P-25 Migration

Business Drivers

Design Concepts

Implementation Strategy

P25 Migration

Business Drivers – why the need to migrate

- IPSC is approaching several system milestones; a "roadmap of system support" and "growth potential"
- Significant acceptance by and growth of user our community, reaching limit of 64,000 subscriber ID's
- System limitations – subscriber 64000 ID's, limited growth
- System life cycle
  - No additional sites
  - Last release of the operating system 4.1 (Z-release)
  - Approaching roadmap life cycle for Quantar IR channels
  - No longer purchase Gold Elite wireline dispatch consoles
- System support waning in the out years 2016-17

P25 Migration

- Staff to research and plan for migration to a next generation technology for public safety communications.
- investment remains viable and must be considered for possible reuse in any new design or migration strategy we develop
- Quantar base stations (radio channels) at each of the standalone radio sites; the antenna systems; combiners and other communications site related equipment
- The closer we come to the life cycle limits of the system, migration to a new technology will be essential

P25 Migration

Design Concepts for P25

- Options, technology today, future technology, future of land mobile radio (LMR)
- LTE – Long Term Evolution (new term) important to consider such technology advancements as we develop the migration strategy
- P25 Upgrade of sites using Motorola 7x.
- P25 Infrastructure IP Stack technology – potential of a 3rd party vendor
  - IPSC must consider its' mission of supporting public safety communications community
  - provide a stable, reliable, cost effective technology that considers many factors; next generation standards, open architecture, lower cost infrastructure, ability to purchase equipment more competitively...
  - potential for integrating voice and data within a single handheld or mobile device

P25 Migration

Project 25 – Open Systems Standards Based Architecture

- Most radio systems in place today **are** considered proprietary
  - Motorola 4.1 Smart Zone multi-zone system is one of those proprietary systems. Other manufacturers of large scale proprietary systems include Harris (MaComm), and to a lesser degree, the smaller scale systems such as Kenwood and EJ Johnson are considered proprietary.
  - As such, do not support the open architecture concepts of today's standards based hardware manufacture

P25 Migration

Project 25 -Developed in North America by state, local and federal representatives and Telecommunications Industry Association (TIA) governance, Project 25 architecture standard(s) has gained wide acceptance by public safety, security, public service, and commercial applications.

- the open architecture standard for design and manufacture of interoperable digital two-way wireless communications products that facilitate intra-agency and inter-agency communications, and seamless joint communication in both routine and emergency circumstances.
- standards detail design concepts upon which manufacturers build equipment.

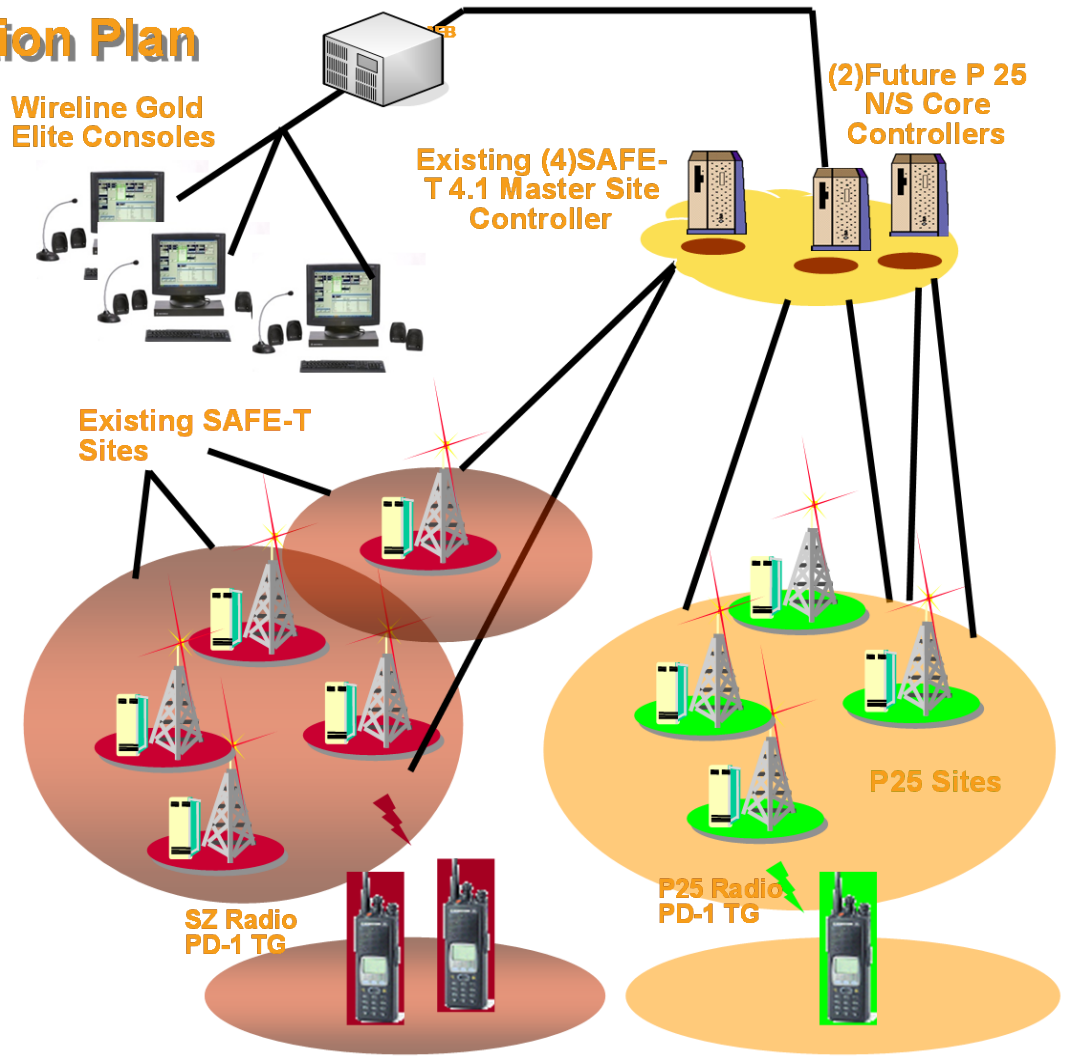
P25 Migration

Non vendor specific solution –

- Implementation of new core switches (replaces Zone controller technology)..
- Option to implement 2 or 3 core switches – each support approximately 100 IR sites...
  - Consideration for risk minimization by implementing 3 switches
  - Simulcast cells require replacement of Quantar stations with one solution, perhaps not with the alternative option...
- Certain equipment will be eliminated with either options, implementation of IP switching technologies

SAFE-T P25 Migration Plan

1. Replace 4.1 Controller with P25 core/controller
2. Device to interface Gold Elite console to P25 core/controller
3. Add P25 coverage (regional or overlay)
4. Interoperability by patching talkgroups between systems – during the migration
5. Migration of 4.1 sites to P25 through phase implementation
6. Core Controllers North Zone and South Zone



P25 Migration

Implementation Strategy

- Multi-Phase Implementation Approach
- A hybrid mix of technology
- reuse of existing SAFE-T equipment upgraded with P25 features
- P25 standards based core technology (Zone Controllers)
- Migration approach will require users to operate on two separate systems

P25 Migration

Phase 1 Migration assumptions

- Core controller locations
- 2 controllers, instead of the current 4 zone configuration
- Considerable network reconfigurations will be required for a 2 zone environment
- Expand microwave circuit north – eliminating terrestrial T1 circuits

- Maintain and support the 4.1 system in parallel with upgrade of zone sites to P25.
- Zone 1 and Zone 2 Configuration
  - Zone 1 Phase Migration of Sites to P25
  - 18 month timeline for each zone, IR site migration through phase approach schedule

P25 Migration

Project milestones for completion of Phase I North Zone.

• Notice to Proceed with RFP	Day One
• Write and publish RFP	Day 60-90
• RFP Evaluation and vendor selection	Day 90 -120
• Contract Negotiations	Day 120 - 170
• Detail Design Review	Day 170 - 220
• Equipment Order, staging and factory acceptance	Day 220 – 280
• Master site preparation – Core Controller delivery	Day 270 - 300
• Upgrade of selected radio sites to assure acceptance testing results	Day 270 - 300
• Installation of Core Controller- testing, evaluation	Day 300 - 330
• Phase 1A radio site installation of upgrades begins	Day 330 - 610

P25 Migration

Sample Phased Implementation Schedule

- By Zone
- Consideration of surrounding sites and affect upon users
- Coordination with P25 option upgrades and programming of subscribers
- Consideration for the impact of high population user areas when converting radio sites
- Review spreadsheet ...