

CREST RECOMMENDATIONS & SOLUTIONS

OVERVIEW

By:



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RCC Consultants, Inc.

100 Woodbridge Center Drive

Suite 201

Woodbridge, NJ 07095

(732) 404-2400

CREST engaged RCC Consultants Inc. to assess the performance of its wide area network and mobile radio system. Emphasis was placed on the radio coverage provided by the system and the network's traffic load. As a result of this evaluation, RCC has provided a series of short, intermediate and long-term recommendations to improve the performance of the system.

The study found that the system has:

- Very good coverage in vehicles except in remote west areas,
- Poor coverage for handheld radios in parts of the Islands, the western area of the Region and other small pockets within the CREST service area,
- Inconsistent coverage in buildings in urban areas such as Victoria, Saanich and Esquimalt,
- Poor coverage for pagers in parts of the Islands and other small pockets, and
- High levels of noise interference at a couple of identified sites.



The Work Plan Tasks

RCC used the following Work Plan to achieve the requirements and objectives of the study:

- PHASE 1: Develop Test Plan and Establish System Performance Baseline
- PHASE 2: Assess and Document Actual System Performance
- PHASE 3: Develop Recommendations for Improvements

The technical work required to achieve the project objectives was divided into the following tasks:

Task 1 – Conduct Project Initiation

Task 2 – Review and Understand System Design Criteria and Prepare Test Plan

Task 3 – Coverage Modeling and Prediction

Task 4 – Outdoor Coverage Testing and Interference Testing

This task consisted of the following sub-tasks:

- Minimum Received Signal Strength
- Noise Floor Baseline
- Receiver Desensitization

Task 5 – In-Building Coverage Testing

Task 6 – System Loading Analysis

Task 7 – Prepare and Deliver Recommended Solutions Report

Performance Goals:

The design and development of any radio communication system requires the balancing of four factors:

- Required Radio Coverage
- System Loading
- System Redundancy
- System Cost

Each of these factors was carefully considered in designing a system that meets CREST user's needs. In addition, an improved interoperable system will also provide the following capabilities:

1. Allow wide-area radio communications interoperability among the CREST public safety radio units anywhere within the CREST area.
2. Interoperability at portable radio level among the public safety agencies
3. Support multiple incidents simultaneously.
4. Be simple to use by first responders and dispatchers with minimum required training.

The study divided the recommended solutions and options into short-term, intermediate and long-term solutions. Key recommendations from the study include:

Short-Term Recommendations:

- Addressing interference problems at specific tower sites,
- Increasing system capacity by adding channels at some of the sites,
- Making CREST part of the CRD public safety operational environment and decision-making process,
- Reaching out to stakeholders and providing proactive maintenance, training, problem solving and assessment and direction on future needs, and
- Increasing CREST staffing levels to support the above and provide proactive and effective involvement in the CRD public safety strategic environment.

Intermediate-Term Recommendations:

- Increasing the number of towers and/or augmenting the existing sites,
- Changing how the portable radios are worn by users and its location on the body,
- Purchasing in-vehicle repeaters to extend the coverage to hand-held radios,
- Adding satellite receiver sites, and
- Passing bylaws that require new and renovated buildings to meet public safety radio communications requirements, and prohibiting encroachments on microwave paths through permanent structures such as buildings and vegetation.

The CREST radio system needs an investment of \$6 - \$10 million to increase the area served by the system, its reliability and effectiveness in buildings.

Long-Term Recommendation:

- Looking at an open radio system standard for the future.

As part of this overall assessment effort, RCC validated findings through a series of stakeholder meetings. These stakeholder meetings were deliberately held back until we completed our independent assessment. RCC met with several municipalities, both law enforcement and fire and with BC Ambulance and the RCMP. As expected the operational deficiencies of the CREST Radio System, as identified by users, matched RCC's findings.

The study confirmed that CREST is the right solution for the CRD, however system improvements are needed to increase performance. Next steps include sharing the results of the assessment and recommendations with the systems' users in the region, prioritizing the recommended solutions, and establishing working committees as necessary to assist in the implementation of the recommendations.