# COVERAGE ACCEPTANCE TEST PLAN

MARCUS communications

## Including Coverage Prediction Maps

Prepared By: Marcus Communications
Prepared For: Town of Granby, Connecticut (Granby)
Total Test Pages: 13

# ABOUT THIS TEST

These procedures provide an accurate, statistically valid, repeatable, objective, and cost-effective method to verify all of Granby's coverage requirements are met.

This Coverage Acceptance Test Plan ("ATP"), where possible, conforms with the requirements set forth in the latest revision of Telecommunications Industry Association ("TIA") Telecommunications Systems Bulletin TSB-88 titled "Wireless Communications Systems - Performance in Noise and Interference-Limited Situations - Recommended Methods for Technology-Independent Modeling, Simulation, and Verification". TSB-88 defines Channel Performance Criterion ("CPC") as the specified minimum design performance level in a faded channel and provides a set of Delivered Audio Quality (DAQ) CPCs that define subjective voice quality performance applicable to both analog voice and digital voice systems. The procedures set forth in this ATP provide an accurate, statistically valid, repeatable, objective, and cost-effective method to verify that the coverage requirements are met.

## SITE PERFORMANCE VALIDATION

Electrical measurements and timing parameters of equipment are measured and levels recorded by Marcus Communications as part of the Marcus standard installation practices. Marcus Communications will provide these measurements to Granby as part of the final documentation package. These parameters include:

- Transmit frequency and deviation
- Output and reflected power
- Receiver sensitivity
- Receiver multicoupler gain (if applicable)
- Receiver preamplifier gain (if applicable)
- Time domain reflectometry of transmission line
- Combiner loss (if applicable)
- Audio line out
- Audio line in

Prior to conducting the testing procedures detailed in this document, we review each site to verify that the radio system is operating properly. The reviews verify the antenna configuration, the power into the antenna, the antenna installation, and the frequency of the test transmitter. We will provide all test equipment necessary to perform the reviews.

# Definitions

## Subscriber Unit Usage

All tests utilizing subscriber (terminal) units in this document will be performed with Marcus Communications subscriber units as proposed and similar to or taken from Granby stock or the original order. Prior to performing the tests, Marcus Communications will bench test and align all terminal radios to be used during coverage testing.

## Test Vehicle Configuration

The Contractor will provide all vehicles required for the coverage testing as well as the driver for the field team(s). The same vehicle types and equipment installation configuration shall be used throughout the CATP so that a consistency of data is ensured. The non-stationary test equipment will be mounted inside one or more SUVs or vans, with external antennas mounted on the roof. The roof of the test vehicle(s) must not contain any other objects, including lightbars, roof racks, or other obstructions. All non-test radios must be turned off during testing. The test equipment may need to be divided into multiple test vehicles and/or test runs to avoid self-interference. Marcus Communications will determine the number of test vehicles required and which tests, if any, can be run concurrently.

## Service Area

TSB-88 defines a service area as a boundary of the geographic area of concern for a user, and states that Validated CPC Service Area Reliability will be determined by the percentage of test locations in the bounded service area that meet or exceed the specified CPC. We are using a Bounded Area design for Granby as defined in TSB-88 wherein coverage predictions are made out to the boundary of the defined service area and coverage is verified throughout the service area out to the boundary through the performance of a Validated CPC Service Area Reliability test.

TSB-88 recommends coverage verification measurements at a statistically significant number of random test locations, uniformly distributed throughout the service area. We divide the service area by a test grid pattern using TSB-88 Estimate of Proportions analysis to determine the number and size of the test tiles. This analysis provides both statistically significant measurement results and a high confidence that the results are a true indication of the installed radio system coverage.

## Service Area Grid Structure

Figure 1 provides our recommended tile sizes to obtain a uniform distribution of tiles throughout the service area(s).

**Figure 1. Service Area and Tile Size**

| Service Area Definition | Tile Size (miles) |
|---|---|
| Town of Granby | 0.25mi x 0.25mi |

The grid pattern overlays onto street maps and the drive test team will navigate through all accessible tiles within the defined service area boundaries. To include as many test tiles as possible, the following roads have been deemed accessible:

- Primary roads
- Secondary roads
- Local roads (streets)
- Ramps
- Service drives
- Vehicular trails
- Private service roads

The drive route should not pass through tunnels, underground garages, or other man-made obstructive areas where radio coverage is not planned or expected. If a drive route passes through any of these areas, we disable the STI test unit to prevent collection of data in these areas.

Measurements will be made in all accessible tiles within the defined service area boundaries. We do not use test measurements that are outside of each service area boundary. Any areas or accessible tiles within the service area boundary that Granby decides not to test will have that grid eliminated reliability calculations.

We will discard inaccessible tiles from the reliability calculations by treating the inaccessible tiles as exclusion zones.

Any tiles that are believed to be inaccessible will be indicated on proposed grid maps. However, the final determination of tile accessibility will be reviewed and approved by the Town during the testing process. Every effort will be made to test every tile. Alternate testing vehicles such as boats and ATVs will be utilized when applicable. Final determination of a tile's inaccessibility shall be made by the field team. Tiles that are determined to be inaccessible shall be removed from the pass/fail calculation entirely.

# Delivered Audio Quality

TSB-88 defines Channel Performance Criterion (CPC) as the specified minimum design performance level in a faded channel and provides a set of Delivered Audio Quality (DAQ) CPCs that define subjective voice quality performance applicable to both analog voice and digital voice systems. The DAQ definitions are provided in Figure 2.

**Figure 2. Delivered Audio Quality Scale Definitions**

| Delivered Audio Quality | Subjective Performance Description |
|---|---|
| DAQ 5.0 | Speech easily understood. |
| DAQ 4.5 | Speech easily understood. Infrequent Noise/Distortion. |
| DAQ 4.0 | Speech easily understood. Occasional Noise/Distortion. |
| DAQ 3.4 | Speech understandable with repetition only rarely required. Some Noise/Distortion. |
| DAQ 3.0 | Speech understandable with slight effort. Occasional repetition required due to Noise/Distortion. |
| DAQ 2.0 | Understandable with considerable effort. Frequent repetition due to Noise/Distortion. |
| DAQ 1.0 | Unusable, speech present but unreadable. |

# Stakeholder Responsibilities

Granby to provide:

- Review of route plans
- Customer representative(s) to participate in tests as necessary
- Access to the test areas as may be required in each test procedure

Marcus Communications to provide:

- SUV/van for roads-based drive testing
- A driver for Marcus Communications-provided vehicles
- Drive test measurement equipment
- Route plans
- Representatives to operate this equipment and execute the test procedures
- Representative(s) to participate in tests as necessary
- Final test results

# Voice Quality Test

This test verifies RF coverage by evaluating the voice quality of voice test calls to/from a terminal radio at test locations throughout Granby's defined bounded service area. At each test location, the user places a test call to the dispatcher (an inbound call), and the dispatcher places a test call to the user (an outbound call). Evaluators grade the inbound and outbound test call at each location using the DAQ definitions in Figure 2. Scores that equal or exceed the specified CPC of DAQ 3.4 for digital and 3.0 for analog are recorded as PASS, and those lower than DAQ 3.4 and 3.0 are recorded as FAIL. The overall test will be considered passing if 95% or greater of tiles tested within the Granby service area are scored as PASS. The test will be performed twice at each location, using both the Granby PD channel and the Granby FD channel.

## Test Equipment and Preparation

Portable radios of the same model as are being provided to Granby will be programmed and made available for testing.

## Test Planning

The Contractor will use a 0.25-mile by 0.25-mile grid pattern to obtain an even or uniform distribution throughout Granby's entire service area. The grid pattern is overlaid onto street maps and a drive test route determined that will pass through the center point of all accessible grids within the Town boundary. All accessible tiles will be tested. The voice quality test is conducted at a randomly selected location within each tile, as close to the center of the tile as possible. To the extent possible, test locations in adjacent tiles should not be clustered closer to one another than $100\lambda$[1] . All test calls will be made with the vehicle at street level outside any enclosure such as buildings, tunnels, underpasses, underground garages, or other man made obstructive areas where radio coverage is not planned or expected.

## Grading of Test Locations

The test teams shall consist of two Town representatives and a representative from the Contractor. This will be comprised of one representative from the Contractor, one from the Town and one from the Town's consultant. There shall be one test team located in the dispatch center and one test team in the field. The Contractor shall provide the driver for the on-street testing. The driver shall only be responsible for the proper and safe operation of the vehicle and shall not participate in the audio quality testing. The driver shall get as close as possible to the center of each full grid for coverage testing. All navigation directions shall be the responsibility of the Contractor's representative and is expected to be provided via an automatic computerized system. During the drive testing, the exact location to stop and test will be verified on the map with grid overlays by the Town's representatives to ensure that the test location is at or as near as possible to the center of each tile.

The central team will consist of the following:

- Test Monitor – Dispatcher or other Town first responder (speaker)
- Test Monitor – Town's consultant
- Test Monitor – Provided by the Contractor

[1] Approximately 125-ft at 800 MHz, 245-ft at UHF and 650-ft at VHF.

- Observer – Optional participant provided by the Town
- Record keeper (can be a separate person or define which team member would perform that function)

The field team will utilize the test vehicle driving throughout the Town. This team will consist of the following members:

- Driver – Provided by the Contractor
- Test Monitor – Town first responder (speaker)
- Test Monitor – Town's consultant
- Test Monitor – Provided by the Contractor
- Observer – Optional participant provided by the Town
- Record Keeper – (can be a separate person or define which team member would perform that function)

The field team shall be responsible to document the specific details of any tiles that fail the DAQ test. In addition, the field team shall document the reason why any tiles were deemed to be inaccessible. The central dispatch team shall be responsible for keeping the overall test record including results for each tile and the overall results of the CATP. To reduce the time required for the coverage test, a single Dispatch team can support multiple Field teams.

The digital voice test calls within each tile consist of a short message representative of typical public safety call duration and include the identification of the location being tested. The suggested inbound test message is "TESTING TILE NUMBER XXX", followed by a short sentence or two from a newspaper or periodical such as USA Today. To ensure that the message is understood, the dispatcher then repeats the inbound test message. The dispatcher will then make a similar outbound test call. The suggested outbound test message is "CONFIRMING TILE XXX", followed by a different short sentence or two from a newspaper or periodical such as USA Today. The field team will then repeat the dispatcher's test message. Per TSB-88, if the message is not understood on the first attempt, the user is allowed to move and the test can be repeated one time.

Each of the representatives independently grades the test call using DAQ definitions in Figure 2, and records the test score for each test location using the template in Figure 5. PASS or FAIL determinations are made separately for the inbound and outbound calls at each location. For each call direction, a test location is deemed to PASS if a consensus is reached between graders that the test call meets or exceeds the requirement for DAQ 3.4 for digital and DAQ3.0 for analog voice quality.

The first test for a test point will be performed inside the vehicle for the sake of efficiency. If a test point fails either the outbound or inbound test, the tester will step outside the vehicle and retry the test. If the outdoor test fails in either direction, the point may be retried once more. For an outdoor retry, the test team is to move in any direction up to 3 feet and repeat the test. Upon failure of the outdoor retry the grid is confirmed as failing and may not be retried again. In the event the message classification is not unanimous, that specific location will need to be retested for the purpose of determining the cause of the discrepancy between the graders. Retries for this purpose are not counted as retries for final scoring purposes.

# Test Analysis

The data logged by the representatives on the grading template is then analyzed to determine whether the individual test meets the DAQ 3.4 for digital or 3.0 for analog definition.

## Results Presentation

A test report is provided that includes:

- The total number of test tiles in the service area
- The total number of accessible tiles that were tested
- The location tested within each tile
- Map with the test grids overlaid and identification of passed / failed / inaccessible tiles
- A copy of the inbound or outbound grading template used by each grader
- The PASS/FAIL score for each test tile/location for each call direction
- The percent PASS calculation for the service area
- The test setups used for all test sequences
- A determination as to whether the system is balanced, talk-back limited, or talk-out limited

Figure 5. Test Grading Template

# OUTDOOR COVERAGE VOICE QUALITY

**Date:**

**Requirement:** DAQ 3.4 for digital or 3.0 for analog

**Marcus Communications Evaluator:**

**Granby Evaluator:**

**Consultant Evaluator:**

**Test Radio:**

**Test Frequency:**

Check the link used:

- ☐ Base to Portable (outbound)
- ☐ Portable to Base (inbound)

| Service Area Test Tile Number | Marcus Communications Grade | Granby Grade | Consultant Grade | Remarks | PASS / FAIL Score |
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| Service Area Test Tile Number | Marcus Communications Grade | Granby Grade | Consultant Grade | Remarks | PASS / FAIL Score |
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# Critical Building Coverage Verification

This test verifies RF coverage by evaluating the voice quality of voice test calls to/from a terminal radio at test locations inside the 14 critical buildings listed in the Building Performance Check document. At each test location, the user places a test call to the dispatcher (an inbound call), and the dispatcher places a test call to the user (an outbound call). Evaluators grade the inbound and outbound test call at each location using the DAQ definitions in Figure 2. Scores that equal or exceed the specified CPC of DAQ 3.4 for digital and 3.0 for analog are recorded as PASS, and those lower than DAQ 3.4 for digital or 3.0 for analog are recorded as FAIL. The overall test will be considered passing if 95% or greater of tiles tested within the Granby service area are scored as PASS. The test will be performed twice at each location, using both the Granby PD channel and the Granby FD channel.

Critical Building Coverage Verification will be performed and shall meet the provided coverage predictions as stated in Marcus' response to the RFP. This means that areas where in-building coverage was shown on the provided coverage maps will have signal levels at least 20 dB greater than required for DAQ 3.4 for digital and 3.0 for analog audio when measured outdoors (these levels are -87 dBm for UHF P25 and -78 dBm for VHF analog). For locations within critical buildings that are associated with greater than 20 dB of building penetration loss, including subterranean floors, we are able to provide solutions for coverage at additional cost if desired.

| Site # | Requirement | Site Name | Site Address |
|---|---|---|---|
| 1 | Critical – Medium | Granby High School | 54 North Granby Rd |
| 2 | Critical – Medium | Granby Middle School | 321 Salmon Brook St |
| 3 | Critical – Medium | Kelly Lane School | 60 Kelly Lane |
| 4 | Critical – Medium | Wells Road School | 134 Wells Rd |
| 5 | Low - Small | Stop and Shop | 120 Salmon Brook St |
| 6 | Low - Small | St. Theresa's Church | 120 West Granby Rd |
| 7 | Low - Small | Geissler's | 9 Bank St |
| 8 | Critical – Medium | Meadow Brook of Granby | 350 Salmon Brook St |
| 9 | Low - Medium | YMCA | 97 Salmon Brook St |
| 10 | High - Medium | The Grand | 3 Murtha's Way |
| 11 | Low - Medium | Valley Brook Community Church | 160 Granville Rd |
| 12 | High - Medium | Station 280 Apartments | 280 Salmon Brook St (construction started Fall, 2022) |
| 13 | Small - Low | Granby Public Works | 52 North Granby Rd |
| 14 | Small - Low | Granby Parks and Rec | 215 Salmon Brook St |

## Test Equipment and Preparation

Portable radios of the same model as are being provided to Granby will be programmed and made available for testing.

# Test Planning

In buildings classified as small, five test locations will be identified, including one in each corner and one in the center. In buildings classified as medium, twenty test locations will be selected in a uniform distribution on the ground floor of the building. No critical buildings have been designated as large.

# Test Procedure

The test teams shall consist of two Town representatives and a representative from the Contractor. This will be comprised of one representative from the Contractor, one from the Town and one from the Town's consultant. There shall be one test team located in the dispatch center and one test team in the field.

The central team will consist of the following:

- Test Monitor – Dispatcher or other Town first responder (speaker)
- Test Monitor – Town's consultant
- Test Monitor – Provided by the Contractor
- Observer – Optional participant provided by the Town
- Record keeper (can be a separate person or define which team member would perform that function)

The field team will consist of the following members:

- Test Monitor – Town first responder (speaker)
- Test Monitor – Town's consultant
- Test Monitor – Provided by the Contractor
- Observer – Optional participant provided by the Town
- Record Keeper – (can be a separate person or define which team member would perform that function)

The field team shall be responsible to document the specific details of any test locations that fail the DAQ test. The central dispatch team shall be responsible for keeping the overall test record including results for each test location and the overall results of the CATP. To reduce the time required for the coverage test, a single Dispatch team can support multiple Field teams.

The voice test calls within each tile consist of a short message representative of typical public safety call duration and include the identification of the location being tested. The suggested inbound test message is "TESTING TEST LOCATION NUMBER XXX", followed by a short sentence or two from a newspaper or periodical such as USA Today. To ensure that the message is understood, the dispatcher then repeats the inbound test message. The dispatcher will then make a similar outbound test call. The suggested outbound test message is "CONFIRMING TEST LOCATION XXX", followed by a different short sentence or two from a newspaper or periodical such as USA Today. The field team will then repeat the dispatcher's test message. Per TSB-88, if the message is not understood on the first attempt, the user is allowed to move and the test can be repeated one time.

Each of the representatives independently grades the test call using DAQ definitions in Figure 2, and records the test score for each test location using the template in Figure 5. PASS or FAIL determinations are made separately for the inbound and outbound calls at each location. For each

call direction, a test location is deemed to PASS if a consensus is reached between graders that the test call meets or exceeds the requirement for DAQ 3.4 for digital or 3.0 for analog voice quality.

If the indoor test fails in either direction, the point may be retried once more. For a retry, the test team is to move in any direction up to 3 feet and repeat the test. Upon failure of the retry, the test location is confirmed as failing and may not be retried again. In the event the message classification is not unanimous, that specific location will need to be retested for the purpose of determining the cause of the discrepancy between the graders. Retries for this purpose are not counted as retries for final scoring purposes.

## Data Analysis

The following percentages apply to each building's classification for pass/fail criteria:

- Critical – 95%
- High – 80%
- Low – 70%

The percentage of test locations passing in each critical building will be compared against the pass/fail criteria associated with its classification to determine whether the critical building has passed or failed.

## Results Presentation

A test report is provided that includes:

- The number of locations tested for each critical building
- A copy of the inbound or outbound grading template used by each grader
- The PASS/FAIL score for each test tile/location for each call direction
- The percent PASS calculation for each critical building
- The test setups used for all test sequences
- A determination as to whether the system is balanced, talk-back limited, or talk-out limited

# Talk-Out Bit Error Rate (BER) Characterization

This test characterizes RF coverage by measuring talk-out (base to mobile) BER throughout Granby's defined bounded service area.

## Setup

We use our STI Field Test wireless testing system to measure BER. The system consists of a Freedom R8100 receiver, a GPS receiver to provide accurate position information for each measured data point, a computer running the STI Field Test 7 software with an internal clock that coordinates and records the test data, roof mounted antennas, and variable attenuators for use when testing portable coverage.

The test equipment is mounted inside the test vehicle (SUV/van) and has an external antenna(s) mounted on the outside, centrally located on the vehicle's roof, without other equipment installed on the roof.

When characterizing portable coverage, a variable attenuator installs in the test vehicle between the radio and the external antenna to simulate portable operations on the hip for both outdoor and indoor operation. For portable outdoor coverage characterization, the variable attenuator is set to the appropriate level to account for portable body losses. Variable attenuator values, where applicable, are shown in Figure 6.

**Figure 6. Coverage Service Area, Body/Building Loss, and Attenuator Values**

| Service Area Definition Figure 1 | Description | Body Loss (dB) | Attenuator Value (dB) [2] |
|---|---|---|---|
| Granby Town Boundary | PD UHF P25 Portable Outdoor | 12 dB | 12 dB |

## Data Measurements

Each radio system base station site continuously transmits a P25 test pattern data sequence on a working channel (in a simulcast system, the same working channel is used for each simulcast site). In this case, the Granby PD channel will be tested. The STI equipment mounted inside the test vehicle collects measurements of this signal as it is driven along the defined test drive route. The software in the STI laptop computer automatically records the BER as reported by the Freedom receiver for each measurement data record along the test drive route.

[2] Attenuator value accounts for portable body loss and antenna gain and will be finalized prior to acceptance testing based on actual equipment configuration.

## Data Analysis

As defined by Section 5 of TSB-88.3-E, latest revision, we post-process all mean measurement data records collected from the drive test within the defined service area boundary, with data records recorded every 0.1-mile (typically) used in the final analysis. Measurements that have a BER equal to or less than 2% are recorded as PASS; the remainder are recorded as FAIL.

## Results Presentation

We plot the data records on a map showing the test tiles, the areas tested and the test results. Different colors show ranges of measured BER. An included test report summarizes the test results.

# Exhibit H: Indemnification and Insurance
## COMMUNICATIONS SYSTEM AGREEMENT

For purpose of this Exhibit, the term **"Vendor"** shall also include their respective agents, representatives, employees, contractors of any tier; and the term **"Owners"** shall include the **Town of GRANBY, CT** including their respective subsidiaries, directors, boards, commissions, officers, officials, employees, agents, and representatives.

The Vendor is aware and agrees to provide indemnification and insurance coverage to protect the interests of the Owner relative to the services contemplated by this Agreement.

### I. INDEMNIFICATION

A. To the fullest extent permitted by law, the Vendor shall release, defend, indemnify, and hold harmless the Owners from any and all suits, claims, losses, damages, costs (including without limitation reasonable attorneys' fees), compensation, penalties, fines, liabilities or judgments of any name or nature for bodily injury, sickness, disease, or death; and/or damage to or destruction of real and/or personal property; and/or financial losses (including, without limitation, those caused by loss of use) sustained by any person or concern, including officers, employees, agents, contractors of any tier, or volunteers of the Owners, or the Vendor, or by the public, which is caused or alleged to have been caused in whole or in part by any and all acts, errors or omissions of the Vendor, its officers, agents, contractors of any tier, or anyone directly or indirectly employed by them arising from or related to the performance of this Agreement, or a failure of the System, the Software, or the Equipment to meet and comply with the specifications, requirements, and warranties set forth in the Agreement.

B. To the fullest extent permitted by law, the Vendor shall release, defend, indemnify, and hold harmless the Owners from any and all suits, claims, damages, costs, (including without limitation reasonable attorneys' fees), compensation, penalties, fines, liabilities or judgments that may arise out of the failure of the Vendor, its officers, agents, contractors of any tier, or anyone directly or indirectly employed by them to comply with any laws, statutes, ordinances, building codes, and rules and regulations of the United States of America, the State of Rhode Island, the Town of South Kingstown, or their respective agencies.

C. This duty to indemnity shall not be constrained or affected by the Vendor's insurance coverage or limits, or any other portion of the Agreement relating to insurance requirements. It's agreed that the Vendor's responsibilities and obligations to indemnify shall survive the completion, expiration, suspension or termination of the Agreement.

### II. INSURANCE

#### A. Insurance Requirements

1. The Vendor shall obtain and maintain at its own cost and expense all the insurance described below continuously for the duration of the Agreement, including any and all extensions, except as defined otherwise in this Exhibit.

2. Vendor's policies shall be written by insurance companies authorized to do business in the State of Connecticut, with a Best's rating of no less than A:VII, or otherwise approved by the Owner.

3. All liability policies (with the exception of Worker's Compensation) shall include the Owners as Additional Insured described below. The coverage shall include, but not be limited to, investigation, defense, settlement, judgment or payment of any legal liability. Blanket Additional Insured Endorsements are deemed acceptable. Any Insured vs. Insured language shall be amended to eliminate any conflicts or coverage restrictions between the respective Insureds.

4. When the Owners or the Vendor is damaged by failure of the Vendor to purchase or maintain insurance required under this Exhibit, the Vendor shall bear all reasonable costs including, but not limited to, attorney's fees and costs of litigation properly attributable thereto.

5. Vendor's Workers Compensation Insurance is in compliance with the laws of the State of Connecticut.

B. **Required Insurance Coverages:**

1. **Commercial General Liability:** $1,000,000 each occurrence / $3,000,000 aggregate, for premises/operations, independent contractors' protective, products/ completed operations, contractual liability, personal injury and broad form property damage. Vendor shall continue to provide products/ completed operations coverage for two (2) years after final completion of the work.

2. **Automobile Liability and Physical Damage Coverage:** $1,000,000 each accident for any auto, including uninsured/underinsured motorist coverage and medical payments. Policy shall include collision and comprehensive physical damage coverage.

3. **Umbrella Liability:** $5,000,000.

4. **Workers' Compensation and Employer's Liability:** Statutory coverage in compliance with the Workers' Compensation laws of the State of Rhode Island or applicable to the work to be performed. Policy shall include Employer's Liability with minimum limits of $1,000,000 each accident, $1,000,000 disease/policy limit, $1,000,000 disease/each employee.

   The Vendor represents that they are currently in compliance with all requirements of the State of Connecticut Workers' Compensation Act and that it shall remain in compliance for the duration of the Agreement. The Vendor agrees that Workers' Compensation is their sole remedy and shall indemnify and hold harmless the Owners from all suits, claims, and actions arising from personal injuries to the Vendor, however caused. This indemnity shall not be affected by a lapse of Workers' Compensation coverage and/or if the Vendor failed, neglected, refused or is unable to obtain Workers' Compensation insurance.

5. **Personal Property:** All personal property of the Vendor are the sole risk of the Vendor. The Vendor agrees to indemnify, defend and hold harmless the Owners from any and all losses or damages, however caused, to any and all personal property belonging to the Vendor.

C. **Additional Terms**

1. Minimum Scope and Limits: The required insurance shall meet the minimum scope and limits of insurance specified in this Exhibit, or required by applicable federal, state and/or municipal law, regulation or requirement, whichever coverage is greater. Providing proof of compliance with the insurance requirements described in this Exhibit is not intended, and shall not be construed to exclude the Owners from additional limits and coverage available to the Vendor.

   Acceptance by the Owners of insurance submitted by the Vendor does not relieve or decrease in any manner the liability of the Vendor arising out of or in connection with this Agreement. The Vendor is responsible for any losses, claims and costs of any kind which exceed the Vendor's limits of liability, or which may be outside the coverage scope of the policies, or a result of non-compliance with any laws including, but not limited to, environmental laws. The requirements herein are not intended, and shall not be construed to limit or eliminate the liability of the Vendor that arises from the Agreement.

2. Certificates of Insurance: The Vendor shall provide certificates of insurance, declaration page(s), policy endorsements or provisions acceptable to the Owners confirming compliance with this Exhibit and thereafter upon renewal or replacement of each required policy of insurance. Upon request, the Vendor agrees to furnish complete copies of the required policies.

3. Subcontractors: Vendor shall cause all contractors of any tier, acting on its behalf, to comply with this Exhibit. The Vendor shall either include its contractors as an Insured under its insurance policies or furnish separate certificates of insurance and endorsements for each subcontractor.

4. Premiums, Deductibles and Other Liabilities: Any and all related costs, including but not limited to, deductibles, retentions, losses, claim expenses, premiums, taxes, and audit charges earned are the sole responsibility of the Vendor.

5. Occurrence Form, Primary and Non-Contributory: All required insurance coverage shall be written on an occurrence basis, except as defined otherwise in this Exhibit. Each required policy of insurance shall be primary and non-contributory with respect to any insurance or self-insurance maintained by the Owners.

6. Waiver of Rights of Recovery: Both the Vendor and Vendor's insurers shall waive their rights of recovery or subrogation against the Owners.

7. Claim Reporting: Any failure of the Vendor to comply with the claim reporting provisions of the required insurance policies shall not relieve the Vendor of any liability or indemnification in favor of the Owners for losses which otherwise would have been covered by said policies.

8. Cancellation Notice: Each required insurance policy shall not be suspended, voided, cancelled or reduced except after thirty (30) days prior written notice has been given to The Owners, ten (10) days for non-payment of premium.

9. Compliance: Failure to comply with any of the indemnification or insurance requirements may be held a willful violation and basis for immediate termination of the Agreement.

TOWN OF GRANBY, CONNECTICUT
15 NORTH GRANBY ROAD
GRANBY, CT 06035

**Request for Quote for specifications and pricing for the design, installation, removal of old equipment and support of a radio system that meets or exceeds the following requirements for the Town of Granby.**

I. INTENT

The Town of Granby is requesting quotes to hire a successful bidder to provide a radio and communications design, installation, removal of old equipment/systems and support vendor to be selected to address the needs of the Granby Ambulance Association, Granby Police Department, Granby Department of Public Works, Lost Acres Fire Department and Granby CERT Team, all parts of the Town of Granby Radio system.

II. LOCATIONS

The radio system(s) to be procured must perform at least to the needs of all the listed departments. Requirements are listed below.

III. DESCRIPTION OF WORK AND MATERIAL

The successful candidate will provide a detailed quote with sufficient detail for the Town of Granby to evaluate and select a vendor capable of meeting or exceeding the below-listed requirements. Failure to provide adequate detail or complete all the requirements will be grounds for dismissal from the process.

IV. SCHEDULE

Bidders are to provide a quote for the design, installation and support for a state-of-the-art radio and communications system to meet the requirements listed below by Town of Granby, 15 North Granby Rd, Town Managers Office, by September 15, 2023 at noon (12:00 pm EST).

Any potential bidders MUST attend an in-person site review where every site in current use and recommended sites will be visited. Potential bidders to provide their interest in bidding to the Town of Granby Radio Committee Chairman John Horr Jr, at jhorr@lostacresfd.com or cell at 860-805-0935 by July 31, 2023 on or before 4pm EST.

IV. TOWN RESPONSIBILITIES

The Town of Granby Radio Committee, or its designee(s) will be the sole decision maker in the final selection of a qualified candidate from the Bids provided. All offers will be best and final. The Committee reserves the right to decide based on all the information provided and without further communication. The Town of Granby Radio Committee, or its designee(s), will be the interface with the selected vendor. Any bidder may only contact the Committee Chairman below:

TOG Committee Chairman:
Contact: John Horr Jr
Phone: 860-805-0935
Email: jhorr@lostacaresfd.com

The Town reserves the rights to amend or terminate this Request for Quote, accept all or any part of a quote, reject all quotes, waive any informalities or non-material deficiencies in a quote, and award the quote to the vendor that, in the Committee's judgment, will be in the Committee's best interests.

The Town may, before or after quote opening and in its sole discretion, clarify, modify, amend, or terminate this RFQ if the Town determines it is in its best interest.

V. QUALIFICATIONS OF BIDDER

Each bidder must show evidence of having satisfactorily completed similar projects. This experience must have been within the last (5) years. This evidence may include letters. The Town of Granby Radio Committee may make such an investigation as deemed necessary to determine the ability of the bidder to discharge its contract. The bidder shall furnish the Town with all such information and data as may be required for that purpose. The Town reserves the right to reject any bid if the bidder fails to satisfactorily convince the Town that it is properly qualified by experience and facilities

to carry out the obligation of the contract and to satisfactorily complete the work called for herein. Conditional bids will not be accepted. Bids shall remain the property of the Town of Granby.

## VII BID PREPARATION

Bidders will provide a clear summary page, identifying the company/person(s) that are being offered to meet this bid requirements and their associated certifications and experience. Bidders will indicate both in numerals and in words the proposed price and detail the underlying basis for the proposed price. This RFQ is not a contract offer, and no contract will exist unless and until a written contract is negotiated and signed by the Town and the successful bidder.

Bidders are prohibited from contacting any Town employee, officer or official concerning this RFP, and any member of any of the affected organizations, except as identified herein. A bidders' failure to comply with this requirement may result in disqualification.

Bidders will provide 3 hard copies of their proposal and an electronic copy in PDF format.

## VIII SUBCONTRACTS

The bidder is advised that any person, firm, or other party to whom it is proposed to award a subcontract under this contract must be identified in the proposal and be acceptable to and approved by the Town of Granby Radio Committee in its sole discretion.

## IX CONDITIONS OF WORK

At the date fixed for opening of bids, it will be presumed that each bidder has read and become thoroughly familiar with Contract Documents.

## X LAWS AND REGULATIONS

The bidder's attention is directed to the fact that all applicable federal and state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

## XI SALES TAX

Under the terms of the regulations referring to CONTRACTORS and SUBCONTRACTORS issued by the State Tax Commission in administration of the State Sales and Use Tax, to which the bidder is referred, the bidder shall not include in his bid nor charge any use or sales tax thereon.

## XII Radio System Specifications

The Town of Granby is seeking proposals from qualified Bidders for the design, installation, removal of old equipment and support of a Town of Granby radio system. The specific requirements are noted below.

The Town of Granby has a land area of approximately 41 square miles and a population of approximately 12,000. It is bordered by eight other incorporated municipalities. Radio communications are crucial to the day-to-day operations of the Granby Police Department, Granby Ambulance Association, Granby Department of Public Works, Granby CERT Team and the Lost Acres Fire Department. The Granby Police Department and Granby Department of Public Works are full direct services to the Town of Granby and employ full time paid members. The Granby Ambulance association is a separate private entity, with full time paid and volunteer members funded by donations and insurance recovery. The Lost Acres Fire Department is a separate company incorporated by the State of CT, with a contract with the Town of Granby to provide exclusive fire and emergency services protection. The Granby CERT Team is an all-volunteer organization providing emergency shelter management and limited traffic direction services. The police department operates a two-position Public Safety Answering Point (PSAP) and dispatch center for all listed services.

The current radio systems and dispatch consoles have been in place for many years, details of each system are included later in this document.

TOWN OF GRANBY, CONNECTICUT
15 NORTH GRANBY ROAD
GRANBY, CT 06035

# TOWN OF GRANBY RADIO COMMUNICATIONS UPGRADE PROJECT

**July 17, 2023**

# Contents

# 1. SYSTEM OVERVIEW

## 1.1 System/Network Architecture

### 1.1.1 Project Overview

The Town of Granby ("Town") is seeking to purchase a state-of-the-art wide area voice network for use throughout the Town and surrounding area, utilizing analog simulcast and P25 conventional simulcast technologies. The integrated network must be a highly reliable, fault-tolerant system which will meet current needs and provide a growth path for future expansion. The system will serve the communication needs of the first responders for the Town, and it must have the flexibility to adapt to changing system requirements and new technology without the need for the replacement of major equipment elements or a requirement that such new technology must necessarily be sourced from the vendor for this Project. The Town wants to be able to reuse any analog repeaters, voters, and simulcast controllers proposed for any potential future upgrade to any form of P25 network, regardless of the chosen vendor(s). Equipment should have the capability to support P25 conventional, P25 conventional simulcast, P25 phase 1 or phase 2 trunked operation. The network should whenever possible use components, interfaces, and/or software which are not proprietary and comply with industry standards, so as to enable it to be capable of the addition of RF sites and other modifications to increase coverage, or upgrade or adapt this system, using the chosen vendor or a different vendor of the Town's choosing.

Successful bidders shall have a repair facility (including components) and on-call technicians within a 70-mile radius of the Town of Granby. The vendor shall have the ability to respond to radio or other system failures or disruptions on site, within 4 hours of being contacted by the municipality, or by the system, of any issues.

Vendors will provide coverage plots at a 95% reliability covered area for the proposed portable radios when used on the street, utilizing a radio strap at hip level, and utilizing a speaker mic. The system coverage performance will be verified as a part of acceptance testing. High risk sites listed in Attachment D (interior) will be confirmed by the vendor as part of the acceptance criteria. Clear communications with the referenced portable configuration will be demonstrated by the vendor and confirmed by representatives of the Town of Granby.

Vendors are encouraged to propose a network design that will best meet the requirements for the Town of Granby. Alternate technologies besides those listed will be considered if they meet all the requirements and are cost justified.

**The goals of this RFP are to procure the following:**

- Granby Police Department (GPD): single channel, 4-site UHF P25 conventional simulcast system.
- Granby Ambulance Association (GAA): single channel, 4-site UHF P25 conventional simulcast system.
- Lost Acres Fire Department (LAFD): dual channel, 4-site VHF analog conventional simulcast system.
    - A fireground channel will be licensed and must be monitored only and recorded at dispatch.
    - Emergency alerting capabilities for "MayDay" situations that does not tie up the operational frequencies.
- Granby Department of Public Works (DPW): single channel, 2-site VHF P25 conventional simulcast system.

- Granby CERT Team – provide a new frequency (VHF or UHF) to support operations within the center of town. (4-mile radius of the intersections of Salmon Brook St/West Granby Rd/East Granby Rd.)
- Two Position Dispatch Console – 911 PSAP Answering Point
    - Upgrade/replace existing system and furniture with full paging capabilities and provide support to allow communication with the agencies listed under interoperability needs below.
    - This is the central dispatch location for all services (Granby Police, Granby Ambulance, Granby Department of Public Works, and the Lost Acres Fire Department). The console must be expandable to support the addition of a remote console position in the future.
    - Granby Dispatch uses the NexGen CAD system, (recent upgrade from IMC).
    - Provide the ability to work from an alternate, off-site location, with full capabilities.
    - Providing paging within the building, off radio.
    - Provide the ability to monitor and respond to police radio communications within the Sgt's, Capt's, Chief's and Day Room.

**The new simulcast radio system project shall at a minimum include:**

- Updating and/or adding all FCC licenses as required.
- Complete tower inspection and structural analysis of all sites (see Attachment C) with recommendations and pricing for all changes.
- All sites will be linked with a dedicated licensed microwave system supporting all channels, or a system with equivalent features, cost, and capabilities.
- Battery back-up systems for all sites that allow for full equipment run time of eight hours for easy to access and twelve hours for difficult to access sites. (Site list is Attachment C).
- Redundant networking and power supply components must be provided, including emergency generators.
- All channels shall be recorded in dispatch using the existing Granby Dispatch recorder. If not possible, provide recommended alternatives.
- The system sites shall be interlinked utilizing a microwave (or equivalent) system. This configuration shall allow for continued operation of the system, such that if one link fails, the entire system will not fail.
- Complete successful installation, deployment, commissioning, system tests, and migration to the new radio system.
- Continued operation of the existing system until new system is installed, tested, and accepted.
- A new IP-based dispatch console system with redundant servers and UPS battery backups are required, as well as a new dispatch furniture system.
- All equipment shall be "Public Safety" rated components except for DPW subscribers which may be commercial grade.
- New coax cable of the appropriate size to minimize losses for new antennas.
- Removal of all unused equipment, including demolition of sites needing upgrades or removal of towers no longer needed.
- Provide life cycle analysis of the upgraded system.

***Add On or Alternate Options***

- Provide an alternate add-on price to have a wide area coverage talkgroup on the state CLMRN

system for Granby Ambulance with appropriate mobile and portable radios.

- Provide an alternate price to have Granby Police operate on the State of CT radio system with their own talk group.
- Provide pricing options to operate the Fire simulcast system in P25 mode.
- Provide pricing for the Police Dept. to have a second channel, 4 site UHF P25 conventional simulcast system.

The system shall be proposed as a complete package with firm and detailed prices for all equipment, software and services required by these specifications. Vendors must describe all components, services and tasks required to implement a working, fully functional system.

All components, whether hardware or software, required for the systems to be usable and fully operational, are to be included in the Vendor's final proposal with price. The price listed in the Vendor's proposal shall be a full-turnkey price, including freight to and installation at the site locations listed. Vendors will also be asked to segment their pricing, whereby Granby can see the effects of adding or deleting components and services. The vendors selected for interview will be asked to present their proposals.

Submission of a proposal shall be taken as evidence that the Vendor has investigated and is satisfied with the conditions to be encountered in performing this work.

***Project Management***

The Town of Granby shall provide one project manager from the Town for this project. All scheduling, billing, change orders and like communications shall be funneled through that project manager. The successful vendor shall provide the same oversight for the entire project.

***Demographic Overview***

Granby is a suburb of Hartford, CT with a population of approximately 12,000. Granby is in Hartford County and is one of the best places to live in Connecticut. Living in Granby offers residents a rural feel and most residents own their homes. The public schools in Granby are highly rated. GPD is a staff of 25, plus a full-time 911 PSAP and dispatch staff operating services for Town. The Granby Ambulance Association is a contract, volunteer, part-time and or full-time paramedic level providing services to Granby, East Granby, and East Hartland. The LAFD is an all-volunteer fire department providing services to the Town and surrounding municipalities. DPW is an all-paid full-time staff providing services to the Town. Granby CERT is an all-volunteer organization responsible for Shelter Management and limited traffic control.

***Existing Two-Way Radio System Background***

GPD currently utilizes a dual repeater voting system, with one repeater installed at the Town Hall site at 15 North Granby Rd and the second located at East Hartland Landfill. Interconnection is accomplished by a hardwire phone line to each tower. They are using the frequency pair 460.525 / 465.525 MHz for operations.

LAFD currently uses low-band VHF radios and pagers with simplex operation on 33.94 MHz, with base stations located at each fire station. Granby Dispatch has a base station located at the Town Hall site at

15 North Granby Rd, behind the Senior Center. A backup dispatch site is maintained by the Simsbury Volunteer Fire Department. Edispatch is used to make notification via cell phone and linked with the NexGen CAD system used by dispatch. The LAFD has recently licensed VHF spectrum as noted below.

DPW has a VHF repeater (155.0625 / 158.7625 MHz) located at the Town Hall site at 15 North Granby Rd, with backup power provided by the Senior Center's generator.

GAA currently uses a single UHF repeater located at the CT Airport Authority site on Metacomet Ridge in East Granby for dispatch. The dispatch frequency is 453.075 / 458.075 MHz; however, this is not available for reuse in the new system due to conflict with CMED use of the channel. A second repeater located at the Metacomet Ridge site is used by GAA for administrative communications and is programmed with a business pool frequency: 464.075 / 465.075 MHz.

Granby CERT currently uses GMRS or GPD portables. A new frequency compatible with the PD and FD operations is required.

***Licensed Frequencies Available for New System***

| User | Frequency | Callsign |
|---|---|---|
| Granby Police Dept | 460.525 / 465.525 MHz | KNBU649 |
| Lost Acres Fire Dept | 154.7925 / 151.3775 MHz<br>33.94MHz | WRPM738 (New)<br>WPWW927 |
| Granby Dept of Public Works | 155.0625 / 158.7625 MHz | WPLX365 |
| Granby Ambulance Association | None | N/A |
| Granby CERT | None | N/A |

Bidders will be responsible for all licensing requirements for the proposed system. The following additional channels will be required.

- GAA needs a new public safety license/frequency as they currently share with CMED.
- Fireground operations frequency for the LAFD.
- LAFD requires a second simulcast operations frequency.
- DPW requires a talk around frequency for the purpose of directing traffic and not interfering with regular transmissions.
- GPD needs to have a second simulcast operations channel.
- Granby CERT needs a new license/frequency, preferably public safety.

***Subscriber Equipment Counts:***

**Lost Acres Fire Department Equipment Needs (all radios analog but must be P25/digital capable)**
(8) Truck Mobiles VHF/UHF w/MayDay alert
(5) Pump Panel VHF/UHF radios (w/ noise canceling headphones/microphones)
(10) Officer Mobiles (VHF/UHF) w/MayDay alert
(10) Officer Mobiles VHF/UHF w/MayDay alert

(20) Firefighter Portables (VHF/UHF) w/MayDay alert
(4) Base Station VHF radios (two capable of backup to the PD base including paging to be installed at Simsbury FD Main Station, 871 Hopmeadow St, Simsbury and LAFD Center Station at 206 Salmon Brook St., the other two at each of the other LAFD station locations.
(40) Firefighter Pagers

**Granby Police Department (UHF)**
(12) Car Mounted Mobile Radios
(22) Portable radios
(3) Base station radio remotes

**Granby Department of Public Works (VHF)**
(30) vehicle mobile units
(6) Portable units
(4) desktop control stations

**Granby Ambulance Association (frequency to be provided)**
(12) vehicle mobile units – multiband, including 3 with dual heads
(10) Portable units- multiband
(2) desktop control stations

**Granby CERT Team (frequency to be provided)**
(1) vehicle mobile unit – multiband – capable of communicating with GPD, LAFD, GAA, DPW and CERT
(10) Portable units
(1) desktop control station in the Emergency Operations Center

All bids are required to provide individual portable, mobile and desktop control station prices. Prices include breakout details for battery and chargers for each portable. Bidders to provide rack or similar charging options, and options for cases/protective covers, belt clips, shoulder harnesses, etc. Bidders will include programming tools and training to one member from each organization.

Town of Granby will be providing site worker access to buildings and to other structures. The successful bidder will be responsible for the installation of generators, towers, and all other related equipment at all sites in Attachment C, or alternate proposed sites, that are used for the new system.

### 1.1.2 Network Description

Town of Granby's goal is to satisfy its communication requirements by having a simulcast system comprised of two to four sites per channel connected by a private IP backhaul system. The system will be equipped with five-six voice channels.

Vendors will describe in detail, network control processes with special focus on system reliability and flexibility.

Vendors will explain in detail how expansion of the proposed network would be undertaken in the event of additional users, channels, or sites (additional simulcast sites or dispatch center) being required in the future.

Vendors will describe in detail all failure mode scenarios including site stand-alone mode.

The Town of Granby is seeking a system that will have a seamless failover of voting and simulcast controllers in the event of a hardware or site failure. Vendors will:

- Describe in detail the failure mode scenarios that apply to voters and simulcast controllers to ensure continued operation in the event of equipment or site failure.

- Explain if any human intervention is required to enable the failover, (automatic failover is preferred with dispatch center alerting to the issue).
- Explain how selections for alternate voting and site control are performed.
- Vendors will explain upgrade paths if they offer such an option.

Vendors will propose the most cost-effective network configuration to meet the stated needs of reliability, coverage, and functionality:

- Reliability: no single point of failure, geographical redundancy.
- Functionality: see specific requirements below.
- Coverage: maximized using the site information provided in attachment C. Alternate sites may be presented by the bidder that provide equivalent/superior coverage or cost savings, but still fulfill all requirements.

### 1.1.3 Backhaul System/Linking Network

Vendors may also propose options for the provision of an IP-based microwave linking system to support the proposed radio system (voice traffic and system management signaling including all alarms). The linking network will provide at least 50% spare capacity.

Solutions proposed must have high-spectral efficiency and be suitable for point-to-point operation. The solution will use licensed spectrum.

Proposed linking solutions must be capable of supporting any future evolution of the simulcast network to become either a trunked or a conventional P25 network.

Vendors must explain how their proposed solution maintains security in a mission-critical network.

### 1.1.4 Network Diagram

Vendors will provide a network diagram showing the proposed sites and inter-site linking.

### 1.1.5 Interoperability needs

Vendors will propose reliable interoperability solutions with the agencies listed below. Town Agencies are GPD, GAA, LAFD, DPW, Granby CERT.

**Granby Ambulance Association (GAA)**

- EMS Mutual Aid coverage
- All Town Agencies
- CMED radios must meet the CT State CMED radio specifications.
- Simsbury EMS (UHF analog)
- TN via Connecticut Land Mobile Radio Network (7/800 P25 Phase 2)
- Suffield (VHF P25)
- Granville, MA (VHF analog)
- Litchfield County Dispatch (VHF analog or CLMRN)
- Canton (VHF analog)
- Windsor Locks (VHF analog)
- 7/800 P25 Phase 2 TRS – Bloomfield & Windsor

**Dispatch Console**

- Granby PD, Granby EMS, Granby BOE, Simsbury PD, Simsbury FD, Simsbury EMS, East Granby FD, LAFD (all frequencies), TN-LCD-Granby Direct Line, Suffield PD, Windsor PD, Windsor Locks PD, RAFS-1-call, RAFS 2-OPS, WMLEC PD, WMLEC FD, Avon PD, Canton PD, Bloomfield PD, Bradley FD, Farmington PD, West Hartford PD backup, U-Call-40, Avon intercity, Intercity Fire, CREST, SWAT-1, 2, 3, 4, State Police Hotline, 8-Call-90, 8-TAC-91, 8-TAC-92, 8-TAC-93, 8-TAC-94, 7-NAT-01D, 7-NAT-02D, 7-NAT-03D, 7-LTAC-03D, 7-LTAC-13D.

**Lost Acres Fire Dept. (LAFD)**

- All Town of Granby Agencies
- Surrounding town mutual aid partners (East Granby FD, Suffield FD, Southwick, MA FD, East Hartland FD, Granville, MA FD, Simsbury FD, Canton FD, Farmington FD, Avon FD, Burlington FD, Windsor FD and Bloomfield FD.)
- CT STOCS System
- Task force radio channels (TF52 and 54)
- InterCity FD System

**Granby Police Department (GPD)**

- They must be interoperable with all surrounding communities, regional frequencies, and Town Agencies.
- RAFS-1-call, RAFS 2-OPS, WMLEC PD
- RAFS1 and 2 are in the process of migrating, both the old and new system need to be supported unless the new system is operational by the time the new Town system is in place.

**Granby Department of Public Works (DPW)**

- All Town Agencies and Simsbury DPW.

**Granby CERT**

- All Town Agencies.

## 1.2 Network Management

Simple and effective network management is an important aspect of the system. A network manager or operator shall be able to have access to the system for network, subscriber and fault management and network infrastructure configuration.

A network manager shall be able to enter and maintain configuration information for the components of the network infrastructure.

The Town of Granby will provide access to set up a VPN (virtual private network) for the selected vendor to access the system remotely.

### 1.2.1 Subscriber Management

The network shall be able to support multiple agencies, each of which will maintain its own subscriber fleet independently.

An operator or technical support person shall be able to enter and maintain programming parameters for subscriber units through a programming application that executes on a standard Windows platform.

### 1.2.2 Fault Management

The vendor shall complete the following table indicating the impact of the various failure modes.

| If This Fails | Then |
|---|---|
| A single simulcast site | |
| Link between station/repeater and channel group | |
| Primary (voter) base station/repeater in a simulcast channel group | |
| 1 PPS timing signal | |
| 1 PPS and GPS unit at one entire physical site | |
| Single Repeater/base station | |

Fault management shall involve the use of SNMP information gathered at a central point from the remote sites and associated fixed network infrastructure.

The SNMP management system shall be able to both 'passively listen' for SNMP traps to arrive notifying of an event and to periodically poll specific equipment on the network to determine the equipment's operational status.

The SNMP management system shall include the use of a web browser for the viewing of network performance from anywhere in the associated IP network. The SNMP management system shall also be able to be viewed directly via the computer running the application.

The sites will also be equipped with, at a minimum, the following alarms:

- High/low temperature
- Loss of power
- Generators start/fail to start
- Door access monitoring

### 1.2.3 Performance Management

Comprehensive remote diagnostics and remote monitoring capabilities shall be provided to allow the network manager to view and monitor key indicators of repeater performance, such as the power amplifier duty cycle, simulcast synchronization status, and received signal strength.

There shall also be options provided for the monitoring and reporting of the overall system level performance and system status. Vendors should describe the remote diagnostic, remote monitoring, and reporting capabilities of their proposed repeaters and network.

## 1.3 Future Technology Migrations

The Town of Granby may choose to implement a P25 conventional simulcast radio system for the Fire department, incorporating linear simulcast modulation (LSM), in the future. Vendors will outline possible reuse options for elements of the proposed analog simulcast system, including network infrastructure, repeaters, voters, simulcast controllers, and timing references, and will, to the extent feasible, propose the use of hardware, devices, and software which are not proprietary, and which will allow integration and

use with solutions offered by other vendors.

Vendors must explain how such a technology migration would be achieved based upon the analog simulcast system they would propose.

## 1.4 System Features (equipment with equivalent features will be considered)

The following features shall be included:

| | | |
|---|---|---|
| **Operation** | The individual simulcast channels are NOT required to operate as a "dual-mode" simulcast network, (i.e. it is not expected to operate as either an analog or a Phase 1 P25 conventional simulcast network on a per transmission basis). | |
| Network security | Systems (including hardware, software, servers, and communications and network systems) that provide at least as robust and secure protection against cyberattacks (including but not limited to malware, phishing, password, denial of service, ransomware, man-in-the-middle, SQL injection, and other attacks), as are then-standard in the industry, are adequate to provide the aforementioned protection, and will be updated to address additional, further, or ongoing risks as are required by industry standards throughout the term of this Agreement, and which will provide secure management and configuration access 24/7/365. | |
| Operational temperature ranges | Subscriber Radios | -30 to +60°C |
| | Repeaters | -30 to +60°C |
| Call setup times | • Calls that do not use sub-audible signaling shall be set up in under 0.2 seconds.<br>• Calls that do use sub-audible signaling shall be set up in under 0.3 seconds. | |
| Call types | The network shall support these types of calls:<br>• Emergency call<br>• Broadcast call<br>• Priority call<br>• It is recognized that in an analog system, sub-audible signaling may be used to provide these. | |
| Dispatcher priority | Calls from a dispatch console connected via IP take priority over radio calls. If a radio transmits while a dispatch call is in progress, the radio's transmission will not reach any other radios and the caller will not hear any other radio calls until the PTT is released. | |

| | |
|---|---|
| MDC1200 | The system shall support MDC1200 to:<br>• Identify users by ANI<br>• Implement additional call types such as RF dispatch calls<br>• Emergency calls and other priority calls |
| Sub-audible signaling | The system shall support the operation of PL/CTCSS sub-audible signaling to allow radios to be grouped operationally. |
| Paging Operation | The repeater hardware must be capable of supporting 2-tone paging operation on 12.5 kHz channels and with audio tones between 300 and 3000 Hz, assuming no PL/CTCSS is used. |
| Caller ID | The analog simulcast network shall support user radios displaying the ID (or alias if it is programmed) of the user initiating the call, and individual calls. The user ID alias of the subscriber initiating the call is displayed on dispatch consoles for both group and individual calls. In addition, the ID of the talking party in a group call can be displayed on radios and dispatch consoles. |
| Voice recorder interfacing | The simulcast network must provide the ability to record the audio for each voice call using the existing recorder in Granby Dispatch. |

### 1.4.1 Transparent Roaming

Radio users operating on the simulcast network shall not have to select a new channel on their radio when moving between the coverage zones of sites. It is permissible for a user to have to manually select a channel to operate on a different simulcast channel group at any location in the network.

### 1.4.2 Interfaces

Vendors will describe how their system will interface with any related systems and devices.

## 1.5 Call Types

The simulcast network shall support voice calls.

## 1.6 System Security

The repeaters/base stations and all other hardware and software used in the network shall have at least industry-standard levels of protection against unauthorized access. Browser communications with these elements shall be encrypted using https and users must log in with a unique name and password that provides an audit trail showing the actions of each user.

Access shall be tiered to limit individual user access rights and abilities.

All systems and hardware must provide at least as robust and secure protection against cyberattacks (including but not limited to malware, phishing, password, denial of service, ransomware, man-in-the-middle, SQL injection, and other attacks), as are then-standard in the industry, are adequate to provide the aforementioned protection, and will be updated to address additional, further, or ongoing risks as are required by industry standards throughout the term of this Agreement.

# 2. INFRASTRUCTURE EQUIPMENT SPECIFICATIONS

## 2.1 Repeater Equipment Specifications

Repeater equipment is used to transmit and receive voice messages over the air to subscriber units operating at the corresponding site.

All repeater equipment shall comply with the following standards:

### 2.1.1 RF and EMC Compliances

| |
|---|
| **RF** |
| CFR Title 47 Parts 15 and 90 (FCC) |
| EN 300 086-1, EN 300 086-2(ETSI) when complete |
| AS/NZS 4768 Appendix B when complete |
| **EMC** |
| CFR Title 47 Part 15 (FCC) |
| EN 301 489 1, EN 301 489 5 (ETSI) |
| Anatel Resolution 442 |

### 2.1.2 Safety and Environmental Compliances

| |
|---|
| **Safety** |
| EN 60950-1 (ETSI) |
| UL E223047 |
| AS/NZS 60950-1, |
| Q090114[1] |
| **Environmental** |
| Low Pressure (Altitude) MIL-STD-810G Method 500.5 Procedure 2 |
| Humidity MIL-STD-810G Method 507.5 Procedure 2 |
| Vibration MIL-STD-810G Method 514.6 Procedure 1 |
| Shock MIL-STD-810G Method 516.6 Procedure 1 |

Each repeater channel shall consist of a transmitter, receiver, power supply and systems interface. A minimum of 1 complete repeater channel shall be housed in a sub-rack occupying a maximum of 4 rack units in a standard 19" rack or cabinet.

The repeater channel systems interface shall be IP-based (10/100/1000 Base-Tx/Rx) and no other external equipment shall be required for access to the IP infrastructure.

Voice over Internet Protocol (VoIP) networking and any other system functions should be carried out within the repeater unit and interface to the IP network utilizing standard Ethernet IP interfaces.

All repeater equipment shall comply with the following minimum operational specifications, or equivalent to be provided:

| Parameter | Value |
|---|---|
| Channel spacing | Specific to band and latest standards |
| Ambient air temperature operating range at 100% transmit duty cycle | -30°C to +60°C (-22ºF to 140ºF) |
| Environmental standards | MIL-STD-810F |
| Power requirements | AC: 100 to 260V at 50 to 60Hz DC: 12V, 24V or 48V (nominal) |
| Transmit power | 100W or 50W at 100% Duty Cycle at -30°C to +60°C ambient air temperature |
| Frequency stability | ± 0.5 ppm |
| Adjacent channel power | -60dBc |
| Transmit audio distortion | 3% maximum |

| | |
|---|---|
| Sensitivity | -119 dBm @ 12 dB SINAD |
| Adjacent channel selectivity: VHF/UHF/700/800 bands | ≥ 85 dB (EIA) |
| Intermodulation response attenuation | ≥ 80 dB |

## 2.2 Repeater Programming and Maintenance

All equipment will be self-reporting when errors/problems occur and notify dispatch and the radio support team. The repeater equipment shall support the use of SNMP traps for the handling and transmission of repeater fault conditions. These alarms may include, for example, such conditions as high PA temperature, site battery low voltage, synthesizer out-of-lock and mains power fail.

The repeater equipment shall also have input signals available for the connection of external devices (for example, site door alarm, smoke/fire alarm, air conditioning alarm). The repeater shall have the ability to transmit the failure status of these devices to the central management system for processing. This could be handled via the Syslog protocol. A description of the capabilities of the repeater equipment for external devices shall be proposed by the vendor.

A maintainer must have the ability to remotely connect to a repeater via an IP connection on the network. A software interface shall be used to ascertain the performance of a repeater and remotely diagnose a failure state. The remote interface to the repeater can either be achieved through a software application installed on a maintainer's PC, or via a Web Interface built into the repeater itself.

A system for remotely upgrading the firmware and configuration of the repeater equipment shall be provided. This shall be achievable over the IP network with the use of a software application. It would be favorable for this facility to be capable of being managed through the remote configuration application or Web interface.

All programming, diagnostic, SNMP and associated software shall be Windows or Linux based.

## 2.3 Network Equipment Specifications

All network traffic shall be carried by internet TCP/IP protocols.

The IP network router and switching equipment shall be commercial-off-the-shelf (COTS) non-proprietary equipment. It shall only utilize commonly used IP network protocols.

## 2.4 Network Linking Specifications

Vendors may also propose options for network IP linking. Solutions proposed must have high-spectral efficiency and may reuse some existing channels.

Vendors will explain how their proposed solution addresses security in a mission-critical network.

Proposed linking solutions must be capable of supporting any future evolution of the analog simulcast network to become either a trunked or a digital network.

# 3. SUBSCRIBER UNITS

All hardware and software required for programming the subscriber units must be included in the pricing schedule and the associated training for representatives of the town emergency services departments, (GPD, GAA, LAFD, DPW and CERT).

**Mandatory Features:**

- Emergency alert declaration capabilities
- Radio ID
- Radio ID to display at console upon keying
- AES Encryption capabilities
- Direct radio unit to radio unit calls (not through a base station) / ground channel
- Ability to operate on any system such as trunking, conventional, P25, and analog modes
- Easy-to-read displays with logical channel selection controls
- Units must be as small and lightweight as possible
- Long lasting, light weight batteries with minimum 12-hour run time based on a 5/5/90 duty cycle. Rapid charging, no memory, Lithium Polymer or equivalent
- Battery level (remaining life) indicator on display
- The bidder shall discuss and describe the types of rechargeable batteries to include chemistry, discharge and recharge rates, and number of estimated recharge cycles

**Optional Features:**

- Status and text messaging for mobile and portable radios
- Bluetooth capability
- Wi-Fi and LTE capability in subscriber radios
- Selectable receive signal strength indicator on displays

# 4. SERVICES

## 4.1 Implementation

### 4.1.1 General

As a part of the response, the bidder will provide a complete description of the turn-key project as outlined in this section. The project shall include complete installation and optimization of the simulcast radio infrastructure, which is comprised of multiple repeater sites, base repeater radios, IP links, system controllers, alarm subsystem, system management terminals, interfaces identified in this RFP and any other associated equipment necessary for proper operation of the purchased radio system. The project shall also include complete removal of all old systems **after** the new systems are deemed operational and accepted by the Town. It shall also include training to be provided to the Town's support personnel and an agreed-upon number of operators and users.

All subscriber units will be programmed and installed by the Vendor. The Vendor will provide training and equipment to each organization to be able to program their own radios after acceptance test.

### 4.1.2 Project Schedule

Vendor will provide detailed project schedule identifying at the minimum:

- Completion of system design review, including coverage planning
- Dates of equipment shipment
- Installation dates
- Training dates
- System optimization dates
- Acceptance testing dates (functional and coverage)
- Delivery of "as built" system documentation
- Removal of all unused sites and related equipment.

### 4.1.3 Work Breakdown Structure

Vendor will provide detailed WBS clearly identifying tasks to be completed by the vendor and Granby.

### 4.1.4 Transition Plan

Vendor will provide a detailed transition plan minimizing any disruption of services.

### 4.1.5 Acceptance Test Plan

Vendor will provide detailed Acceptance Test Plan including, but not limited to:

- Infrastructure testing
- Link testing
- System management/alarms testing
- Coverage testing in accordance with the vendor's coverage predictions

## 4.2 Warranty, Maintenance, and Repair

### 4.2.1 General

As part of their proposal, Vendor shall provide a three-year warranty from date of acceptance of the completed, operational system by the Town on all systems and components. This warranty shall include parts and labor on repairs or replacements due to normal use, wear, and tear. As part of their proposal, Vendor shall include all maintenance services, including parts and labor, for three years from date of acceptance. In addition, Vendor will include an proposal to provide maintenance services, including parts and labor, for years four through seven.

### 4.2.2 Warranty Period Maintenance

The warranty and maintenance period shall begin on the date of the final system acceptance.

Vendor shall provide the necessary labor, parts, supplies, procedures, transportation, test equipment and facilities to maintain the new Vendor-provided equipment, firmware, and software to the level of factory performance and within requirements contained herein during the warranty period, including any updates or upgrades required or recommended by any suppliers during the warranty period. The maintenance shall include, but not to be limited to preventive maintenance, repairs resulting from normal usage and wear and tear, and emergency maintenance.

### 4.2.3 Warranty Maintenance Contract Term

All maintenance services shall be provided as part of the communications system, without additional charge to the Town of Granby, for the warranty period of at least 36 months following the date of the final system acceptance. A proposed maintenance contract for years four through seven will be provided.

### 4.2.4 Warranty Maintenance Personnel

Vendor shall provide competent, experienced, and highly qualified personnel to execute required maintenance tasks during the warranty period. All maintenance personnel shall be trained and experienced in standard radio communications industry practices. Personnel who perform maintenance on the system shall have completed all required manufacturer-approved training for that equipment.

### 4.2.5 Repair

Vendor's proposal shall include a proposed fee and cost schedule for any repairs, replacements, or other services which may be required for the proposed System that are not included within the Warranty or Maintenance outlined above. Such proposal shall include the proposed charges for any labor, the proposed response time, any proposed costs for any materials beyond that for which Vendor is billed by its supplier, and any other costs, fees, or other potential charges which may be invoiced to the Town. In the alternative, Vendor may propose an all-in price (including labor and materials) for a proposed all-encompassing service and repair agreement to cover any and services (including materials) to the Town beyond those included in the Warranty and Maintenance in Sections 4.2.1 and 4.2.2.

### 4.2.6 Response Time

Vendor shall provide replacement parts and qualified personnel to service, repair, or replace the fixed equipment at the site within (4) hours after notification of equipment failure. Non-fixed equipment (mobile and portable radios, etc...) shall be picked up locally by the Vendor at locations designated by The Town of Granby and delivered back to the point of pick-up once repaired.

The warranty period maintenance shall be on a working-hour basis as follows:

- Fixed equipment, twenty-four hours per day, seven days per week.
- Non-fixed equipment, eight hours per day, five days per week (0830 hrs to 1700 hrs).

### 4.2.7 Availability of Replacement Parts

Vendor shall certify that a stock of replacement parts for each item included in the equipment response is maintained to facilitate the rapid resolution of any hardware failures for the first 36 months and as long as a maintenance contract is in place, thereafter

## 4.3 Training

The vendor will describe how training on the operation and support of the system will be provided to:

- Users
- Dispatch personnel
- Supervisors
- Granby support staff

The vendor will quote a training proposal that outlines:

- Courses offered that are relevant to Granby's proposed system
- Number of participants for each class
- The pre-requisites for all participants
- The length of each class in hours
- The total number of trainer hours proposed
- Options for on-site, off-site, and self-instruction training
- Provide the required equipment for all training

## 4.4 Service Area Map

The vendor shall provide service area coverage maps including talk in and talk out for both mobile and portable coverage.

# 5. Key Dates / Communications / Questions / Town Reservations

| | |
|---|---|
| RFQ Advertised | July 18, 2023 |
| Questions Due from Vendors | July 18, 2023 through September 1, 2023 |
| Mandatory Attendance - Site Visits | Scheduled between August 1 and August 7, 2023 |
| Responses Due | September 15, 2023 by 12:00 pm EST. |
| RFQ Open Date | September 18, 2023 |
| Interview of Top Vendors | TBD |
| Contract Execution Date | TBD |

Any requests for clarification or additional information regarding this RFQ are to be submitted in writing to John Horr Jr, TOG Radio Committee Chairman via e-mail to jhorr@lostacresfd.com and must be received no later than September 1, 2023 in order to be considered. If any substantive requests for information are received and responded to by the Town of Granby, an addendum to this RFQ will be issued.

**The Town reserves the right to amend or terminate this Request for Quote, accept all or any part of a proposal, reject all proposals, waive any informalities or non-material deficiencies in a proposal, and award the proposal to the proposer that, in the Town's judgment, will be in the Town's best interests.**

# 6. INSURANCE and INDEMNITY REQUIREMENTS

The professional individual or firm shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or be in connection with the performance of the work hereunder by the individual or the firm, his agents' representatives, or employees. The cost of such insurance shall be born by the bidder. . The Town shall be included as an additional named insured for all insurance coverages provided under the proposal.

For the purpose of this clause, the term "professional individual or firm" shall also include the individual's

or firm's respective officers, agents, officials, employees, interns, volunteers, boards and commissions.

**Minimum Scope and Limits of Insurance**

**Broad Form Comprehensive General Liability**

$1,000,000 combined single limit per occurrence for bodily injury, personal injury, property damage, and products/completed operations.

**Automobile Liability**

$1,000,000 combined single limit per occurrence for bodily injury and property damage

**Cyber Liability**

$1,000,000 annual aggregate. Coverage shall include first and third-party network risk, cyber liability, and cybersecurity insurance coverage (including but not limited to coverage for unauthorized access to; acquisition, copying, use, dissemination, release, or loss of; or damage to data owned or possessed by the Town, data privacy and loss or access to personal information contained within data or systems owned, held, or used by the Town, or anything derived from data or systems owned, held, or used by the Town, as well as for breach of privacy perils, ransomware attacks, or business interruption resulting from ransomware or malware), from an insurer having an A.M. Best rating of "A" or better .

**Umbrella Liability**

$1,000,000 per occurrence, following form.

## 6.1 Workers' Compensation and Employer's Liability

Limits as required by Connecticut State Law

Professional Liability (if used on a claims-made basis, insurance coverage shall be maintained for the duration of the contract and for two (2) years following contract completion.)

$1,000,000 per occurrence

$1,000,000 aggregate

**Personal Property Coverage**

Adequate insurance to cover the value of personal property (including but not limited to, personal computers) belonging to the Vendor while located on Town property, while in use or in storage, for the duration of the contract.

**Aggregate Limits**

Any aggregate limits must be declared to and be approved by the Town. At the option of the Town, the insurer shall increase or eliminate the aggregate limit and notify the Town of any erosion of aggregate limits.

**Deductibles and Self-Insured Retentions**

Any deductibles or self-insured retentions must be declared to and be approved by the Town. At the option of the Town, the insurer shall reduce or eliminate such deductibles or self-insured retentions as regards the Town and the vendor shall procure a bond, which guarantees payment of the losses and related investigations claims administration and defense expenses. At no time will the Town be responsible for the payment of deductibles or self-insured retentions.

**Notice of Cancellation or Non-renewal**

Each insurance policy required by this document shall be endorsed to state that coverage shall not be suspended, voided, canceled, or reduced, either in coverage or in limits, except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the Town.

**Other Insurance Provisions**

The policies are to contain, or be endorsed to contain, the following provisions:

**Liability Coverage:**

"The Town of Granby and its respective officers, agents, officials, employees, volunteers, boards and commissions" are to be named as additional insureds with regards to liability arising out of activities performed by or on behalf of the vendor; products and completed operations of the vendor; or premises or property owned, leased, or used by the vendor. The coverage shall contain no special limitations on the scope of protection afforded to the Town.

The vendor's insurance coverage shall be the primary insurance as regards the Town. Any insurance maintained by the Town shall be in excess of the vendor's insurance and shall not contribute with it.

Any failure to comply with the reporting provisions of the policies shall not affect coverage provided to the Town.

Coverage shall state that the vendor's insurance shall apply separately to each insured against whom a claim is made, or a suit is brought, except with respect to the limits of the insurer's liability.

**Workers' Compensation and Employer's Liability Coverage**

The insurer shall agree to waive all rights of subrogation against the Town for losses arising from the work performed by the vendor for the Town.

If State statute does not require the vendor to obtain Workers' Compensation insurance, then the vendor

shall furnish the Town with adequate proof of the self-employment status. The vendor agrees to waive all rights of claims against the Town for losses arising from the work performed by the vendor. In the event that during the contract this self-employment status should change, the vendor shall immediately furnish proper notice to the Town and a certificate of insurance indicating that Workers' Compensation insurance and Employer's Liability coverage has been obtained by the vendor as required by this Request for Quote.

**Acceptability of Insurers**

Insurance is to be placed with insurers which have a Best's rating of at least A.

Insurance companies must either be licensed to do business in the State of Connecticut or be deemed to be acceptable by the Town's Director of Finance.

**Verification of Coverage**

The vendor shall furnish the Town with certificates of insurance effecting coverage required by this clause. The certificates and endorsements for each insurance policy are to be signed by a person authorized by the insurer to bind coverage on its behalf. The certificates and endorsements are to be received and approved by the Director of Finance before work commences. Renewal of expiring certificates shall be filed thirty (30) days prior to expiration. The Town reserves the right to require complete, certified copies of all required policies, at any time.

All insurance documents required by this Exhibit shall be mailed to the Director of Finance.

## 6.2 Indemnity

The Vendor shall indemnify the Town of Granby, along with its applicable officers, agents, employees, and servants, for and against claims by third-parties to the extent that they arise from any acts, omissions, conduct, breach of contract, or violations of statutes or regulation by Vendor or any subcontractors, suppliers, or third-parties used or engaged by Vendor, whether as a result of intentional acts, recklessness, negligence, or any other reason. Such indemnity shall include damages, punitive, statutory, or exemplary damages, fines, penalties, and attorney's fees and costs.

## 7. ATTACHMENT A: STATEMENT OF REFERENCES

Provide at least three (3) references:

1. BUSINESS NAME _____

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 _____

# 8. ATTACHMENT C: General Site Information

To help expedite the installation of a new system, the radio system committee has researched and is recommending 4 tower locations. These locations were chosen for their site lines and ability to provide coverage throughout the town and eliminate the need for ground-based connections (fiber). Vendors are welcome to propose alternative sites but will be responsible for negotiating all access and sheltering of equipment. The other sites listed are existing ones that may or may not be used, depending on the final design and recommendations.

**New Tower Location 1 - 44 Gavitt Rd,** is a monopole site that currently only has Cellular service on it. The tower is currently owned by SBA towers. Agreements would have to be negotiated with the owner for the modifications needed. This site is easily accessible. This is a recommended new site.

- New 10'x16' shelter or outdoor cabinet
- 25KW generator
- UHF antennas on tower
- VHF antennas on tower
- New electrical service
- Microwave antennas
- Fencing and weed control fabric with 6" of stone

**New Tower Location 2 - 8 Upper Meadow Lane, Granby** is a monopole site that currently only has Cellular service on it. The tower is currently owned by American Tower. Agreements would have to be negotiated with the owner for the modifications needed. This site is easily accessible. This is a recommended new site.

- New 10'x16' shelter or outdoor cabinet
- 25KW generator
- UHF antennas on tower
- VHF antennas on tower
- New electrical service
- Microwave antennas
- Fencing and weed control fabric with 6" of stone

**New Tower Location 3 - 229 Mountain Rd, Granby** site is not a current site, and a new tower would have to be constructed. This is private property. The Town and the property owner have a signed agreement for purchase of the property if it will be used in the final system selection. The existing tower and structure must be replaced. This site is easily accessible. This is a recommended new site.

- Construction of a new self-supporting lattice tower
- 12'x20' equipment shelter
- UHF antennas on tower
- VHF antennas on tower
- Microwave antennas
- 25-30 KW generator
- New electrical service
- Fencing and weed control fabric with 6" of stone

**New Tower Location 4 - Metacomet Ridge, East Granby** (a current site) is a monopole site owned by the Connecticut Airport Authority. The Town of Granby has negotiated an Agreement for access to this site. This site is difficult to access. This is a recommended new site. All equipment and site changes must

be approved by the Connecticut Airport Authority.

- New 10'x16' shelter
- 25KW generator
- UHF antennas on tower
- VHF antennas on tower
- Microwave antennas
- New electrical service
- Fencing and weed control fabric with 6" of stone

**Existing Tower Location - 15 North Granby Rd** is a commercial monopole that the Town of Granby has free and clear access to including a small shelter which has generator backup from the Granby Senior Center. Currently GPD and LAFD services are dispatched via this location by repeaters/transmitters linked back to the dispatch center. This site can be used for the future system or removed from use.

- Has Generator backup
- 2- UHF antennas on tower
- 1 low band antenna on tower

**Existing Tower Location - Hartland Landfill –** currently the location for the second repeater for the GPD's dual site simulcast system. Voting is managed by leased copper phone lines back to the dispatch center. This property is owned by the Town of Hartland.

- No generator backup
- Shelter is in poor condition.
- Lattice tower in poor condition.
- One UHF repeater for GPD

**Existing Tower Location - Town of Granby Town Hall –** currently the location for several of the transmitters for dispatch including InterCity Fire, GAA, RAFs and others. Small lattice tower attached to the building in poor condition. This site needs to be dismantled and removed after the new system is in place. Replacement is an option if needed.

- No generator backup
- Equipment is in attic of Town Hall
- Grid tower in poor condition.

## 9. ATTACHMENT D: Critical Building List – Interior Performance Confirmation

| Site # | Site Name | Site Address |
|---|---|---|
| 1 | Granby High School | 54 North Granby Rd |
| 2 | Granby Middle School | 321 Salmon Brook St |
| 3 | Kelly Lane School | 60 Kelly Lane |
| 4 | Wells Road School | 134 Wells Rd |
| 5 | Town of Granby Offices | 15 North Granby Rd |
| 6 | Granby Board of Education | 15 North Granby Rd |
| 7 | Stop and Shop | 120 Salmon Brook St |
| 8 | St. Theresa's Church | 120 West Granby Rd |
| 9 | Geissler's | 9 Bank St |
| 10 | Meadow Brook of Granby | 350 Salmon Brook St |
| 11 | Group Home | 97 Salmon Brook St |
| 12 | Group Home | 1 Juniper Drive |
| 13 | Group Home | 1 Knollwood Drive |
| 14 | YMCA | 97 Salmon Brook St |
| 16 | Day Care | 1 Salmon Brook St |
| 17 | Day Care | 257 Salmon Brook St |
| 18 | Stony Hill Village | 259 Salmon Brook St |
| 19 | The Grand | 3 Murtha's Way |
| 20 | Westfield Bank | 12 East Granby Rd |
| 21 | Northwest Community Bank | 33 Hartford Ave |
| 22 | Starling Physicians | 18 East Granby Rd |
| 23 | Stateline Oil | 514 Salmon Brook St |
| 24 | Stateline Propane | 500 Salmon Brook St |
| 25 | Arrow Concrete | 560 Salmon Brook St |
| 26 | McLean's Game Refuge | 109 Salmon Brook St, Canton Rd, 150 Barndoor Hills Rd |
| 27 | Enders Falls | Barkhamsted Rd |
| 28 | South Congregations Church | 242 Salmon Brook St |
| 29 | Valley Brook Community Church | 160 Granville Rd |
| 30 | Elderly Housing | 287 Salmon Brook St |
| 31 | Station 280 Apartments | 280 Salmon Brook St (construction started Fall, 2022) |


# Exhibit L

## Project Management Plan

## For the
## Simulcast Radio System Project

**Prepared for the Town of Granby, CT**

**by**

**Marcus Communications**

**December 2024**

**Notes:**

**Notes:**

# DOCUMENT CONTROL

## Project Details

| | |
|---|---|
| **Customer:** | **Granby, CT** |
| Project Description | Simulcast Radio System |
| Program Manager: | Madison Steffano |
| Design Authority: | Marcus Communications |

## Document Approvals

| Approvals | Position | Signature | Date |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

## Document Status

| | Date | Signature | Comment |
|---|---|---|---|
| Created | 12-3-2024 | | |
| Revised | | | |
| | | | |
| | | | |

## Marcus Contacts

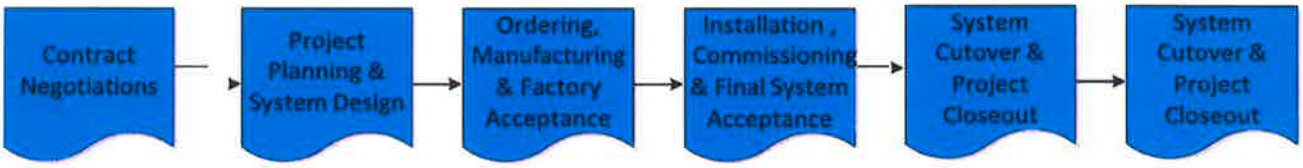
| | Primary | Secondary |
|---|---|---|
| | Madison Steffano | Chris Hack |
| | madison@marcusradio.com | chris@marcusradio.com |
| | | |

# TERMS AND ABBREVIATIONS

| Term | Definition |
|---|---|
| **CAT** | **Customer Acceptance Test (Staging)** |
| CVT | Coverage Verification Test |
| EXW | Ex-works |
| FSAT | Final System Acceptance Test |
| IP | Internet Protocol |
| ISO | International Organization for Standardization |
| ISSI | Inter RF Subsystem Interface |
| RF | Radio Frequency |
| RSSI | Received Signal Strength Indication |
| SAT | Site Acceptance Test and Commissioning |
| SOW | Statement of Work |
| SRS | System Requirement Specification |

## INTRODUCTION

Marcus Communications has a team of skilled professionals experienced in designing and implementing critical radio communication systems. This document outlines the various phases involved in a typical Land-Mobile Radio (LMR) system deployment and some specific to the project proposed.




Responsibility matrices have been included which specify Marcus Communication's and the Town of Granby's responsibilities during each phase of project implementation. Marcus Communications is willing to discuss and modify the scope of work defined in the matrices prior to contract award but would like to note that this may result in a change order.

## PURPOSE OF THE DOCUMENT

The purpose of the Project Management Plan is to define the scope of the services and deliverables from Marcus Communications for the Town of Granby, CT Simulcast Radio System project. This document is intended to be a living document, at the same time it does alter the contractual obligations.

## APPLICABLE DOCUMENTS

The following documentation is referenced herein and includes the contractual, regulatory and design documents from the RFP response, governmental, industrial, and Marcus sources. In the event of conflicts between the Project Management Plan and documents cited herein, this Project Management Plan takes precedence.

### Town of Granby, CT

- Granby Radio Communications Project RFP addendums and RFP questions.
- Marcus Communications RFP response.

### Government and Industry

- R56, Standards and Guidelines for Communications Sites, 2005 edition. All sites will be installed to this standard.

# 1. PROJECT PLANNING

Planning is an essential element for the success of any project. Marcus Communications carry out detailed requirements capture, preliminary analysis and investigates all the proposed options to ensure that all technical, functional and operational requirements for the radio system solution are identified and fully documented.

## 1.1 PROJECT MANAGEMENT

Marcus Communications' implementation of the proposed system assigns a Marcus project manager that will be responsible for the project team. This also includes management of third parties and other procurement relationships.

Marcus Communications will hold a project kickoff. The objectives of this meeting should include:

- Introduction of all project management participants
- Review of the roles and responsibilities of each project team participant
- Review of the scope of work outlined for town of Granby and Marcus Communications
- Review of the project logistics

## 1.2 PROJECT SCHEDULE

All references to days within this Project Management Plan shall be interpreted as Calendar Days, unless otherwise specified. Marcus Communications will be maintaining the master schedule & ensuring deadlines are met.

## 1.3 PROJECT REPORTING

Vendors or contractors or other third party may attend status update meetings via teleconference if required by Marcus throughout the project. Marcus Communications will provide a bi-weekly Project Status Report describing activity, progress, variances, risks & issues.

## 1.4 PROJECT SCOPE CONTROL

Any deviations from the original scope will be handled through the standard change order process.

## 1.5 PROJECT MEETINGS

The following are a list of meetings typical in projects of this scale and is subject to change with input from Marcus and the Town of Granby

| Travel Event | Personnel | Venue | Duration |
|---|---|---|---|
| Project Kick-off and Preliminary Design Review | Project Manager, Project Engineering executive management, the Granby rep. | Customer Site | 1/2 day |
| Detailed (Final) Design Review | Project Manager, Project Engineering team. Granby rep. | Customer Site | 1 day |
| Bi-weekly status meetings | Project staff and Granby rep. | Video or in person | 1 Hour each |
| Train the Trainer Training | Marcus Trainer, Town of Granby | Customer Site TBD | 3 days |
| Staging | Project manager, Implementation Manager, Town Granby | Marcus Communications | 1/2 days |
| Commissioning/Site Acceptance Test (SAT) | Systems manager | Customer Site(s) | 1 days per site |
| Coverage Verification Test | Marcus Staff, Town of Granby | Customer Sites(s) | 3 days |
| Closeout Meeting | Project Manager, Granby rep. | Customer Site | 1 day |

# 2. SYSTEM DESIGN PHASE

Marcus will assign a project engineering team as the design authority for the project. The project engineering team manages the design process of the network and is responsible for all technical aspects of the project. They plan each design task and assign each to a suitable subject matter expert. They will work closely with Tait Communications, and other vendors ensuring that the design meets all stakeholder requirements by presenting the design as documented in the System Infrastructure Description (SID) during the Preliminary and Final Design review. The project engineer team will oversee all installation and testing ensuring that the network provides the performance expected.

The design process consists of the following milestones:

## 2.1 REQUIREMENTS DEFINITION AND CAPTURE

The system design process will begin with a requirements consultation between key personnel and the assigned project manager. This establishes a clear definition and understanding of the system objectives and operational requirements. The project manager will document the functionality and performance requirements in the System infrastructure description if any modifications are made from the original as bid.

## 2.2 SITE SURVEYS

Site surveys will be performed by Marcus Communications.

## 2.3 SOLUTION DESIGN

Once all the requirements are captured, the project engineering team will begin reviewing the design proposed by Marcus in its RFP response. Any changes, if necessary, will be made and documented in the System infrastructure description.

## 2.4 DETAILED DESIGN REVIEWS

The base line design developed during the system design phase will be presented by Marcus Communications to the Town of Granby at the preliminary design review. During the preliminary design review all design assumptions will be verified and any necessary changes to the design will be agreed to and implemented. All agreed changes from the preliminary design review will be documented in the System infrastructure description.

Design review documents may be divided between the Radio infrastructure and the site/civil work if the site access permissions are delayed for any reason. This would be important to keep momentum in the overall project.

A final detailed design review will then be conducted. Upon agreement of the final design, Marcus will proceed with the project.

## 2.5 FACTORY ACCEPTANCE TESTING of Tait equipment

The Factory Acceptance Test (FAT) is a thorough, detailed test performed on Tait's factory floor in Christchurch, New Zealand. The FAT demonstrates the performance of individual sub-assemblies to published specifications for each system component (i.e. base stations, controllers, routers, subscriber radios, etc.) on the factory floor once equipment has been built. The FAT verifies that the equipment meets performance specifications for quality control purposes. The Tait FAT for this project is not be customer witnessed. After successful FAT, the equipment will be packaged and shipped to Marcus Communications for staging location with applicable documentation of pass/fail.

# 3. ORDERING, MANUFACTURING

Following the final design approval, Marcus will proceed to order the equipment based on schedule requirements.

## 3.1 LOGISTICS

The equipment is shipped through the regional distribution center in Long Island, NY

### 3.1.1 Method of Delivery

The best way is determined at the time of shipment.

### 3.1.2 Packaging

Tait shall package the system using commercial best practices in accordance with ASTM D3951-10, ISO ICS 55, MIL-STD-2073-1.

### 3.1.3 Marking for Shipment

No special marking required

# 4. DEPLOYMENT

## 4.1 CUSTOMER ACCEPTANCE TESTING – "Staging"

The Customer Acceptance Test (CAT) is also known as a "staging" test. Prior to shipping equipment to the field for installation, the CAT demonstrates important aspects of the features and functions of the network. The "staging" provides a unique environment to allow for a full range of tests which may not be capable of being performed after system installation. The "staging" will be performed at and by Marcus Communications.

## 4.2 INSTALLATION, COMMISSIONING AND FINAL SYSTEM ACCEPTANCE

Following successful completion of the staging phase, the network is ready for installation and commissioning. This phase consists of the following important steps:

### 4.2.1 Site Acquisition/permissions

All sites must be ready for deployment of equipment

### 4.2.2 Statement of Work

Marcus Communications is responsible for site preparation, civil works & installation of all system equipment and will provide for onsite supervision during the staging and site installation.

**Site 1 - 44 Gavitt Rd (Gavitt Rd)**

- TB9400 base stations with AC / 48VDC power redundant power supplies
  1 UHF P25 unit for PD
  1 UHF P25 unit for GAA
  2 VHF Analog / P25 capable unit for FD
- Eltek DC power plant
- Spectracom SecureSync frequency references
- Cisco 9300 Switch with AC / 48VDC redundant power supplies
- TXRX combiner and multicoupler systems (both UHF and VHF)
- Sinclair UHF and VHF antennas with transmission subsystems

SIAE AGS-20 split-mount 18 GHz microwave with dish antenna

30 KW generator

Climate-controlled outdoor cabinet

**Site 2 – 8 Upper Meadow Ln (Meadow Ln)**

- 5 TB9400 base stations with AC / 48VDC power redundant power supplies
  - 1 UHF P25 unit for PD
  - 1 UHF P25 unit for GAA
  - 2 VHF Analog / P25 capable unit for FD
  - 1 VHF P25 unit for DPW
- Eltek DC power plant
- Spectracom SecureSync frequency references
- Cisco 9300 Switch with AC / 48VDC redundant power supplies
- TXRX combiner and multicoupler systems (both UHF and VHF)
- Sinclair UHF and VHF antennas with transmission subsystems
- SIAE AGS-20 split-mount 18 GHz microwave with dish antenna
- 30 KW generator
- Climate-controlled outdoor cabinet

**Site 3 – 229 Mountain Rd (Mountain Rd)**

- 5 TB9400 base stations with AC / 48VDC power redundant power supplies
  - 1 UHF P25 unit for PD
  - 1 UHF P25 unit for GAA
  - 2 VHF Analog / P25 capable unit for FD
  - 1 VHF P25 unit for DPW
- Eltek DC power plant
- Spectracom SecureSync frequency references
- Cisco 9300 Switch with AC / 48VDC redundant power supplies
- TXRX combiner and multicoupler systems (both UHF and VHF)
- Sinclair UHF and VHF antennas with transmission subsystems
- 2 SIAE AGS-20 split-mount 18 GHz microwave with dish antennas
- 30 KW generator
- 10x16' concrete communications shelter

**Site 4 – Metacomet Ridge**

- 4 TB9400 base stations with AC / 48VDC power redundant power supplies
  - 1 UHF P25 unit for PD
  - 1 UHF P25 unit for GAA
  - 2 VHF Analog / P25 capable unit for FD
- Eltek DC power plant
- Spectracom SecureSync frequency references
- Cisco 9300 Switch with AC / 48VDC redundant power supplies
- TXRX combiner and multicoupler systems (both UHF and VHF)
- Sinclair UHF and VHF antennas with transmission subsystems
- SIAE AGS-20 split-mount 18 GHz microwave with dish antenna
- 30 KW generator
- Climate-controlled outdoor cabinet

**Site 5 – 15 North Granby Rd Commercial Monopole (Town Hall)**

- 1 TB9400 base stations with AC / 48VDC power redundant power supplies
  - 1 VHF P25 unit for CERT Team
- Eltek DC power plant
- Spectracom SecureSync frequency references
- Cisco 9300 Switch with AC / 48VDC redundant power supplies
- TXRX duplexer
- Sinclair VHF antenna with transmission subsystem
- 3 SIAE AGS-20 split-mount 18 GHz microwave with dish antennas

All sites are to be powered by AC main and ELTEK Flatpack S 2U power systems. This provides parallel redundant power supplies (see attached data sheets for specifications). Marcus does not consider UPS' appropriate for public safety infrastructure use.

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

**Dispatch Center**

**Renovations**

In addition to replacing the console furniture, Marcus Communications will have the responsibility of providing some renovations to the room while it is empty. This scope would include replacement of the existing carpeting and the base molding. The Town can assist in choosing what style, brand, and design to fit within the aesthetics of the new furniture under the assumption that it will fit within the estimate provided for these line items.

Marcus Communications will also work with the Town to replace their cabinetry through Russ Basset to ensure the furniture style is seamless and well-integrated.

Marcus Communications will take full responsibility for the removal of old furniture and provide a dumpster to discard the removed material.

**Electrical**

All electrical in the dispatch room is existing and any will be utilized when installing the new console equipment. Marcus Communications will be responsible for ensuring that the furniture is powered utilizing the existing electrical.

**Console Transition**

Marcus Communications will be responsible for providing a temporary dispatch to operate out of during the renovation process. The location of this room will be determined in conjunction with the Town based on availability and ease of cable running. The temporary location will be set up utilizing the new console equipment to allow for training on the new system and equipment, prior to a formal cutover. If additional electrical capacity is needed to support the temporary location, Marcus Communications will assume responsibility for this.

**The console system positions will be equipped with the following items:**

- 24-inch monitor
- USB keyboard
- USB mouse
- Desktop microphone
- Heavy-duty foot switch
- Select and unselect speakers
- Wired headset (wireless priced as an option)
- 5 DFSI resources
    - New Granby Channels
- 7 UHF resources
    - Granby BOE
    - Simsbury PD, WMLEC PD, WMLEC FD
    - Simsbury FD, Simsbury EMS
    - RAFS 1, RAFS 2
    - Avon PD, Canton PD, BDL FD
    - Intercity
    - U-Call-40, CREST, SWAT1-4
- 3 VHF resources
    - E. Granby FD
    - Suffield PD, Windsor Locks PD
    - DEMHS, Avon Intercity
- 2 CLRMN compatible resources
    - TN-LCD-GRANBY Link
    - Windsor PD, Bloomfield PD, Farmington PD, West Hartford PD
- Hartford County Hotline
- ICall/ITac

The dispatch connection to the radio system will utilize fiber that will run between the PD and the commercial monopole tower within the Town Hall complex. Each channel will be connected to the console with a DFSI connection. The two-position Avtec console will feature redundant VPGate servers and will integrate with the existing recorder. The dispatch console description will be outlined in a separate document in the response.

**The town is responsible for the following if applicable**

Removal of the glass window, additional electrical in dispatch, lead paint/asbestos testing and removal, moving and relocation of all alarm equipment, CAD, and camera monitoring equipment, and replacing of dispatch chairs.

**Common scope of work to all sites is as follows:**

- Construction/zoning/engineering documents prepared for approval.
- Marcus Communications will prepare all necessary documents for zoning approval.
- Marcus will apply for all required building and zoning permits – it is assumed the town will waive all fees.
- Construction testing services as described in this document.
- Third party engineering of new tower structure review as required.
- Final construction documents and shop drawings completed for final Marcus and town approval.
- The new towers and foundation will be designed by the tower manufacturer. Marcus has chosen Valmont as the tower manufacturer.
- All sites will require Geotech surveys to investigate subsurface conditions. All sites will be investigated and reports issued for the engineering/design team.
    - We will use handheld GPS equipment to locate borings with an estimated horizontal accuracy of +/-20 feet. Field measurements from existing site features may be utilized. If available, approximate elevations will be obtained by interpolation from a site specific surveyed topographic map.
    - Subsurface Exploration Procedures: We will advance soil borings with a truck-mounted drill rig using continuous flight augers (solid stem and/or hollow stem, as necessary, depending on soil conditions). Two (2) samples will be obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter if required. Soil sampling is typically performed using split-barrel sampling procedures. The split-barrel samplers are driven in accordance with the ASTM D 1586 Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils. The samples will be placed in appropriate containers, taken to our soil laboratory for testing, and classified by a Geotechnical Engineer. In addition, we will observe and record groundwater levels during drilling and sampling. Soil test boring will be terminated upon encountering bedrock or refusal-to-drilling conditions. Our exploration team will prepare field boring logs as part of standard drilling operations including sampling depths, penetration distances, and other relevant sampling information. Field logs include visual classifications of materials encountered during drilling, and our interpretation of subsurface conditions between samples. Final boring logs, prepared from field logs, represent the Geotechnical Engineer's interpretation, and include modifications based on observations and laboratory tests.
    - Property Disturbance: We will backfill borings with auger cuttings upon completion. Pavements will be patched with cold-mix asphalt and/or ready mixed concrete, as appropriate. Our services do not include repair of the site beyond backfilling our boreholes, and cold patching existing pavements. Excess auger cuttings will be dispersed in the general vicinity of the borehole. Because backfill material often settles below the surface after a period, we recommend boreholes to be periodically checked and backfilled, if necessary. We can provide this service, or grout the boreholes for additional fees, at your request.
    - Results of our field and laboratory programs will be evaluated by a professional engineer. The engineer will develop a geotechnical site characterization, perform the engineering calculations necessary to evaluate foundation alternatives, and develop appropriate geotechnical engineering design criteria for earth-related phases of the project.
- The geotechnical engineering report will provide the following:
    - Boring logs with field and laboratory data
    - Stratification based on visual soil classification
    - Groundwater levels observed during and after the completion of drilling
    - Site location and exploration plans
    - Subsurface exploration procedures
    - Description of subsurface conditions
    - Laboratory testing results
    - Recommended engineering design parameters for the proposed tower and shelter foundations.
- As part of the construction process, grounding will be created or brought up to current Harris AE/Izt 123 4618/ R3A and R56 installation standards.
- All sites will have surveys conducted by the licensed land survey firm.

- Will perform and prepare three (3) site specific topographic surveys per the limits and scope requirements on the attached site sketches.
- Will conduct all survey work in accordance with the procedural and technical standards for the Practice of Land Surveying (250 CMR 6.0). Vertical datum shall be based on North American Vertical Datum (NAVD 1988). Horizontal control shall be based on the Massachusetts Rectangular Grid (NAD 1988) coordinate system in U.S.

- At the sites of new tower construction an FAA 2C Certification Letter will be created and a FAA 2C Certification survey required will be completed for submission to the Federal Aviation Administration (FAA) where towers or antennas are installed or are planned to be installed. Certification includes surveying using GPS to determine the latitude and longitude of the tower or structure along with elevations of the tower, structure and installed or proposed antennas.
- Latitudinal and Longitudinal accuracy to within ±50 feet horizontally and ± 20 feet vertically. The horizontal datum (coordinates) will be provided in terms of the North American Datum of 1983 (NAD 83) and are expressed in degrees minutes and seconds to the nearest hundredth of a second. The vertical datum (heights) will be provided in terms of the National Geodetic Vertical Datum of 1929 and expressed to the nearest foot.
- Deliverable: one (1) electronic copy (.pdf) of FAA 2C Survey Certification Letter signed and sealed by a licensed professional engineer.

No FAA study will be required at the existing sites as the tower structure is not anticipated to increase in height. At existing sites, the following required 3rd party inspection services will be performed if proper documentation is not available for structural review.

- Sub-grade inspection
- Foundation rebar and concrete inspection/testing
- Pier rebar and concrete inspection/testing
- Compaction testing

**The following is a list of work specific to each site:**

**Municipal Complex Site**
At this site, Marcus is removing the existing tower on the side of the town hall. The town hall tower will remain in place and will be removed once all the old equipment is decommissioned. The monopole that is currently existing elsewhere at this site will be reused.

**Engineering services**
- Conduct a site visit to discuss the overall project, to verify existing conditions, to obtain necessary dimensions, and to exchange available drawings and information.
- Conduct a full structural analysis to investigate if the Monopole has the capacity to meet the needs of the new proposed equipment.

**Construction Drawings**
- Prepare site layout to accommodate the ancillary ground equipment and tower mounted equipment within the compound along with the tower infrastructure.
- Design a grounding system for the proposed equipment based upon recommended industry guidelines.
- Construction drawings with technical specifications for the site to incorporate all necessary details and construction notes. One review is assumed.
- Deliverables include: Three (3) 11"x17" sets of drawings and one (1) electronic (.pdf) file of the construction drawings. All drawings sets are to be signed and sealed by a licensed Professional Engineer.

**Independent Structural Engineering Consultant Review**
- Structural review of proposed design as required.
- Deliverable: one (1) electronic copy (.pdf) of the Independent Structural Engineering Consultant Review letter signed and sealed by a licensed professional engineer.

**Special Inspections Coordination**
- Follow the guidelines stipulated in the current building codes.

- The Special Inspections Coordination shall include: Any applicable Statement of Special Inspection listing all applicable and required construction components to be inspected which will identify the parties responsible for the inspections and testing when required.
- The Contractor shall schedule all required inspections directly with the procured testing laboratory.
- Preparation of Final Closeout Package signed and sealed by a licensed professional engineer confirming the inspection items are in accordance with the documents prepared by the project engineer of record.
- All inspection reports, photos and other information prepared during the construction of the site as appropriate.
- Deliverables: one (1) original and one (1) electronic (.pdf) file of each interim report, and the Final Statement of Special Inspections with supporting documentation.

**Major elements of the site work**

- Site work - Cut and fill existing topography to grades after removal of foundation.
- Storm water management - erosion control if required
- Patching of building after removal of tower bracing
- Tower foundation removal and disposal
- Tower – removal and disposal
- Repair or replace any curbing or ground cover disturbed during construction

**229 Mountain Road - Greenfield Site**

This site will have the construction of a new self-supporting communications tower, shelter, generator, and compound.

**Engineering services**

Conduct a site visit to discuss the overall project, to verify existing conditions, to obtain necessary dimensions and to exchange available drawings and information.

**Construction Drawings**

- Prepare site layout to accommodate the ancillary ground equipment and tower mounted equipment within the compound and tower infrastructure.
- Design a grounding system for the proposed equipment based upon recommended industry guidelines.
- Construction drawings with technical specifications for the site to incorporate all necessary details and construction notes. One review is assumed.
- Deliverables include: Three (3) 11"x17" sets of drawings and one (1) electronic (.pdf) file of the construction drawings. All drawings sets are to be signed and sealed by a licensed Professional Engineer.

**Independent Structural Engineering Consultant Review**

- Structural review of proposed design as required by local jurisdiction.
- Deliverable: one (1) electronic copy (.pdf) of the Independent Structural Engineering Consultant Review letter signed and sealed by a licensed professional engineer.

**Special Inspections Coordination**

- The Special Inspections Coordination shall include: Any applicable Statement of Special Inspection listing all applicable and required construction components to be inspected which will identify the parties responsible for the inspections and testing when required.
- The Contractor shall schedule all required inspections directly with the procured testing laboratory.
- Preparation of Final Closeout Package signed and sealed by a licensed professional engineer confirming the inspection items are in accordance with the documents prepared by the project engineer of record.
- All inspection reports, photos and other information prepared during the construction of the site as appropriate.
- Deliverables: one (1) original and one (1) electronic (.pdf) file of each interim report, and the Final Statement of Special Inspections with supporting documentation.

**Major elements of the site work**

- Site work - Cut and fill existing topography to design grades
- Storm water management - erosion control
- Construct new tower foundation and erect tower steel

- Construct shelter with appropriate foundations
- Install propane powered Generator and 500-gallon fuel tank
- Compound Finish - geofabric and 4" 3/4" stone over compound.
- Install Ground ring
- Tower Foundation including excavation and concrete work
- Tower - Take delivery and transport tower to site
- New Ice bridge from the tower to the building entry
- Chain link fencing around tower base
- New electrical service to the site will need to be installed to accommodate the equipment.

**Gavitt Road tower - Meadow Lane tower - Metacomet tower**
These sites have many unique requirements. These sites are owned by other parties and proper lease/use agreements must be obtained by the Town. Marcus proposes to add onto and modify the existing towers and sites.

It is necessary to install a full-size outdoor cabinet at the Metacomet site due to the access issues related to this site.

While it is impossible to know the extent of modifications that are necessary to install the proposed equipment before making the actual structural assessment, Marcus Communications has carried all the costs for a complete investigation of the foundation and tower structures. This projected budget is based on our experience in the construction field and in consultation with our structural engineer.

**Engineering Services**
Conduct a site visit to discuss the overall project, to verify existing conditions, to obtain necessary dimensions, and to exchange available drawings and information.

**Structural Analysis Report**
Provide a structural analysis of all three towers in accordance with the local building code requirements and the TIA-222 Structural Standards Structural Standard.

Adequate structural documentation of the existing tower structure, foundation components, geotechnical conditions, tower and/or foundation structural reinforcement designs and current tower appurtenance mapping to be provided by the site owners. All documentation to be reviewed and accepted by Marcus prior to commencement of the structural analysis.

Deliverables: three (3) bound reports and one (1) electronic copy (.pdf) of Structural Analysis Report signed and sealed by a licensed structural engineer.

**Construction Drawings**
- Prepare site layout to accommodate the proposed pre-manufactured equipment shelter, ancillary ground equipment, & tower mounted equipment within the compound and tower infrastructure.
- Design shallow foundations and support pads for the proposed pre-manufactured equipment shelter, emergency generator & propane tank.
- Design site utility suitable to meet the power and fueling needs of the installation.
- Design a grounding system for the proposed equipment based upon recommended industry guidelines.
- Construction drawings with technical specifications for the site to incorporate all necessary details and construction notes. One review is assumed.
- Deliverables include: Three (3) 11"x17" sets of drawings and one (1) electric (.pdf) file of the construction drawings. All drawings sets are to be signed and sealed by a licensed Professional Engineer.

**Modification Design** – If required, the costs to be paid for by the Town.
Structural Modification Drawings with technical specifications to incorporate all necessary details, construction notes and modification inspection requirements to bring existing tower structure into structural compliance. Deliverable: one (1) electronic copy (.pdf) of Structural Modification Drawings signed and sealed by a licensed structural engineer.

**Special Inspections Coordination**

- Follow the guidelines stipulated in the current building codes.
- The Special Inspections Coordination shall include: Any applicable Statement of Special Inspection listing all applicable and required construction components to be inspected which will identify the parties responsible for the inspections and testing when required.
- Centek will attend one preconstruction visit to review with the CLIENT and the Contractor all Special Inspection requirements.
- The CLIENT's Contractor shall schedule all required inspections directly with the procured testing laboratory.
- Preparation of Final Closeout Package signed and sealed by a licensed professional engineer confirming the inspection items are in accordance to the documents prepared by the project engineer of record.
- All inspection reports, photos and other information prepared during the construction of the site as appropriate.
- Deliverables: one (1) original and one (1) electric (.pdf) file of each interim report, typical of two (2) and the Final Statement of Special Inspections with supporting documentation.

**Major elements of the site work**

- Site work - Cut and fill existing topography to design grades
- Installation of full climate controlled outdoor cabinets
- Install cabinets, generators with appropriate foundations
- Install propane powered Generator and 500 gallon fuel tank. A different tank configuration might be required if the road is not suitable for tank refill.
- Compound Finish - geofabric and 4" 3/4" stone over compound.
- Install/reconfigure Ground ring
- New Ice bridge from the tower to the cabinet entry
- Electrical service to the site will need to be reconfigured to accommodate the equipment.

**Generator Installations**

The Marcus team is very experienced in generator backup power installations. We never compromise on quality and durability to find the cheapest price. Having reliable backup power systems is a must in all mission critical systems. We have selected what we have come to know as the most reliable solution for us in our years of experience.

All sites (except the Police HQ) will have the same generator set installed. This will be beneficial from a maintenance standpoint to have common maintenance and replacement parts for ease of service.

Cummins Power engine and Onan Generator set model C30N6

30kW, 240/120 single phase, 150 amp 2 pole breaker, 125amp output @240 Vac and included the following:

- 1800RPM Liquid Cooled, Cast Iron Engine
- 4 Pole Copper Wound 125 degree C rise Alternator w/Class H insulation
- Weather Protective, Sound Attenuated Aluminum Enclosure
- Engine Block Heater -Engine Battery Charger 6 Amp float type, environmentally sealed.
- Heavy Duty (large electrolyte capacity) Engine Starting Battery
- All Engine Fluids (except for fuel)
- NFPA 110 compatible controller (may need annunciator, or accessories to be level 1 or 2 compliant)
- 2 Wire Remote Start Input -Rodent Proofing (hardware cloth)
- Startup Testing/ Commissioning
- Load Bank acceptance testing
- Propane (LPG Vapor Fueled) Engine/Genset

A precast concrete pad will be installed for the generators all with proper per code grounding.

**Transfer Switch**

The Transfer Switches we specified in this design for durability, reliability, ease of service, parts commonality, are the ASCO, 300 Series (ASCO 300, Group G 200 AMP), with the Optional Group G digital controller. They contain the following features:

- NEMA 1 Enclosures (indoor mounting)
- 2 Pole, Solid Neutral Contactor Design
- 240/120 Volt Single Phase Sensing
- Manual operator (in case of control failure)
- Digital Display, with adjustable Voltage sensors.
- Auxiliary Relay contacts for alarms, load shed, and monitoring.

**Shelters**

Marcus Communications is proposing the tried and tested Thermobond or united concrete Building. Shelter detail for the Mountain Road site to provide a 12'-0" x 20'-0" exterior x 9'-0" Interior pre-cast concrete equipment shelter.

**SPECIFICATIONS:**

- Floor Load: 200 psf
- Roof Load: 150 psf
- Walls: 150 mph

**BUILDING SIZE:**

- Outside (Eaves): 10'-4" W x 20'-4" L x 10'-7" H
- Outside (Base): 10'-0" W x 20'-0" L x 10'-7" H
- Equipment Room: 9'-0" W x 17'-0" L x 9'-0" H (Nominal)
- Estimated Module Weight: 44,000 lbs.

**SHELL:**

- Floor: 5 3/4" Solid concrete floor
- Walls: 4" Solid concrete
- Roof: Solid concrete 4" at eave and 5 1/2" at ridge
- Design: Step-joint design
- Tie down: (4) Tie down plates
- Bolts: Painted bolts to replace lifting lugs
- Concrete: 5000 psi lightweight concrete
- Reinforcing: Steel #4 and #6 bars, 60,000 psi (Grade 60 ASTM-615)
- Ratings: Walls to 2 hour fire rated
- Ballistics: Tested for UL-752, (HPR-30.06 point blank range)

**EXTERIOR FINISH:**

- Walls: Washed exposed aggregate and sealed
- Roof: Trowel surface and sealed, broom finish

**INTERIOR FINISH:**

- Floor: Covered with 1/8" x 12" x 12" white commercial tile and a 4" base cove
- Interior Walls: 3/4" APA Rated OSB covered with white embossed fiberglass reinforced plastic (FRP)
- Ceiling: 3/4" APA Rated OSB covered with white embossed fiberglass reinforced plastic (FRP)

**DOORS:**

- Quantity/Size: (1) 3'-0" x 7'-0" w/steel awning
- Door Type: 18 ga. Insulated metal door, painted to match exterior finish
- Frame Type: 16 ga. Painted galvanized metal frame
- Lockset: deadbolt with cylinder, passage lever set (Class 1)
- Hinges: NRP-SS hinges
- Weather Strip: Magnetic weather stripping
- Threshold: Saddle type threshold, mill finish aluminum
- Door Sweep: Neoprene style, mill finish aluminum
- Anti-pick Plate: Latch Guard or equal
- Hold Back: (1) hydraulic closer
- Drip Cap: Drip cap, mill finish aluminum

**AIR CONDITIONING/HEATING:**

- Quantity: 2
- Brand: Bard 2 ton
- Model: 230/208V 1 phase
- Description: 24,000 btu units with integrated 5KW heat strips, time delay anti-short cycle timer, high- and low-pressure switch, low ambient control, and a one year parts and labor guarantee
- Temp. Control: (1) Master control Lead/Lag thermostat

**Electrical package:**

a. (1) - 200 amp, single phase distribution panel with main breaker
b. (1) – 200 amp, single phase exterior main breaker disconnect
c. Transtector Type 1 & 2 surge arrestors
d. (4) - 4 foot LED light fixture with switch
e. (1) - LED exterior light with PE cell
f. (6) - 120v duplex receptacles
g. (1) – exterior GFI receptacle
h. (2) – 30 amp ceiling mounted twistlock receptacles
i. (2) - 2 ton cool/5kW heat Bard wall mount air conditioner with master control thermostat
j. (6) – 4" entrance port
k. (2) – 4"x20"x1/4" master ground bar w/R-56 halo ground ring
l. (25') – 12" ceiling mounted cable ladder
m. All electrical wires, breakers, boxes, conduit, etc. to make a complete assembly

**MISCELLANEOUS:**

- Binder Holder: (1) Wall pocket for storage of documentation

### 3.1.4 Site Acceptance Testing – "Commissioning"

The Site Acceptance Test (SAT), also known as "Commissioning", is performed in the field, on a site-by-site basis, once the equipment has been installed and power and network connectivity is complete. The purpose of the Site Acceptance Test is to validate that radio system at each site powers up and operates as expected, at that particular location. The SAT verifies that the system design configuration (frequencies, RF subsystems, network parameters, etc.) meets design specifications. The form for this testing is part of the contract exhibit G.

## 3.2 COVERAGE VERIFICATION TESTING

The Coverage Verification Test (CVT) is performed after the sites have completed their Site Acceptance Tests, and therefore have been fully installed with final RF systems.

CVT drive testing captures over-the-air RF transmissions of the radio system after all sites have been installed and optimized. The CVT validates that the coverage performance meets coverage design specifications including coverage boundary as based on final coverage prediction maps and as-built installation data.

## 3.3 SYSTEM CUTOVER

One of the key steps involved in the implementation of the new system is to develop a comprehensive cutover plan which will allow users to transition to the new system in a smooth manner with minimal disruptions to everyday operation.

After all the above test & inspections are performed & accepted, the system will be ready for cutover. The project engineer will develop a comprehensive transition plan in consultation with the Town of Granby and Marcus Communications. The final cutover plan will be developed when all site surveys are completed and exact existing conditions are known.

## 3.4 FINAL OPERATIONAL TESTING

The Final System Acceptance Test (F-SAT) is the final test performed on the system. The F-SAT demonstrates functionality of the system in its actual working environment. The F-SAT is performed in the field once all associated sites are installed, and backhaul connectivity is available to all associated system locations, and all systems are stable.

# 5. TRAINING

Training is outlined in Exhibit "E" of the contract. Marcus Communications will create a training syllabus based on the final configurations of equipment and provide the training syllabus to the Town's representative. This training is considered to be conducted in the Town of Granby during normal daytime working hours. Training classes will be provided on the two major sections as outlined in the exhibit.

# 6. PROJECT CLOSEOUT

The Marcus project manager will ensure that all the required as-built documentation is provided and Marcus Communications is satisfied with the operation of the new radio system before project closeout.

## APPENDIX A – PROJECT RESPONSIBILITY MATRIX

| Project Responsibility Matrix | | |
|---|---|---|
| **System Design** | **Granby** | **Marcus Communications** |
| Requirements Analysis Document | | x |
| Site Survey (space in equipment rooms, AC/DC power supply, environmental factors, east of access, etc.) | | X |
| High Level System Design Document | | X |
| Site As Built Documentation (site drawings) | | X |
| Antenna System Planning | | X |
| Power consumption and Power Backup Planning | | X |
| IP Network design (IP system loading, routing design, IP numbering, route capacity planning, etc.) | X | X |
| Frequency Plan (frequency allotment, inter-modulation, interference) | | X |
| Coverage Study | | X |
| Backbone Specifications | | X |
| Microwave design | | X |
| Fleet Mapping | X | X |
| Interfaces Planning/Design (console) | X | X |
| High Level System Monitoring Document | X | X |
| Migration Planning Document | X | X |
| System Infrastructure Description | | X |
| Approve the DDR | X | X |
| **Logistics** | **Granby** | **Marcus Communications** |
| **Ordering** | | |
| Prepare the final Bill-of-Material (BOM) | | X |
| Signoff on the final Bill-of-Material (BOM) | | X |
| Place orders for major infrastructure | | X |
| Place orders with suppliers and vendors | | X |
| | | |
| | | |
| | | |
| | | |

| Deploy | Granby | Marcus Communication |
|---|---|---|
| **initial Acceptance Testing** | | |
| Inventory equipment received from Vendors | | X |
| Stage Equipment | | X |
| Staging tests | | X |
| Provide necessary personnel to witness tests if desired | X | |
| Pack and ship equipment for on-site installation | | X |
| **Installation** | | |
| Install infrastructure equipment | | X |
| Ground installed equipment | | X |
| **Commissioning** | | |
| Ensure that the network is operating as designed | X | X |
| Verify system levels and parameters are set properly | | X |
| Verify site equipment is working properly | | X |
| Verify system alarm and monitoring system is functioning properly | X | X |
| **Field Acceptance Testing** | | |
| Execute the Coverage Acceptance Test Plan (CATP) | X | X |
| Provide necessary personnel to witness CATP | X | X |
| Execute the site commissioning procedures | | X |
| Provide necessary personnel to witness commissioning if desired | X | X |
| **System Cutover** | | |
| Identify user agency stakeholders who will approve the cutover plan | X | X |
| Consult with key customer personnel for input on the cutover plan | X | X |
| Develop & get approval on the final cutover plan | | X |
| Communicate the approved cutover plan to all agency personnel | X | X |
| Program and install mobiles | | X |
| Program portables | | X |

| Tower | Granby | Marcus Communications |
|---|---|---|
| **Tower Build** | | |
| Excavation of tower site and conduit trenches | | X |
| Planning/zoning/Building Permits | | X |
| New electrical service to the tower site | X | |
| Installation of electrical from the town supplied meter to shelter | | X |
| Constructions of access road and tree clearing at site compound | X | |

| | | |
|---|---|---|
| Furnish and install self-supporting tower | | X |
| Geotechnical evaluation for tower foundation | | X |
| Provide all necessary stamped engineering and design | | X |
| Mounting of all antennas and associated ancillary items | | X |
| Run coaxial cable from the tower to the outdoor cabinet | | X |
| Pour concrete foundation and set anchor bolts for tower | | X |
| Install radio equipment | | X |

| Training & Closeout | Granby | Marcus Communications |
|---|---|---|
| **Training** | | |
| Trainer training | X | X |
| System administrator training | X | X |
| Technician training | X | X |
| Radio user training | X | X |
| Dispatcher training | X | X |
| **Project Closeout** | | |
| Provide as-built documentation | | X |
| Submit letter request for final acceptance | | X |
| Provide warranty details and contact information | | X |
| Sign letter for final system acceptance | X | X |
| Review warranty procedures with the town | | X |

## Warranty for Years 4 through 7 as required by Page 21 of the RFP

| Qty | Manufac P/N | | Description | Unit Price | Extended |
|---|---|---|---|---|---|
| | See Warranty years 1 to 3 in Section 1 above, Granby required that they be included in the contract | | | | |
| | | | **Year 4** | | |
| 8 | AGS20-EXTWAR-24 | Warranty | This Siae microwave warranty | $ 658.00 | $ 5,264.00 |
| 8 | ASN-EXTWAR-24 | Warranty | This Siae microwave warranty | $ 427.00 | $ 3,416.00 |
| 7 | CON-SNT-C93002TA | Warranty | SNTC-8X5XNBD Catalyst 9300 24-port data only network, extended service agreement per switch | $ 375.00 | $ 2,625.00 |
| 1 | CON-SNT-FPS1020E | Warranty | SNTC-8X5XNBD Cisco Firepower 1010E NGFW Non-POE Appli | $ 113.00 | $ 113.00 |
| 2 | Avtec | Warranty | Scoutcare | $ 2,947.37 | $ 5,894.74 |
| | | | **Repeater Equipment warranty details** | | |
| 19 | TB9435S-100H | Warranty | Chassis, TB9400, Single, 100W | $ 14.20 | $ 269.80 |
| 19 | T01-01103-LAAA | Warranty | Reciter, TB9400, 440-480MHz | $ 28.68 | $ 544.88 |
| 19 | T01-01121-LBAA | Warranty | Linear Pwr Amp, TB9400, 440-480MHz, 100W | $ 22.66 | $ 430.46 |
| 19 | TBA30A4-4100 | Warranty | PMU, TB9000, 48VACDC Aux12V | $ 27.79 | $ 527.99 |
| 19 | TBAS060 | Warranty | SFE - Digital Fixed Station Interface | $ 5.81 | $ 110.41 |
| 19 | TBAS050 | Warranty | SFE - P25 Common Air Interface (CAI) | $ 79.63 | $ 1,513.03 |
| 19 | TBAS061 | Warranty | SFE - Central Voter (TBAS050 Prerequisite) | $ 53.62 | $ 1,018.82 |
| 19 | TBAS062 | Warranty | SFE - Simulcast Enable (TBAS061 Prerequisite) | $ 52.56 | $ 998.56 |
| 19 | TBAS065 | Warranty | SFE - P25 Linear Simulcast Modulation Phase 1 (TBAS062 Prerequisite) | $ 15.17 | $ 288.17 |
| 289 | 2990600017 | Warranty | 1-YR EXTENDED WARRANTY, VIKING - Extended Standard Warranty can be bought within the first three years when the radio is under warranty. Order one unit of this item for each RF Deck in VM7000. For example, a 3 deck VM7000 will require 3 units of extended warranty as warranty is tied to a RF Deck. | $ 80.00 | $ 23,120.00 |
| 12 | 2990600017 - Console Control Station Radios | Warranty | 1-YR EXTENDED WARRANTY, VIKING - Extended Standard Warranty can be bought within the first three years when the radio is under warranty. Order one unit of this item for each RF Deck in VM7000. For example, a 3 deck VM7000 will require 3 units of extended warranty as warranty is tied to a RF Deck. | $ 80.00 | $ 960.00 |
| 40 | Unication Pagers | Warranty | Unication extended warranty covering an additional 3 years (Years 3, 4 and 5) - Paid in Year 3 | $ - | $ - |
| 1 | Marcus Labor - Year 4 | Warranty | Infrastructure Maintenance Agreement - Service Contract | $ 9,000.00 | $ 9,000.00 |
| 1 | Marcus Labor - Year 4 | Warranty | Console Maintenance Agreement - Service Contract | $ 9,000.00 | $ 9,000.00 |
| 12 | Marcus Labor - Year 4 | Warranty | Subscriber units - Maintenance Agreement - Service Contract | $ 800.00 | $ 9,600.00 |
| | | | | **Warranty Year 4** | **$ 74,694.85** |

| Qty | Manufac P/N | | Description | Unit Price | Extended |
|---|---|---|---|---|---|
| | | | **Year 5** | | |
| 8 | AGS20-EXTWAR-24 | Warranty | This Siae microwave warranty | $ - | $ - |
| 8 | ASN-EXTWAR-24 | Warranty | This Siae microwave warranty | $ - | $ - |
| 7 | CON-SNT-C93002TA | Warranty | SNTC-8X5XNBD Catalyst 9300 24-port data only network, extended service agreement per switch | $ 375.00 | $ 2,625.00 |
| 1 | CON-SNT-FPS1020E | Warranty | SNTC-8X5XNBD Cisco Firepower 1010E NGFW Non-POE Appli | $ 113.00 | $ 113.00 |
| 2 | Avtec | Warranty | Scoutcare | $ 2,947.37 | $ 5,894.74 |
| | | | **Repeater Equipment warranty details** | | |
| 19 | TB9435S-100H | Warranty | Chassis, TB9400, Single, 100W | $ 14.20 | $ 269.80 |
| 19 | T01-01103-LAAA | Warranty | Reciter, TB9400, 440-480MHz | $ 28.68 | $ 544.88 |
| 19 | T01-01121-LBAA | Warranty | Linear Pwr Amp, TB9400, 440-480MHz, 100W | $ 22.66 | $ 430.46 |
| 19 | TBA30A4-4100 | Warranty | PMU, TB9000, 48VACDC Aux12V | $ 27.79 | $ 527.99 |
| 19 | TBAS060 | Warranty | SFE - Digital Fixed Station Interface | $ 5.81 | $ 110.41 |
| 19 | TBAS050 | Warranty | SFE - P25 Common Air Interface (CAI) | $ 79.63 | $ 1,513.03 |
| 19 | TBAS061 | Warranty | SFE - Central Voter (TBAS050 Prerequisite) | $ 53.62 | $ 1,018.82 |
| 19 | TBAS062 | Warranty | SFE - Simulcast Enable (TBAS061 Prerequisite) | $ 52.56 | $ 998.56 |
| 19 | TBAS065 | Warranty | SFE - P25 Linear Simulcast Modulation Phase 1 (TBAS062 Prerequisite) | $ 15.17 | $ 288.17 |
| 289 | 2990600017 | Warranty | 1-YR EXTENDED WARRANTY, VIKING - Extended Standard Warranty can be bought within the first three years when the radio is under warranty. Order one unit of this item for each RF Deck in VM7000. For example, a 3 deck VM7000 will require 3 units of extended warranty as warranty is tied to a RF Deck. | $ 80.00 | $ 23,120.00 |
| 12 | 2990600017 - Console Control Station Radios | Warranty | 1-YR EXTENDED WARRANTY, VIKING - Extended Standard Warranty can be bought within the first three years when the radio is under warranty. Order one unit of this item for each RF Deck in VM7000. For example, a 3 deck VM7000 will require 3 units of extended warranty as warranty is tied to a RF Deck. | $ 80.00 | $ 960.00 |
| 40 | Unication Pagers | Warranty | Unication extended warranty covering an additional 3 years (Years 3, 4 and 5) - Paid in Year 3 | $ - | $ - |
| 1 | Marcus Labor - Year 5 | Warranty | Infrastructure Maintenance Agreement - Service Contract | $ 9,000.00 | $ 9,000.00 |
| 1 | Marcus Labor - Year 5 | Warranty | Console Maintenance Agreement - Service Contract | $ 9,000.00 | $ 9,000.00 |
| 12 | Marcus Labor - Year 5 | Warranty | Subscriber units - Maintenance Agreement - Service Contract | $ 900.00 | $ 10,800.00 |
| | | | | **Warranty Year 5** | **$ 67,214.85** |

| Qty | Manufac P/N | | Description | Unit Price | Extended |
|---|---|---|---|---|---|
| | | | **Year 6** | | |
| 8 | AGS20-EXTWAR-24 | Warranty | This Siae microwave warranty | $ 658.00 | $ 5,264.00 |
| 8 | ASN-EXTWAR-24 | Warranty | This Siae microwave warranty | $ 427.00 | $ 3,416.00 |
| 7 | CON-SNT-C93002TA | Warranty | SNTC-8X5XNBD Catalyst 9300 24-port data only network, extended service agreement per switch | $ 375.00 | $ 2,625.00 |
| 1 | CON-SNT-FPS1020E | Warranty | SNTC-8X5XNBD Cisco Firepower 1010E NGFW Non-POE Appli | $ 113.00 | $ 113.00 |
| 2 | Avtec | Warranty | Scoutcare | $ 2,947.37 | $ 5,894.74 |
| | | | **Repeater Equipment warranty details** | | |
| 19 | TB9435S-100H | Warranty | Chassis, TB9400, Single, 100W | $ 14.20 | $ 269.80 |
| 19 | T01-01103-LAAA | Warranty | Reciter, TB9400, 440-480MHz | $ 28.68 | $ 544.88 |
| 19 | T01-01121-LBAA | Warranty | Linear Pwr Amp, TB9400, 440-480MHz, 100W | $ 22.66 | $ 430.46 |
| 19 | TBA30A4-4100 | Warranty | PMU, TB9000, 48VACDC Aux12V | $ 27.79 | $ 527.99 |
| 19 | TBAS060 | Warranty | SFE - Digital Fixed Station Interface | $ 5.81 | $ 110.41 |
| 19 | TBAS050 | Warranty | SFE - P25 Common Air Interface (CAI) | $ 79.63 | $ 1,513.03 |
| 19 | TBAS061 | Warranty | SFE - Central Voter (TBAS050 Prerequisite) | $ 53.62 | $ 1,018.82 |
| 19 | TBAS062 | Warranty | SFE - Simulcast Enable (TBAS061 Prerequisite) | $ 52.56 | $ 998.56 |
| 19 | TBAS065 | Warranty | SFE - P25 Linear Simulcast Modulation Phase 1 (TBAS062 Prerequisite) | $ 15.17 | $ 288.17 |
| 289 | 2990600017 | Warranty | 1-YR EXTENDED WARRANTY, VIKING - Extended Standard Warranty can be bought within the first three years when the radio is under warranty. Order one unit of this item for each RF Deck in VM7000. For example, a 3 deck VM7000 will require 3 units of extended warranty as warranty is tied to a RF Deck. | $ 80.00 | $ 23,120.00 |
| 12 | 2990600017 - Console Control Station Radios | Warranty | 1-YR EXTENDED WARRANTY, VIKING - Extended Standard Warranty can be bought within the first three years when the radio is under warranty. Order one unit of this item for each RF Deck in VM7000. For example, a 3 deck VM7000 will require 3 units of extended warranty as warranty is tied to a RF Deck. | $ 80.00 | $ 960.00 |
| 40 | Unication Pagers | Warranty | Unication extended warranty covering an additional 1 year | $ 42.11 | $ 1,684.21 |
| 1 | Marcus Labor - Year 6 | Warranty | Infrastructure Maintenance Agreement - Service Contract | $ 9,000.00 | $ 9,000.00 |
| 1 | Marcus Labor - Year 6 | Warranty | Console Maintenance Agreement - Service Contract | $ 9,000.00 | $ 9,000.00 |
| 12 | Marcus Labor - Year 6 | Warranty | Subscriber units - Maintenance Agreement - Service Contract | $ 900.00 | $ 10,800.00 |
| | | | | **Warranty Year 6** | **$ 77,579.06** |

| Qty | Manufac P/N | | Description | Unit Price | Extended |
|---|---|---|---|---|---|
| | | | **Year 7** | | |
| 8 | AGS20-EXTWAR-24 | Warranty | This Siae microwave warranty | $ - | $ - |
| 8 | ASN-EXTWAR-24 | Warranty | This Siae microwave warranty | $ - | $ - |
| 7 | CON-SNT-C93002TA | Warranty | SNTC-8X5XNBD Catalyst 9300 24-port data only network, extended service agreement per switch | $ 375.00 | $ 2,625.00 |
| 1 | CON-SNT-FPS1020E | Warranty | SNTC-8X5XNBD Cisco Firepower 1010E NGFW Non-POE Appli | $ 113.00 | $ 113.00 |
| 2 | Avtec | Warranty | Scoutcare | $ 2,947.37 | $ 5,894.74 |
| | | | **Repeater Equipment warranty details** | | |
| 19 | TB9435S-100H | Warranty | Chassis, TB9400, Single, 100W | $ 14.20 | $ 269.80 |
| 19 | T01-01103-LAAA | Warranty | Reciter, TB9400, 440-480MHz | $ 28.68 | $ 544.88 |
| 19 | T01-01121-LBAA | Warranty | Linear Pwr Amp, TB9400, 440-480MHz, 100W | $ 22.66 | $ 430.46 |
| 19 | TBA30A4-4100 | Warranty | PMU, TB9000, 48VACDC Aux12V | $ 27.79 | $ 527.99 |
| 19 | TBAS060 | Warranty | SFE - Digital Fixed Station Interface | $ 5.81 | $ 110.41 |
| 19 | TBAS050 | Warranty | SFE - P25 Common Air Interface (CAI) | $ 79.63 | $ 1,513.03 |
| 19 | TBAS061 | Warranty | SFE - Central Voter (TBAS050 Prerequisite) | $ 53.62 | $ 1,018.82 |
| 19 | TBAS062 | Warranty | SFE - Simulcast Enable (TBAS061 Prerequisite) | $ 52.56 | $ 998.56 |
| 19 | TBAS065 | Warranty | SFE - P25 Linear Simulcast Modulation Phase 1 (TBAS062 Prerequisite) | $ 15.17 | $ 288.17 |
| 289 | 2990600017 | Warranty | 1-YR EXTENDED WARRANTY, VIKING - Extended Standard Warranty can be bought within the first three years when the radio is under warranty. Order one unit of this item for each RF Deck in VM7000. For example, a 3 deck VM7000 will require 3 units of extended warranty as warranty is tied to a RF Deck. | $ 80.00 | $ 23,120.00 |
| 12 | 2990600017 - Console Control Station Radios | Warranty | 1-YR EXTENDED WARRANTY, VIKING - Extended Standard Warranty can be bought within the first three years when the radio is under warranty. Order one unit of this item for each RF Deck in VM7000. For example, a 3 deck VM7000 will require 3 units of extended warranty as warranty is tied to a RF Deck. | $ 80.00 | $ 960.00 |
| 40 | Unication Pagers | Warranty | Unication extended warranty covering an additional 1 year | $ 42.11 | $ 1,684.21 |
| 1 | Marcus Labor - Year 7 | Warranty | Infrastructure Maintenance Agreement - Service Contract | $ 9,000.00 | $ 9,000.00 |
| 1 | Marcus Labor - Year 7 | Warranty | Console Maintenance Agreement - Service Contract | $ 9,000.00 | $ 9,000.00 |
| 12 | Marcus Labor - Year 7 | Warranty | Subscriber units - Maintenance Agreement - Service Contract | $ 900.00 | $ 10,800.00 |
| | | | | **Warranty Year 7** | **$ 68,899.06** |

*Vendor:*
Marcus Communications
33 Mitchell Drive
PO Box 1498
Manchester, CT 06045
Phone: 860 646-1839

*Customer:*
Town of Granby, CT
15 North Granby Rd
Granby, CT 06035

# Service Agreement

| Start Date | Expiration Date | Automatic Renewal | Payment Cycle | Customer Number |
|---|---|---|---|---|
| TBD | TBD | Yes | Annual | |

| QTY | Description - Year 7 | Service At: Customer | Service At: Svc Center | 24x7 or NBD | Annual Amount: Per Unit | Annual Amount: Extended |
|---|---|---|---|---|---|---|
| 8 | This Siae microwave warranty | | | | $ 0.00 | $ - |
| 8 | This Siae microwave warranty | | | | $ 0.00 | $ - |
| 7 | SNTC-8X5XNBD Catalyst 9300 24-port data only network, extended service | | | | $ 375.00 | $ 2,625.00 |
| 1 | SNTC-8X5XNBD Cisco Firepower 1010E NGFW Non-POE Appli | | | | $ 113.00 | $ 113.00 |
| 2 | Scoutcare | | | | $ 2,947.37 | $ 5,894.74 |
| | **Repeater Equipment warranty details** | | | | | |
| 19 | Chassis, TB9400, Single, 100W | | | | $ 14.20 | $ 269.80 |
| 19 | Reciter, TB9400, 440-480MHz | | | | $ 28.68 | $ 544.88 |
| 19 | Linear Pwr Amp, TB9400, 440-480MHz, 100W | | | | $ 22.66 | $ 430.46 |
| 19 | PMU, TB9000, 48VACDC Aux12V | | | | $ 27.79 | $ 527.99 |
| 19 | SFE - Digital Fixed Station Interface | | | | $ 5.81 | $ 110.41 |
| 19 | SFE - P25 Common Air Interface (CAI) | | | | $ 79.63 | $ 1,513.03 |
| 19 | SFE - Central Voter (TBAS050 Prerequisite) | | | | $ 53.62 | $ 1,018.82 |
| 19 | SFE - Simulcast Enable (TBAS061 Prerequisite) | | | | $ 52.56 | $ 998.56 |
| 19 | SFE - P25 Linear Simulcast Modulation Phase 1 (TBAS062 Prerequisite) | | | | $ 15.17 | $ 288.17 |
| | | | | | | |
| 289 | 1-YR EXTENDED WARRANTY, VIKINGRF Deck. | | | | $ 80.00 | $ 23,120.00 |
| 12 | 1-YR EXTENDED WARRANTY, VIKING | | | | $ 80.00 | $ 960.00 |
| 40 | Unication extended warranty covering an additional 1 year | | | | $ 42.11 | $ 1,684.21 |
| 1 | Infrastructure Maintenance Agreement - Service Contract | | | | $ 9,000.00 | $ 9,000.00 |
| 1 | Console Maintenance Agreement - Service Contract | | | | $ 9,000.00 | $ 9,000.00 |
| 12 | Subscriber units - Maintenance Agreement - Service Contract | | | | $ 900.00 | $ 10,800.00 |
| | | | | | | |
| | | | | | Sub | $ 68,899.06 |
| | | | 0% | | Tax | $ - |
| | | | | | **Total Annually** | ***$ 68,899.06*** |

**Special Instructions, Terms and Conditions**

| | |
|---|---|
| 1 | When this agreement is executed the equipment listed will be serviced by Marcus Communications in accordance with the terms and conditions of this contract. This contract excludes the following: replacement of any antennas, service or repair of any transmission line, batteries, tower-supporting mast or tower lighting systems, microphones, backup UPS's, computer monitors, software, pc cables and connectors and replacements equipment, keyboards, mice, PC's. Also, not covered is abuse, physical damage, liquid damage, acts of nature, natural and manmade disasters. |
| 2 | When a service call arises and it is determined by Marcus Communications staff that the issue is caused by phone line issues the initial call out will be covered by this service contract and any subsequent call out for the same problem phone line issue will be billed above the service contract at the labor rates stated in the service contract. |
| 3 | When a service call arises and it is determined by Marcus Communications staff that the issue is caused by problems with equipment not covered in this service contract but interconnected to the equipment that is covered by this service contract the initial call out will be covered by this service contract and any subsequent call out for the same problem phone line issue will be billed above the service contract at the labor rates stated in the service contract. |
| 4 | Marcus Communications will make best efforts to repair all equipment listed based upon manufactures support and availability of parts. Marcus Communications reserves the right to discontinue service under this agreement at any time if parts and support are no longer available. Equipment not supported by the manufacture can be covered under a "best effort" time and material basis. |
| 5 | Marcus Communications will provide full 24x7x365 emergency coverage on all infrastructure equipment with 2 hour response on line items indicated with 24x7. All other equipment will be normal business hours Monday through Friday 8:30 AM – 5PM. |
| 6 | Unless otherwise stated, items not covered include batteries, UPS systems, antennas, antenna systems, combiner systems, interference resolution, FCC Licensing, re-programming services, consulting/engineering services, software enhancements/upgrades and replacement of un-repairable equipment. belt clips, speaker microphones, liquid damage, bent or missing knobs, misuse or neglect. also not covered is any custom built equipment unless specifically identified in the item list. |
| 7 | When available, Marcus can provide customer with an advanced replacement unit or subscriber radio in exchange for customer's malfunctioning subscriber radio. Non-standard configurations, customer-modified subscriber radio and third-party Infrastructure are excluded from advanced replacement service. Malfunctioning subscriber unit will be evaluated and repaired by Marcus and returned to Marcus inventory upon completion of repair. Availability of advanced exchange subscriber units are not guaranteed. |

| | |
|---|---|
| 8 | Infrastructure Preventative Maintenance will provide an operational test and alignment on the customer's infrastructure equipment every 12-18 months to ensure the infrastructure meets original manufacturer's specifications. Infrastructure Preventative Maintenance will be performed during normal business hours. If the system or customer requirements dictate this service must occur outside normal business hours Marcus will provide an additional quotation. Customer is responsible for any charges associated with unusual access requirements or expenses. Marcus will perform this maintenance one per calendar year. |
| 9 | System discount assumes all line items shown are purchased. N/A |
| 10 | Any items that cannot be repaired can be replaced by a new item at a discount from the State Contract Pricing |
| 11 | Infrastructure items **not covered**, telephone line problems, damage from power failures, lightning strike, or other acts of nature, rodent and insect infestations, console head sets, damage from UPS or Generator testing. |

***Marcus Communications, LLC***
***Authorized Signature***

Title:

Date

***Town of Granby***
***Authorized Customer Signature***

Title:

Date

*Vendor:*
Marcus Communications
33 Mitchell Drive
PO Box 1498
Manchester, CT 06045
Phone: 860 646-1839

*Customer:*
Town of Granby, CT
15 North Granby Rd
Granby, CT 06035

# Service Agreement

| Start Date | Expiration Date | Automatic Renewal | Payment Cycle | Customer Number |
|---|---|---|---|---|
| TBD | TBD | Yes | Annual | |

| QTY | Description - Year 6 | Service At: Customer | Service At: Svc Center | 24x7 or NBD | Annual Amount: Per Unit | Annual Amount: Extended |
|---|---|---|---|---|---|---|
| 8 | This Siae microwave warranty | | | | $ 658.00 | $ 5,264.00 |
| 8 | This Siae microwave warranty | | | | $ 427.00 | $ 3,416.00 |
| 7 | SNTC-8X5XNBD Catalyst 9300 24-port data only network, extended service | | | | $ 375.00 | $ 2,625.00 |
| 1 | SNTC-8X5XNBD Cisco Firepower 1010E NGFW Non-POE Appli | | | | $ 113.00 | $ 113.00 |
| 2 | Scoutcare | | | | $ 2,947.37 | $ 5,894.74 |
| | **Repeater Equipment warranty details** | | | | | |
| 19 | Chassis, TB9400, Single, 100W | | | | $ 14.20 | $ 269.80 |
| 19 | Reciter, TB9400, 440-480MHz | | | | $ 28.68 | $ 544.88 |
| 19 | Linear Pwr Amp, TB9400, 440-480MHz, 100W | | | | $ 22.66 | $ 430.46 |
| 19 | PMU, TB9000, 48VACDC Aux12V | | | | $ 27.79 | $ 527.99 |
| 19 | SFE - Digital Fixed Station Interface | | | | $ 5.81 | $ 110.41 |
| 19 | SFE - P25 Common Air Interface (CAI) | | | | $ 79.63 | $ 1,513.03 |
| 19 | SFE - Central Voter (TBAS050 Prerequisite) | | | | $ 53.62 | $ 1,018.82 |
| 19 | SFE - Simulcast Enable (TBAS061 Prerequisite) | | | | $ 52.56 | $ 998.56 |
| 19 | SFE - P25 Linear Simulcast Modulation Phase 1 (TBAS062 Prerequisite) | | | | $ 15.17 | $ 288.17 |
| | | | | | | |
| 289 | 1-YR EXTENDED WARRANTY, VIKING | | | | $ 80.00 | $ 23,120.00 |
| 12 | 1-YR EXTENDED WARRANTY, VIKING | | | | $ 80.00 | $ 960.00 |
| 40 | Unication extended warranty covering an additional 1 year | | | | $ 42.11 | $ 1,684.21 |
| 1 | Infrastructure Maintenance Agreement - Service Contract | | | | $ 9,000.00 | $ 9,000.00 |
| 1 | Console Maintenance Agreement - Service Contract | | | | $ 9,000.00 | $ 9,000.00 |
| 12 | Subscriber units - Maintenance Agreement - Service Contract | | | | $ 900.00 | $ 10,800.00 |
| | | | | | | |
| | | | | | Sub | $ 77,579.06 |
| | | | 0% | | Tax | $ - |
| | | | | | **Total Annually** | **$ 77,579.06** |

**Special Instructions, Terms and Conditions**

| | |
|---|---|
| 1 | When this agreement is executed the equipment listed will be serviced by Marcus Communications in accordance with the terms and conditions of this contract. This contract excludes the following: replacement of any antennas, service or repair of any transmission line, batteries, tower-supporting mast or tower lighting systems, microphones, backup UPS's, computer monitors, software, pc cables and connectors and replacements equipment, keyboards, mice, PC's. Also, not covered is abuse, physical damage, liquid damage, acts of nature, natural and manmade disasters. |
| 2 | When a service call arises and it is determined by Marcus Communications staff that the issue is caused by phone line issues the initial call out will be covered by this service contract and any subsequent call out for the same problem phone line issue will be billed above the service contract at the labor rates stated in the service contract. |
| 3 | When a service call arises and it is determined by Marcus Communications staff that the issue is caused by problems with equipment not covered in this service contract but interconnected to the equipment that is covered by this service contract the initial call out will be covered by this service contract and any subsequent call out for the same problem phone line issue will be billed above the service contract at the labor rates stated in the service contract. |
| 4 | Marcus Communications will make best efforts to repair all equipment listed based upon manufactures support and availability of parts. Marcus Communications reserves the right to discontinue service under this agreement at any time if parts and support are no longer available. Equipment not supported by the manufacture can be covered under a "best effort" time and material basis. |
| 5 | Marcus Communications will provide full 24x7x365 emergency coverage on all infrastructure equipment with 2 hour response on line items indicated with 24x7. All other equipment will be normal business hours Monday through Friday 8:30 AM – 5PM. |
| 6 | Unless otherwise stated, items not covered include batteries, UPS systems, antennas, antenna systems, combiner systems, interference resolution, FCC Licensing, re-programming services, consulting/engineering services, software enhancements/upgrades and replacement of un-repairable equipment. belt clips, speaker microphones, liquid damage, bent or missing knobs, misuse or neglect. also not covered is any custom built equipment unless specifically identified in the item list. |
| 7 | When available, Marcus can provide customer with an advanced replacement unit or subscriber radio in exchange for customer's malfunctioning subscriber radio. Non-standard configurations, customer-modified subscriber radio and third-party Infrastructure are excluded from advanced replacement service. Malfunctioning subscriber unit will be evaluated and repaired by Marcus and returned to Marcus inventory upon completion of repair. Availability of advanced exchange subscriber units are not guaranteed. |

| | |
|---|---|
| 8 | Infrastructure Preventative Maintenance will provide an operational test and alignment on the customer's infrastructure equipment every 12-18 months to ensure the infrastructure meets original manufacturer's specifications. Infrastructure Preventative Maintenance will be performed during normal business hours. If the system or customer requirements dictate this service must occur outside normal business hours Marcus will provide an additional quotation. Customer is responsible for any charges associated with unusual access requirements or expenses. Marcus will perform this maintenance one per calendar year. |
| 9 | System discount assumes all line items shown are purchased. N/A |
| 10 | Any items that cannot be repaired can be replaced by a new item at a discount from the State Contract Pricing |
| 11 | Infrastructure items **not covered**, telephone line problems, damage from power failures, lightning strike, or other acts of nature, rodent and insect infestations, console head sets, damage from UPS or Generator testing. |

***Marcus Communications, LLC***
***Authorized Signature***

Title:

Date

***Town of Granby***
***Authorized Customer Signature***

Title:

Date

*Vendor:*
Marcus Communications
33 Mitchell Drive
PO Box 1498
Manchester, CT 06045
Phone: 860 646-1839

*Customer:*
Town of Granby, CT
15 North Granby Rd
Granby, CT 06035

# Service Agreement

| Start Date | Expiration Date | Automatic Renewal | Payment Cycle | Customer Number |
|---|---|---|---|---|
| TBD | TBD | Yes | Annual | |

| QTY | Description - Year 5 | Service At: Customer | Service At: Svc Center | 24x7 or NBD | Annual Amount: Per Unit | Annual Amount: Extended |
|---|---|---|---|---|---|---|
| 8 | This Siae microwave warranty | | | | $ 0.00 | $ - |
| 8 | This Siae microwave warranty | | | | $ 0.00 | $ - |
| 7 | SNTC-8X5XNBD Catalyst 9300 24-port data only network, extended service agreement | | | | $ 375.00 | $ 2,625.00 |
| 1 | SNTC-8X5XNBD Cisco Firepower 1010E NGFW Non-POE Appli | | | | $ 113.00 | $ 113.00 |
| 2 | Scoutcare | | | | $ 2,947.37 | $ 5,894.74 |
| | **Repeater Equipment warranty details** | | | | | |
| 19 | Chassis, TB9400, Single, 100W | | | | $ 14.20 | $ 269.80 |
| 19 | Reciter, TB9400, 440-480MHz | | | | $ 28.68 | $ 544.88 |
| 19 | Linear Pwr Amp, TB9400, 440-480MHz, 100W | | | | $ 22.66 | $ 430.46 |
| 19 | PMU, TB9000, 48VACDC Aux12V | | | | $ 27.79 | $ 527.99 |
| 19 | SFE - Digital Fixed Station Interface | | | | $ 5.81 | $ 110.41 |
| 19 | SFE - P25 Common Air Interface (CAI) | | | | $ 79.63 | $ 1,513.03 |
| 19 | SFE - Central Voter (TBAS050 Prerequisite) | | | | $ 53.62 | $ 1,018.82 |
| 19 | SFE - Simulcast Enable (TBAS061 Prerequisite) | | | | $ 52.56 | $ 998.56 |
| 19 | SFE - P25 Linear Simulcast Modulation Phase 1 (TBAS062 Prerequisite) | | | | $ 15.17 | $ 288.17 |
| | | | | | | |
| 289 | 1-YR EXTENDED WARRANTY, VIKING | | | | $ 80.00 | $ 23,120.00 |
| 12 | 1-YR EXTENDED WARRANTY, VIKING | | | | $ 80.00 | $ 960.00 |
| 40 | Unication extended warranty covering an additional 3 years (Years 3, 4 and 5) - Paid in Year 3 | | | | $ - | $ - |
| 1 | Infrastructure Maintenance Agreement - Service Contract | | | | $ 9,000.00 | $ 9,000.00 |
| 1 | Console Maintenance Agreement - Service Contract | | | | $ 9,000.00 | $ 9,000.00 |
| 12 | Subscriber units - Maintenance Agreement - Service Contract | | | | $ 900.00 | $ 10,800.00 |
| | | | | | | |
| | | | | | Sub | $ 67,214.85 |
| | | | 0% | | Tax | $ - |
| | | | | | **Total Annually** | **$ 67,214.85** |

**Special Instructions, Terms and Conditions**

| | |
|---|---|
| 1 | When this agreement is executed the equipment listed will be serviced by Marcus Communications in accordance with the terms and conditions of this contract. This contract excludes the following: replacement of any antennas, service or repair of any transmission line, batteries, tower-supporting mast or tower lighting systems, microphones, backup UPS's, computer monitors, software, pc cables and connectors and replacements equipment, keyboards, mice, PC's. Also, not covered is abuse, physical damage, liquid damage, acts of nature, natural and manmade disasters. |
| 2 | When a service call arises and it is determined by Marcus Communications staff that the issue is caused by phone line issues the initial call out will be covered by this service contract and any subsequent call out for the same problem phone line issue will be billed above the service contract at the labor rates stated in the service contract. |
| 3 | When a service call arises and it is determined by Marcus Communications staff that the issue is caused by problems with equipment not covered in this service contract but interconnected to the equipment that is covered by this service contract the initial call out will be covered by this service contract and any subsequent call out for the same problem phone line issue will be billed above the service contract at the labor rates stated in the service contract. |
| 4 | Marcus Communications will make best efforts to repair all equipment listed based upon manufactures support and availability of parts. Marcus Communications reserves the right to discontinue service under this agreement at any time if parts and support are no longer available. Equipment not supported by the manufacture can be covered under a "best effort" time and material basis. |
| 5 | Marcus Communications will provide full 24x7x365 emergency coverage on all infrastructure equipment with 2 hour response on line items indicated with 24x7. All other equipment will be normal business hours Monday through Friday 8:30 AM – 5PM. |
| 6 | Unless otherwise stated, items not covered include batteries, UPS systems, antennas, antenna systems, combiner systems, interference resolution, FCC Licensing, re-programming services, consulting/engineering services, software enhancements/upgrades and replacement of un-repairable equipment. belt clips, speaker microphones, liquid damage, bent or missing knobs, misuse or neglect. also not covered is any custom built equipment unless specifically identified in the item list. |
| 7 | When available, Marcus can provide customer with an advanced replacement unit or subscriber radio in exchange for customer's malfunctioning subscriber radio. Non-standard configurations, customer-modified subscriber radio and third-party Infrastructure are excluded from advanced replacement service. Malfunctioning subscriber unit will be evaluated and repaired by Marcus and returned to Marcus inventory upon completion of repair. Availability of advanced exchange subscriber units are not guaranteed. |

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| 8 | Infrastructure Preventative Maintenance will provide an operational test and alignment on the customer's infrastructure equipment every 12-18 months to ensure the infrastructure meets original manufacturer's specifications. Infrastructure Preventative Maintenance will be performed during normal business hours. If the system or customer requirements dictate this service must occur outside normal business hours Marcus will provide an additional quotation. Customer is responsible for any charges associated with unusual access requirements or expenses. Marcus will perform this maintenance one per calendar year. |
| 9 | System discount assumes all line items shown are purchased. N/A |
| 10 | Any items that cannot be repaired can be replaced by a new item at a discount from the State Contract Pricing |
| 11 | Infrastructure items **not covered**, telephone line problems, damage from power failures, lightning strike, or other acts of nature, rodent and insect infestations, console head sets, damage from UPS or Generator testing. |

***Marcus Communications, LLC***
***Authorized Signature***

Title:

Date

***Town of Granby***
***Authorized Customer Signature***

Title:

Date

*Vendor:*
Marcus Communications
33 Mitchell Drive
PO Box 1498
Manchester, CT 06045
Phone: 860 646-1839

*Customer:*
Town of Granby, CT
15 North Granby Rd
Granby, CT 06035

# Service Agreement

| Start Date | Expiration Date | Automatic Renewal | Payment Cycle | Customer Number |
|---|---|---|---|---|
| TBD | TBD | Yes | | |

| QTY | Description - Year 4 | Service At: Customer | Service At: Svc Center | 24x7 or NBD | Annual Amount: Per Unit | Annual Amount: Extended |
|---|---|---|---|---|---|---|
| 8 | Siae microwave warranty | | | | $ 658.00 | $ 5,264.00 |
| 8 | Siae microwave warranty | | | | $ 427.00 | $ 3,416.00 |
| 7 | SNTC-8X5XNBD Catalyst 9300 24-port data only network, extended service agreement per switch | | | | $ 375.00 | $ 2,625.00 |
| 1 | SNTC-8X5XNBD Cisco Firepower 1010E NGFW Non-POE Appli | | | | $ 113.00 | $ 113.00 |
| 2 | Scoutcare | | | | $ 2,947.37 | $ 5,894.74 |
| | **Tait Repeater Equipment warranty details** | | | | | |
| 19 | Chassis, TB9400, Single, 100W | | | | $ 14.20 | $ 269.80 |
| 19 | Reciter, TB9400, 440-480MHz | | | | $ 28.68 | $ 544.88 |
| 19 | Linear Pwr Amp, TB9400, 440-480MHz, 100W | | | | $ 22.66 | $ 430.46 |
| 19 | PMU, TB9000, 48VACDC Aux12V | | | | $ 27.79 | $ 527.99 |
| 19 | SFE - Digital Fixed Station Interface | | | | $ 5.81 | $ 110.41 |
| 19 | SFE - P25 Common Air Interface (CAI) | | | | $ 79.63 | $ 1,513.03 |
| 19 | SFE - Central Voter (TBAS050 Prerequisite) | | | | $ 53.62 | $ 1,018.82 |
| 19 | SFE - Simulcast Enable (TBAS061 Prerequisite) | | | | $ 52.56 | $ 998.56 |
| 19 | SFE - P25 Linear Simulcast Modulation Phase 1 (TBAS062 Prerequisite) | | | | $ 15.17 | $ 288.17 |
| | | | | | | |
| 289 | 1-YR EXTENDED WARRANTY, VIKING | | | | $ 80.00 | $ 23,120.00 |
| 12 | 1-YR EXTENDED WARRANTY, VIKING - Control Stations | | | | $ 80.00 | $ 960.00 |
| 40 | Unication extended warranty covering an additional 3 years (Years 3, 4 and 5) - Paid in Year 3 | | | | $ - | $ - |
| 1 | Infrastructure Maintenance Agreement - Service Contract | | | | $ 9,000.00 | $ 9,000.00 |
| 1 | Console Maintenance Agreement - Service Contract | | | | $ 9,000.00 | $ 9,000.00 |
| 12 | Subscriber units - Maintenance Agreement - Service Contract | | | | $ 800.00 | $ 9,600.00 |
| | | | | | $ | $ 74,694.85 |
| | | | 0% | | Tax | $ - |
| | | | | | Total Annually | **$ 74,694.85** |

**Special Instructions, Terms and Conditions**

| | |
|---|---|
| 1 | When this agreement is executed the equipment listed will be serviced by Marcus Communications in accordance with the terms and conditions of this contract. This contract excludes the following: replacement of any antennas, service or repair of any transmission line, batteries, tower-supporting mast or tower lighting systems, microphones, backup UPS's, computer monitors, software, pc cables and connectors and replacements equipment, keyboards, mice, PC's. Also, not covered is abuse, physical damage, liquid damage, acts of nature, natural and manmade disasters. |
| 2 | When a service call arises and it is determined by Marcus Communications staff that the issue is caused by phone line issues the initial call out will be covered by this service contract and any subsequent call out for the same problem phone line issue will be billed above the service contract at the labor rates stated in the service contract. |
| 3 | When a service call arises and it is determined by Marcus Communications staff that the issue is caused by problems with equipment not covered in this service contract but interconnected to the equipment that is covered by this service contract the initial call out will be covered by this service contract and any subsequent call out for the same problem phone line issue will be billed above the service contract at the labor rates stated in the service contract. |
| 4 | Marcus Communications will make best efforts to repair all equipment listed based upon manufactures support and availability of parts. Marcus Communications reserves the right to discontinue service under this agreement at any time if parts and support are no longer available. Equipment not supported by the manufacture can be covered under a "best effort" time and material basis. |
| 5 | Marcus Communications will provide full 24x7x365 emergency coverage on all infrastructure equipment with 2 hour response on line items indicated with 24x7. All other equipment will be normal business hours Monday through Friday 8:30 AM – 5PM. |
| 6 | Unless otherwise stated, items not covered include batteries, UPS systems, antennas, antenna systems, combiner systems, interference resolution, FCC Licensing, re-programming services, consulting/engineering services, software enhancements/upgrades and replacement of un-repairable equipment. belt clips, speaker microphones, liquid damage, bent or missing knobs, misuse or neglect. also not covered is any custom built equipment unless specifically identified in the item list. |
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|---|---|
| 8 | Infrastructure Preventative Maintenance will provide an operational test and alignment on the customer's infrastructure equipment every 12-18 months to ensure the infrastructure meets original manufacturer's specifications. Infrastructure Preventative Maintenance will be performed during normal business hours. If the system or customer requirements dictate this service must occur outside normal business hours Marcus will provide an additional quotation. Customer is responsible for any charges associated with unusual access requirements or expenses. Marcus will perform this maintenance one per calendar year. |
| 9 | System discount assumes all line items shown are purchased. N/A |
| 10 | Any items that cannot be repaired can be replaced by a new item at a discount from the State Contract Pricing |
| 11 | Infrastructure items **not covered**, telephone line problems, damage from power failures, lightning strike, or other acts of nature, rodent and insect infestations, console head sets, damage from UPS or Generator testing. |

***Marcus Communications, LLC***
***Authorized Signature***

Title:

Date

***Town of Granby***
***Authorized Customer Signature***

Title:

Date