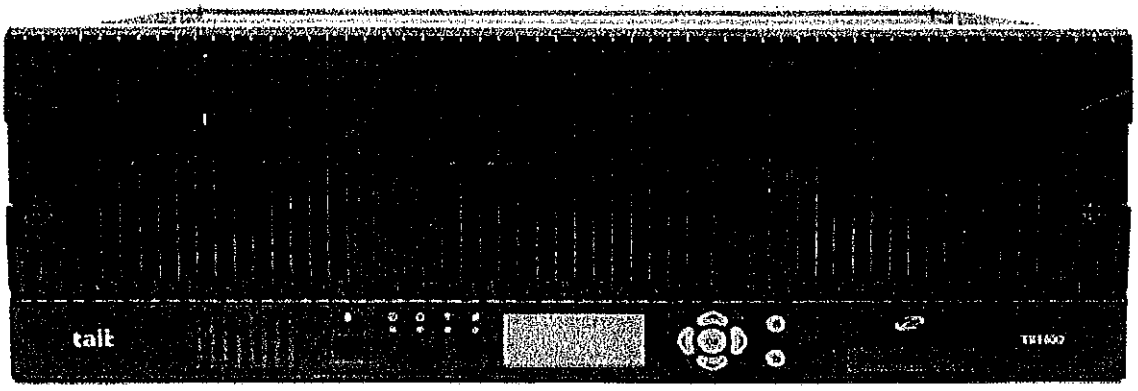
Project management

Marcus Communications will provide an experienced project manager for the duration of this project. This project manager with be the single point of contact for the town and shall have direct access to the executive monument for all decisions that would need to be made at that level. Included in this proposal is a sample project management plan for review and implementation at the project kick-off meeting.



P25 AND ANALOG CONVENTIONAL SIMULCAST NETWORK

A TaitNet P25 conventional network is a set of interconnected TB9400 base station transceivers.



The Tait TB9400 base station is a robust state-of-the-art digital fixed station that combines Tait's proven strengths in reliability, high performance and modular design with software-based configurability and operation, digital signal processing and voice-over-IP technology. The base station operates Project 25 trunked or trunked simulcast radio network. It is capable of either P25 Phase 1 FDMA operation, or 6.25kHz equivalent P25 Phase 2 TDMA operation. The TB9400 can also operate in an analog conventional simulcast or non-simulcast multi-site network.

The base station combines industry-leading digital voice quality with rugged design specifications and intuitive user interfaces. These products have been designed to meet the demanding needs of the public safety and public service sectors.

The ability of the base station to link stations using standard Internet Protocol communications and to add features through software options ensures that P25 systems designed with the TB9400 are scalable in both size and functionality.

Its Ethernet interface provides built-in network connectivity, allowing the TB9400 to join with other TB9400 base stations to form a channel group. This network supports voice-over-IP and remote management of all base stations via a web browser.

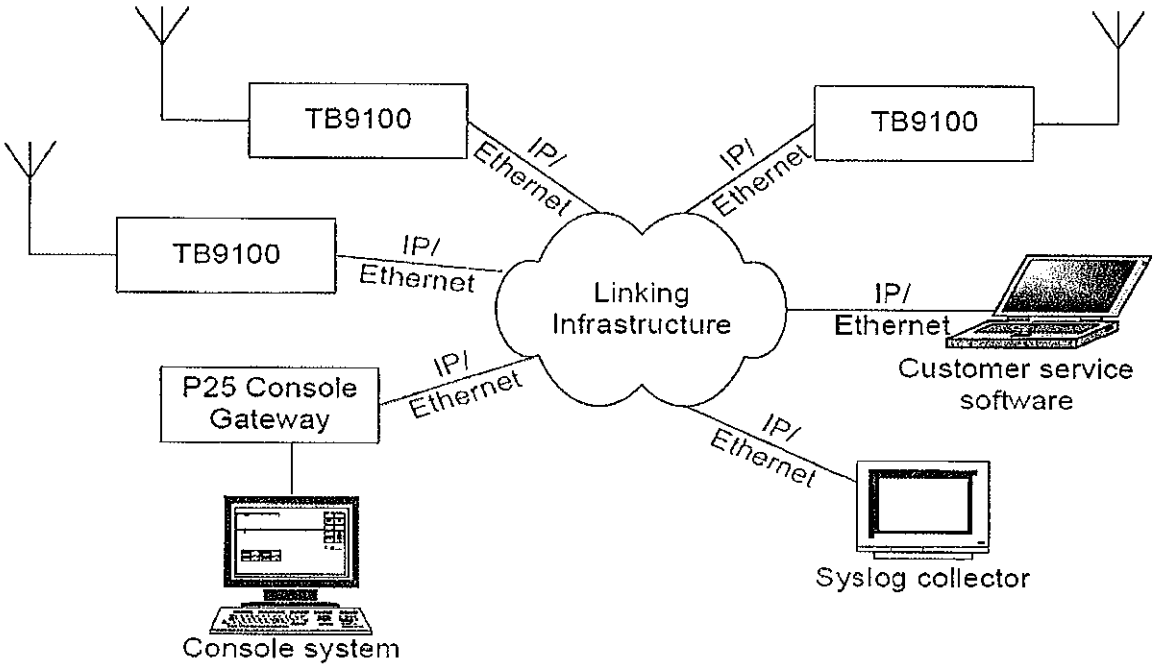
A TaitNet P25 network is a set of interconnected TB9400 base station transceivers. Each TB9400 can receive from and transmit to mobile and portable radios, just like any base station/repeater. However, TB9400s also have built-in networking capabilities that enable them to combine together to form one or more logical channels with wide area coverage.

When a P25-capable 2-way radio (referred to as a subscriber unit or SU) makes a call, a TB9400 receives it and passes it over the linking infrastructure to other TB9400s, which can repeat the transmission.

Third-party dispatch console systems can be integrated with TaitNet P25 networks. Often, they connect via a Tait P25 console gateway. P25 console gateways have the same networking

capabilities as TB9400 base stations, but they have no RF capability. They can serve as an encryption/decryption point to enable analog dispatch consoles to participate in encrypted calls.

TB9400 base stations and P25 console gateways are the main network elements in a TaitNet P25 network. They have voting capabilities and an Ethernet interface, so that extra modules such as voting comparators and digital interfacing equipment are not required. They are interconnected over an IP-based linking infrastructure.



The TaitNet P25 network is managed using the Customer Service Software (CSS) and a syslog collector. The CSS can connect to any Tait network element from anywhere in the network or beyond. It can remotely monitor and configure the connected network element. It can also carry out diagnostic tests and upgrade firmware. A third-party syslog collector acts as an alarm center, receiving alarms and call records from any network element, displaying them and storing them in logs. The linking infrastructure passes voice over IP and signaling messages between network elements. It also carries CSS and syslog communications. TaitNet P25 networks comply with the APCO P25 set of standards. This means, for example, that they support dual mode (digital P25 and analog FM) operation and the use of P25-compliant mobiles and portables from other manufacturers.

Dual Mode

The TaitNet P25 network supports dual-mode operation. TB9400s can receive and transmit in digital P25 and in analog FM mode and the network can carry speech for both modes. If a TB9400 receiver's RF interface is configured for dual mode, it listens for digital P25 signals. If it detects them, it switches to digital P25 mode, otherwise it receives in analog FM mode. When a dispatcher initiates a call, the TB9400 transmits in the default mode for the channel, unless the console selects a different calling profile.

Base stations operating in dual mode operate to their full specification, even if the analog FM mode is wide band. An additional filter in the digital front end means that the receiver can listen for analog FM with a wide-band setting and for digital P25 using a narrow-band filter. Sensitivity and selectivity for digital P25 signals are largely unaffected by dual-mode operation.

Simulcast Operation

In a simulcast network, audio is broadcast:

- simultaneously by multiple transmitters
- using a single frequency
- with high signal levels
- over a wide area

The received voice signals from all TB9400 base stations of a channel group are forwarded to the centralized voter which uses highly sophisticated algorithms to select the best RF signal for re-transmission. The voter then sends the signal, time-stamped using the timing signal of the GPS timing unit, to all base stations. IP latency will result in variable arrival times at the base stations. Time stamps guarantee that the signals are launched simultaneously from the base stations. Coverage overlaps can be optimized with slight adjustments to the launch times.

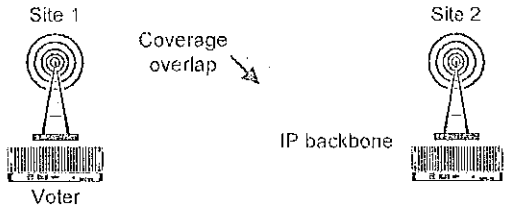


Figure 1. Simulcast overlaps

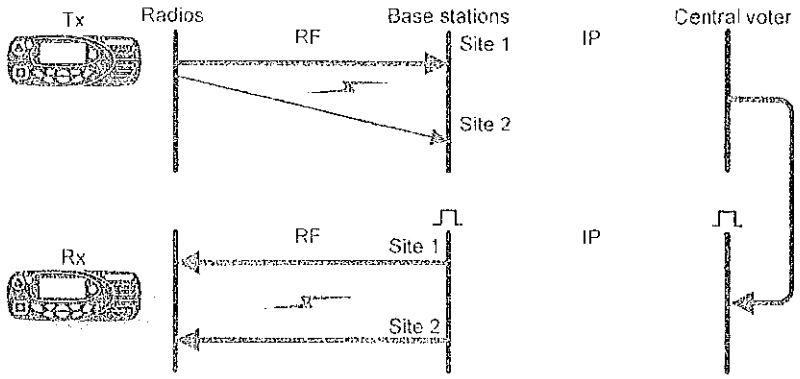
Sites of a simulcast network are usually located close together to provide good coverage allowing users to move seamlessly between sites without having to change the channel.

In areas where one signal is significantly stronger than other signals, the mobile and portable radio will capture the strongest received signal. Other lower-strength signals will not be heard.

In overlap areas, the radio receives two or more RF signals resulting in audible distortion. Simulcast reduces this effect by making sure the transmissions arrive at the radio at approximately the same time.

Radio Calls

When a radio transmits, more than one base station (cell) may receive the signal. Each base station receiving the signal sends it to the central site (Master), where a central voter selects the best signal and then sends it, time-stamped for synchronization, to all base stations which all transmit the call with the same characteristics at a known time to reach the overlap area at the same time.



Subaudible signaling schemes such as CTCSS provide gating to separate RF signals so radio users can only hear other radios using the same signaling scheme.

MDC1200 can be used to provide identification of users via ANI and to implement additional call types such as RF dispatch calls, emergency calls and other priority calls.

Radios can be programmed with channels that bypass the radio network and communicate directly with one another. This can be useful for geographically limited incidents such as fire grounds, or as a fallback solution in case of a partial or complete network failure.

Marcus also proposes components for network management which provides enhanced network management and remote access. This feature enables service technicians to remotely monitor and, in some cases, make repairs and adjustments remotely saving on travel time when an issue occurs and reduces support costs.

Upgrade paths and options

As the Tait simulcast uses the same hardware as the Tait P25 networks, the system proposed is a logical migration option, in particular if you want to take advantage of funding that may be available for P25-capable digital equipment.

A P25 digital solution gives you access to encryption, radio registration and affiliation, digital consoles, voice recorders (DFSI, ISSI, CSSI), AVL solutions, supplemental services, and overall, more control of your network.

If your organization is on a growth path, a conventional analog solution such as AS-IP over time may reach capacity, and migration from AS-IP to a P25 trunked network may be the only solution. P25 trunked simulcast is also available. In trunking operation, the network uses a dedicated control channel to direct radio calls over shared traffic channels and therefore makes most efficient use of the channels available. For a trunked P25 network, each site requires an additional site controller, plus one RFSS controller per network to manage the radio fleets.

The hardware proposed and can migrated into a more sophisticated trunked system additionally if another site can be added into the system without changing existing hardware.

Centralized Voting Redundancy

Because each base station has a built-in voting capability, eliminating a single point of failure in a simulcast channel group is straightforward. The most centrally located site generally handles the voting and simulcast control, but a second site is configured to take over these functions should that site fail. No additional hardware is required.

Dispatch Console Integration

The dispatch equipment is connected to the TaitNet P25 network via a P25 console gateway. The P25 console gateway provides an analog line if the dispatch equipment is analog or a DFSI interface if the equipment is digital. Alternatively, dispatch equipment can be connected directly to a base station in the channel group. With the appropriate feature licenses, any TB9400 can provide an analog line interface or a DFSI interface.

The TaitNet P25 network supports line signaling, tone remote function tones and Motorola MDC1200 signaling. During analog FM calls, the network is transparent to analog signaling; analog voice and signaling is converted into the G.711 format for transport across the IP network. During digital P25 calls, any analog signaling from the console is mapped to the P25 standards for transport across the air interface.

With the appropriate feature licenses, the P25 console gateway can function as an encryption/decryption point.

Digital console systems connect to a channel or channel group using the DFSI interface defined in the P25 TIA standard. Encryption and decryption is carried out by the console system. The DFSI interface supports analog FM mode.

The IP backbone interconnects the various elements of the network. It is a dedicated, private wide area network, which can be interfaced via a secure firewall to the organization's LAN. Secure remote access to the network can be provided over the public Internet. The backbone consists of COTS IP-based building blocks. The public Internet itself is generally not suited to provide that backbone as it cannot guarantee performance or provide a high level of security.

TaitNet AS-IP analog simulcast networks are IP-based systems designed to provide conventional simulcast analog communications over wide areas. They can be stand-alone or used to provide an analog simulcast overlay to new or existing Tait networks, such as for analog paging applications or legacy analog radio users. Because AS-IP networks use the same hardware as Tait networks, they are upgradable to P25 trunking.

Simulcast transmission offers coverage over a large geographical area with spectrum efficiency. Audio is broadcast simultaneously over multiple transmitters on a single frequency. Essentially each transmitter in the system transmits the same signal, with the same characteristics, at the same time.

A basic AS-IP network consists of multiple sites. A site may have multiple base stations (one per channel) which are linked through routers by IP/Ethernet to form a local area network. For synchronization, each site also has a GPS timing unit.

The base stations are combined to form channel groups. Each channel group requires its own console, which can be either an analog dispatch console system connected to the central site via a console gateway, or an RF console that is a mobile on a desktop. A channel group in effect is a logical channel that provides a centralized RF receive and transmit function.

Typically, a channel group contains one base station from each site. This allows the channel group coverage to extend over the entire network area. The dispatch equipment often interfaces via the analog line to the console gateway. A base station can only be a member of one channel group at a time. To assign a base station to a channel group, it is configured with the channel group's multicast address.

The channel group conducts its own voting and switching to determine which signal will be transmitted if multiple signals arrive simultaneously. One of the channel group's base stations is declared as the master and the other base stations are its satellites. The master controls the operation of the channel group and performs centralized voting.

The channel group operation is synchronized so the transmitters transmit in simulcast, with slight adjustments to launch times depending on overlap zones. The master timestamps the voted voice signal to be transmitted and sends it to all channel group members. The timestamp tells members when to transmit each voice packet.

The IP backbone interconnects the various elements of the network. It is a dedicated, private wide area network, which can be interfaced via a secure firewall to the organization's LAN. Secure remote access to the network can be provided over the public Internet. The backbone consists of COTS IP-based building blocks. The public Internet itself is generally not suited to provide that backbone as it cannot guarantee performance or provide a high level of security.

Power and Environmental Information

All equipment is provisioned to operate on AC and 48 VDC power. The power dissipation and heat load calculations for each new component is given below.

Rack #1	Qty	Max Current (A)	Ave. Current (A)	Min. Current (A)	Max. Power Diss. (Watts)	Ave. Power Diss. (Watts)	Min. Power Diss. (Watts)	Notes
Cisco 2911 Router (48 VDC)	2	12.50	12.50	12.50	600.00	600.00	600.00	100% Duty Cycle
NetGuardian (48VDC)	1	2.04	2.04	2.04	98.00	98.00	98.00	100% Duty Cycle
Spectracom SecureSync (48 VDC)	2	2.08	1.67	1.67	100.00	80.00	80.00	100% Duty Cycle
TB9400 (48VDC)	6	19.38	6.18	2.88	930.00	296.40	138.00	10/10/80% Duty Cycle
Rack Total		36.00	22.38	19.08	1728.00	1074.40	916.00	
BTU/Hr					4191.16	3666.93	3126.31	

Environmental Requirements

Site equipment is to be accommodated in a temperature-controlled environment within the range of 0C to +40C.

Performance un fault Conditions

If this fails...	Then...
Satellite base station in a simulcast channel group	The channel group is still working but the base station's physical site does not contribute to coverage.
Link between satellite base station and channel group	The channel group is still working but the base station's physical site does not contribute to coverage.
Master base station in a simulcast channel group	There is a backup master base station, it takes over the master role. If there is only one master-capable base station in the channel group, the whole channel group won't be operational.

1 PPS timing signal in a Phase 1 system	The GPS timing unit has a holdover period, which means that if the GPS fix is lost in a simulcast system, the GPS timing unit will continue to send 1PPS timing. After the holdover time, all base stations of that site lose the 1PPS signal and are immediately unsynchronized. Base stations in a simulcast channel group can be configured to transmit or not to transmit after they become unsynchronized. If they do transmit, coverage and signal quality may be degraded in overlap zones over a period of time.
1 PPS and GPS timing unit loss at one entire physical site	The site has lost synchronization so cannot operate in simulcast. The base stations at the site will not transmit. (If the transmitters are 800 MHz, the system may contravene US law if it continues to operate for an extended period of time in a known unsynchronized state.)
Base station	Radios can still operate in direct mode (see Radio Calls).
EnableMonitor	Central monitoring of the network is not available. Maintainers can still monitor base stations. Syslog messages can still be sent to syslog collectors.

Microwave System

Marcus has chosen the very robust and carrier grade microwave equipment for this public safety application. A full detailed path study analysis is provided as part of this proposal.

Marcus Communications has assembled some of the brightest minds in the LMR industry and uses an engineering team approach to RF and microwave design due to the complexity of the issues that must be resolved in all situations. The old saying "two eyes are better than one" is the design philosophy of Marcus Communications. All design work is pier reviewed by at least two qualified individuals.

Marcus uses a four-step approach to the design process of microwave paths

- Initial evaluation to establish a possible path
- Software modeling using industry standard methods in Pathloss 51
- Independent third-party verification with Microwave supplier
- Physically view the candidate path for validations of engineering data

Marcus Communications method of microwave path evaluations consist of the following process by our engineering team.

- Gain knowledge of the local area
- Determine exact and correct coordinates
- Area search by means of Goggle Earth Pro
- Path profile evaluation by Google Earth Pro

If this initial look shows that a path is potentially possible, Marcus begins path studies and network design calculations.

Path profiles are based on primary DEM (Digital Elevation Model) using Grid float (NAD83) provided by the SRTM (Shuttle Radar Topography Mission) and clutter data provided by the MRLC (Multi-Resolution Characteristics Consortium) of the US Government. Path calculations are based on the customer throughput requirements, frequency and radio type. Availability prediction is based on the Vigants-Barnett prediction method with Crane rain availability models.

Once our path(s) are modeled and are showing valid paths the Marcus team visits the potential sites to actually look and photograph the paths and if needed will actually fly a drone and take video of the path if the opposite point cannot viewed due to haze or if the path is questioned for any reason.

Marcus communications will supply an IP Based all outdoor system architecture. The microwave Alarm System shall be provided to monitor microwave site functions and to provide alarm status of abnormal operational parameters of equipment associated with the microwave system.

A separate microwave standby battery system is provided and sized for 24-hours of continuous microwave operation at each infrastructure site. An automatic low-voltage disconnect system is used to protect the battery plant from deep-cycle discharge damage. Each furnished antenna system will be equipped with stiff arms/mounts to limit antenna vibration and flexing during high wind events if needed.

FCC license application preparation and engineering activities associated with the development of the FCC license submittal, including path surveys and fees, as necessary is included.

The microwave system proposed meets the specifications requirements. However, the system used is capable of very diverse capabilities and redundancy that the town should consider now or upgrade at a later date.

Backup dispatch console located at the Berlin Fire House

The backup console position proposed is a single position computer-based Telex IP based system. The screen design can be customized to meet the needs that this system is intended to perform. The C-Soft console is a full featured public safety console that can perform all the needs including the paging functions. It operated on the windows operating system. The components are a screen, keyboard, mouse, desk microphone, audio processing unit and speakers. The backroom components connect to the control station radio resources.

This console position will have DFSI connection into the main system channels via the microwave and fiber connection. The other resources include new VHF, UHF and 800 MHz multi-channel control stations for interoperability with all of the town resources.

To remain as a true backup console, it is designed to be fully independent of the police dispatch console system.

Fireground Receiver System

The Fire ground receiver system proposed is comprised of four analog receivers located at each of the transmit sites and the audio from this system is intended to be recorded at the same dispatch recorder as the two new system channels. This system is an audio voting system, meaning that the best audio quality from a particular site in this system is the one recorded at dispatch.

System Life Cycle

Tait has no plans to obsolete its current technologies which is a strategic and maintained product line. Tait expects the proposed solution to have a life expectation beyond 15 years.

This can be achieved through a combination of the following:
a) undertaking a maintenance and support agreement throughout the life of the system.

b) Identification of system components that will be required to be upgraded within the required lifecycle. Some equipment such as node controllers/servers will require upgrades to support a 15-year life cycle.

c) Managing of obsolescence through stocking of spare parts, last time buy options, and Tait exercising reasonable endeavours to support and hold spare parts inventory for seven years from the final date of obsolescence

Removal of Existing Equipment

Marcus Communication will remove all of the existing related equipment at a convenient time after system acceptance.

Mobile and portable radio list as outline if the RFP

13 Harris XL200 Triband P25 Partial Keypad portables, Antenna, 5000mAh Li-Ion Battery included includes P25 Phase 1 & 2 trunking *(12 Admin Officer & 1 EOC portable)*

13 Single bay chargers

13 Harris 500 Fire-Rated Speaker Mic's

13 Leather cases for XL200

85 Harris XL 200 VHF Single Band P25 Portables, Antenna, 5000mAh Li-Ion Battery, belt clip included *(12 LT, 72 Firefighter portables & 1 Fire Marshal)*

85 Harris 500 Fire-Rated Speaker Mic's

12 Harris Single Bay Chargers

73 EC1M-HA3B - Charger, Endura In-vehicle charger for Harris XL200- with tie down strap

3 Harris XL200 P25 Dual-Band Antenna, 5000mAh Li-Ion Battery, Belt Clip included *(Public Works Supervisors)*

3 Harris Single bay chargers *(Public Works Supervisors)*

6 Kenwood NX-5200 P25 Portables for *(6 for EOC)* Antenna, Battery & Chargers included.

8 Kenwood NX-5700 P25 Single Band Base Stations with desktop microphones for *(4 total)* Fire stations *(4 total)* Town: 1-Water, 1-Highway, 1-Facilities, and 1-Parks & Engineering (Assumes we are using existing cable for antenna, new antenna provided)

34 Kenwood NX-5700 P25 Mobiles (*33 for Highway Dept.),* and *(1 for Fire Marshal's vehicle)*

(Assumes we are using existing cable for antenna if it tests good, new antenna provided)

18 Kenwood NX-5700 P25 Single band mobile radios for *(DPW)* with antenna and mount.

17 Kenwood NX5700 P25 Triple Deck Single Head Triple Speaker Remote Mount mobile units for *(16 Apparatus + 1 EOC Car)* with P25 Phase 1 & 2 trunking for 800 MHz interoperability with Middletown. *(Note: UHF & VHF RF Decks will have P25 conventional only)*

2 Inter-op box setups in the Command vehicles with P25 Phase 1 & 2 trunking for 800 MHz interoperability with Middletown. *(Note: UHF & VHF Radios will have P25 conventional only)*

1 Back up EOC Dispatch Console Located at the Berlin Volunteer Fire Department- remove and replace with Telex C-Soft IP Dispatch Control Station includes New PC, radios and all hardware for a complete full feature Dispatch Console.

All portables shall be engraved with unit # and Department name.

Optional Items

KNOX Box Secure Key 6 System- Remove and install new KNOX box system in 11 apparatus including first year Cloud License, KNOX Cloud License fee after first year is payable to KNOX directly and they offer a 3- or 5-year license. (Note: Marcus will install the system, KNOX will perform all needed programming directly with the Fire Department).

Upgrade of the Door Access/Siren Controls- Replace door and siren control receiver system utilizing existing door actuators unless faulty.

ATTACHMENT A: CONSULTANT'S STATEMENT OF REFERENCES

Fire Dept. Radio Communications Upgrade Bid #2020-15

Provide at least three (3) references:

1. BUSINESS NAME

Please see attached references for Full information_____

ADDRESS

_____

CITY, STATE

_____

TELEPHONE:

_____

INDIVIDUAL CONTACT NAME AND POSITION

_____

2. BUSINESS NAME

_____

ADDRESS

_____

CITY, STATE

_____

TELEPHONE:

_____

INDIVIDUAL CONTACT NAME AND POSITION

_____

3. BUSINESS NAME

ADDRESS

CITY, STATE

TELEPHONE:

INDIVIDUAL CONTACT NAME AND POSITION

TOWN OF BERLIN, CONNECTICUT

ATTACHMENT B: PROPOSAL FORM

Fire Dept. Radio Communications Upgrade

Bid #2020-15

Pursuant to and in full compliance with the RFP, the undersigned certifies this proposal is submitted without collusion and all responses are true and accurate. If awarded this proposal, it is agreed this will form a contractual obligation to provide services at fees specified in this Proposal Form, subject to and in accordance with all instructions, conditions, requirements contained in the documents, including addenda, which are made part of this proposal. For a firm to be considered for this engagement, one (1) original and two (2) copies of sealed proposals must be received in the Town Managers Office of the Berlin Town Hall, 240 Kensington Rd, Room 101, Berlin, CT 06037 by 2 p.m. on April 1, 2020. The Town will not accept submissions by e-mail or fax. The Town will reject proposals received after the date and time noted above.

Please Provide Pricing to include construction and parts:

	Infrastructure, Fire Ground recorder	$550,015.00
	Subscriber units, portables, Mobiles, base stations, back up console	$529,197.00
TOTAL		$1,079,212.00
	Optional KNOX system and Door Controls	$41,042.00
TOTAL WITH OPTIONS		$1,120,254.00

Please attach any additional/related services or prices.

Date: April 1, 2020

Signature: _____

Printed Name, Title: Bruce Marcus, CTO

Company Name: Marcus Communications

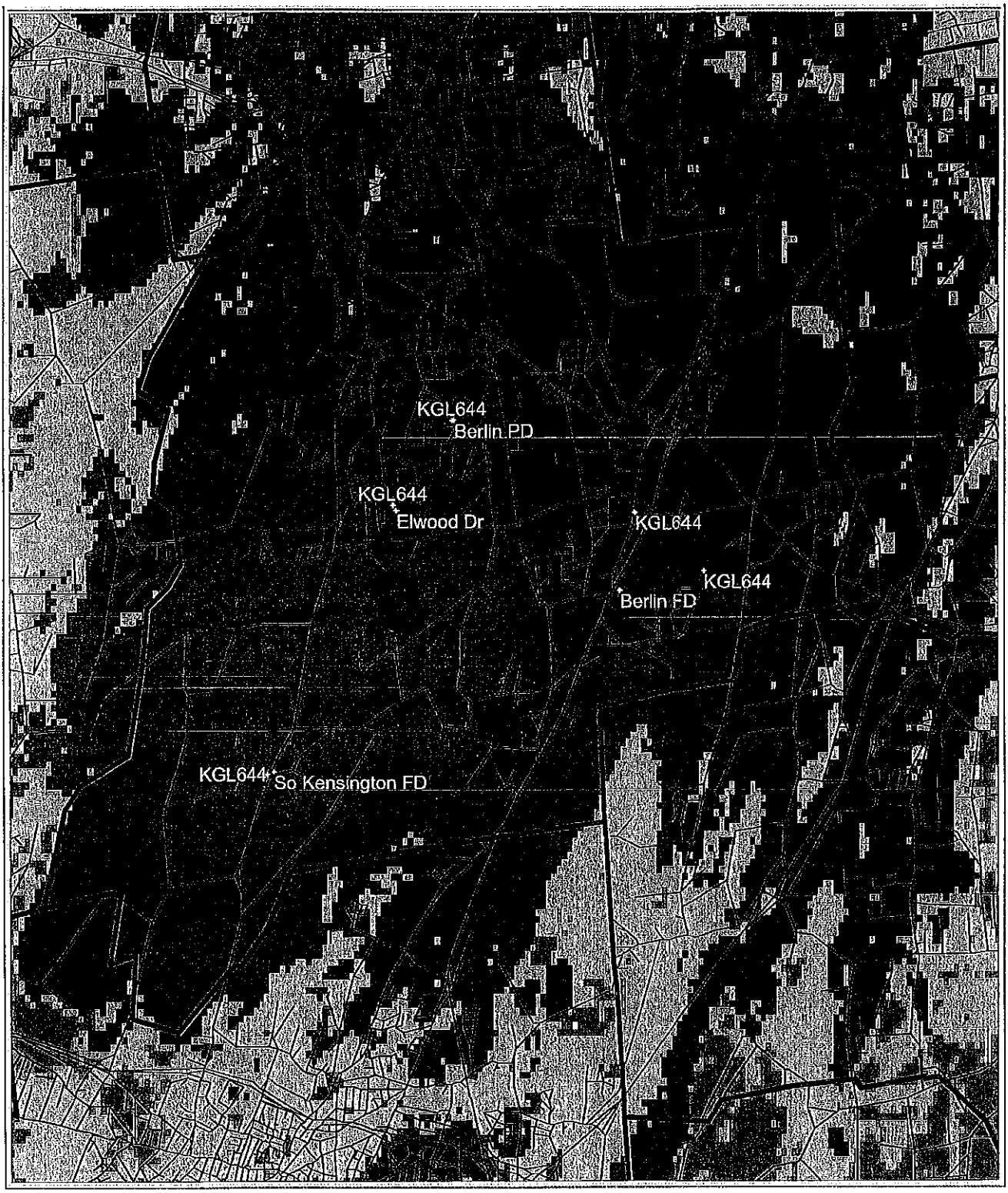
Address: 33 Mitchell Drive Manchester, CT

Address of Repair Facility: Same as above

Telephone: 860-646-1839

*Pricing valid for 90 days unless mutually agreed by both parties.

E-mail address: bruce@marcusradio.com



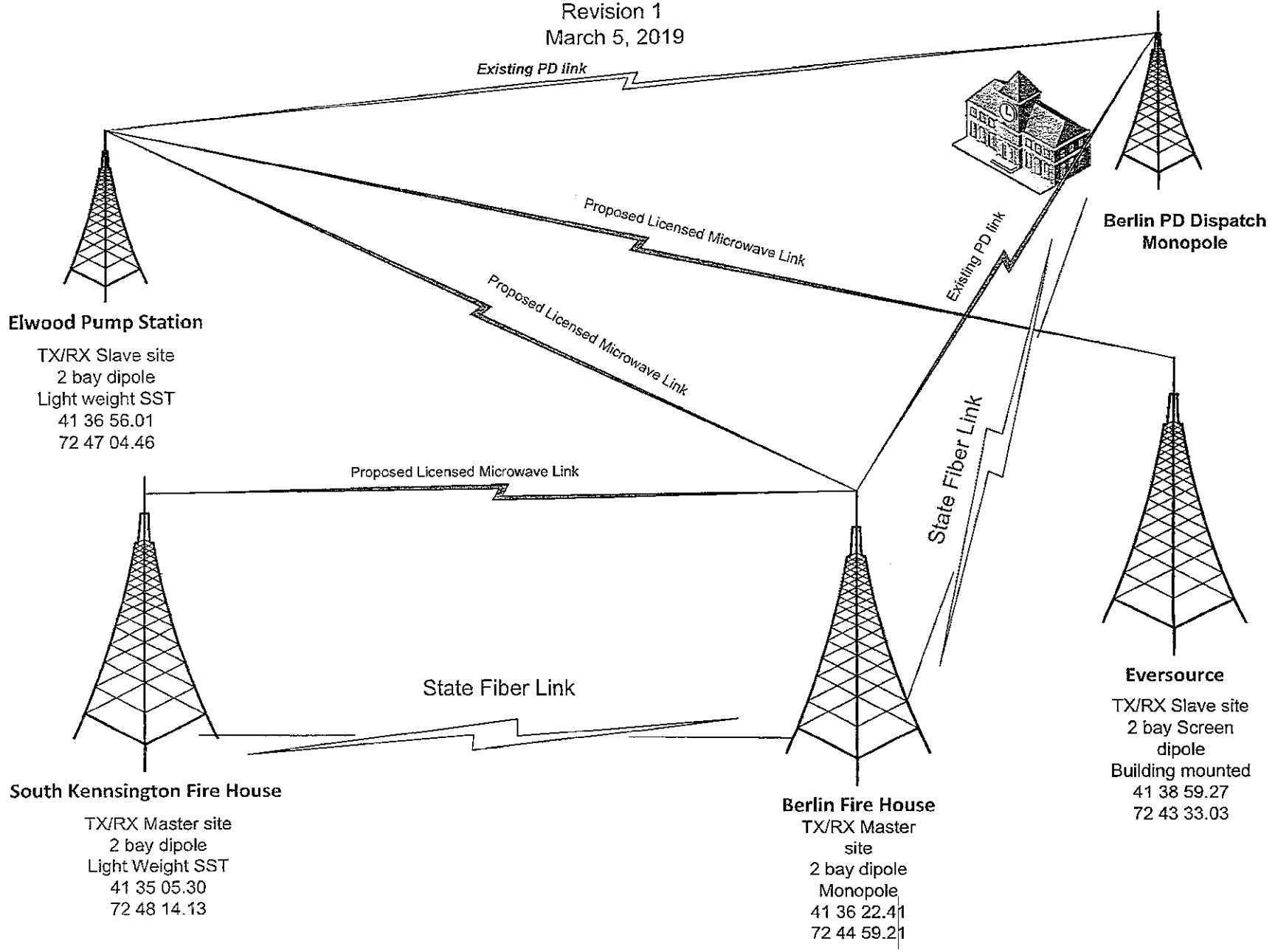
RED = Indoor Portable ORANGE = Outdoor Portable BLUE = Mobile

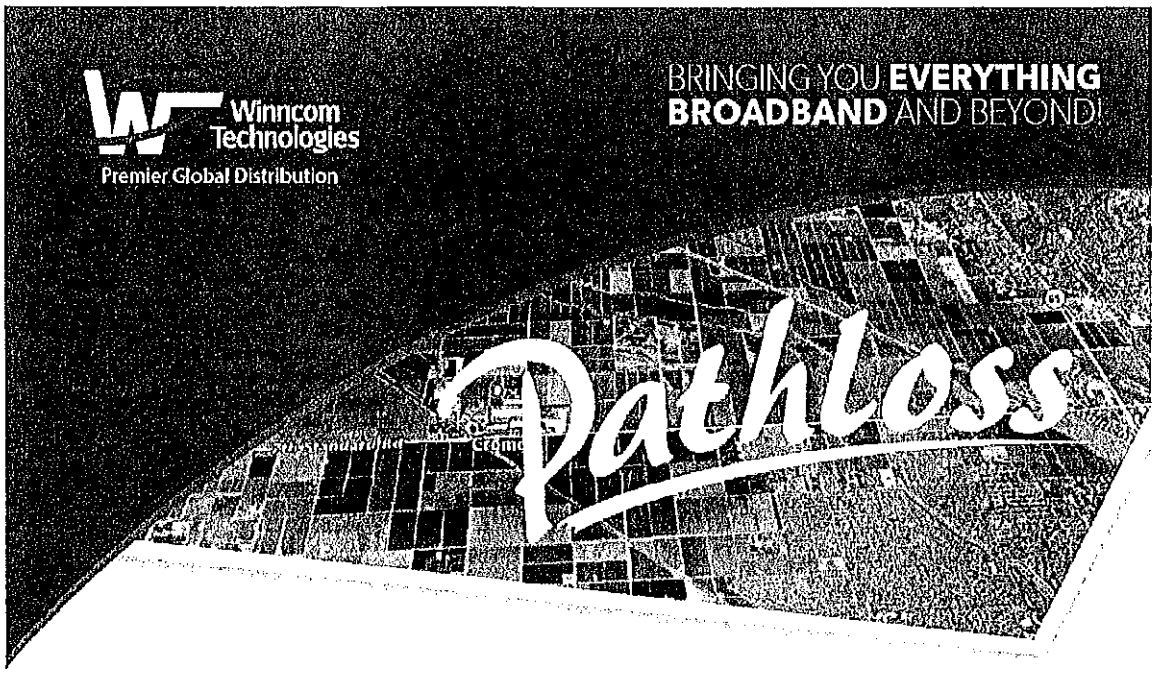
Proposed two Channel VHF

4 Site Simulcast System for Berlin Fire Department

Revision 1

March 5, 2019





Path Analysis Report

Marcus Communications

3/20/2020

Winncom Technologies

28900 Fountain Parkway, Suite B
Solon, Ohio 44139 USA

888-WINNCOM

support@winncom.com

Table of Contents

1. Disclaimer

1.1. Path Calculations

1.1.1. Based on customer requirements of throughput, frequency, antenna heights, and radio type. Winncom uses the **Vigants-Barnett** Prediction method with **Crane** rain availability models.

1.1.2. Results described are indicative of preliminary designs based on this customer data and directions provided.

1.1.3. Path Profiles are based on preliminary Digital Elevation Models (DEM) using Grifloat (NAD83) provided by the Shuttle Radar Topography Mission (SRTM) and clutter data provided by the Multi-Resolution Characteristics Consortium (MRLC) of the U.S. Government.

1.2. Site Survey

1.2.1. Winncom Technologies, Corp (Engineering, Pre-Sales team, and any other representative of the company) does not guaranty accuracy of the enclosed model provided, and the customer assumes full risk associated with installing equipment based solely on the Network Design Calculations.

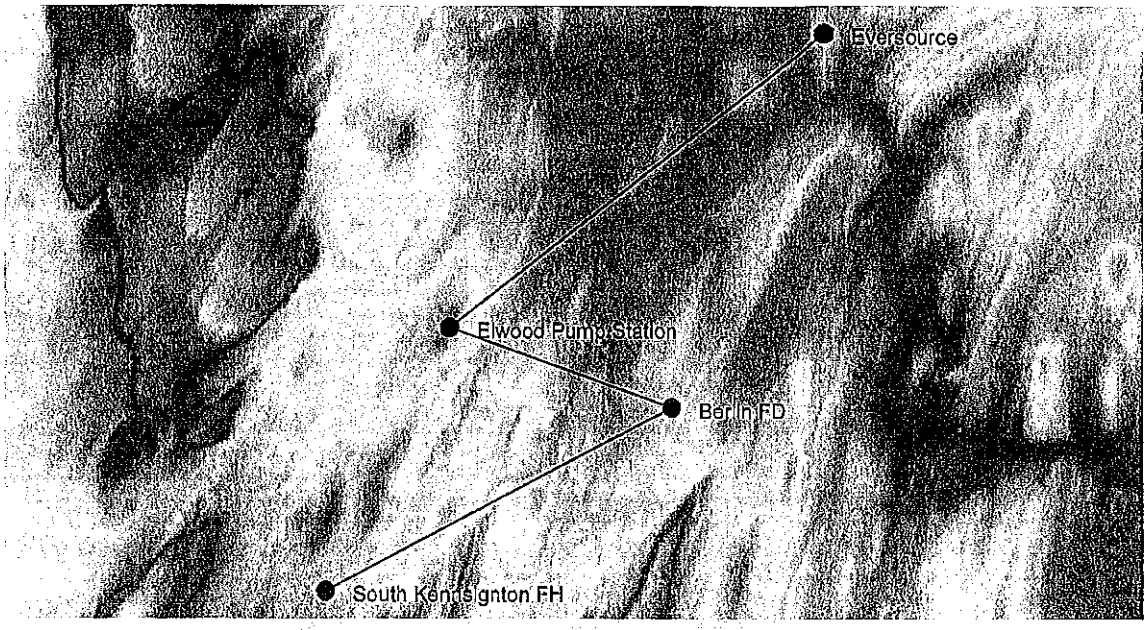
1.2.2. It is highly advised that a site survey is performed for all links to assure clearance and specific antenna location plan(s).

2. Project Summary

Customer Name:	
Company Name:	Marcus Communications
Address:	
Contact Phone:	
Contact Email:	
End User (Optional):	

3. Network Overview

3.1. Aerial View



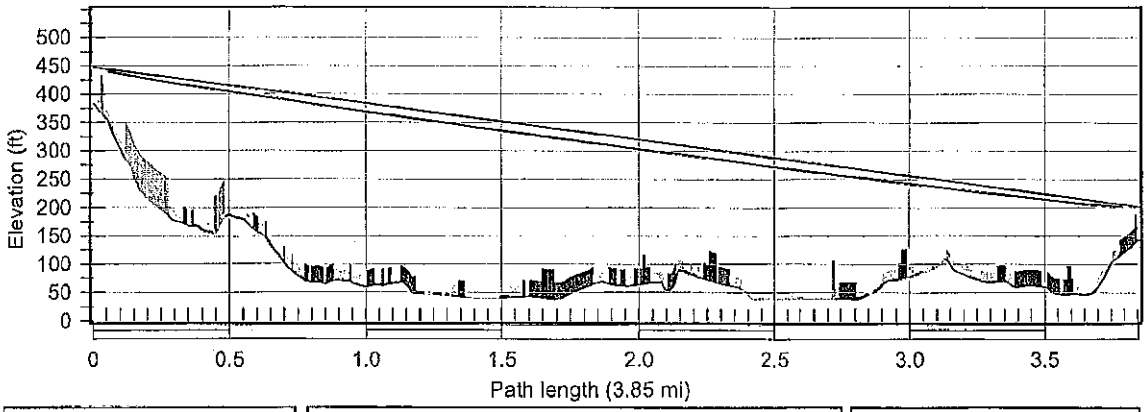
3.2. Network 3D Image

4. Project Notes

- Three Links – AGS-20
- Requirements - 10Mbps – 99.999%

5. Link 1: Elwood Pump Station to Eversource

5.1. Path Profile



Elwood Pump Station	
Latitude	41 36 56.01 N
Longitude	072 47 04.46 W
Azimuth	52.13°
Elevation	382 ft ASL
Antenna CL	65.0 ft AGL

Frequency (MHz) = 18200.0
K = 1.33
%F1 = 100.00

Eversource	
Latitude	41 38 59.27 N
Longitude	072 43 33.03 W
Azimuth	232.17°
Elevation	142 ft ASL
Antenna CL	60.0 ft AGL

5.2. Performance Summary

Availability	Down Time (per year)	Throughput
99%	3.65 days	111 Mbps
99.9%	8.77 hours	107 Mbps
99.99%	52.60 minutes	64 Mbps
99.999%	5.16 minutes	21 Mbps

https://uptime.is/

5.3. Path Analysis

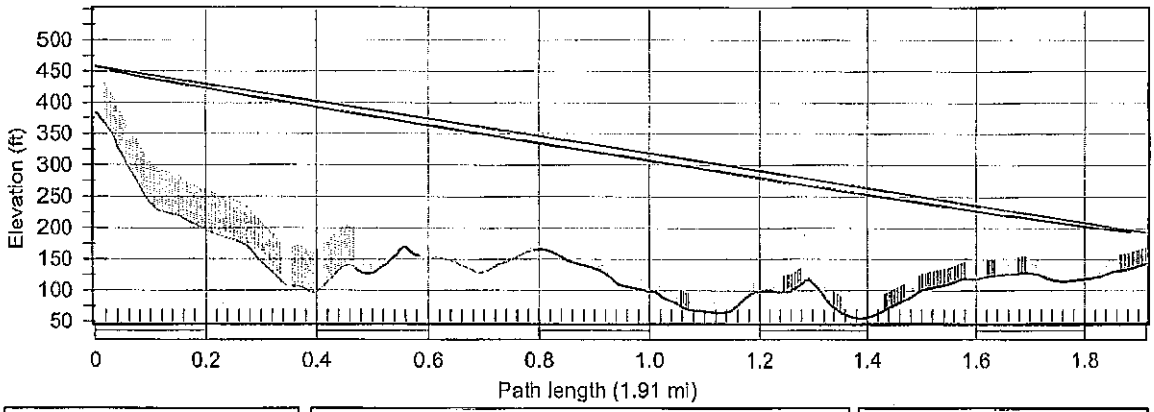
	Elwood Pump Station	Eversource
Latitude	41 36 56.01 N	41 38 59.27 N
Longitude	072 47 04.46 W	072 43 33.03 W
True azimuth (°)	52.13	232.17
Vertical angle (°)	-0.71	0.67
Elevation (ft)	382.46	141.64
Antenna model	VHLP1-18 (TR)	VHLP1-18 (TR)
Antenna file name	vhlp1-18	vhlp1-18
Antenna gain (dBi)	34.20	34.20
Antenna height (ft)	65.00	60.00
Orientation loss (dB)	0.00	0.00
Frequency (MHz)	18200.00	
Polarization	Vertical	
Path length (mi)	3.85	
Free space loss (dB)	133.51	
Atmospheric absorption loss (dB)	0.35	
Net path loss (dB)	65.47	65.47
Radio model	ASNK18-AGS20_13.75MHz	ASNK18-AGS20_13.75MHz
Radio file name	asnk18_13.75mhz	asnk18_13.75mhz
Emission designator	14M0D7WET	14M0D7WET
Climatic factor	1.00	
Terrain roughness (ft)	32.31	
C factor	1.76	
Average annual temperature (°F)	46.56	
Fade occurrence factor (Po)	4.586E-003	
Polarization	Vertical	
Rain region	New Haven, Connecticut	

	TX power (dBm)		RX threshold level (dBm)		EIRP (dBm)		Receive signal (dBm)		Thermal fade margin (dB)		Flat fade margin - multipath (dB)	
2048QAM 111	**17.00**	**17.00**	**-57.00**	**-57.00**	**51.20**	**51.20**	**-48.47**	**-48.47**	**8.53**	**8.53**	**8.53**	**8.53**
1024QAM 107	17.00	17.00	-58.75	-58.75	51.20	51.20	-48.47	-48.47	10.28	10.28	10.28	10.28
512QAM 98	18.00	18.00	-61.50	-61.50	52.20	52.20	-47.47	-47.47	14.03	14.03	14.03	14.03
256QAM 88	18.00	18.00	-64.80	-64.80	52.20	52.20	-47.47	-47.47	17.33	17.33	17.33	17.33
128QAM 76	19.00	19.00	-67.20	-67.20	53.20	53.20	-46.47	-46.47	20.73	20.73	20.73	20.73
64QAM 64	19.00	19.00	-70.10	-70.10	53.20	53.20	-46.47	-46.47	23.63	23.63	23.63	23.63
32QAM 51	21.00	21.00	-73.30	-73.30	55.20	55.20	-44.47	-44.47	28.83	28.83	28.83	28.83
16QAM 43	21.00	21.00	-75.10	-75.10	55.20	55.20	-44.47	-44.47	30.63	30.63	30.63	30.63
4QAM 21	23.00	23.00	-80.90	-80.90	57.20	57.20	-42.47	-42.47	38.43	38.43	38.43	38.43
4QAMs 18	23.00	23.00	-88.50	-88.50	57.20	57.20	-42.47	-42.47	46.03	46.03	46.03	46.03

	Worst month multipath		Annual multipath		Annual rain		Total annual (2 way)	Time in mode (2 way)
2048QAM 111	**99.9357**	**99.9357**	**99.9850**	**99.9850**	**99.8932**	**99.8932**	**99.8633**	**99.8633**
1024QAM 107	99.9570	99.9570	99.9900	99.9900	99.9350	99.9350	99.9150	0.0517
512QAM 98	99.9819	99.9819	99.9958	99.9958	99.9717	99.9717	99.9632	0.0482
256QAM 88	99.9915	99.9915	99.9980	99.9980	99.9842	99.9842	99.9803	0.0170
128QAM 76	99.9961	99.9961	99.9991	99.9991	99.9908	99.9908	99.9890	0.0087
64QAM 64	99.9980	99.9980	99.9995	99.9995	99.9941	99.9941	99.9931	0.0042
32QAM 51	99.9994	99.9994	99.9999	99.9999	99.9973	99.9973	99.9971	0.0039
16QAM 43	99.9996	99.9996	99.9999	99.9999	99.9980	99.9980	99.9978	0.0007
4QAM 21	99.9999	99.9999	99.9999	99.9999	99.9994	99.9994	99.9994	0.0016
4QAMs 18	99.9999	99.9999	99.9999	99.9999	99.9998	99.9998	99.9998	0.0004

6. Link 2: Elwood Pump Station to Berlin FD

6.1. Path Profile



Elwood Pump Station	
Latitude	41 36 56.01 N
Longitude	072 47 04.46 W
Azimuth	109.66°
Elevation	382 ft ASL
Antenna CL	75.0 ft AGL

Frequency (MHz) = 18200.0
K = 1.33
%F1 = 100.00

Berlin FD	
Latitude	41 36 22.41 N
Longitude	072 44 59.21 W
Azimuth	289.68°
Elevation	142 ft ASL
Antenna CL	50.0 ft AGL

6.2. Performance Summary

Availability	Down Time (per year)	Throughput
99%	3.65 days	NA
99.9%	8.77 hours	NA
99.99%	52.60 minutes	111 Mbps
99.999%	5.16 minutes	88 Mbps

https://uptime.is/

6.3. Path Analysis

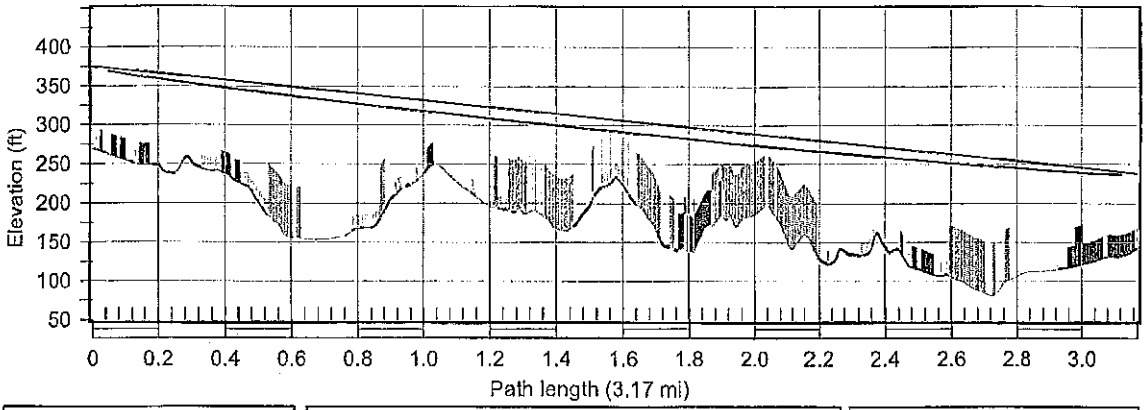
	Elwood Pump Station	Berlin FD
Latitude	41 36 56.01 N	41 36 22.41 N
Longitude	072 47 04.46 W	072 44 59.21 W
True azimuth (°)	109.66	289.68
Vertical angle (°)	-1.51	1.49
Elevation (ft)	382.46	142.34
Antenna model	VHLP1-18 (TR)	VHLP1-18 (TR)
Antenna file name	vhlp1-18	vhlp1-18
Antenna gain (dBi)	34.20	34.20
Antenna height (ft)	75.00	50.00
Orientation loss (dB)	0.00	0.00
Frequency (MHz)	18200.00	
Polarization	Vertical	
Path length (mi)	1.91	
Free space loss (dB)	127.44	
Atmospheric absorption loss (dB)	0.18	
Net path loss (dB)	59.22	59.22
Radio model	ASNK18-AGS20_13.75MHz	ASNK18-AGS20_13.75MHz
Radio file name	asnk18_13.75mhz	asnk18_13.75mhz
Emission designator	14M0D7WET	14M0D7WET
Climatic factor	1.00	
Terrain roughness (ft)	28.03	
C factor	2.12	
Average annual temperature (°F)	46.65	
Fade occurrence factor (Po)	6.772E-004	
Polarization	Vertical	
Rain region	New Haven, Connecticut	

	TX power (dBm)		RX threshold level (dBm)		EIRP (dBm)		Receive signal (dBm)		Thermal fade margin (dB)		Flat fade margin - multipath (dB)	
2048QAM 111	**17.00**	**17.00**	**-57.00**	**-57.00**	**51.20**	**51.20**	**-42.22**	**-42.22**	**14.78**	**14.78**	**14.78**	**14.78**
1024QAM 107	17.00	17.00	-58.75	-58.75	51.20	51.20	-42.22	-42.22	16.53	16.53	16.53	16.53
512QAM 98	18.00	18.00	-61.50	-61.50	52.20	52.20	-41.22	-41.22	20.28	20.28	20.28	20.28
256QAM 88	18.00	18.00	-64.80	-64.80	52.20	52.20	-41.22	-41.22	23.58	23.58	23.58	23.58
128QAM 76	19.00	19.00	-67.20	-67.20	53.20	53.20	-40.22	-40.22	26.98	26.98	26.98	26.98
64QAM 64	19.00	19.00	-70.10	-70.10	53.20	53.20	-40.22	-40.22	29.88	29.88	29.88	29.88
32QAM 51	21.00	21.00	-73.30	-73.30	55.20	55.20	-38.22	-38.22	35.08	35.08	35.08	35.08
16QAM 43	21.00	21.00	-75.10	-75.10	55.20	55.20	-38.22	-38.22	36.88	36.88	36.88	36.88
4QAM 21	23.00	23.00	-80.90	-80.90	57.20	57.20	-36.22	-36.22	44.68	44.68	44.68	44.68
4QAMs 18	23.00	23.00	-88.50	-88.50	57.20	57.20	-36.22	-36.22	52.28	52.28	52.28	52.28

	Worst month multipath		Annual multipath		Annual rain		Total annual (2 way)	Time in mode (2 way)
2048QAM 111	**99.9977**	**99.9977**	**99.9995**	**99.9995**	**99.9960**	**99.9960**	99.9949	99.9949
1024QAM 107	99.9985	99.9985	99.9996	99.9996	99.9974	99.9974	99.9967	0.0017
512QAM 98	99.9994	99.9994	99.9999	99.9999	99.9990	99.9990	99.9987	0.0020
256QAM 88	99.9997	99.9997	99.9999	99.9999	99.9996	99.9996	99.9994	0.0007
128QAM 76	99.9999	99.9999	99.9999	99.9999	99.9998	99.9998	99.9998	0.0003
64QAM 64	99.9999	99.9999	99.9999	99.9999	99.9999	99.9999	99.9999	0.0001
32QAM 51	99.9999	99.9999	99.9999	99.9999	99.9999	99.9999	99.9999	0.0001
16QAM 43	99.9999	99.9999	99.9999	99.9999	99.9999	99.9999	99.9999	0.0000
4QAM 21	99.9999	99.9999	99.9999	99.9999	99.9999	99.9999	99.9999	0.0000
4QAMs 18	99.9999	99.9999	99.9999	99.9999	99.9999	99.9999	99.9999	0.0000

7. Link 3: South Kensington FH to Berlin FD

7.1. Path Profile



South Kennsignton FH	
Latitude	41 35 05.30 N
Longitude	072 48 14.13 W
Azimuth	62.19°
Elevation	270 ft ASL
Antenna CL	105.0 ft AGL

Frequency (MHz) = 18200.0
K = 1.33
%F1 = 100.00

Berlin FD	
Latitude	41 36 22.41 N
Longitude	072 44 59.21 W
Azimuth	242.23°
Elevation	142 ft ASL
Antenna CL	96.1 ft AGL

7.2. Performance Summary

Availability	Down Time (per year)	Throughput
99%	3.65 days	NA
99.9%	8.77 hours	111 Mbps
99.99%	52.60 minutes	88 Mbps
99.999%	5.16 minutes	43 Mbps

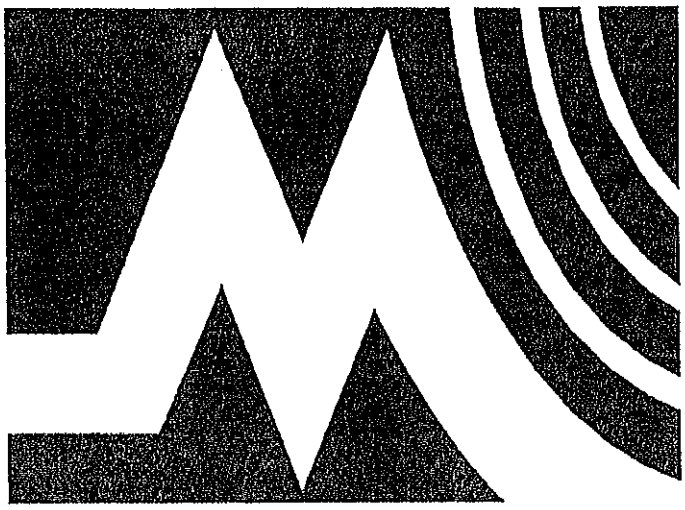
https://uptime.is/

7.3. Path Analysis

	South Kennsignton FH	Berlin FD
Latitude	41 35 05.30 N	41 36 22.41 N
Longitude	072 48 14.13 W	072 44 59.21 W
True azimuth (°)	62.19	242.23
Vertical angle (°)	-0.48	0.45
Elevation (ft)	270.01	142.34
Antenna model	VHLP1-18 (TR)	VHLP1-18 (TR)
Antenna file name	vhlp1-18	vhlp1-18
Antenna gain (dBi)	34.20	34.20
Antenna height (ft)	105.00	96.10
Orientation loss (dB)	0.00	0.00
Frequency (MHz)	18200.00	
Polarization	Vertical	
Path length (mi)	3.17	
Free space loss (dB)	131.83	
Atmospheric absorption loss (dB)	0.29	
Net path loss (dB)	63.72	63.72
Radio model	ASNK18-AGS20_13.75MHz	ASNK18-AGS20_13.75MHz
Radio file name	asnk18_13.75mhz	asnk18_13.75mhz
Emission designator	14M0D7WET	14M0D7WET
Climatic factor	1.00	
Terrain roughness (ft)	22.61	
C factor	2.81	
Average annual temperature (°F)	46.72	
Fade occurrence factor (Po)	4.071E-003	
Polarization	Vertical	
Rain region	New Haven, Connecticut	

	TX power (dBm)		RX threshold level (dBm)		EIRP (dBm)		Receive signal (dBm)		Thermal fade margin (dB)		Flat fade margin - multipath (dB)	
2048QAM 111	**17.00**	**17.00**	**-57.00**	**-57.00**	**51.20**	**51.20**	**-46.72**	**-46.72**	**10.28**	**10.28**	**10.28**	**10.28**
1024QAM 107	17.00	17.00	-58.75	-58.75	51.20	51.20	-46.72	-46.72	12.03	12.03	12.03	12.03
512QAM 98	18.00	18.00	-61.50	-61.50	52.20	52.20	-45.72	-45.72	15.78	15.78	15.78	15.78
256QAM 88	18.00	18.00	-64.80	-64.80	52.20	52.20	-45.72	-45.72	19.08	19.08	19.08	19.08
128QAM 76	19.00	19.00	-67.20	-67.20	53.20	53.20	-44.72	-44.72	22.48	22.48	22.48	22.48
64QAM 64	19.00	19.00	-70.10	-70.10	53.20	53.20	-44.72	-44.72	25.38	25.38	25.38	25.38
32QAM 51	21.00	21.00	-73.30	-73.30	55.20	55.20	-42.72	-42.72	30.58	30.58	30.58	30.58
16QAM 43	21.00	21.00	-75.10	-75.10	55.20	55.20	-42.72	-42.72	32.38	32.38	32.38	32.38
4QAM 21	23.00	23.00	-80.90	-80.90	57.20	57.20	-40.72	-40.72	40.18	40.18	40.18	40.18
4QAMs 18	23.00	23.00	-88.50	-88.50	57.20	57.20	-40.72	-40.72	47.78	47.78	47.78	47.78

	Worst month multipath		Annual multipath		Annual rain		Total annual (2 way)	Time in mode (2 way)
2048QAM 111	**99.9619**	**99.9619**	**99.9911**	**99.9911**	**99.9593**	**99.9593**	**99.9415**	**99.9415**
1024QAM 107	99.9745	99.9745	99.9940	99.9940	99.9723	99.9723	99.9604	0.0189
512QAM 98	99.9893	99.9893	99.9975	99.9975	99.9869	99.9869	99.9819	0.0215
256QAM 88	99.9950	99.9950	99.9988	99.9988	99.9927	99.9927	99.9903	0.0084
128QAM 76	99.9977	99.9977	99.9995	99.9995	99.9959	99.9959	99.9948	0.0045
64QAM 64	99.9988	99.9988	99.9997	99.9997	99.9976	99.9976	99.9970	0.0022
32QAM 51	99.9996	99.9996	99.9999	99.9999	99.9990	99.9990	99.9988	0.0018
16QAM 43	99.9998	99.9998	99.9999	99.9999	99.9993	99.9993	99.9992	0.0003
4QAM 21	99.9999	99.9999	99.9999	99.9999	99.9998	99.9998	99.9998	0.0006
4QAMs 18	99.9999	99.9999	99.9999	99.9999	99.9999	99.9999	99.9999	0.0001



MARCUS
communications

REFERENCES

City of Meriden Police

Connecticut, USA

Case Study

THE CUSTOMER

The city of Meriden is located in Connecticut, USA. The population of 58,000 is served by 120 Police Officers.

The city needed a mission-critical solution that would improve Officer safety, improve coverage challenges and provide a future proof path to connect with the state-wide network.

Situation

The safety of Meriden Police staff was at risk with an aging system that failed to provide sufficient radio coverage in all areas of their jurisdiction. The Police Station is surrounded by hills and situated at the bottom of a trough, which poses a significant coverage challenge. The previous radio system was a single site repeater with multiple satellite receivers. The repeater was located on top of a building which happened to be the lowest point in the city, so could not penetrate the hills to reach the low-lying areas.

The main requirement of a new system was to be P25-compliant, in order to be able to work in with neighboring agencies and connect to the state-wide system. A P25 system would allow Meriden to be compliant with the current standards and, in doing so, have a system that could be upgraded and/or migrated to digital when needed.

Meriden also wanted to improve the coverage for the on-hip portable radio, to assist Officers when they have any problems away from the patrol vehicle. They need assurance that any Officer on the street is able to call headquarters to get help at all times.

"There were a bunch of things the committee looked at that we liked with regards to the Tait product; it was analog and digital all in one package, and the ruggedness of the radio."

Lt. Patrick Gaynor
City of Meriden Police

RESPONSE

Tait partner, Marcus Communications, provided the solution of a four-site, two-channel TaitNet P25 simulcast system with Tait P25 TM9100 mobile and TP9100 portable radios.

The Tait solution was chosen because of its capability to improve the safety of staff and was much more cost-effective without compromising the value. The Tait system has built-in redundancy, so if there is a failure at one site the next one in line will take over the duties of voting. The Tait P25 mobile and portable radios have both analog and digital capability, and Tait radios are built with a superior ruggedness to take the drops and knocks of frontline policing without any deterioration in performance.

Tait P25 radios also provide Meriden with logistical benefits; the Tait P25 TM9100 mobile and TP9100 portable radios share the same programming which reduces the time-consuming burden of having to manually enter data into each radio.

Tait P25 base stations, mobiles and portables have all been tested with other P25 manufacturers' equipment as part of the P25 Compliance Assessment Program (P25 CAP). This enables Meriden to connect their P25 system to the state-wide network, even if this is established by another manufacturer, and into a P25-compliant third-party console.

OUTCOME

With an increase in portable coverage that is predicted, the plan is to bring other emergency services onto the network to improve interoperability throughout the area. In addition, Meriden plans to link the systems to the state-wide network being rolled out in Connecticut, with a wider goal of increasing interoperability between 911 centers.

MORE INFORMATION

For news, product specifications, comprehensive technical information and contact details of your nearest Tait service facility, please visit www.taitradio.com

CUSTOMER PROFILE

The city of Meriden has a population of 58,000 and is served by 120 Police Officers.

APPLICATIONS

- TaitNet P25 simulcast four-site system
- Microwave relay
- DES encryption
- MDC 1200

BUSINESS BENEFITS

- Built-in voting reduces network failure
- Rugged portables
- Adopting P25 standards enables interoperability with other agencies
- Ability to work in analog, digital and dual mode to cater to different emergency services
- Local support and knowledge assists with better system design and radio coverage

PRODUCTS

- Tait P25 TB9100 base stations
- 163 Tait P25 portable radios
- 100 Tait P25 mobile radios

Tait is a global leader in designing, delivering and managing innovative communication solutions that help utilities and public safety organizations to keep the lights on and communities safe.

MULTI AGENCY COMMUNICATIONS CENTER

MOSES LAKE, GRANT COUNTY, WA

MACC provides support to 34 police and fire agencies in Grant County, Washington State. The communications center operates 24 hours per day, and 7 days per week to answer both E 9-1-1 and non-emergency calls from the public and ensures an appropriate level of response is sent for assistance. MACC receives approximately 64,000 calls a year.

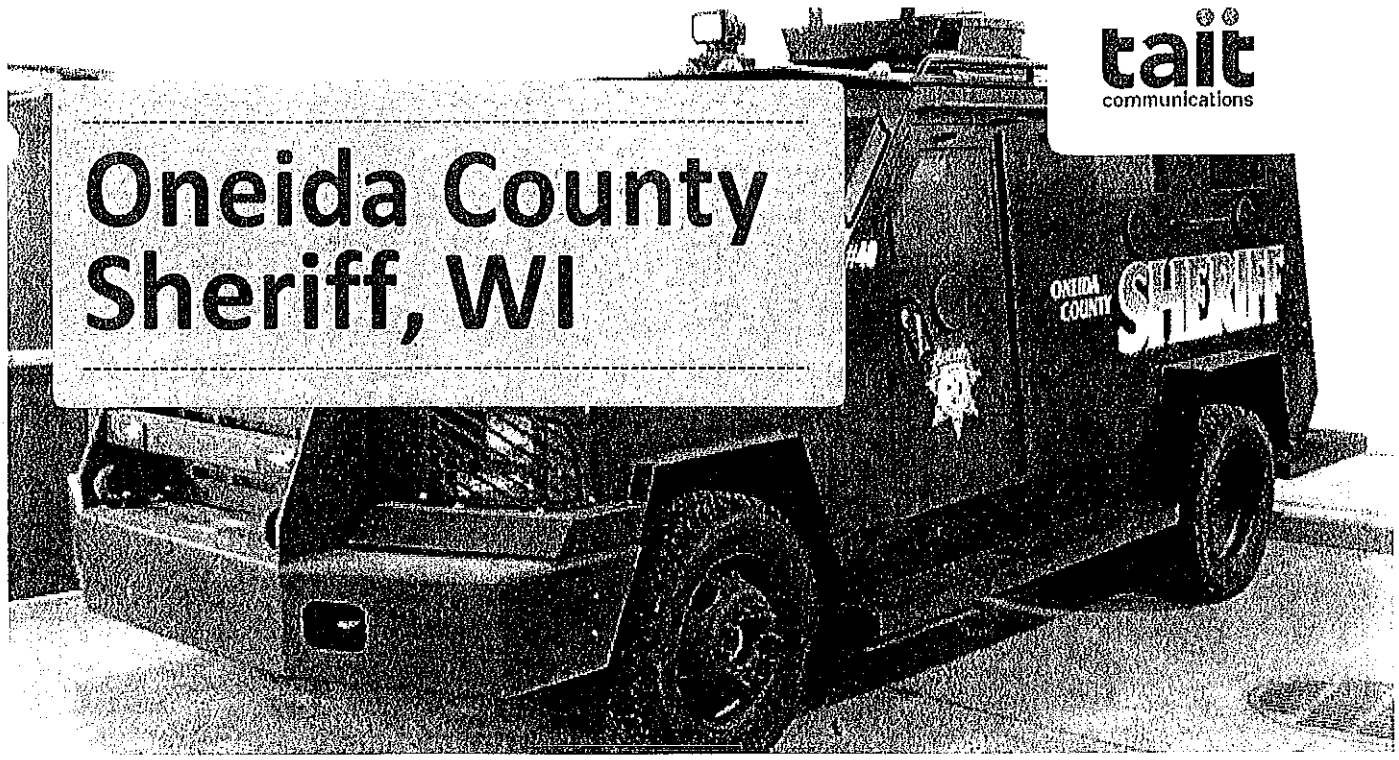
tait Solution

- 11-site P25 Trunked Simulcast Network 800MHz
- LSM Modulation
- 11-site VHF QS* Conventional Simulcast
- P25 Phase 1 operation - P25 Phase 2 - upgradeability
- Tait Network Management
- 1200 Tait TP9000 P25 Encrypted Terminals
- Tait P25 Dual Body Mobiles
- 9 Avtec Consoles for Dispatch Integration
- Services: Training, System Installation, Project Management
- Greater than 95% county wide coverage

Contract Date: 01/28/2011
acceptance Date: Expected September 2012

"The people at Tait worked very hard during the testing and system training. It was evident that they are completely focused on reaching the best result – for me and the system."
Dean Hane, Radio Communications Manager, MACC

Customer Contact
Dean Hane
Multi Agency Communications Center
Radio Communications Manager
Phone 509-760-2142



Oneida County Sheriff's Department, Wisconsin

2000 East Winnebago Street, Rhinelander, WI 54502

Tait proposed a hybrid system solution to cater to current analog needs, while allowing for staged digital migration. The 8-site Tait simulcast system includes three QS2 analog simulcast FM channels and one P25 digital simulcast channel. The Tait P25 TB9100 and TB8100 base stations were used with this project. Tait TP9100 P25 portables and TM9155 mobiles were also part of the system solution. Moducom V10.8 with DFSI is deployed. Two Way Communications is the Tait dealer that installed this system.

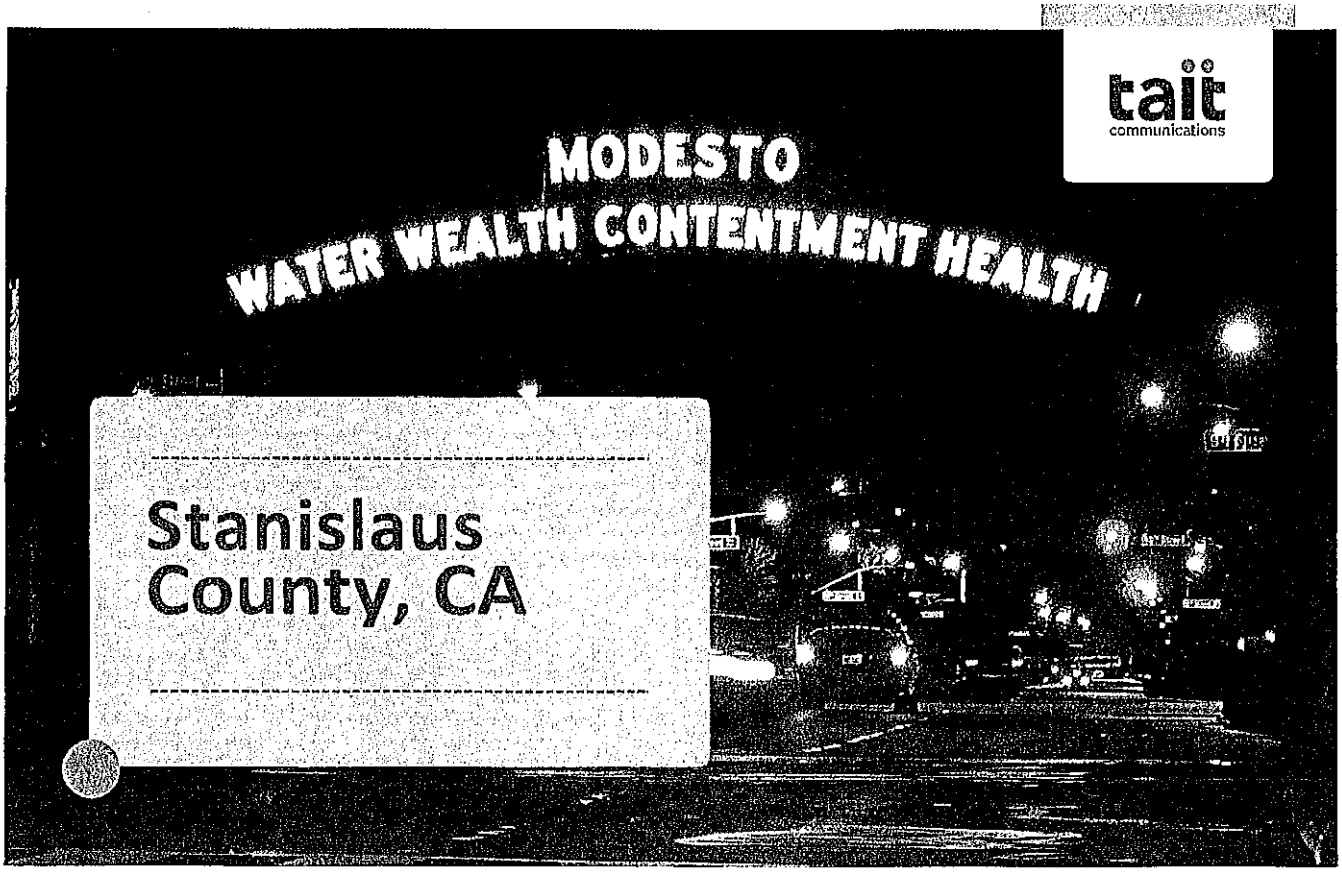
tait Solution

- 8-site TaitNet P25 Simulcast & Analog QS2 Analog
- 4 Channels
- 6 Nodes
- Tait P25 Portables/Mobiles
- Re-utilized the existing Harris microwave backbone

Contract Date: 2006
acceptance Date: 2008
Another site was added in 2011

Customer Contact

Chief Deputy John Sweeney
Oneida County Sheriff
2000 East Winnebago Street, Rhinelander, WI 54502
Phone: (715) 361-5100
Email: jsweeney@co.oneida.wi.us



Stanislaus Regional 911 radio Upgrade Project

Stanislaus County, CA

The project consisted of the replacement of the existing systems for the Stanislaus Regional 911. Tait provided only the backbone equipment and commissioning services for this project, the County provided the installation services and antenna systems.

The Stanislaus Regional 911 system consists of 14 channels P25 digital voted system with a single transmit location and four receive only voted sites. In addition to the primary transit site, one of the voted sites also acts as a backup site for nine of the channels. All the sites are linked by an IP network.

- Tait Solution
- P25 digital voted system
- 14 channels
- Total Project Cost: $1 million

Customer Contact
Kurt Kline
System Engineer - Stanislaus County
209-522-3938

New ZealanD Police

The Royal New Zealand Police College, Papakowhai Road, Porirua, New Zealand

New Zealand Police employs more than 10,000 staff and serves the entire country.

The nation-wide public safety TaitNet P25 Trunked network comprises 409 P25 TB9100 base stations, 134 site controllers, 3 network controllers, 3275 P25 TM9100 mobiles, 2670 P25 TP9100 portables with AES encryption.

The encrypted digital trunked network will increase officer safety, security and reliability of the NZ Police's radio communications. The system was installed and completed in March, 2011.

"Tait has faithfully complied with delivery dates and technical standards demanded by the New Zealand police, and there is nothing in our records that gives us cause for concern regarding their performance." Michael J. Perring, Operations Manager, New Zealand Police

tait solution
- 409 site TaitNet P25 Trunked Network
- 134 site controllers
- 3 network controllers
- 3275 P25 TM9100 mobiles
- 2670 P25 TP9100 portables with AES encryption

Contract Date: 09/04/2008
Acceptance Date: March 2011

Customer Contact
Michael J. Perring
Operations Manager: Radio
New Zealand Police
The Royal New Zealand Police College,
Papakowhai Rd, Porirua, New Zealand

Marcus Communications - Project References

Manchester Police Department
239 Middle Turnpike East
Manchester, CT 06040

Jim White, Director of Communications
860-533-8624
whitej@manchesterct.gov

- In 2013 Marcus installed a new 3 position DFSI Avtec console along with all new furniture
- In 2014 Marcus engineered and installed a 2 channel, 4 site Tait TB9100 P25 system.
- This included 140 Kenwood portables and 80 Kenwood mobiles with AES Encryption.
- Licensed 18GHz Exalt microwave was installed for wireless backhaul.
- In 2016 Marcus was awarded and currently installing an additional 3rd channel at 4 sites using Tait's Next Generation TB9400 P25 Repeaters.

Meriden Police Department
50 West Main Street
Meriden, CT 06450

Doree Price
203-376-1556
dprice@meridenct.gov

- Public Safety Radio Communication System / 2009 - Present
- In 2009, Marcus was awarded two contracts worth $2.25 million to construct a 6 site, 3 Channel P25 Simulcast Tait radio system. This included 84 Tait mobile radio installations and 160 portables with DES encryption. One of the sites did not exist so Marcus constructed a Stealth® flagpole in the middle of a residential neighborhood. Our personnel made several presentations to the town council and zoning boards to receive the necessary approvals needed for the site. The neighborhood closely scrutinized the tower construction with no complaints. All six sites are connected by redundant microwave in 4.9GHz and 5.8GHz bands. Marcus handled all aspects of the system design, construction and deployment of the radio system.
- We also installed a 6 position Avtec IP Console in their newly renovated dispatch center.
- Marcus Communications equipped a mobile emergency command post which included multiple radios and a Tait digital and analog repeater which works on all of Meriden's frequencies.
- Coverage verification was provided by Marcus.

Meriden Fire Department
561 Broad St.
Meriden, CT 06450

Ryan Dunn, Deputy Chief
203-630-5868
rdunn@meridenct.gov

- Public Safety Radio Communication System Since 2018
- 4 Site Analog Simulcast System with microwave backhaul
- 4 Site Analog recording and receiving system.
- Coverage verification was provided by Marcus.

South Windsor Police Department
151 Sand Hill Road
South Windsor CT 06074

Chief
Scott Custer
860-644-2551

- Public Safety Radio Communication System / 2010 - Present
- In 2010, Marcus was awarded a contract for a three site, 1 channel P25 Simulcast Tait Radio System.
- Marcus handled all aspects of the system design, construction and deployment of the radio system.
- Marcus converted them from a single Transmit 800MHZ, 3 receive Analog System.
- 33 Mobile and 57 portables are both Tait and Kenwood subscriber units.
- All FCC coordination, engineering and licensing was provided by Marcus.
- Coverage verification was provided by Marcus.
- In 2012, we installed a new 3 position DFSI Avtec console along with all new furniture.

Vernon Police Department
725 Hartford Turnpike
Vernon, CT 06066

Lieutenant William Meier III
(860) 872-9126 x221 phone
WMeier@vernon-ct.gov

- In 2011, Marcus was awarded a contract to design and implement a 2 site, 2 channels, P25 Simulcast Tait Radio System.
- 33 Mobiles and 62 portables are a mix of Tait and Kenwood subscriber units.
- This system replaced a 7 site voting 2 transmitter analog system with vastly improved coverage. Coverage verification was provided by Marcus.

Weston Police Department
56 Norfield Road
Weston, CT 06883

Sgt. Patrick Daubert
(203) 515-3129 phone
pdaubert@westonpolice.com

- In 2008, Marcus was awarded a contract to design and implement a 5 site, P25 Simulcast Tait Radio System.
- 20 Tait Mobiles and 30 Tait portables were installed with the system.
- Coverage verification was provided by Marcus.

Town of Westfield, MA

Westfield Fire Department 34
Broad Street
Westfield, MA 01085

Peter Cowles
IT Communications Specialist
Cell: 413-875-2565
Desk: 413-642-9415
p.cowles@cityofwestfield.org

- In 2012, Marcus installed a 6 position Avtec console in renovated dispatch center.

Holyoke, MA Police and Fire Department

Police:
138 Appleton Street
Holyoke, MA 01040
Chief Manny Febo
413-322-6900
chiefofpolice@holyokepd.org

Fire:

600 High Street
Holyoke, MA 01040
Chief John Pond Desk -
413-534-2250
pondj@holyoke.org

- In 2015, Marcus installed a 4 Site UHF Selex Analog Simulcast System. Licensed 18GHz Exalt microwave was installed for wireless backhaul.
  In 2017 Marcus Communications upgraded the Fire department to a 4 site DMR analog simulcast system. The police were up-graded to a P25 simulcast system. Marcus also provided a protected microwave ring.

Simsbury Fire Department Simsbury Fire Department 871 Hopmeadow Street
Simsbury, CT 06070

Kevin Kowalski
Chief, Administration
Fire Marshal
860-658-1971
kjk157@sbcglobal.net

- In 2016, Marcus delivered 80 P25 NX-5000 Series Kenwood Portables

- In 2015, Marcus installed a 4 Site UHF Selex Analog Simulcast System. Licensed 18GHz Exalt microwave was installed for wireless backhaul.
- In 2010, Marcus installed a 2 position Avtec console in a newly built dispatch center.

South Windsor Fire Dept.

Brian Peck
P.O. Box 698
South Windsor, CT 06074
860 644-8547
Bpeck@Southwindsorfire.Org

- Marcus installed a 2 site / 1 channel Radio Activity analog simulcast system in 2012 for the South Windsor Fire Department. They have greatly improved their coverage and reliably with this system. It has replaced a 2 site analog voting system.

Manchester, CT Fire Department

Chief Dan French
75 Center Street
Manchester, CT 06040
860-209-9461
FrenchD@manchesterct.gov

- Marcus installed a 2 site/1 channel Radio Activity analog simulcast system in 2012. They have greatly improved their coverage and reliability with the system up-grade.

Knox County Maine Police and Fire/KRCC

Any Hart
Knox County Administrator
62 Union St.
Rockland, ME. 04841
207-215-7581 cell
ahart@knoxcountymaine.govland

- Knox County has a 5 site 2 channel / 4 talk group Radio Activity DMR simulcast system to serve its Police and Fire Public Safety Departments. A six position Avtec console is installed. Marcus has served as a consultant throughout the process.

Barclays Center

Matt Felker
1 MetroTech Center
23rd Floor Penthouse
Brooklyn, NY 11201
860-324-8030
mfelker@barclayscenter.com

- In 2012, Marcus installed a (20) Channel Hytera UHF In-Building Use repeater system
- (2) Channel FDNY On-Scene P25 Tait System
- (500) PD782 Hytera UHF 450-520 MHz 4W Display DMR portable radios
- Completed in 2012 for Arena Opening

ESPN

Dana Underhill
383 Middle Street
Bristol, CT 06010
860-766-2278
Dana.Underhill@Espn.Com

- Marcus Helped design and provided all equipment for their 2 sites 10 Channel LTR Trunked Internal Network with 1,000 radios & portables.
- Provided Engineering and equipment for a portable 10 Channel Frequency Agile Trunked Repeater System, with 1,000+ portable radios. This system is used for X- games and special events around the country.
- Implemented a 6-channel trunked system for security personnel for the new UCONN football stadium. The system has been integrated with the State Police two-way radio system and has interoperability.

XL Center Hartford, CT

Doug Hagen
1 Civic Center
Plaza Hartford, CT
06103
860-241-4217

- 5 Channel LTR Trunked Communication System / 2001- Present

  In conjunction with Madison Square Garden, Marcus was contracted to build a trunked radio system that would operate within the Civic Center. In the design process, Marcus made sure to accommodate the unique architecture and tough coverage profile of such a building. Currently the system hosts over 100 units and is of particular use when the Civic Center hosts concerts and other events where security communication is essential.

Rentschler Field

Stadium

Derek Miles
615 Silver Lane
East Hartford CT
06118 860-610-4766
Cell
derekmiles@comcastspectacor.com

- 6 Channel LTR Trunked Network 2003 – Present
  Implemented a 6-channel trunked system for security personnel for the new UCONN football stadium. The system has been integrated with the State Police two-way radio system and has interoperability.

USTA Billie Jean King National Tennis

Center Sharon Hanley
Flushing Meadow-Corona
Park
New York, NY 11368
718-595-2455
sharon.hanley@usta.com

- 1200 Portable Radio Rental and 8 Channel Trunked DMR Repeater System / 2015- Present

- In conjunction with ESPN, Marcus was contracted to build a DMR trunked radio system that would operate within the USTA for their annual US Open Tennis Tournament.

Town of West Hartford, CT

Deputy Chief Dan Coppinger
50 South Main Street
West Hartford, CT 06107
860-570-8956
KVictor@WestHartfordCT.gov

- Town wide 3 site 6 channel P25 phase 1 and 2 trunked Simulcast for the Police. 2 sites 2 channel Analog simulcast for Fire. Six position Avtec console. System will support 793 subscribers. Is currently operational.

Tait Trunked P25 System References

Attn: Dean Hane, Radio Communications Manager
Grant County: Multi Agency Communications Centre (MACC)
6500 32nd Avenue NE, Suite 911, Moses Lake, WA 98837, U.S.A.
Office: 509-760-2142
E-mail: d.hane@macc911.org

Type of System: Tait P25 linear simulcast trunked system and subscribers

Attn: AJ O'Conner, ITS Manager
4012 SE 17th Ave.
Portland, OR 97202 U.S.A.
Direct Line: 503-962-5615
E-mail: oconnora@trimet.org

Type of System: Tait P25 trunked seven site, 12 channel 700 MHz network, Avtec consoles, location services, Init ITS, CAD, AVL integration

Attn: Robert Stack – Director - Division of Enhanced 911

City of Lexington Division of Police / Enhanced 911
200 E. Main Street, Suite 313, Lexington, KY 40507, U.S.A.
Office: 859-258-3601
E-mail: rstack@lexington911.ky.gov

Type of System: Airbus-Tait P25 trunked linear simulcasted network, Tait 9400 P25 subscribers – Smart Value Program

Attn: Richard Harkett, Manager
New Zealand Police
ICT Service Centre, 21 King St, Newton, Wellington, New Zealand
Office: 011-64 (4) 238-3469
E-mail: Richard.harkett@police.govt.nz

Type of System: Tait P25 VHF Trunked Simulcast System
Country Wide: 409 Sites, and 4,500 Users

Attn: Angel Miranda
North Site Communications
3221 Levitown Blvd. Levitown, Puerto Rico 00949
Office: (787) 784-4469
E-mail: afmiranda@proxtelwireless.com

Type of System: 4 site Tait P25 linear simulcasted trunked network, Tait 9400 series P25 subscribers

Agenda Item No. 7
Request for Town Council Action

TO: **The Honorable Mayor and Town Council**

FROM: **Arosha Jayawickrema, Town Manager**

DATE: **April 21, 2020**

SUBJECT: **Authorization to repair damage to Fire truck**

Summary of Agenda Item:
One of the town's fire trucks had an accident while responding to an incident; the accident happened while exiting the firehouse and caused damage to the right rear of the truck. The repair cost is $15,715 for the apparatus. The insurance company wrote the check to the Town that was put into the Insurance account. This is to repair the apparatus, and this expense would be over $10,000, which requires Town Council approval.

Action Needed:
Move to confirm the Town Council's approval to waive the Town's purchasing requirements and approve the repair of fire truck MP#0440 for an amount of $15,715, which will be repaired at Turnpike Motors in Newington, Connecticut, as this is in the Town's best interest.

Attachments:
None

Prepared By:
James C. Simons, Municipal Garage

Agenda Item No. 8
Request for Town Council Action

TO: **The Honorable Mayor and Town Council**

FROM: **Arosha Jayawickrema, Town Manager**

DATE: **April 1, 2020**

SUBJECT: **Requesting a Bid Waiver for Lenard Engineering to update the Water Supply Plan as required by the Connecticut Department of Public Health**

Summary of Agenda Item:

A Water Supply Plan is mandated by the Connecticut Department of Public Health (DPH) to be updated every ten (10) years. Lenard Engineering, Inc. (LEI) has previously updated several decades of Water Supply Plans. They are intimately familiar with the Berlin Water Control Commission, so it would make sense for them to complete the most current update.

The Water Supply Plan update should also include the information from the hydraulic analysis as well as the feasibility for interconnecting with Middletown and Meriden Water Departments. Those reports should be included in the Water Supply Plan. The DPH and the Connecticut Department of Energy and Environmental Protection (DEEP) required that any interconnection feasibility be included in the Water Supply Plan. Therefore, we are requesting a bid waiver for these services provided by Lenard Engineering for an amount not to exceed $ 16,280.00 (which includes a 10% contingency). Funding will be provided from Account # 843.50.5086.0.56922.00000 (Water Supply Plan).

Action Needed:

Move to authorize the Town Manager to waive the bidding requirements, and award Lenard Engineering the contract to update the Water Supply Plan, for an amount not to exceed $16,280 (which includes a 10% contingency), as this is in the best interest of the Town.

Attachments:

1) Lenard Engineering Scope of Services
2) Sufficiency of Funds

Prepared by:

Ray Jarema, P.E., Water Control Manager

RJ

2210 Main Street
P.O. Box 1098
Glastonbury, CT 06033
Tel: 860 659-3100
Fax: 860 659-3103

1348 Conantville Road
P.O. Box 580
Storrs, CT 06268
Tel: 860 429-5400
Fax: 860 429-1367

140 Willow Street
Suite 8
Winsted, CT 06098
Tel: 860 379-8669
Fax: 860 738-1272

19 Midstate Drive
Suite 200
Auburn, MA 01501
Tel: 508 721-7600
Fax: 508 721-7610

www.lenard-eng.com

Lenard Engineering, Inc.
Civil, Environmental and Hydrogeological Consultants

February 26, 2020

Mr. Ray Jarema, PE
Town of Berlin Water Control Commission
240 Kensington Road
Berlin, CT 06037

RE: ***Proposal for Professional Services, Update Water Supply Plan, Berlin Water Control Commission, Berlin, CT***

Dear Mr. Jarema:

As requested, Lenard Engineering, Inc. (LEI) is pleased to submit our proposal to provide an update to the Water Control Commissions Water Supply Plan, dated 2012. LEI will review the entire plan, but focus on key elements including available supply and safe yield, updated demand projections, updated water quality, water service area expansions, short and long term improvement programs, and updating both the Water Conservation Plan and Emergency Contingency Plan to current standards.

SCOPE OF SERVICES

The following major components will be provided:

1) Update System Safe Yield and Available Water Supply – Based on copies of updated agreements, DPH Sale of Excess Water and DEEP Water Diversion permits, LEI will calculate an updated system safe yield and available supply for average daily demands, peak monthly demands and maximum daily demands.

2) Water Production and Consumption Updates - LEI will obtain monthly water production and purchased water records, as well as summaries of customer water consumption records from Berlin since the last water supply plan, and update our water demand tables accordingly. A focus will be on non-revenue water trends.

3) Water Demand Projections – LEI will work with Berlin to review the areas identified for future development in the past plan. Based on this review, LEI will update your water demand protections for the five year (2025), twenty year* (2030), and fifty year (2060) planning horizons.

   *Twenty years from last published census.

4) Water Quality Trends- Based on data provided by you, LEI will discuss water quality trends in the system, especially at the Elton Road wellfield.

5) Short and Long Term Improvement Programs- Based on the above information, LEI will work with Berlin to develop short and long term improvement programs, along with budgetary estimates for both capital and operation and maintenance activities.

6) Update Water Conservation Plan- Significant changes have been made in Water Conservation, including publishing of a State Water Plan. We will work with you to update your water conservation plan to meet current regulations.

7) Update Emergency Contingency Plan- LEI will also work with you to update your existing emergency contingency plan, which needs to be coordinated with other major providers of water (New Britain, Cromwell).

8) Draft Submission – LEI will submit two draft copies of our report to Berlin for your review and comment. We will meet with you on one occassion to review the draft plan in person, and incorporate your changes into a final document.

9) Complete DPH Forms – DPH will complete the required DPH Water Supply Plan, Safe Yield and Margin of Safety forms.

10) Final Plan Submission – LEI will incorporate changes requested by the Town, and print three copies for Town use, provide a pdf version of the document on CD rom for your use. We will also print up to 10 copies for submission to State agencies and the Regional Planning Agency.

PROPOSED FEES

LEI proposes to complete this work for a lump sum fee of $ 14,800. By reference, the attached Standard Conditions of Engagement are part of this proposal and any subsequent contract.

We hope you find this proposal acceptable, and we look forward to continuing our work for the Town of Berlin Water Control Commission. If you, or other Town officials have any questions or comments regarding this proposal, I am at your service.

Very truly yours,
Lenard Engineering, Inc.

James E. Ericson, PE
Vice President

ACCEPTED BY: _____

DATE: _____

TOWN OF BERLIN

CERTIFICATION OF SUFFICIENCY OF FUNDS

(Sec. 6-10-2 of the Town Charter)

DATE	14-Apr-20

Purchase Item or Contract: Update Water Supply plan Requested by: Ray Jarema

QUANTITY	DESCRIPTION	PRICE PER UNIT	$ AMOUNT
1.00	Update Water Supply plan	$16,280.00	$16,280.00
	(Not to exceed $16,280)		
			-
			-
			-
			-
		TOTAL	$16,280.00

Account No. 843.50.5086.0.56922.00000 Water Supply Plan Update

Budgeted Amount.....	$20,000.00	Available balance.....	$20,000.00
Encumbrances to Date.....	$0.00	Amount Needed for This Package.....	$16,280.00
Expenditures to Date.....	$0.00	Available Balance After Purchase.....	$3,720.00

Is a budget change needed? ☐ Yes ☒ No

If so, has a budget change been prepared? ☐ Yes ☐ No

☒ I certify that there ARE sufficient funds available to support the purchase of the items described above.

Finance Director or Assist.Finance Director

or:

☐ I certify that a budget change in the amount of $_____ must be processed concurrently with this certification to support this commitment.

Finance Director or Assist.Finance Director

Agenda Item No. 9
Request for Town Council Action

TO: **The Honorable Mayor and Town Council**

FROM: **Arosha Jayawickrema, Town Manager**

DATE: **April 1, 2020**

SUBJECT: **Requesting a Bid Waiver for Lenard Engineering to conduct a hydraulic analysis of water distribution and evaluate possible interconnections with Middletown and/or Meriden Water Departments**

Summary of Agenda Item:

A recent water tank inspection of the Lamentation Tank has indicated some interior corrosion at the base of the tank. In order to mitigate this interior corrosion, the tank must be drained and it is not clear what the impact will be to our water distribution system. Therefore, we would like Lenard Engineering, Inc. (LEI) to conduct a hydraulic analysis and include the feasibility of interconnection with Middletown and/or Meriden Water Departments. LEI previously conducted a hydraulic evaluation of our system (2007), and has the information to continue the evaluation. The hydraulic analysis is $5,500 (with 10% contingency) provided from Account #843.50.5084.0.56801.00000 (analysis account). Both Meriden and Middletown feasibility studies would be $6,600 each (with a 10% contingency) with funding from Account # 843.50.5084.0.56802.00000 (Feasibility Account)

Action Needed:

Move to authorize the Town Manager to waive the bidding requirements, and award Lenard Engineering the contract to conduct a hydraulic analysis (not to exceed $5,500) and to perform a feasibility study for connecting to Middletown and/or Meriden Water Departments (not to exceed $13,200), as this is in the best interest of the Town.

Attachments:

1) Lenard Engineering Scope of Services
2) Sufficiency of Funds

Prepared by:

Ray Jarema, P.E., Water Control Manager

Lenard Engineering, Inc.

2210 Main Street
P.O. Box 1088
Glastonbury, CT 06033
Tel: 860 659-3100
Fax: 860 659-3103

134B Conantville Road
P.O. Box 580
Storrs, CT 06268
Tel: 860 429-5400
Fax: 860 429-1367

140 Willow Street
Suite 8
Winsted, CT 06098
Tel: 860 379-6669
Fax: 860 738-1272

19 Midstate Drive
Suite 200
Auburn, MA 01501
Tel: 508 721-7600
Fax: 508 721-7610

www.lenard-eng.com

Civil, Environmental and Hydrogeological Consultants

February 26, 2020

Mr. Ray Jarema, PE
Town of Berlin Water Control Commission
240 Kensington Road
Berlin, CT 06037

RE: ***Proposal for Professional Services, Conduct Additional Hydraulic Modeling for Water Storage Tank Options, Berlin Water Control Commission, Berlin, CT***

Dear Mr. Jarema:

As requested, Lenard Engineering, Inc. (LEI) is pleased to submit this proposal for your review. As discussed, recent water tank inspection reports indicate the Lamentation water tank will require interior re-coating, and the impacts of taking this tank off line need to be determined. In addition, you would like to see if a second tank site in your distribution system can be developed, to serve the system with the Lamentation tank off-line, and work in conjunction with the Lamentation tank when it is on-line.

SCOPE OF SERVICES

1) Run Model Options with Lamentation Tank off-line – LEI will conduct modeling runs with the Lamentation tank off-line, and evaluate available flow and pressure conditions. We will determine the impacts of utilizing the MDC interconnection at Rowley Street, to see what impacts this has on system flows and pressures.

2) Evaluate Alternate Tank Locations- LEI will review elevations throughout the system, as well as available vacant and Town owned parcels, to determine potential tank locations.

3) Conduct Modeling Runs for Alternate Tank Locations- LEI will conduct modeling runs to determine the impact of up to two alternate tank locations within the system. We will evaluate impacts on water pressures during average and peak hourly demand periods, as well as fireflows at select locations across the sytem.

4) Summary Report – LEI summarize our findings in a report, and submit three copies to the Town for review and comments. We will meet with you on one occasion, to answer any questions you have.

5) Final Report- We will incorporate your questions and comments into a final report and provide three hard copies and one PDF copy for your use.

Lenard Engineering, Inc. Civil, Environmental and Hydrogeological Consultants

PROPOSED FEES

LEI proposes to complete this work for a lump sum fee of $ 5,000. By reference, the attached Standard Conditions of Engagement are part of this proposal and any subsequent contract.

We hope you find this proposal acceptable, and we look forward to continuing our work for the Town of Berlin Water Control Commission. If you, or other Town officials have any questions or comments regarding this proposal, I am at your service.

Very truly yours,
Lenard Engineering, Inc.

James E. Ericson, PE
Vice President

ACCEPTED BY: _____

DATE: _____

Lenard Engineering, Inc.

2210 Main Street
P.O. Box 1088
Glastonbury, CT 06033
Tel: 860 659-3100
Fax: 860 659-3103

134B Conantville Road
P.O. Box 580
Storrs, CT 06268
Tel: 860 429-5400
Fax: 860 429-1367

140 Willow Street
Suite 8
Winsted, CT 06098
Tel: 860 379-8669
Fax: 860 738-1272

19 Midstate Drive
Suite 200
Auburn, MA 01501
Tel: 508 721-7600
Fax: 508 721-7610

www.lenard-eng.com

Civil, Environmental and Hydrogeological Consultants

February 20, 2020

Mr. Raymond Jarema, PE
Town of Berlin Water Control Commission
240 Kensington Road
Berlin, CT 06037

RE: Proposal for Professional Engineering Services, Conduct Hydraulic Modeling and Schematic Interconnection Design, Meriden Water Department

Dear Ray:

As requested, Lenard Engineering, Inc. (LEI) is pleased to submit this proposal for your review and approval. As discussed, you would like to evaluate the feasibility of interconnecting to the Meriden Water Department.

SCOPE OF SERVICES

1) Review Existing Conditions- LEI will contact the Meriden Water Department, and obtain water distribution mapping and hydraulic information in the vicinity of the proposed interconnection. We will work with you to determine the flow rates and volumes Berlin would potentially like to purchase from Meriden, as well as evaluate flow rates and volumes that Meriden would potentially like to purchase from Berlin.

2) Conduct Additional Hydraulic Modeling- LEI will conduct hydraulic modeling, inputting Meriden water main and hydraulic grade line information. We will evaluate pressures in both systems, determine flow directions, and the need for pumping and/or pressure reduction. We will evaluate various main sizes and routes.

3) Prepare Engineering Report – LEI will prepare an engineering report, summarizing our findings, showing a conceptual interconnection design on available mapping. We will prepare a conceptual level cost estimate, along with a list of anticipated permits.

4) Deliverables and Follow-Up Meeting- LEI will submit three hard copies of our report along with one PDF copy. We will meet with you on one occasion to present our report, and answer any questions you may have.

PROPOSED FEES

LEI will complete this work for a lump sum fee of $ 6,000. By reference, the attached Standard Conditions for Engagement are part of this proposal, and any resultant Contract.

I hope you find this proposal acceptable, and we look forward to assisting you on this project. If you have any questions or comments regarding this submittal, I am at your service.

Very truly yours,
Lenard Engineering, Inc.

James E. Ericson, P.E.
Vice President

ACCEPTED BY: _____ DATE: _____

Attachments: Standard Conditions for Engagement

Lenard Engineering, Inc.

2210 Main Street
P.O. Box 1086
Glastonbury, CT 06033
Tel: 860 659-3100
Fax: 860 659-3103

134B Conantville Road
P.O. Box 580
Storrs, CT 06268
Tel: 860 429-5400
Fax: 860 429-1367

140 Willow Street
Suite 8
Winsted, CT 06098
Tel: 860 379-6669
Fax: 860 738-1272

19 Midstate Drive
Suite 200
Auburn, MA 01501
Tel: 508 721-7600
Fax: 508 721-7610

www.lenard-eng.com

Civil, Environmental and Hydrogeological Consultants

February 20, 2020

Mr. Raymond Jarema, PE
Town of Berlin Water Control Commission
240 Kensington Road
Berlin, CT 06037

RE: Proposal for Professional Engineering Services, Conduct Hydraulic Modeling and Schematic Interconnection Design, Middletown Water Department

Dear Ray:

As requested, Lenard Engineering, Inc. (LEI) is pleased to submit this proposal for your review and approval. As discussed, you would like to evaluate the feasibility of interconnecting to the Middletown Water Department.

SCOPE OF SERVICES

1) Review Existing Conditions- LEI will contact the Middletown Water Department, and obtain water distribution mapping and hydraulic information in the vicinity of the proposed interconnection. We will work with you to determine the flow rates and volumes Berlin would potentially like to purchase from Middletown, as well as evaluate flow rates and volumes that Middletown would potentially like to purchase from Berlin.

2) Conduct Additional Hydraulic Modeling- LEI will conduct hydraulic modeling, inputting Meriden water main and hydraulic grade line information. We will evaluate pressures in both systems, determine flow directions, and the need for pumping and/or pressure reduction. We will evaluate various main sizes and routes.

3) Prepare Engineering Report – LEI will prepare an engineering report, summarizing our findings, showing a conceptual interconnection design on available mapping. We will prepare a conceptual level cost estimate, along with a list of anticipated permits.

4) Deliverables and Follow-Up Meeting- LEI will submit three hard copies of our report along with one PDF copy. We will meet with you on one occasion to present our report, and answer any questions you may have.

PROPOSED FEES

LEI will complete this work for a lump sum fee of $ 6,000. By reference, the attached Standard Conditions for Engagement are part of this proposal, and any resultant Contract.

I hope you find this proposal acceptable, and we look forward to assisting you on this project. If you have any questions or comments regarding this submittal, I am at your service.

Very truly yours,
Lenard Engineering, Inc.

James E. Ericson, P.E.
Vice President

ACCEPTED BY: _____ DATE: _____

Attachments: Standard Conditions for Engagement

TOWN OF BERLIN

CERTIFICATION OF SUFFICIENCY OF FUNDS

(Sec. 6-10-2 of the Town Charter)

DATE	14-Apr-20

Purchase Item or Contract: Lenard Engineering Hydraulic analysis Requested by: Ray Jarema

QUANTITY	DESCRIPTION	PRICE PER UNIT	$ AMOUNT
1.00	Hydraulic analysis of water distribution	$5,500.00	$5,500.00
	(Not to exceed $5,500)		
			-
			-
			-
			-
		TOTAL	$5,500.00

Account No. 843.50.5084.0.56801.00000 Transmission & Distribution

Budgeted Amount.....	$30,000.00	Available balance.....	$12,888.50
Encumbrances to Date.....	$5,967.52	Amount Needed for This Package.....	$5,500.00
Expenditures to Date.....	$11,143.98	Available Balance After Purchase.....	$7,388.50

Is a budget change needed? ☐ Yes ☒ No

If so, has a budget change been prepared? ☐ Yes ☐ No

☒ I certify that there ARE sufficient funds available to support the purchase of the items described above.

Finance Director or Assist.Finance Director

or:

☐ I certify that a budget change in the amount of $_____ must be processed concurrently with this certification to support this commitment.

Finance Director or Assist.Finance Director

TOWN OF BERLIN

CERTIFICATION OF SUFFICIENCY OF FUNDS

(Sec. 6-10-2 of the Town Charter)

DATE	14-Apr-20

Purchase Item or Contract: Meriden and Middletown Feasibility Studies Requested by: Ray Jarema

QUANTITY	DESCRIPTION	PRICE PER UNIT	$ AMOUNT
1.00	Meriden and Middletown Feasibility Studies ($6,600 each)	$13,200.00	$13,200.00
	(Not to exceed $13,200)		
			-
			-
			-
			-
		TOTAL	$13,200.00

Account No. 843.50.5084.0.56802.00000 Services

Budgeted Amount.....	$15,000.00	Available balance.....	$15,000.00
Encumbrances to Date.....	$0.00	Amount Needed for This Package.....	$13,200.00
Expenditures to Date.....	$0.00	Available Balance After Purchase.....	$1,800.00

Is a budget change needed? ☐ Yes ☒ No

If so, has a budget change been prepared? ☐ Yes ☐ No

☒ I certify that there ARE sufficient funds available to support the purchase of the items described above.

Finance Director or Assist.Finance Director

or:

☐ I certify that a budget change in the amount of $_____ must be processed concurrently with this certification to support this commitment.

Finance Director or Assist.Finance Director

Agenda Item No. 10
Request for Town Council Action

TO: **The Honorable Mayor and Town Council**

FROM: **Arosha Jayawickrema, Town Manager**

DATE: **April 8, 2020**

SUBJECT: **Authorization for the Town Manager to Sign an Agreement with Connecticut Natural Gas to provide Gas Service for the TOD and to grant an easement for CNG to Install and Maintain Gas Lines**

Summary of Agenda Item:

As part of the planning for the Berlin Train Station Transit Oriented Development Project, Newport Realty Group LLC contacted Connecticut Natural Gas (CNG) and requested that CNG provide natural gas to the project. Natural gas lines will run along the Boulevard to the Train Station with laterals serving each building. CNG has offered to install the natural gas service at no cost to Newport and the Town but the Town as property owner will need to sign the attached agreement and it will need to provide easements for the natural gas lines on land now owned by the Town. The Town Council referred the granting of the easements for a review by the Planning and Zoning Commission pursuant to section 8-24 of the Connecticut General Statutes and the Planning and Zoning Commission gave a unanimous favorable report. The required action is to authorize the Town Manager to sign an agreement with CNG to provide natural gas service to the Transit Oriented Development project to be built at 889, 903 and 913 Farmington Avenue and to grant CNG an easement to install and maintain the natural gas lines along the Boulevard to be built by the Town between Farmington Avenue and the Berlin Train Station.

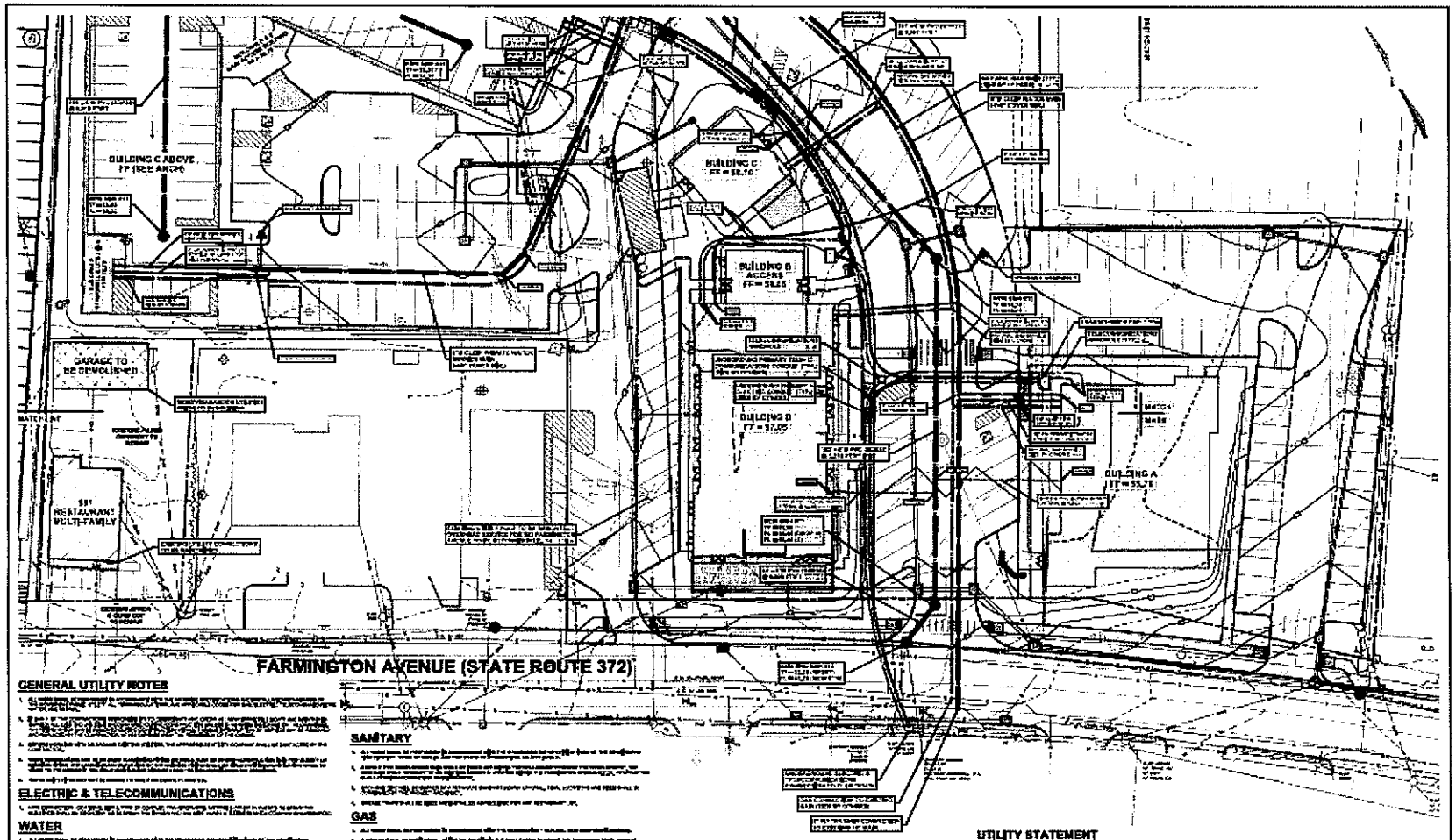
Action

Move to authorize the Town Manager to sign an agreement with CNG to provide natural gas service to the Transit Oriented Development project to be built at 889, 903 and 913 Farmington Avenue and to grant CNG an easement to install and maintain the natural gas lines along the Boulevard to be built by the Town between Farmington Avenue and the Berlin Train Station.

Attachments:

1. Map showing easement area.
2. CNG agreement.
3. Section 8-24 report from the Planning and Zoning Commission.

Prepared By:
Chris Edge, Economic Development Director CE
Jim Mahoney, Economic Development Coordinator



GENERAL UTILITY NOTES

ELECTRIC & TELECOMMUNICATIONS

WATER

SANITARY

GAS

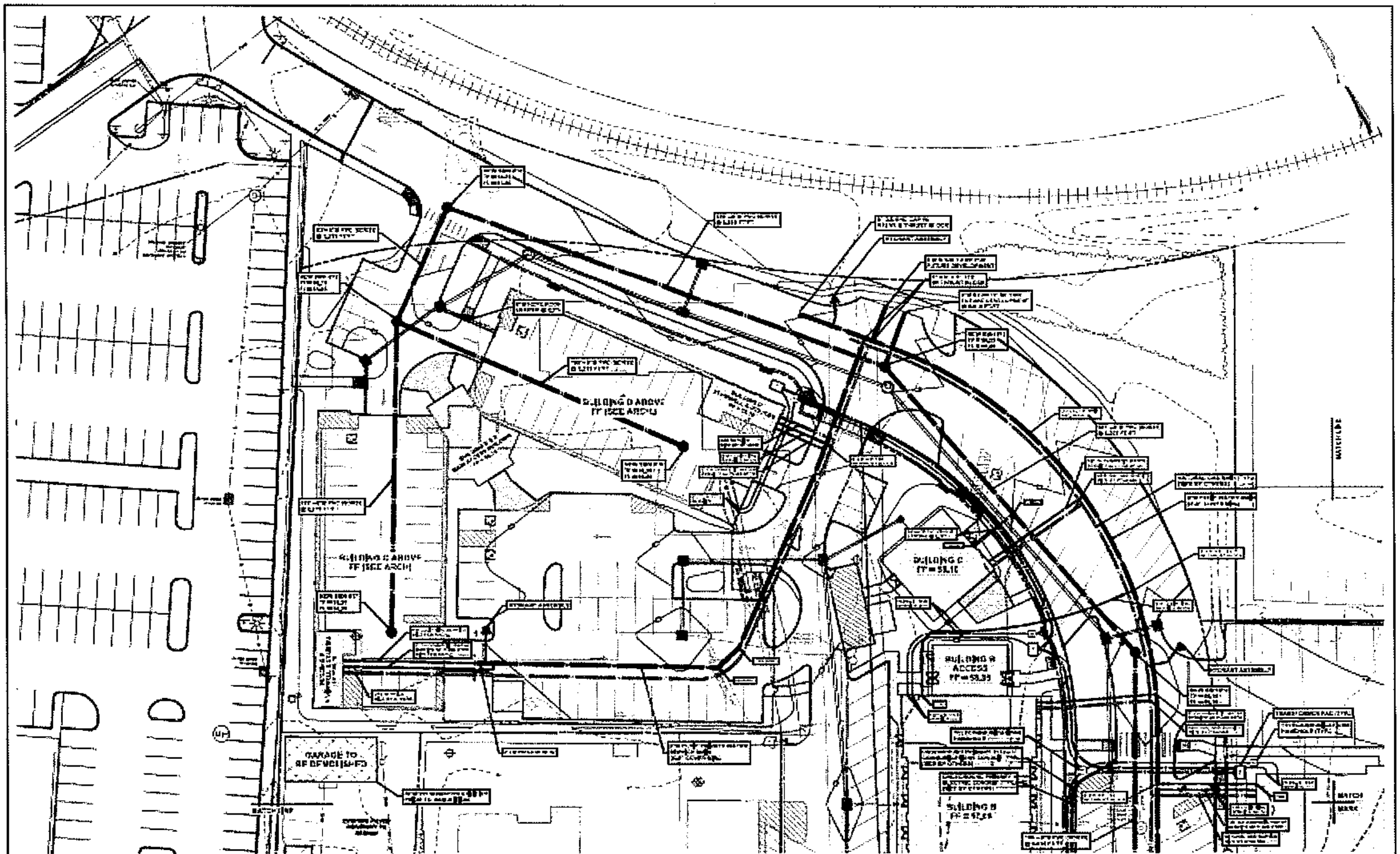
UTILITY STATEMENT

YRC

CONTACT INFORMATION

STEELE CENTER @ FARMINGTON
TRANSIT ORIENTED DEVELOPMENT

GRADING & DRAINAGE PLAN - SOUTH



SCALE 1" = 20'

PROJECT NUMBER

YRC

CONTACT INFORMATION

STEELE CENTER @ FARMINGTON
TRANSIT ORIENTED DEVELOPMENT

UTILITY PLAN - NORTH

REVISION SUMMARY

SHEET
8 of 13

DATE

REVISED

CNG

February 21, 2020

Newport Realty Group LLC
710 Main St. Suite 11
Plantsville, CT 06479

Dear Mark Lovley,

This letter and any accompanying rider(s) shall be a binding agreement between Connecticut Natural Gas (CNG) and Newport Realty Group LLC (hereinafter known as Applicant), upon execution of this letter agreement and any accompanying rider(s) by both parties and its return to CNG.

1. CNG agrees to provide natural gas service to Newport Realty Group LLC at the location(s) and for the use(s) in the facilities and at the estimated amounts set forth on Appendix A, subject to the terms and conditions of this letter agreement and any accompanying rider(s). Natural gas consumption shall be deemed to commence when the facilities necessary to render natural gas service at the location(s) specified in Appendix A but in no event later than three (3) months from the completion of CNG's service line(s) to the location(s) specified in Appendix A. The commencement date for natural gas consumption may be extended by mutual agreement in writing. Additionally, please note if development will be completed in phases by completing the section below:

2. In order to provide natural gas service at the location(s) set forth on Appendix A, Applicant agrees to pay a contribution in aid of construction (CIAC) Zero,($0.00), in aid of constructing certain facilities by CNG. This contribution is due upon execution of this letter and prior to commencement of each phase of development as outlined in table below (Development Phases). CIAC has been calculated based upon the construction schedule, the estimated consumption of natural gas at the location(s) and the consumption of natural gas as the only fuel for the use(s) described in Appendix A. Unless such contribution is received by CNG at the time this letter agreement is executed, CNG has no obligation to extend its facilities to serve the location(s) and use(s) described in Appendix A.

The CIAC has been calculated using the estimated annual consumption of natural gas at the location(s) and for the use(s) shown on Appendix A. Applicant will provide a load sheet to CNG with estimated usage based on appliances being installed. It is understood and agreed that if Applicant fails to inform CNG of any changes that impact upon CNG's construction costs or the estimated annual natural gas consumption by the equipment at the location(s), Applicant agrees to pay CNG upon demand a contribution in aid of construction utilizing CNG's new business

CNG

guidelines in effect on the date of this letter agreement and which are on file with Connecticut's Public Utilities Regulatory Authority (PURA).

Development Phases

Phase	# of Buildings	Address or Lot Number (if available)	Completion Date	CIAC
NA	5	889,903,913 Farmington Ave. Berlin, CT	3/1/2023	[$0.00]

If, in the course of construction of facilities at the location(s) set forth on Appendix A, CNG encounters contaminated soil at such location(s), Applicant shall bear the additional cost of excavating and removing the contaminated soil per Federal, State and Local laws, regulations and agency orders or directives including but not limited to signing any manifest for disposal as the generator of such contaminated soil. Unless Applicant agrees in writing to bear such additional costs, CNG shall have the right to cease its performance and terminate this agreement.

3. The rate applicable to service at the location(s) and for the use(s) specified in Appendix A is CNG's RFH, as amended from time to time by order of PURA. This letter agreement is subject to CNG's Rules and Regulations in force and on file with PURA, as amended from time to time, and to all applicable laws, governmental regulations and governmental orders, including those of the PURA.

4. Applicant agrees that, if the natural gas service to be provided under this letter agreement involves the relocation of existing services, meters and connections at the location(s) specified on Appendix A, the cost of replacing all facilities beyond CNG's meter shall be the responsibility of Applicant.

5. All mains, services, meters and connections shall remain the property of CNG. In the event any easement(s) is required for the installation of CNG's mains, services, meters and connections, Applicant shall grant CNG such easement(s) in a form satisfactory to CNG before CNG commences constructing and installing its facilities necessary to render natural gas service at the location(s) specified in Appendix A.

6. CNG will provide trenching and backfill for Main & Stub
   Applicant will provide trench and backfill for Second Half Services

Initial: _____ Date: _____

CNG

7. If Applicant is not the owner of the premises at the location(s) specified in Appendix A, this letter agreement shall not be binding on CNG unless and until both Applicant and the owner of the premises agree to all of the terms and conditions set forth herein as evidenced by the signatures of Applicant and the owner on this letter agreement.

8. Applicant will complete and execute an initial New/Replacement Service Installation Agreement form prior to the installation of natural gas service to property. For subsequent homes, you hereby grant CNG a Limited Power of Attorney to execute each subsequent installation agreement on your behalf upon your oral authorization to do so at the time such installation agreement is prepared.

9. If Applicant defaults on any payments required under this letter agreement, including payments due for natural gas consumed, Applicant agrees to pay all costs of collection including reasonable attorney fees.

10. This letter agreement shall not be assigned nor otherwise transferred by Applicant without the written consent of CNG.

11. This letter agreement supersedes any and all agreements, either oral or written, between Applicant and CNG. This letter agreement may be amended, modified or terminated only by written agreement executed by CNG and Applicant.

12. This agreement is valid for a period of 12 months from the completion date of Phase II outlined in the table above (Development Phases).

13. Any communications and notices with respect to this letter agreement shall be forwarded to:

a. Connecticut Natural Gas
76 Meadow St, 2nd Floor
East Hartford, CT 06108
Attention: Sales Manager

b. Newport Realty Group LLC
710 Main St. Suite 11
Plantsville, CT 06479

or to such address as either party may provide in writing to the other from time to time. Absent notice of a change of address, the address shown above shall be the address for any notice under this letter agreement and notice shall be deemed effective three (3) days after mailing of such notice duly addressed and with postage prepaid.

CNG

This letter agreement shall be governed by the laws of the State of Connecticut. If any provision(s) of this letter agreement is found to be unlawful and otherwise null and void, Applicant and CNG agree that the remaining provisions of this letter agreement shall remain in full force and effect.

The offer to provide natural gas service to Applicant by CNG on the terms and conditions set forth herein will expire unless a fully executed copy of this letter agreement and any accompanying rider(s) is received by CNG on or before March 21, 2020.

Very truly yours,
CONNECTICUT NATURAL GAS

By _____
Michael Borea
CNG Sales Manager

Any questions concerning this agreement may be directed to Tony Sherman, (203) 499-3324 or asherman@ctgcorp.com.

NOTE: TO AVOID DELAY IN PROCESSING YOUR REQUEST FOR GAS SERVICE, PLEASE BE SURE TO SIGN BELOW AND THE APPENDIX A ATTACHED WITH THIS LETTER.

ACCEPTED:

Signature _____

Print Name _____

Title _____

Date _____

CNG

APPENDIX A
NATURAL GAS CONSUMPTION

OPPORTUNITY ID NUMBER:
a0E1S00001X5IS2UAJ

APPLICANT: Newport Realty Group LLC
CONTACT: Mark Lovley
LOCATION: 889,903,913 Farmington Ave.
TOWN: Berlin, CT

DATE OF PLANS/INFORMATION SUPPLIED:

NUMBER OF UNITS: 76

Appliance	Quantity	Total CFH	Total GPH
Furnace	76	4,270	10,640

NUMBER OF METERS REQUIRED: 76
TARIFF RATE (circle correct rate): **RFH**

NUMBER OF UNITS: 2

Appliance	Quantity	Total CFH	Total GPH
Furnace/WH	2	1,470	5,586

NUMBER OF METERS REQUIRED: 2
TARIFF RATE (circle correct rate): **SGSF**

CNG

NUMBER OF UNITS: 2

Appliances	Quantity	Total BTU	Total CCF
Furnace/WH/CK	1	2,690	7,235

NUMBER OF METERS REQUIRED: 1
TARIFF RATE (circle correct rate): MGSF

APPLICANT (PRINT):

_____

APPLICANT SIGNATURE: **DATE:**

_____ _____

Town of Berlin

Planning and Zoning Department
240 Kensington Road
Berlin, Connecticut 06037
www.town.berlin.ct.us

Planning and Zoning Commission
Zoning Board of Appeals
Conservation Commission
Historic District Commission

NOTICE OF DECISION

SUBJECT: Section 8-24 of the Connecticut General Statutes
Easement to Connecticut Natural Gas to Provide
Gas Lines and Service to the Berlin Train Station
TOD Project

At its Regular Meeting of April 2, 2020, after review in accordance with Connecticut General Statutes Section 8-24, the Planning and Zoning Commission voted unanimously to forward a favorable recommendation to the Town Council regarding granting an easement to Connecticut Natural Gas to provide gas lines and service to the Berlin Train Station TOD project.

Maureen Giusti, AICP

Maureen Giusti, Acting Town Planner/Zoning Enforcement Officer

Agenda Item No. 11
Request for Town Council Action

TO: **The Honorable Mayor and Town Council**

FROM: **Arosha Jayawickrema, Town Manager**

DATE: **April 10, 2020**

SUBJECT: **Small Cities CDBG Grant/ Fair Housing Month**

Summary of Agenda Item:

As a recipient of a Small Cities Community Development Block Grant for 2012 Small Cities funding, it is a Department of Economic and Community Development Program requirement that our community actively evidence its commitment to and support for the principles and practices of Fair Housing and Equal Opportunity. April is designated as Fair Housing Month and as such is an ideal time for our community to reaffirm its commitment to Fair Housing and Equal Opportunity. The Town must readopt the Fair Housing Resolution, Fair Housing Policy Statement, Affirmative Action Policy Statement, and Compliance with Title VI of the Civil Rights Act of 1964.

Action Needed:

Move to readopt the Fair Housing Resolution, the Fair Housing Policy Statement, Affirmative Action Policy Statement and the Compliance with Title VI of the Civil Rights Act of 1964 Statement.

Attachments:

1. Fair Housing Resolution
2. Fair Housing Policy Statement
3. Affirmative Action Policy Statement
4. Compliance with Title VI of the Civil Rights Act of 1964

Prepared By:

Arosha Jayawickrema, Town Manager

TOWN OF BERLIN

Office Of The Town Manager

FAIR HOUSING RESOLUTION

Whereas, All persons are afforded a right to full and equal housing opportunities in the neighborhood of their choice; and

Whereas, Federal fair housing laws require that all individuals, regardless of race, color, religion, sex, handicap, familial status or national origin, be given equal access to all housing-related opportunities, including rental and homeownership opportunities, and be allowed to make free choices regarding housing location; and

Whereas, Connecticut fair housing laws require that all individuals, regardless of race, creed, color, national origin, ancestry, sex, marital status, age, lawful source of income, familial status, learning disability, physical or mental disability, sexual orientation, or gender identity or expression be given equal access to all housing-related opportunities, including rental and home ownership opportunities, and be allowed to make free choices regarding housing location; and

Whereas, The **Town of Berlin** is committed to upholding these laws, and realizes that these laws must be supplemented by an Affirmative Statement publicly endorsing the right of all people to full and equal housing opportunities in the neighborhood of their choice.

NOW THEREFORE, BE IT RESOVED, That the **Town of Berlin** hereby endorses a Fair Housing Policy to ensure equal opportunity for all persons to rent, purchase, obtain financing and enjoy all other housing-related services of their choice on a non-discriminatory basis as provided by state and federal law; and

BE IT FURTHER RESOLVED, That the chief executive officer of the **Town of Berlin** or his/her designated representative is responsible for responding to and assisting any person who alleges to be the victim of an illegal discriminatory housing practice in the **Town of Berlin** and for advising such person of the right to file a complaint with the State of Connecticut Commission on Human Rights and Opportunities (CHRO) or the U.S. Department of Housing and Urban Development (HUD) or to seek assistance from the CT Fair Housing Center, legal services, or other fair housing organizations to protect his or her right to equal housing opportunities.

Adopted by the Town of Berlin on _____.

Arosha Jayawickrema, Town Manager **Town Seal**

240 KENSINGTON ROAD •BERLIN, CT 06037
TELEPHONE (860) 828-7002
FAX (860) 828-7068

TOWN OF BERLIN

Office Of The Town Manager

FAIR HOUSING POLICY STATEMENT

It is the policy of the Town of Berlin to promote fair housing opportunities and to encourage racial and economic integration in all its programs and housing development activities.

Programs funded and administered by the Town of Berlin must comply with the provisions of Section 46a-64c of the C.G.S., and with related state and federal laws and regulations that prohibit discriminatory housing practices.

The Town of Berlin or any subrecipient of the Town will carry out an affirmative marketing program to attract prospective buyers or tenants of all majority or minority groups, without consideration of race, color, religion, sex, national origin, ancestry, creed, sexual orientation, gender identity or expression, marital status, lawful source of income, disability, age or because the individual has children in all programs and housing development activities funded or administered by the Town of Berlin.

The municipality's Town Manager, Arosha Jayawickrema, is responsible for the enforcement and implementation of this policy. The Town Manager can be reached at 860-828-7002 or by e-mail at ajayawickrema@town.berlin.ct.us.

Complaints pertaining to discrimination in any program funded or administered by the Town of Berlin may be filed with the Town Manager in the Town Manager's Office. The municipality's Grievance Procedure will be utilized in these cases.

Complaints also may be filed with the Commission on Human Rights and Opportunity, Special Enforcement Unit, 21 Grand Street, Hartford, CT 06106, telephone 860-541-3403 within 180 days of the alleged violation by submitting a notarized complaint and/or the Boston Regional Office of FHEO, U.S. Department of Housing and Urban Development, Thomas P. O'Neill, Jr., Federal Building, 10 Causeway Street, Room 321, Boston, MA 02222-1092, telephone (617) 994-8300 or 1-800-827-5005, TTY (617) 565-5453. A complaint may be filed with HUD within one year after an alleged violation. Additionally, an individual may file suite, at his/her expense, in Federal District Court or State Court within two years of an alleged violation. If the individual cannot afford an attorney, the Court may appoint one. A suit can be brought even after filing a complaint, if the complaining party has not signed a conciliation agreement and an Administrative Law Judge has not started a hearing. A court may award actual and punitive damages and attorney's fees and costs.

240 KENSINGTON ROAD •BERLIN, CT 06037
TELEPHONE (860) 828-7002
FAX (860) 828-7068

A copy of this Policy Statement will be given annually to all Town of Berlin employees and they are expected to fully comply with it. In addition, a copy will be posted throughout Town of Berlin.

Revised 4/17/2020

Date

Arosha Jayawickrema, Town Manager

THIS STATEMENT IS AVAILABLE IN LARGE PRINT OR ON AUDIO TAPE BY CONTACTING AROSHA JAYAWICKREMA, 240 KENSINGTON ROAD, BERLIN, CT 06037 OR BY TELEPHONE AT 860-828-7002.

TOWN OF BERLIN

Office Of The Town Manager

AFFIRMATIVE ACTION POLICY STATEMENT

As Town Manager of the Town of Berlin, I recognize the need for Affirmative Action and I pledge my commitment to undertake positive actions to overcome the present effects of past practices or barriers to equal employment opportunity and to achieve the full and fair participation of minorities, women, people with disabilities, older persons, and all other protected groups found to be underutilized in the Town of Berlin's work force or affected by policies having an adverse impact. In the spirit of Executive Order 11, signed by Governor Ella Grasso November 21, 1975, and Executive Order 9, signed by Governor William A. O'Neill on January 3, 1984, I further state that the Town of Berlin will comply with the anti-discrimination provisions of the state and federal laws and regulations listed at the end of this section.

I recognize the hiring difficulties experienced by minorities, people with disabilities and by many older persons and, where appropriate, I have set goals to overcome the present effects of past discrimination, if any, to achieve the full and fair utilization of such persons in the work force. I further pledge that the Town of Berlin will affirmatively provide services and programs in a fair and impartial manner.

Where adverse impact is identified, the Town of Berlin will: (1) review its personnel policies and procedures to ensure that barriers, which unnecessarily exclude protected classes and practices, which have an illegal discriminatory impact, are identified and eliminated; (2) explore alternative approaches to employ minorities and members of protected classes; (3) administer all terms, conditions, privileges and benefits of the employment process in an equitable manner; and (4) establish procedures for the extra effort that may be necessary to ensure that the recruitment and hiring of protected group members reflect their availability in the job market.

It is the policy of the Town of Berlin to provide equal employment opportunities without consideration of race, color, religion, age, sex, marital status, national origin, genetic information, past/present history of mental disability, ancestry, mental retardation, learning or physical disabilities, including but not limited to, blindness, sexual orientation, political belief or criminal record, unless the provisions of Section 46a-60(b), 46a-80(b) and 46a-81(b) of the Connecticut General Statutes are controlling or there is a bonafide occupational qualification excluding persons in one of the above protected groups. This policy applies to all aspects of the employer/employee relationship including, but not limited to, recruitment, hiring, referrals, classifying, advertising, training, upgrading, promotion, benefits, compensation, discipline, layoff and terminations.

The Town of Berlin will implement, monitor and enforce this Affirmative Action Policy Statement in conjunction with the applicable federal and state laws, regulations and executive orders listed below: 13th, 14th and 15th Amendments of the United States Constitution, Civil

240 KENSINGTON ROAD •BERLIN, CT 06037
TELEPHONE (860) 828-7002
FAX (860) 828-7068

Rights Act of 1866, 1870, 1871, Equal Pay Act of 1963, Title VI and VII of the 1964 United States Civil Rights Act, presidential Executive Orders 11246, amended by 11375, (Nondiscrimination under federal contracts), Act 1 Section 1 and 20 of the Connecticut Constitution, Governor Grasso's Executive Order Number 11, Governor O'Neill's Executive Order Number 9, the Connecticut Fair Employment Practices Law (46a-63-64), Discrimination against Criminal Offenders (46a-80), Connecticut General Statutes, Connecticut Code of Fair Accommodations Law (46-63-64), definition of Blind (46a-51 (1), definition of Physically Disabled (46a-51 (15), definition of Mentally Retarded (46a-51 (13), cooperation with the Commission of Human Rights and Opportunities (46a-77), Sexual Harassment (46-60-(a) Connecticut Credit Discrimination Law (360436 through 439), Title I of the State and the Local Fiscal Assistance Act of 1972 and the Americans with Disabilities Act of 1992.

This policy statement will be given annually to all Town of Berlin employees and will also be posted throughout the Town of Berlin. I also expect each supplier, union, consultant and other entity (s) with which we do business to comply with all applicable State and Federal Equal Opportunity laws and regulations. The Town of Berlin will not knowingly do business with any entity debarred from participation in any federal or state program or found to be in violation of any state or federal anti-discrimination law.

I have assigned the responsibility to achieve the successful implementation of our goals and objectives to Arosha Jayawickrema, Town Manager of the Town of Berlin, who can be reached at 860-828-7002 or ajayawickrema@town.berlin.ct.us.

Date

Arosha Jayawickrema, Town Manager

THIS STATEMENT IS AVAILABLE IN LARGE PRINT OR ON AUDIO TAPE FROM THE ADA-504 COORDINATOR BY CALLING 860-828-7115.

TOWN OF BERLIN

Office Of The Town Manager

COMPLIANCE WITH TITLE VI OF THE CIVIL RIGHTS ACT OF 1964

The **Town of Berlin** does not discriminate in the provision of services, the administration of its programs, or contractual agreements. The **Town of Berlin** seeks to fully carry out its responsibilities under the Title VI Regulations.

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the grounds of race, color, or national origin in programs and activities receiving Federal financial assistance. Title VI provides that No person shall on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any programs covered by the Regulations.

This policy is effectuated through the methods of administration outlined in the **Town of Berlin's** Fair Housing Plan and is fully implemented to ensure compliance by the **Town of Berlin**, as the recipient, and by subrecipients. The cooperation of all **Town of Berlin** personnel is required.

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Arosha Jayawickrema, Town Manager Date

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