Corporate Experience Summary

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1. Overview

Carolina Satellite Networks has earned extensive experience in the design, build, implementation and testing of mobile satellite systems in various situations and specialty vehicles. We have grown from solid roots providing satellite network support for WGCR Gospel Radio (our first customer) and numerous NASCAR racing teams to supporting multiple First Responder organizations, military exercises and operational requirements for NASA, DLA and other US government agencies.

Our customers represent long term relationships. We still serve most of our customers who have been with us since our early years between 2002 and 2005. This document provides examples of several types of mobile satellite systems that we have designed and implemented.

2. Mobile Satellite-based Interactive Services

NASA Mobile Tele-science and Internet Services Lab: Carolina Satellite Networks ("CSAT") provided the vehicle, information technology equipment and communications network for a Mobile Tele-science and Internet Systems Lab for NASA's Kennedy Space Center. CSAT continues to support NASA's Mobile Tele-science Lab today.

Figure 1 NASA Mobile Tele-Science and Internet Services Lab

CSAT worked closely with NASA personnel to jointly develop requirements and design an end-to-end network that is capable of supporting the remote operation of live cameras, live video streaming and delivery of the video to multiple scientific locations – all via satellite. The system also delivers voice, data and telemetry information via satellite.

In a press release announcing NASA's acceptance of the system, Jim Dumoulin, Lead Engineer, NASA / KSC/ IT-C1 Tele-science & Internet Systems Lab comments, "KSC is 34 miles long, 10 miles wide and covers 140,000 acres of land and water. Only a small portion is used for space operations. The majority of land serves as a buffer zone for launches, a wildlife refuge, a national seashore and home for many endangered plants and animals. Although KSC contains thousands of miles of buried fiber optic cable, it can't possibly provide network connectivity to every location.

The 1.2M iNetVu Mobile, which was installed and configured by Carolina Satellite Networks provides NASA with a mobile scientific laboratory capable of delivering 2 way

satellite based high speed internet connectivity inside the vehicle including the capability to transmit video, voice, and telemetry data from anywhere around KSC. It has been used to support a number of remote scientific operations in all kinds of remote locations, as well as a backup data link for contingency operations."

In designing the network for the TeleScience Lab, our main objective was to overcome any jitter or video/instrument stream interruptions that might be caused by a satellite circuit delay or errors – while making wise cost/benefit tradeoffs.

Figure 2 NASA Mobile TeleScience Lab in Operation During Shuttle Launch

The Mobile Telescience and Internet Systems Lab is designed with a C-Com 1.2 Meter Antenna system with a 8 watt BUC and 48 VDC power controller and auto-pointing satellite controller and software equipment to support NASA tele-science lab CONUS operational contingencies, and mission support, such as the Global Flyer and numerous other projects. The 2Mbps x 512 Kbps satellite link has been tuned to minimize jitter, provide smoothly running live streaming video and enable real-time, remote operation of cameras and other equipment.

3. Vehicle Integrated Solutions

Carolina Satellite Networks designed and built this customized Hummer H1 with special communications capabilities for Micro Target Media, a company that provides technology-enabled audience measure and electronic data capture solutions for customers that provide consumer products.

Figure 3 Micro Target Media Mobile Communications Vehicle

Focused on the rapidly expanding alternative media market, the MTM Advertising Group brings advertisers and audiences together in unique marketing settings to deliver messages to target audience groups using our proprietary Out-of-Home advertising structures.

This vehicle was used for remote site communications and includes:

- Under the hood mobile 5KW power generator. Runs off vehicle engine.
- 2800 watt inverter system with auto transfer switch, and charger system. Shore power Hook up.
- Auto Electronic throttle control
- Dual 150 amp hour batteries
- 1.2 meter 400 degree rotation auto acquire satellite system
- In-motion DTV satellite system.
- Rear Awning
- 40 foot air pneumatic mast system with compressor
- Rear automatic awning
- Automatic fold down rear 32 inch LCD monitor
- Dual PC dual core processor servers Rack mounted with Satellite Electronics.
- Bose Stereo System
- Central Tire Inflator, and run flat tire system.
- Less than 25,500 miles Perfect condition vehicle
- 2 Drawer storage system and remote controls
- Front Bruch Guard and Electric Winch systems

Figure 4 Micro Target Media Mobile Communications Vehicle Rear Interior

4. Emergency Responder Operations

Prince George's County Mobile E911 Public Safety Communications Command Center

Prince George's County Mobile E911 Public Safety Communications Command Center: Carolina Satellite Networks ("CSAT") earned a contract to design, build, implement, integrate, test and provide ongoing support for the communications network for a Mobile E911 Public Safety Communications Command Center (PSC) for Prince George's County Maryland. The unit was so successful that a second unit was ordered shortly after the first one was delivered.

Figure 5 Prince George's County Mobile Public Safety Communications Command Center (Mobile E911)

The purpose of the Mobile E911 Public Safety Communications is to extend the reach of Prince George's County E911 Center beyond the walls of the brick-and-mortar centers to be deployed to special events and disaster sites. The Mobile PSC also serves as a backup facility in the event that the communications capability in the primary E911 centers are disrupted so that the county's E911 center can continue to serve citizens from outside of the affected area - despite a disaster.

CSAT designed and installed a Ku-band TDMA 2Mbps x 512Kbps satellite link on a commercial shared network leveraging the strong North American footprint of the AMC6 satellite spacecraft at 72W longitude. We implemented with 248Kbps CIR and QoS parameters to support E911 calls, location information, map images, data and administrative calls. The auto-pointing antenna deploys with a push of a button once the system is ready to deploy it. The ITNS controller automates the steps required prior to antenna deployment including calculating the units GPS location, direction to position and tune the service to the satellite within 8 to 10 minutes.

In developing the Mobile E911 PSC, CSAT worked closely with the customer's Emergency Management Manager, IT support team and communications support team to define the user's requirements and design an end-to-end satellite-based network service that meets those requirements. These requirements include integration with and support for the following:

- E911 voice calls
  - E911 voice calls are the highest priority item for this customer and we use QoS parameters to prioritize these calls above all else in the shared, TDMA 2Mbps x 512Kbps Ku-band satellite circuit.
  - Additionally we considered the situation in which the local telco service to the E911 centers is interrupted. The ideal backup for local interruptions would be a phone number from another area, but that number would be a long distance number to local citizens. Some citizens do not have long distance capability so we worked with the local telco to implement a implemented a 24 digit PRI circuit in place for these two E911 units to share as a last resort voice access in the event the main 911 center network is completely down. The 911 center's telco provider worked with the CSAT team to install a 1-800 roll over circuit in case the 911 center network went down to re-route 911 callers through our PRI circuit to both E911 Mobile units.

Figure 6 Prince George's County Mobile E911 Centers

- PSAP (Public Safety Access Point) applications including:
  - Automatic Number Identification (ANI)
    - Support was configured to include the ANI information as the call is transferred to the Mobile PSC
  - Automatic Location Identification (ALI)
    - When the PSAP system receives an E911 call, it immediately sends the Automatic Number Identification to an Automatic Location Information provider that looks up the phone number (in the case of a land line) and/or uses GPS information (in the case of a mobile phone) to identify the location of the caller
    - CSAT created a high speed Internet connection within the 2Mbps x 512Kbps satellite circuit to support the immediate retrieval of the ALI information
  - Caller Location Information (CLI) / CAD / GIS Integration
    - When the ALI location information is returned to the PSAP, the system must interface with its own CAD dispatching system and, often, with a GIS system that is accessible over the Internet in order to provide a map to locate the caller

        - CSAT worked with the customer to set up access to the county's CAD dispatching system and the county's GIS system that are both available on the county's internal network
        - CSAT used QoS parameters to ensure that the GIS information (that can be much larger than the other data on this network) is delivered in time to support the call without negatively affecting the other voice and data on the network.
    - Systems integration of ANI, ALI, CLI and GIS information with the appropriate call
        - CSAT worked closely with the customer's user and technical teams to build a network and leverage QoS definitions to integrate the communications portions of all of these components with the appropriate priorities to maximize E911 throughput and operator efficiency.
- Administrative calls
    - The system also had to support 10 administrative phones per unit
- Internet and e-mail access
    - The system supports 10 PC's users per unit that have access to the Internet and e-mail systems, and CAD dispatch services at the E911 center.
- Easy to use
    - CSAT recommended a mobile self-pointing satellite antenna as well as CSAT's Integrated Tactical Network System (ITNS) controller that automates the startup and problem determination functions of a mobile satellite network

The Prince George's County Mobile Public Safety Communications Command Centers were designed to support specific and stringent requirements of an E911 center described above AND to be easy to use.

SVI Trucks

SVI Trucks www.svitrucks.com , founded in 1971 as a division of SuperVac, is a leading manufacturer of mobile command trucks and fire and police departments. The SVI division specializes in the manufacture of the following truck types built to the customer's specifications:

Figure 7 SVI Customer Plano Texas Fire Department

- Emergency Rescue - Carries tools and equipment for rescue operations
- Haz-Mat - Carries specialized equipment to battle hazardous-material incidents
- Mobile Air - Provides air-compressing equipment to refill breathing-air bottles on site
- Command Post - Provides command-support facilities for larger emergency situations

Figure 8 Typical SVI Truck Equipment Rack Including Support for Voice, Data, Video and Radio Interoperability via a ACU-1000 Gateway

Their need was to find and company that understood mobile communications systems integration and could provide a solution for First Responder voice, video, data and radio interoperability support. They contacted us in 2005 through referrals from our VSAT antenna systems manufacturer.

We worked closely with SuperVac Engineering Manager, Dave Sergeant, to create a standardized solution offering and a process to provide systems design, systems installation, equipment and systems training (for SVI and their customers), end-to-end satellite services, a formal inspection and acceptance process and a procedure for 24x7x365 support that fit easily into SVI's and its customers' operations.

Our first project was a small system and basic design for data and VoIP using a mobile auto-acquire VSAT system and

services. With the knowledge that SVI would be building many Command and Control vehicles, we developed a standardized process to define specific requirements, design the system, build/test/implement the system and provide training to SVI's customers.

We have been developing their solutions ever since and maintain a strong relationship today. SVI Trucks and Carolina Satellite Networks have built Numerous Fire Command trucks and their end-user or all still with us today. Some of those clients include:

- Clark County Fire Department
- Plano Texas Fire Department
- Carroll County Fire Department
- Denver Police Department

Figure 9 Clark County Fire Department Command and Control Vehicle

5. Mobile Logistics Operations

Defense Logistics Agency: Carolina Satellite Networks ("CSAT") was sub-contracted to develop an end-to-end satellite network for the Defense Logistics Agency, Defense Distribution Expeditionary Depot ("DDED" formerly DDXX), Mobile Logistics Depot.

The CSAT solution provided DDED with a secure, end-to end, optimized VPN solution for data, voice, and radio interoperability, in support of their logistic operational needs anywhere in the world for both CONUS and OCONUS mission requirements.

Figure 10 DLA DDED Mobile Logistics Depot

The purpose of the network was twofold:

a) Provide secure communications within the mobile depot, including voice, data and radio interoperability
b) Connect the mobile depot securely into the DLA operational network

CSAT worked closely with the customer to define requirements, design and engineer the network, implement the network, provide CONUS pre-deployment testing and certification training and provide OCONUS post-deployment training during TS09 exercise in Australia.

The initial customer requirement included support for a single mobile remote unit connected to the DLA network via a single VPN. Once we achieved success with the single unit, we evolved to a more sophisticated network design. CSAT engineered a multi-tier design to support multiple mobile remote units in a secure DMVPN network topology. The system currently supports four remote units and is designed to support many additional units as DLA's requirements continue to evolve.

The satellite circuit was engineered to support:

- Ten to fifteen data users
- Four concurrent phone calls
- The first system was designed for CONUS coverage, with possibility to support OCONUS operations if required

CSAT recommended a 1.2 meter Auto-Acquire C-Com platform and ITNS 7000 controller with a minimum of a 4 watt BUC equipment set because of their CONUS requirement. We discussed OCONUS possibilities and advised that if they arranged KU services they need to make sure that the satellite footprint and link budget would support this 2mbps x 512kbps service with 128kbps CIR for voice using this equipment specification and antenna gain characteristics.

Spacecraft Portability: In order to support spacecraft portability requirements, we developed proprietary CSAT KU Quick Change Kits that enable DLA users to easily change between spacecraft that require linear cross polls and circular co polls. Most spacecraft require a "cross polarization" antenna feed that transmits on either a vertical axis and receives on the horizontal axis (or occasionally vice versa). Other spacecraft require a "linear polarization" antenna feed that transmits and receives on the horizontal axis. The unique CSAT KU Quick Change Kits provide easy-to-use / easy-to-install fittings and assembly feeds for either type of spacecraft.

Teleport Portability and Redundancy: The DLA Mobile Logistics Depot would be tested and support training in the United States and, then, be shipped OCONUS for deployment. The Mobile Logistics Depot is expected to be shipped between CONUS and OCONUS territory throughout its life to meet the requirements of the user. Each time the Depot was shipped between CONUS and OCONUS locations, the system would connect to a different satellite spacecraft (CONUS footprint or OCONUS footprint). This typically requires the loading and testing of a new option file into the iDirect satellite router. This procedure introduces change in the field and is often difficult for a user (even a trained user) to accomplish quickly and easily.

In support of this requirement, CSAT developed a customized CSAT RF Quick Switch Plate that was engineered and built between the iDirect satellite routers and the antenna. The configuration includes two iDirect satellite routers: one is preloaded with an option file for the CONUS spacecraft and the second is preloaded with an option file for the OCONUS spacecraft. The CSAT RF Quick Switch Plate enables the user to

easily switch between CONUS and OCONUS spacecraft configurations. The dual iDirect satellite routers also provide redundancy in the event of a failure of either one.

This was an outstanding package to meet DLA's operational needs -- a flexible, economical platform that expands as necessary. The illustration below depicts the network topology:

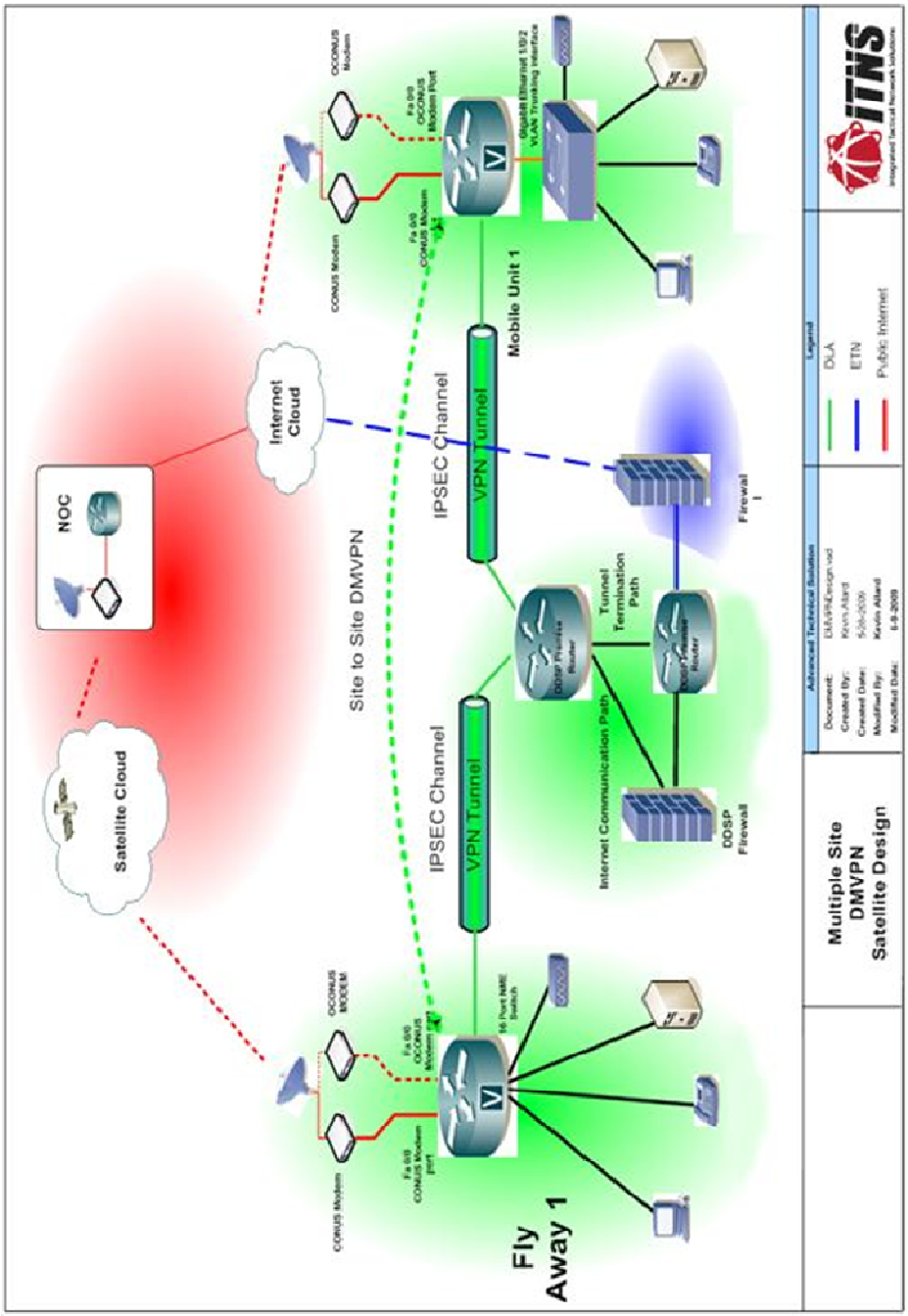

Figure 11 DLA Network Topology – This is intended to be an illustration only. Type is not meant to be read.

6. Mobile Auction Vehicle

Housby VOCON is a division of Housby Mack Inc. (www.housby.com) that, since 1969, has provided new and used trucks and a variety of services around the truck and heavy equipment industry. Housby VOCON (www.vocon.com) is a global online auction company auctioning equipment in both live and virtual online auction formats. VOCON sells all types of light and heavy equipment for the construction and transportation industries. Housby is also a NASCAR sponsor.

When VOCON contacted Carolina Satellite Networks ("CSAT"), the world-renowned auction firm had purchased a 53 foot expandable, slide out mobile office solution from an OEM manufacturer. They had been working with the OEM manufacturer's team for a year without success to implement a fully operational satellite network as designed and they were extremely frustrated. Their vision was to have a secure extension of their cooperate office and provide voice and data services across the space segment to their Mobile Auction Office anywhere in the US to support on-site auctions and to provide a backup facility in the event that their terrestrial auction network failed.

Figure 12 Coors Airstream SkyDeck at NASCAR Race - one of the CSAT projects that caught VOCON's attention

The Housby VOCON IT manager at the time, Brian Stockton, and their current operations manager, Sid Woody, learned about Carolina Satellite Networks from the mobile units that we had built for several NASCAR teams including Penske, and the Coors Airstream SkyDeck. VOCON reached out to us for a solution for their Mobile Auction Office.

The initial customer requirement was that the Mobile Auction Office needs to support live video streaming of the auction and fourteen concurrent phone lines to enable remote phone and online bidding. In working with the auction managers, we were able to design an enhancement that provided a wireless network from their Mobile Auction Office to a golf cart that we modified into a mobile auction stand.

Figure 13 Housby VOCON Ready to Roll

The system on the auction stand provides live, streaming video of the auction and interfaces with a large screen on the golf cart that displays the results of online bidders. With this new system, the on-site bidders can watch the on-line bidding and vice versa.

VOCON was concerned about the timeline to implement the system since they had a major auction scheduled in Lakeland, FL in less than two weeks. We delivered the working system within a week, allowing for a week to drive the system to the auction site in Florida. The communications network worked flawlessly for the Lakeland auction.

Figure 14 Housby VOCON Equipment Rack (after CSAT install)

Circuit Design and Regrooming: In order to support live, streaming video without jitter or interruptions as well as fourteen (14) concurrent voice calls, we had to re-evaluate and re-work the ineffective satellite circuit that VOCON had at the time. We replaced the existing, highly shared circuit with a Ku-band TDMA circuit on a commercial shared network with a strong North American footprint as 2 Mbps x 512 Kbps (2 Mbps up from the Mobile Auction Office and 512 Kbps down to the Mobile Auction Office). We used 256K CIR and QoS parameters to prioritize the voice and video so that the video streams smoothly without overrunning the voice calls.

Figure 15 Housby VOCON Mobile Auction Office

We also implemented a new terrestrial backhaul circuit between their Des Moines, Iowa headquarters office and our Atlanta teleport, providing VOCON with increased security and lower cost as they would run on our private, secure MPLS terrestrial network without ever touching the Internet cloud.

Follow Up: When VOCON's equipment returned from the manufacturer, we installed it and implemented the network that the customer is still using today. The Mobile Auction Office and its associated Mobile Auctioneering Platform that streams video is a state-of-the-art system. While, fortunately, VOCON has not had a disaster that forced the

deployment of this system as a COOP platform, the Mobile Auction Office has been deployed and effectively used at numerous auctions throughout the US.

Figure 16 Housby VOCON Mobile Auction Office and Golf Cart Auctioneering Platform

7. Mobile Satellite Solutions for Field Operations

Carolina Satellite Networks ("CSAT") is honored to have participated successfully in several US government sponsored interoperability exercises. We have included several examples in this section.

CSAT was honored to be an active participant in the Department of Defense Integrated Communications Exercise (DICE) at Fort Sam Houston. The CSAT mobile communications system provided proven communications integration, VoIP and Internet connectivity among US Northern Command, Texas Military Forces (Texas National Guard), Texas Base Emergency Responders and US Army North. The exercise lasted for one week in March 2008.

Figure 17 CSAT Support for DICE 08 at Fort Sam Houston

In support of the South Carolina Army National Guard, CSAT provided satellite services for Operation Vigilant Guard in April 2008 in Beaufort,

South Carolina. The CSAT system provided satellite communications services to support VoIP Telephony, Internet for accessing WebEOC Common Operation Picture and Geo-Spatial Imagery for mapping purposes.

Figure 18 CSAT System During Exercise at Yuma Proving Grounds, Range Site 51

In November 2008, Carolina Satellite Networks ("CSAT") supported the US Marine Corps, 3rd Marine Air Wing during an Exercise in Yuma Arizona. This service provided VoIP telephony and access to NIPR email service for the units Air Operations Center with 60 personnel. Other services included Internet, and passing of video for Unmanned Aerial Aircraft.

8. APPENDIX - Corporate Experience References

Presented in alphabetical order.

1. Defense Logistics Agency
2. Department of Defense Integrated Communications Exercise (DICE) '08
3. Housby VOCON
4. NASA Kennedy Space Center
5. Operation Vigilant Guard
6. Prince George's County
7. SVI Trucks
8. USMC 3rd Marine Air Wing

8.1 Defense Logistics Agency

Defense Logistics Agency, Defense Distribution Expeditionary Depot – Mobile Logistics Depot	
Contract Title	DEDD Mobile Logistics Depot
Contract Number	MPP178-04-D-4119
Period of Performance	2007 with 17 additional PO's ending in April 2010
Point of Contact	Dan Hudson Network Services Daniel.hudson@dla.mil (717) 525-3085 DLA Information Operations PA Bldg 54-2, M Ave, Door 8 New Cumberland, PA 17070

8.2 DICE ‘08

Department of Defense Integrated Communications Exercise (DICE) ‘08	
Contract Title	DICE ‘08
Contract Number	N/A – This was a voluntary exercise
Period of Performance	March 24, 2008 to March 28, 2008
Point of Contact	Brian Attaway, COL US Army (Retired) Deputy J6 JFHQ-Texas Texas National Guard Austin, TX brian.attaway@us.army.mil Office: 512-782-6946 Cell: 512-934-7339

8.3 Housby VOCON

Housby VOCON Mobile Auction Office	
Contract Title	Mobile Auction Office
Contract Number	PO 25480 (3 PO’s total)
Period of Performance	June 6, 2008 and ongoing
Point of Contact	Sid Woody Vice President Operations SWoody@housby.com (515) 299-6243 4747 NE 14th Street Des Moines, IA 50313

8.4 NASA Kennedy Space Center

NASA Kennedy Space Center	
Contract Title	Mobile TeleScience and Internet Services Lab
Contract Number	NNK05MA
Period of Performance	1/17/05 to 12/31/05 and options exercised. Ongoing
Point of Contact	Michael Downs IT Director, TeleScience Lab Michael.downs@nasa.gov (321) 867-3665 John F. Kennedy Space Center Kennedy Space Center, FL 32899

8.5 Operation Vigilant Guard ‘08

Operation Vigilant Guard ‘08	
Contract Title	Operation Vigilant Guard ’08 – South Carolina National Guard
Contract Number	N/A – This was a voluntary exercise
Period of Performance	April 22, 2008
Point of Contact	CW5 Poyas Haynes Poyas.haynes2@us.army.mil (703) 300-1700 Columbia, South Carolina

8.6 Prince George’s County

Prince George’s County Mobile E911 Center	
Contract Title	Mobile Public Safety Communications Command Center
Contract Number	PO NP3115249
Contract Start Date, End Date and Options	2/1/2007 and service is ongoing
Point of Contact	Jim White Technical Communications Manager JMWhite@co.pg.md.us (240) 304-6893 4621 Boston Way, Suite A Lanham, MD 20706

8.7 SVI Trucks

SVI Trucks	
Contract Title	Multiple PO's for Satellite Services
Contract Number	Multiple PO's starting with PO 44378
Contract Start Date, End Date and Options	7/26/2005 with multiple additional PO's Service is ongoing
SVI Trucks Point of Contact	Chad Chandler Technology Resource Development 970-667-5146 Office / 970-545-1404 Mobile chadc@svitrucks.com 1511 E. 11th Street Loveland, CO 80537
Contact Information for SVI Truck Customers	
Clark County	Richard Brenner HAZMAT Coordinator 702-455-7316 Office / 702-379-8623 Mobile rik@co.clark.nv.us 575 E. Flamingo Road Las Vegas, NV 89119
Plano Fire Department	Brian Buchanan IT Manager, Mobile Command CP12 972-941-7539 Office / 940-727-8483 Mobile brianb@plano.gov 1701 Avenue K Plano, TX 75086
Carroll County Fire Department	Gary Thomas Fire Chief 770-830-5880 Office gthomas@carrollcountyga.com 501 Old Newman Road Carrollton, GA 30117-8049
Denver Police Department	Steven Carter Operations Planning 720-913-6979 Steven.Carter@ci.denver.co.us 1331 Cherokee Street Denver, CO 80204

8.8 USMC 3rd Marine Air Wing

USMC 3rd Marine Air Wing – Yuma Proving Grounds Exercise	
Contract Title	November 2008 Yuma Proving Grounds Exercise
Contract Number	N/A – This was a voluntary exercise
Total Contract Value	N/A – This was a voluntary exercise
Contract Start Date, End Date and Options	November 8, 2008
Point of Contact	MSGT Michael J. Reidy, USMC MACS-2 ATC Detachment Alpha (EWIC) MCAS, Cherry Point, South Carolina email- michael.reidy@usmc.mil work..1-843-228-6558 cell...1-229-869-0799

List of Figures