

Command, Control and Communications: Assessing the New Technologies

Toronto Fire Services

Division Chief
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Session Topic

Designing and Implementing a Wireless Mobile Workstation System



Photo by S.J. Culos

- *The Toronto Fire Experience*



Session Objectives

- ***At the end of this session, each participant will:***
 - ***Be familiar with the broad concepts of wireless mobile workstation system***
 - ***Understand to four components of a mobile implementation***
 - ***Identify specific strategies used by TFS***
 - ***Recognize the common issues generally encountered in MWS projects***



Mobile Workstation Project - Introduction

- *Driven by amalgamation of 6 former Fire Departments*
- *Part of a major "overhaul" including Back-up Comm Ctre, shared Voice Radio, new building - Provincial transition funds made available*
- *Included in on-going Computer-Aided Dispatch (CAD) and Records Management System (RMS) project*



Mobile Workstation - Project Design

- ***Public vs Private***
 - ***Public network eliminated - CDPD not available, CDMA not ready***
- ***Private - "standalone" vs Shared w/vox***
 - ***Private selected, concerned about degradation to voice system***
 - ***two 800MHz channels licenced and available***



Mobile Workstation - Project Design

- ***System has 3 sites, 2 channels***
 - ***Yonge/Eglinton***
 - ***Widdicombe (west)***
 - ***Tuxedo (east)***
- ***DataRadio Parallel Decode Technology***
 - ***2 antennae, built-in GPS receiver***
- ***32.0 KBPS***



Mobile Workstation Project - Phases

- ***Phase 1 - Proof of Concept***
 - ***phase completed with one special unit - project Suburban***
- ***Phase 2 - Pilot Project***
 - ***19 units identified for which installation is currently on-going***
- ***Phase 3 - Roll-out***
 - ***beginning in summer of 2003***



Mobile Workstation - Proof of Concept

- *Lessons learned*
 - *Choice of ruggedized laptop suitable*
 - *coverage predictions exceeded*
 - *change in band from 800MHz to 400MHz to solve potential interference*
 - *GPS coverage incomplete downtown*
 - *power considerations critical*



Mobile Workstation - Pilot Project

- *Pilot Project includes 4 Pumpers, 2 Rescue Pumpers, 3 Aerials/Platforms, 1 Haz, 2 Squads, 1 Air/Light, 1 Cmd Post Vehicle, Fireboat and 4 D/C units: C11, C23, C31 and C42*
- *All 4 Commands represented*
- *Vehicles identified and installation issues - mounts, electrical, etc. completed*



Mobile Workstation - Roll-out

- *All 149 front-line response vehicles to be equipped*
- *IP-based middleware to support access to Internet, Intranet and legacy applications (restricted basis consistent with bandwidth limits)*
- *CAD system modified to support AVL-based unit recommendation*



Mobile Workstation - Crew Benefits

- *Four primary functions of device:*
- *Receipt of dispatch message and system information on location*
- *Status-keeping and messaging - At Scene, Clear, etc. and Unit-to-Unit, Unit-to-Dispatch*
- *On-board mapping with Automatic Vehicle Location (AVL)*
- *On-board information source - SOG's, etc.*



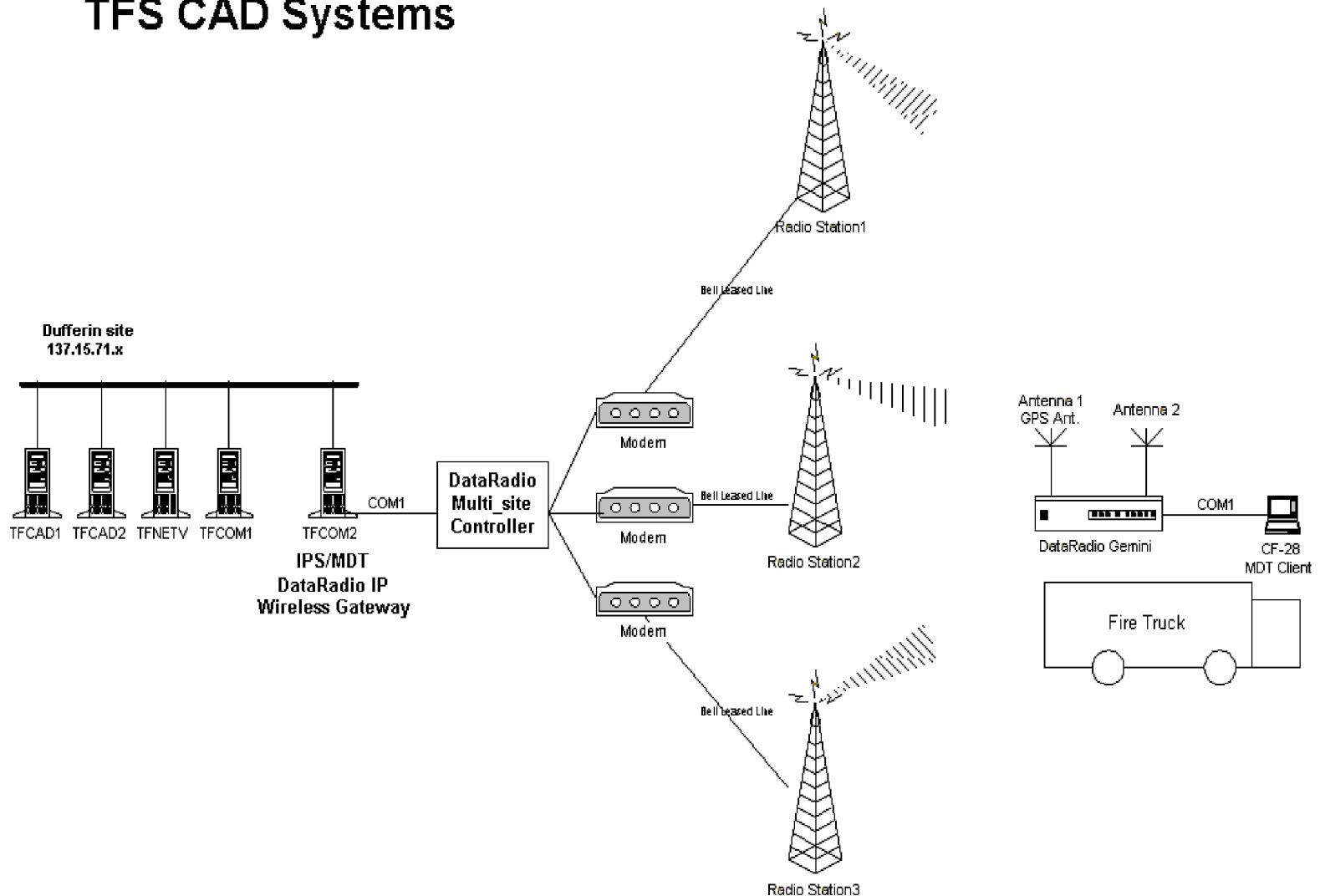
Mobile Workstation - Command and Control

- *What does this mean for IC's:*
 - *Easy monitoring of assigned and responding unit(s) status*
 - *Messaging with Comm Ctre or other unit(s)*
 - *Immediate access to current Event chronology*
 - *Ability to enter chronology remarks for benchmarks and other activity*



Data System Components

Mobile Data Terminal TFS CAD Systems



Questions ?

Thank you

