
Cupertino Amateur Radio Emergency Service

Topic: What's new since June?

Speaker: Jim Oberhofer KN6PE, EC Cupertino ARES

Date: Thursday, 1 September 2011, 19:30

Event: Cupertino ARES meeting, Orientation Training

What's new since June?



But first, a message from our sponsor

- FEMA Director Craig Fugate, May 3
- At an FCC forum on earthquake communications preparedness, he urged his audience to recognize that their communications systems will fail and to include amateur radio in their plans, because...

“... when you need amateur radio, you really need them.”

Topics

1. Fall Events
2. 09.2011 Field Communications Operations Handbook
3. ARC Packet Kits
4. Comm Van

Fall Events

- 10-Sep, Fall Festival, Memorial Park; CARES information booth
- 24-Sep, County Drill
- 8-Oct, Tournament of the Bands
- 16-Oct, Habitat for Humanity fund-raiser walk
- 21-Oct, City Drill, Day 1
- 22-Oct, City Drill, Day 2

Fall Events

Cupertino Fall Festival

Information

- September 10, 2011 from 10:00am-6:00pm.
- Memorial Park
- sponsored by the Cupertino Rotary Club. Admission is free. Please make every effort to carpool.
- CARES, CERT, MRC? Will have individual booths
- Our purpose is to provide visibility to Cupertino Citizen Corp teams, what we do, and answer questions
- We need volunteers to take a shift at the booth for as little or as long as you want.
- CCC Event Coordinator: Fari KF6UVS
- CARES Contact: TBD



Fall Events

County Communications Drill

Information

- September 24, 2011 from 8:00am-4:00pm.
- Location: TBD
- This is a day-long exercise focused on emergency communications. It is designed to provide participants with valuable in-field operating experience. It will include several fun and challenging assignments and probably even some competition (if we get sufficient staffing levels).
- Registration: <https://www.scc-ares-races.org/activities>

Click on each position name to read the requirements for each position, then pick the position you prefer.

- Event Coordinator: County RACES

Fall Events

Tournament of the Bands

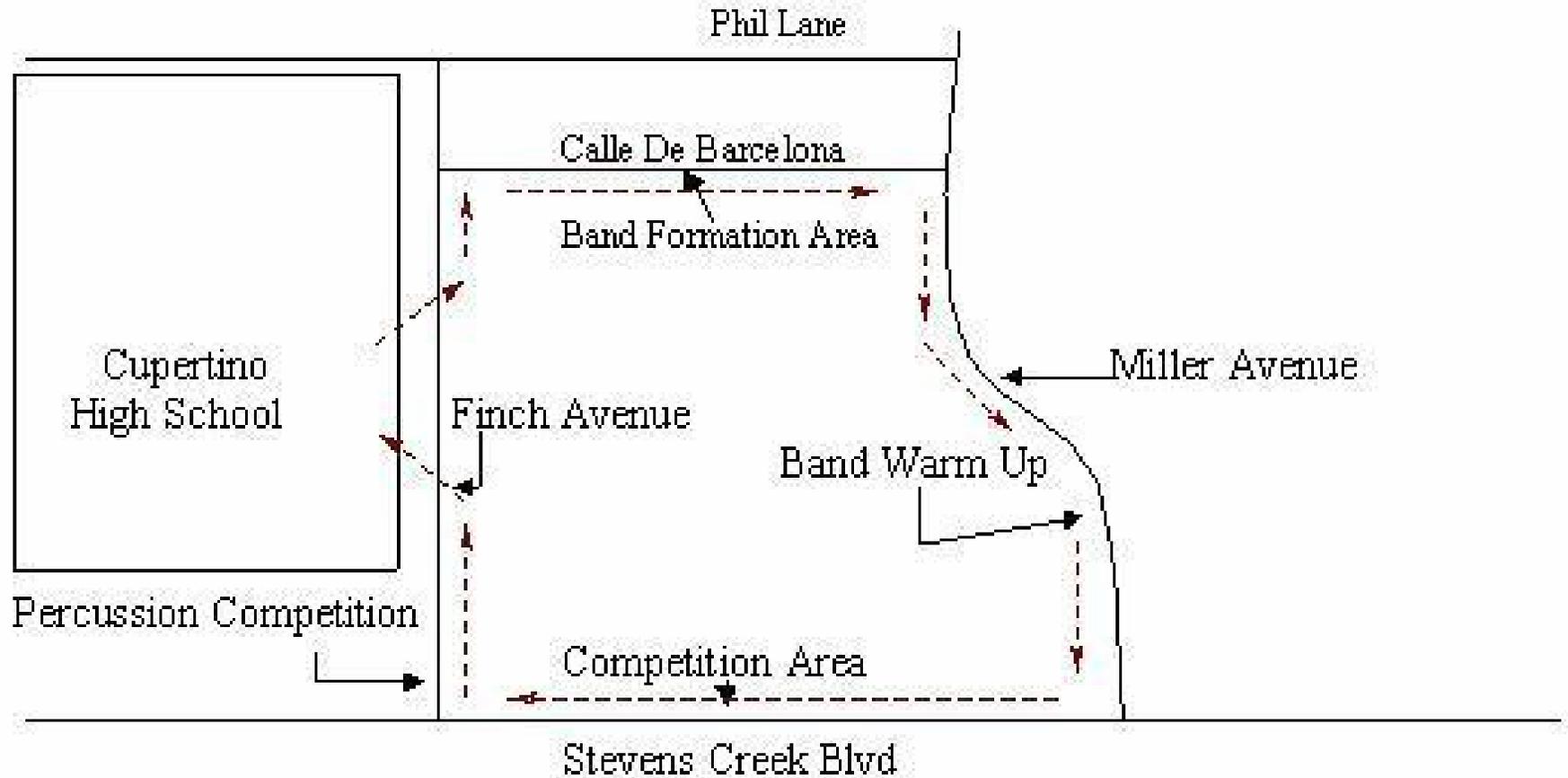
Information

- October 8, 2011, 8:30am – 12:00am
- Start & End: Cupertino High School
- Ken is setting up a eventbrite for sign ups
- <http://www.chs.fuhds.org/TOB>
- CARES Event Coordinator: Stuart KF6RZR



Fall Events

Tournament of the Bands



Fall Events

Tournament of the Bands

- 8:30 – Meeting at Sear’s Parking Lot for info and assignments.
- 8:40 – Go to post assignments.
- 8:50 – Call-in from post assignments.
- 9:00 – First Band will start to warm up
- 10:00 – First Band pass the Judges stand
- Noon – Event complete return all documentation and equipment to net control at Bank of America Parking lot

Fall Events

Habitat Walk

Information

- October 16, 2011, 1:30PM
- Start & End: St. Joseph's of Cupertino
10110 North De Anza Boulevard,
Cupertino, CA
- 4.2 mile walk (approx. 1 hour 30
minutes)
- Starting at St. Joseph's in Cupertino,
passing the Habitat Cupertino build site,
ending at St. Joseph's for closing
festival with food & music.
- CARES to staff the Command Post and
provide eyes and ears communications
along the route
- MRC to provide First aid
- CARES Event Coordinator: Stuart
KF6RZR



09.2011 Field Comm Handbook

09.2011 Field Comm Handbook (3rd edition)

Purpose

- Condenses the CARES SOP into a pocket-size manual
- Provide CARES members with a field guide and set of real-time refreshers of our operations
- Document to deliver *jump-start training* to SUVs (or long lost CARES members)
- Hand-out to MACs who respond to Cupertino

Thanks to all who sent emails with ideas for improving the handbook!

09.2011 Field Comm Handbook

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ARC Packet Update

CARES Packet Update

Some history

- 2009 City-wide drill
- 2010 City-wide drill
- The plan
- Open questions
- Next steps

Excerpts -- Nov-2009 Drill CARES Debrief

8. Constraints at the Ark -- Staffing

| | |
|------------------------|---|
| | |
| Issue: | Ark Communications Staffing constraints |
| Description: | <ul style="list-style-type: none">• Missing the IC, no Ops or Logistic volunteers• Ark Comm Team was asked to perform a Logistics task due to limited Ark staff (This is probably realistic)• <u>CARES members responding to fill Ark ICS positions</u> |
| Discussion: | <ul style="list-style-type: none">• Do we have sufficient coverage to sustain our required staffing level? (1-SS, 1-NCO, 1-RRO, 6-Ark responders, plus any ISA coverage we may be asked to do?)• <u>Look at other communications options – packet?</u> |
| Recommendation: | |

Excerpts -- Nov-2010 Drill CARES Debrief

3. Information Management -- ARK Operations

| | |
|------------------------|--|
| Issue: | Local HLA information management and efficiencies |
| Description: | <ul style="list-style-type: none">• CARES members sensed or saw forms confusion – individual data collection, Ark data roll-up, EOC expectations• Unclear what forms to fill in and what information to pass• Data passing process was not previously tested and confirmed |
| Discussion: | <ul style="list-style-type: none">• EOC did not know what to do with some incoming information – color code was apparently unexpected (?)• <u>The general type of information needed to pass is best to go by Packet, not voice.</u> |
| Recommendation: | |

Excerpts -- Nov-2010 Drill CARES Debrief

4. Radio Operations – Packet -- ARK Operations

| | |
|------------------------|--|
| Issue: | Voice, Packet |
| Description: | <ul style="list-style-type: none">• <u>No operational Packet procedures in place – what to send, what format, how often to check for messages, etc</u>• Not all Arks has packet available during the drill• Overall CARES capability and familiarity with Packet• No antenna at the Larson Ark site• Antenna instructions did not include put-away decisions |
| Discussion: | • <u>Working with the City for packet kit funding</u> |
| Recommendation: | |

CARES Packet Kits

Plan

- First round of equipment funding is approved, purchases in progress by the City
- Intent is to build up 6 identical packet kits for ARC deployment
- Develop the Cupertino Packet Handbook
- Train all CARES field responders as packet operators
- Train CERT as packet message operators (assumes a ham is still control operator)
- Deploy and exercise as part of the October 2011 City-wide drill

Equipment List

- **Communications Kit:** Sturdy box containing
 - Radio Case
 - Alinco DR-135 2m transceiver
 - KPC3+ TNC
 - MFJ 30A Power Supply
 - Power cord, TNC-to-PC Serial Cable
 - 14-16 Ah (total) gel cell batteries
 - DC Power cable
 - Microphone
 - Mag Mount Antenna
- **Computer Kit:** Laptop Bag containing
 - Laptop PC, power supply
 - USB to Serial Adaptor (if PC does not have a Comm Port)
 - Portable Printer, power supply
 - Spare Paper, ink cartridges

Radio Case (prototype)



CARES Packet Kits

Decisions, decisions, decisions

- Where do we store the kits when not in use?
 - At the ARCs? Assigned to an “always available” member?
 - Considerations: printer ink preservation
 - Available for drilling by CARES and CERT
- How do we keep the Gel Cell batteries charged?
- What specific packet message traffic needs to be passed?
- What PC Automation is planned at the ARCs?

CARES Packet Kits

Next steps

- Complete the purchasing
- Identify CARES packet kit “owners”... 1-Oct
- Build up the kits... 1-Oct
- If we don't have city laptops, preload Outpost & USB-Serial drivers on personal PCs... 8-Oct
- Initial CARES hands-on check-out... 8-Oct
- Packet Introduction to CERT... 10-Oct
- City-wide drill deployment... 21-Oct

Comm Van Update

Comm Van

Situation

- CARES still experiences severe interference from County Comm because of Radio Cupertino 1670 AM.
- A vehicle was donated by San Jose State University to Cupertino
- A city hall rebuild is not funded but is needed due to space constraints.
- Separate funding has been allocated to (i) relocate the AM antenna, and (ii) build a mobile communications platform for Cupertino.
- The city has elected to proceed with the Comm Van project to mitigate the cost of an AM antenna move.
- And other considerations...

Comm Van

How will it be used?

EOC Support, City Hall

- Relocate CARES radio room operations from the basement of City Hall to the Comm Van
- Use tools, methods, and procedures to tightly integrate Comm Van Operations with EOC operations.

Remote Command Post

- Provide communications support to field operations as needed.

Comm Van

Who is doing the work?

City of Cupertino, Service Center

- City Project Management for the project
- Holds the budget

CARES

- Developing the requirements

Telepath Corp

- City of Cupertino contractor for City comms
- Wireless communication systems integrator
- Provide command and control programs, including VOIP Two-Way Radio Systems, Security Camera Systems, access control, wireless networking, emergency vehicle build-up, and more to high-tech manufacturing, transportation, utilities and public safety entities around the world.
- <http://www.telepathcorp.com/>

Comm Van

Communications systems

Amateur Radio

- 2m/440 voice, Kenwood TM-710
 - CARES RRO
 - Resource NCO
 - County Msg Net / Packet / HF
 - Shift Supervisor
 - Aux cab position (CARES to provide this radio)
 - All operator positions include boom mike headset and foot switch
- HF Voice, CW: Icom IC 7000, Tuner, HF Mobile antenna
- Packet: Alinco DR-235, KPC3
- ATV Receiver (tentative)

City Radio

- 450-512MHz, City Trunk Radio system

County

- EOC-to-EOC, 37MHz, HT (tentative)

Other

- Scanner, public safety, from CARES Radio Room
- We may be the keepers of the School District Radios (**need to clarify**)
- Over air TV receiver

Comm Van

Power systems

12 VDC systems

- 2 - 120Ah batteries
- All 12VDC loads are sourced directly from the batteries
- 12 VDC breaker panel, Volt, Amp meter
 - Loads: radios, lighting, DC outlets, mast wench

120 VAC systems

- All 120VAC loads are sourced from an inverter off the batteries
- 120 VAC breaker panel
 - Loads: Air Conditioner, AC outlets

Charging systems

- Battery Charger, 40A, sourced from
 - Generator
 - Shore Power
- Solar Panel

Power distribution

- AC, DC, LAN outlets at operating positions

Comm Van

Information Systems

Network

- 8-Port Ethernet 10/100/1000 switch
- LAN ports at all operating positions
- Plan for operating PCs and printers on “*VanNet*”

EOC Access

- The Plan is to establish a network connection with the EOC. It may not be on the City Hall network.
- ***This needs further definition***

SCEWN Access

- Santa Clara Emergency Wireless Network
- A non-profit cooperative dedicated to providing back up network connectivity to key public service end points in the event of a disaster.
- Using low cost WISP equipment (Wireless Internet Service Provider)
- Current wireless links using 2.4 GHz and 5.8 GHz microwave bands under FCC Part 15 regulations
- ***This needs further definition***

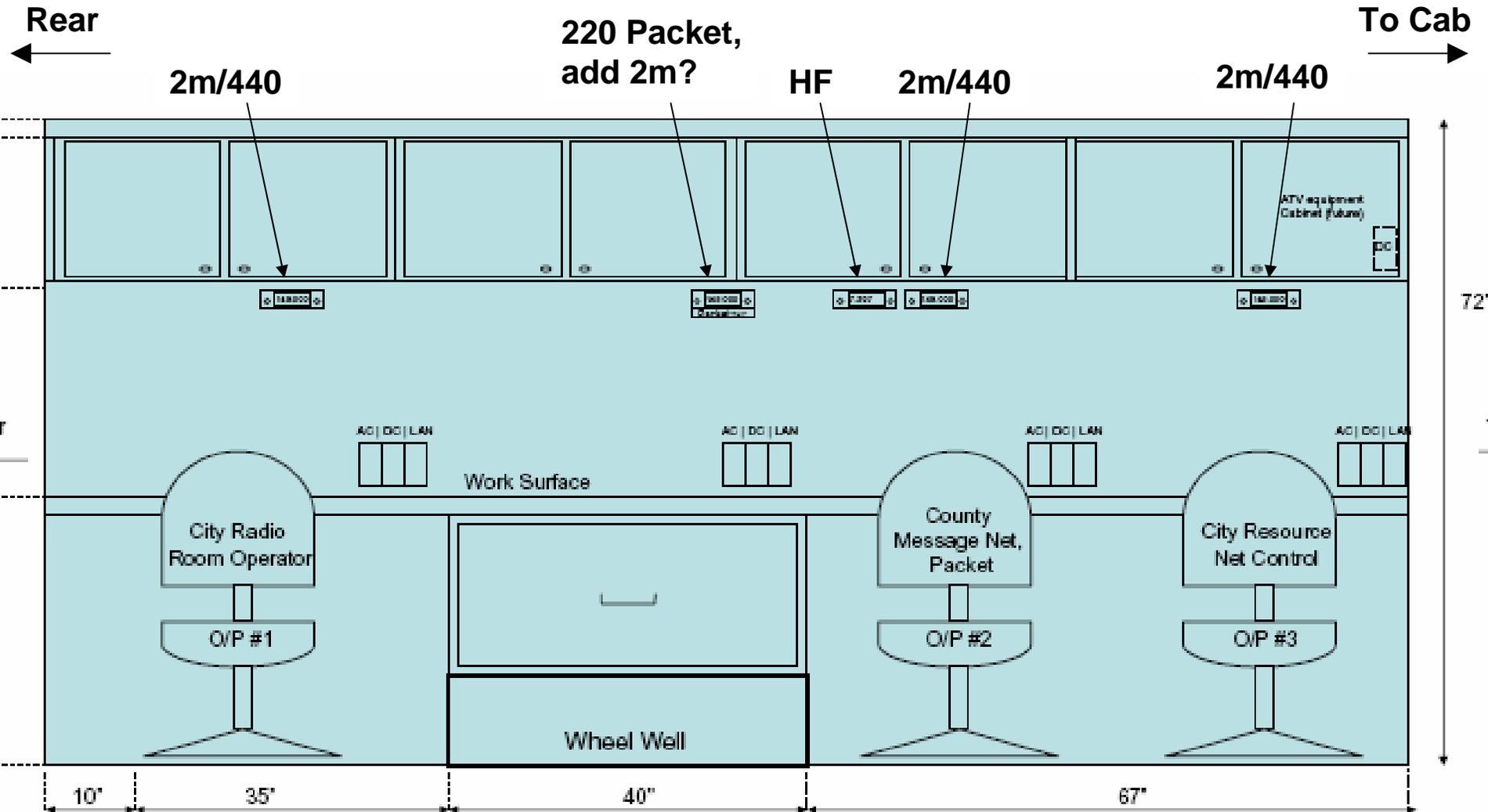
Operating Environment

Inside

- 3 seated operating positions
- 1 supervisor position
- 1 auxiliary position (passenger site, cab area)
- White-boards, write-able surfaces
- Cloth-wrapped for sound dampening
- LED isle and operating lighting
- Storage for manuals, forms, equipment, supplies

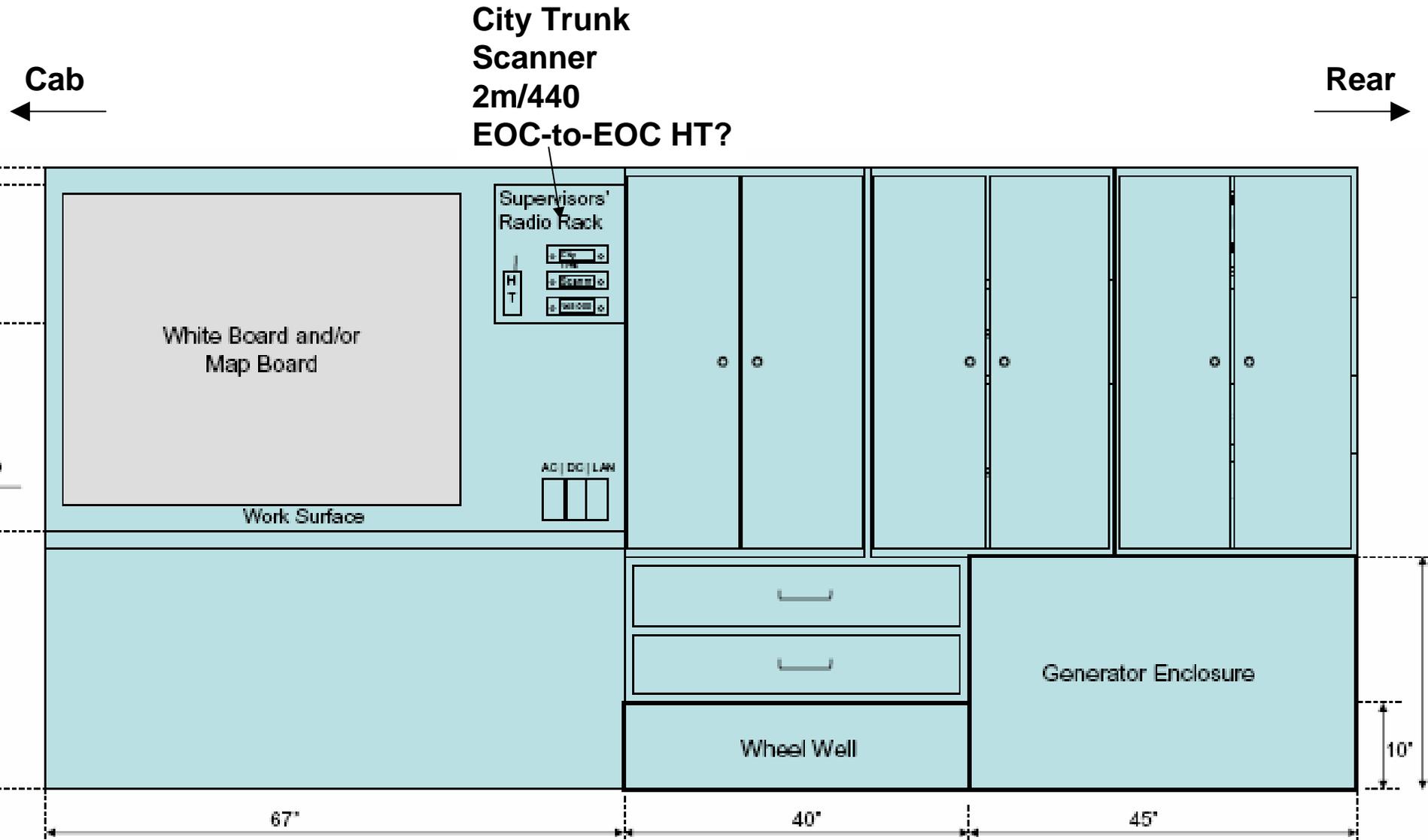
Operating Environment

Inside – drivers side



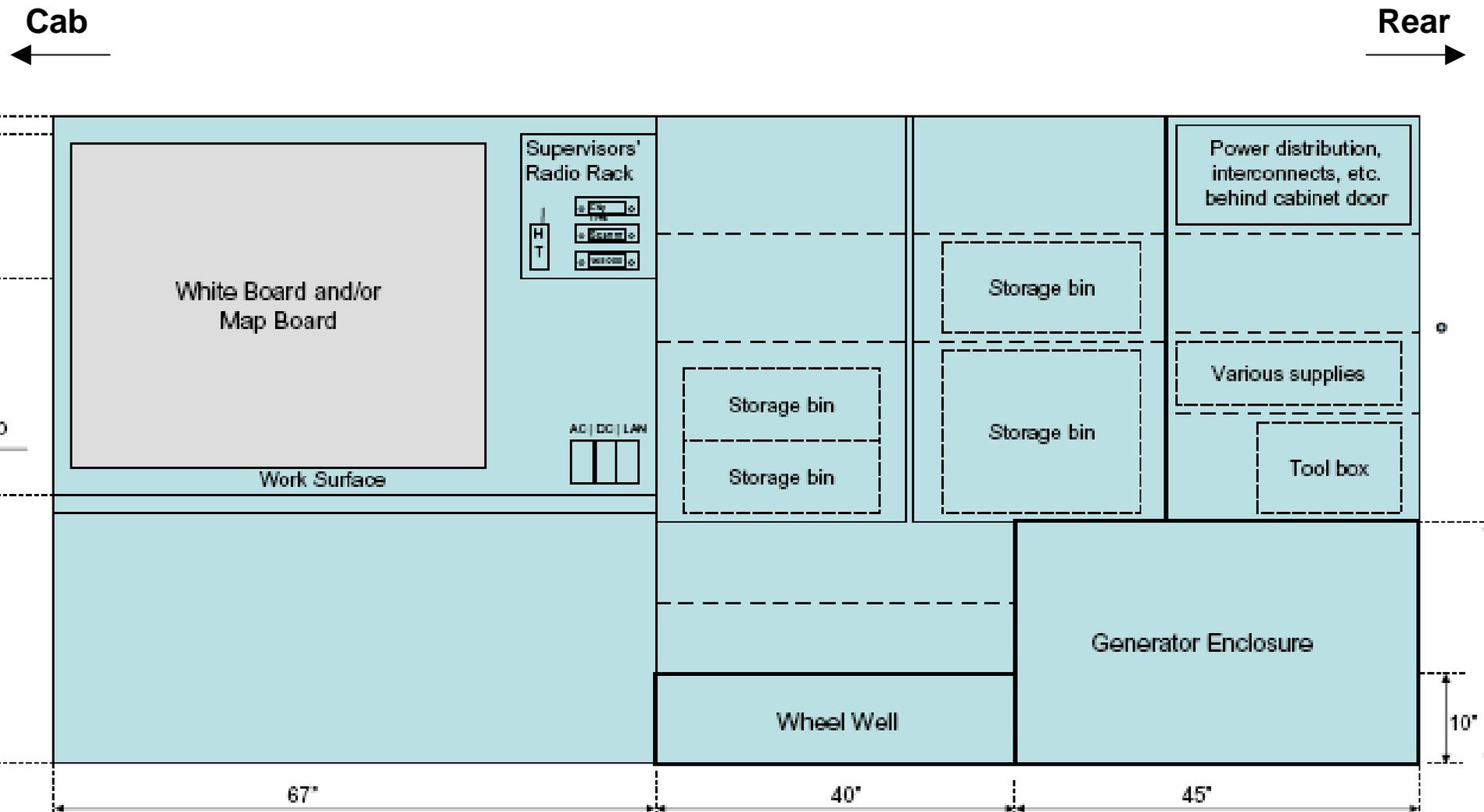
Operating Environment

Inside – passenger side



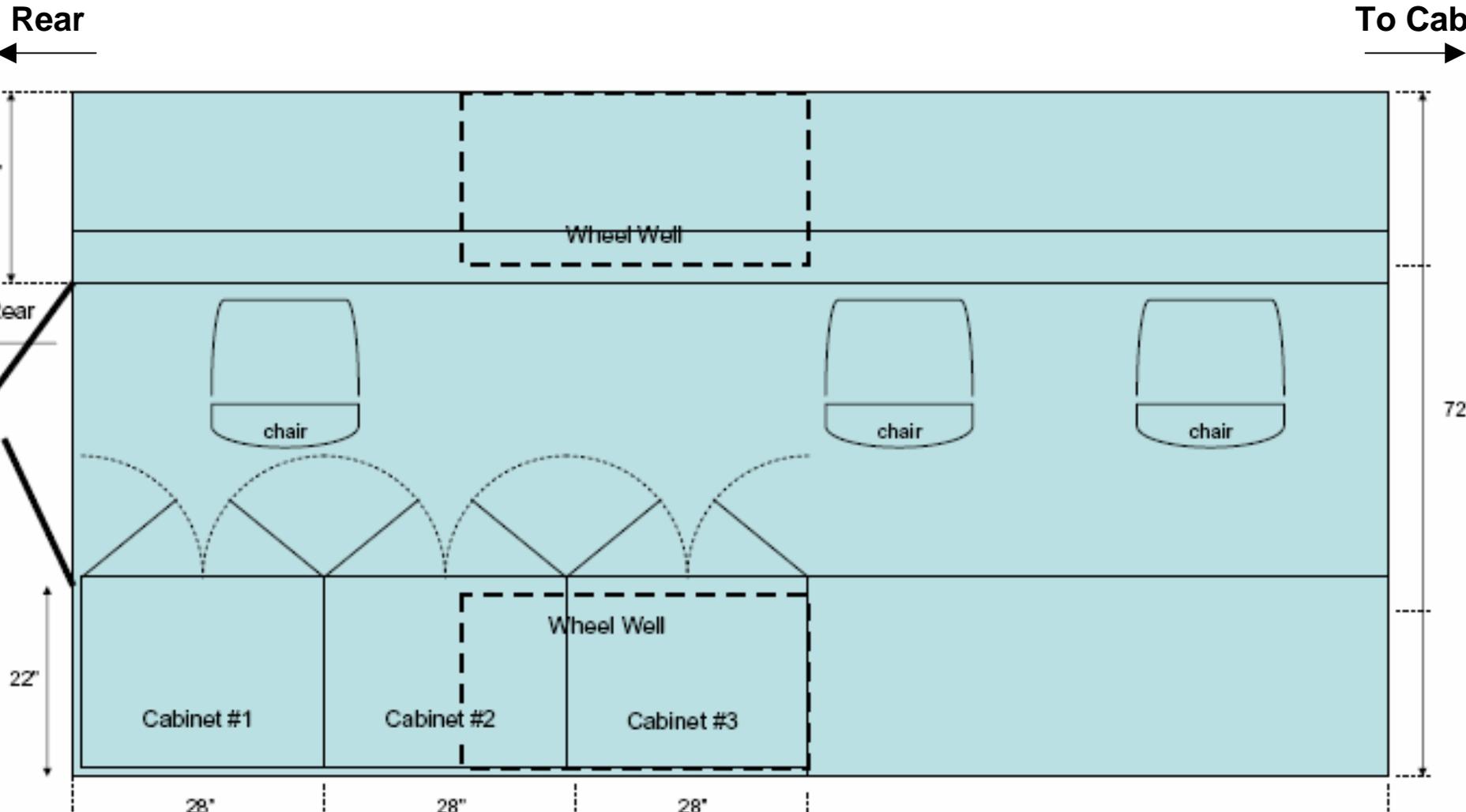
Operating Environment

Inside – passenger side



Operating Environment

Inside



Operating Environment

Outside

- Awning installed on the driver side
- Pass-through for power, network, etc
- Van to carry (at least) 1 folding table, 2 folding chairs
- External lighting

Antenna systems

Mast-mounted

- 34ft retractable mast
- Mounting plate for 4 antennas
 - CARES TAC 1 simplex (147.570)
 - CARES TAC 2 simplex (146.460)
 - 220 Packet
 - Supervisor's position, TAC 3 (440.150)
- Need some help here... ***we will de-sense each other!***

Roof-mount

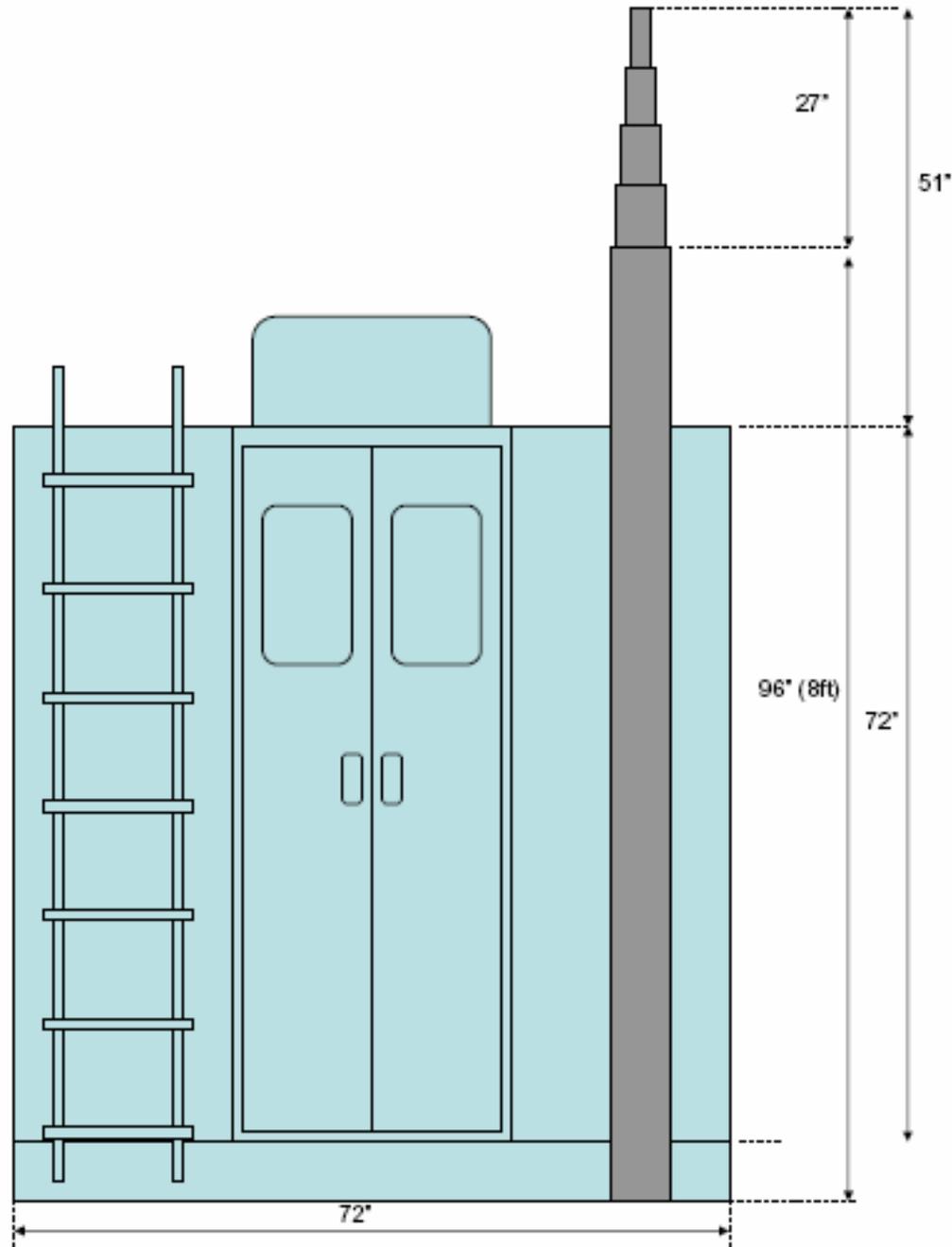
- HF
- City trunk radio system
- Cab Aux position
- Over air TV

Antenna systems

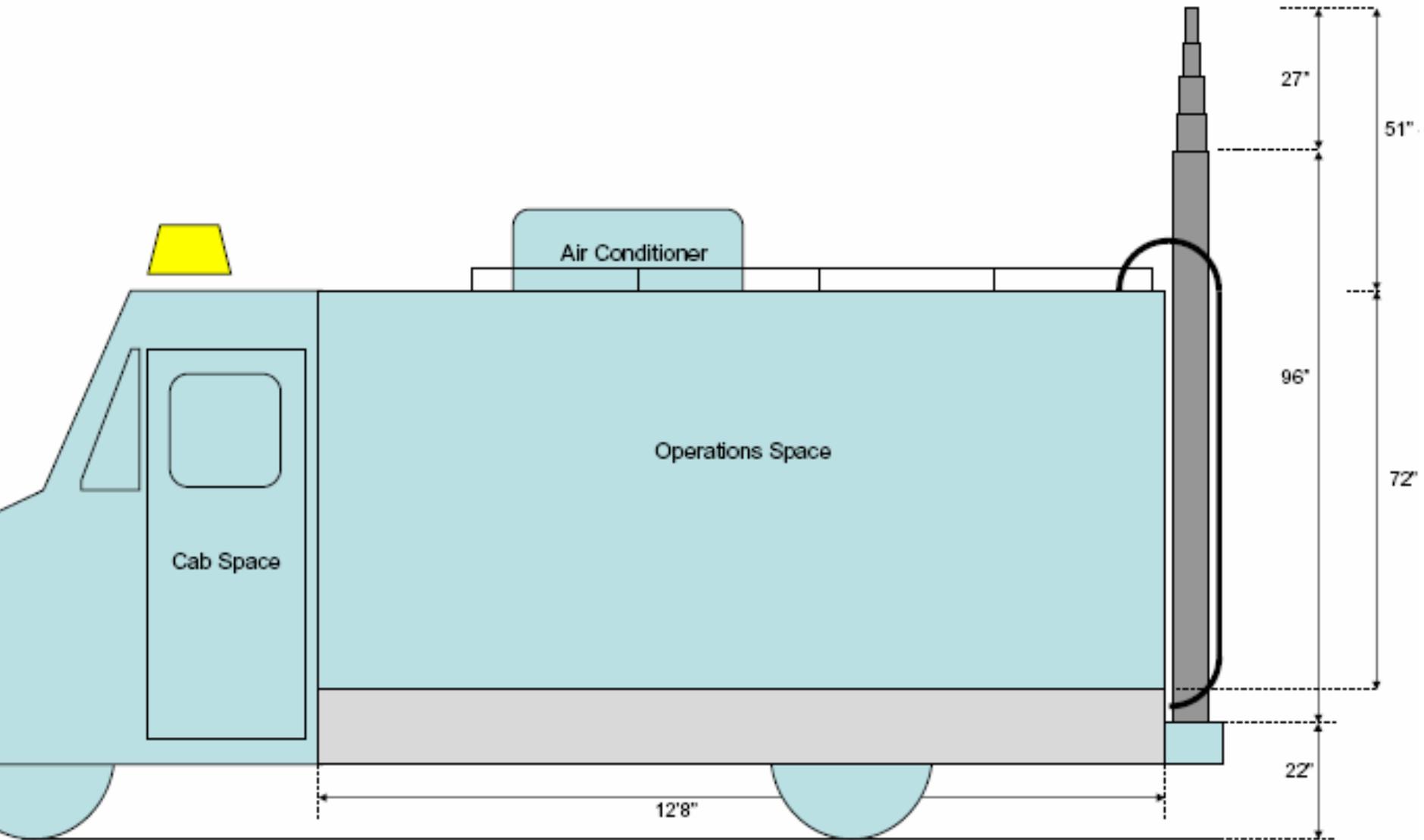
Mast view only

Notes

- Need to set up antennas – mounting plate, antennas, coax – each time we operate.
- Antennas, coax stored “somewhere”



Antenna systems



Need your help

Networking

- Help define the *VanNet* subnet environment
- Work with SCEWN on linking to them

Antenna systems

- Help to sort out (or at least understand) how to minimize interference from mast-mounted antennas

Supply management

- We have a preliminary list; need to resolve bin placement quickly.

Procedures

- Help us work through operating procedures

Plan

| Task | Who performs | Description | Start | End |
|----------------------|-------------------------------|--|--------------|--------------|
| Various | Almaden RV... DONE! | <ol style="list-style-type: none"> 1. Awning 2. Two vents 3. Solar panel and batteries 4. Passenger Seat 5. Bumper mount for additional generator | 15-Sep | Done! |
| Driver Quals | City Risk Mgr, CARES | <ol style="list-style-type: none"> 1. Approval of qualification procedures 2. Identify the list of candidates 3. Initial qualifications | 22-Aug | 4-Nov |
| Floor insulation | City supplier | <ol style="list-style-type: none"> 1. Spray-on protective lining, all floor surfaces | 26-Aug | 2 Sep |
| Comm Installation | TelePath | <ol style="list-style-type: none"> 1. All work surfaces and cabinets 2. All wiring and cabling 3. Power systems and controls 4. Radios, antennas, mast systems | 6-Sep | 29-Sep |
| Supply Outfit | CARES, City | <ol style="list-style-type: none"> 1. Identify comm van supplies 2. Identify packaging, placement 3. Acquire containers, supplies | 29-Sep | 14-Oct |
| Operating Procedures | Telepath, CARES, City | <ol style="list-style-type: none"> 1. Develop 1st release of operating procedures, checklists, etc | 1-Oct | 14-Oct |
| First Deployment | CARES | <ol style="list-style-type: none"> 1. City-wide activation | 21-Oct | 22-Oct |

City's requirements for drivers

1. Valid California Drivers License
2. Registered Cupertino Volunteer
3. Valid City Volunteer Card/DSW
4. Registered CARES member in good standing
5. Pass a LifeScan screening (wants and warrants)
6. Approval for the city to periodically pull DMV record
7. Complete City's Defensive Driver class
8. Vehicle operations check-out by Service Center (operators must be able to drive a stick shift)
9. Complete Comm Van qualification
10. Approved by the City's Risk Manager



Cupertino
ARES/RACES