# Montgomery County Fire and Rescue Service

# Fire Chief's General Order

## NUMBER: 12-06

**April 9, 2012**

**TO:** **All MCFRS Personnel**

**FROM:** **Fire Chief Richard Bowers**

**SUBJECT:** **Radio Failure Procedures**

When units experience problems with the 800 MHZ radio system coverage to the point it adversely affects their operation and or safety, the following steps must be performed whenever possible:

- Switch to 7-November and utilize a Vehicle Repeater System (VRS) if on-site.
- Establish a communications relay using 7-Oscar until Command advises it is no longer necessary.
    - ***Personnel should refer to the attached PowerPoint on the best practice procedure for establishing and maintaining a radio relay.***
- Request tactical radio solutions via ECC supervisor.

At the conclusion of the event, the Incident Commander must notify the Telecomm Office of the radio troubles using the on-line, fillable form located at:

https://docs.google.com/spreadsheet/viewform?formkey=dHNLbjFvNlVfOTNrdVhnMjVDbmRZYnc6MQ.

For questions or further clarification contact the ECC Chief at (240) 773-7101

# Overcoming Radio Difficulties

What responders can do.

# The Conventional Channel Basics

- 7 Oscar is a conventional channel it is not repeated
- 7-Oscar has a finite range-the signal can only go so far
- Many things affect the range including concrete, steel, and the power of the radio
- METRO has a lot of concrete and steel and the portables are “relatively” low power

# A Radio Relay

A radio relay is a communications chain that bridges distances over which one could not usually talk….

Build a chain of people with radios to bridge large distances full of concrete and metal…

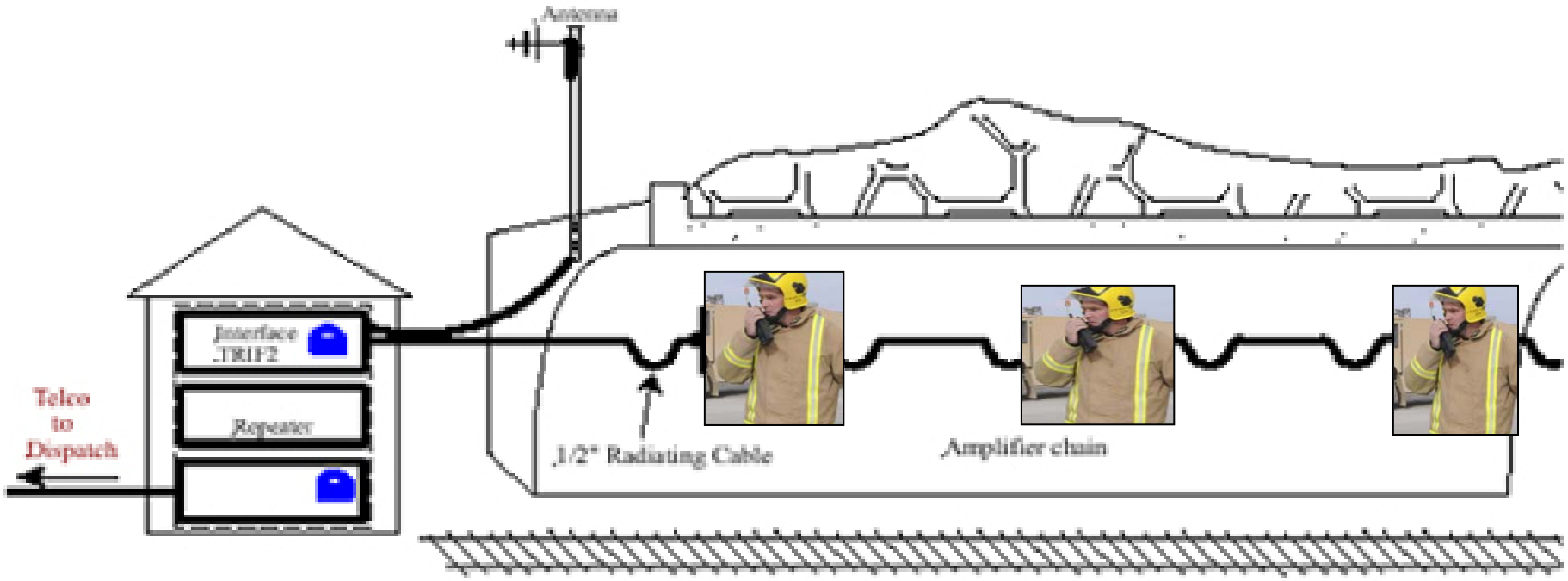
# Relay Basics

Imagine that radio A was close enough to radio B to talk and radio B was close enough to radio C to talk…but radio A was too far from radio C to talk…

The way to get a message from A to C is for A to send it to B and B to relay it to C

# Another way to look at the relay

***Take out the amplifiers and insert firefighters with radios***



# Viable Practice
# General Behavior

- When assigned to a METRO event in the ROW…
- As the first arriving major unit is gathering incident information they are listening for their radio to “honk” or display “Out of Range”
- If the radio honks then they should consider the tunnel bore an IDLH and follow two-in-two-out rules until radio relay can be established

# Viable Practice
# General Behavior

- Crews stop at each turn or bend in the ROW to confirm communications
- If the radio honks then they should consider the tunnel bore an IDLH and follow two-in-two-out rules until radio relay can be established

# Viable Practices
# Radio Relay

**Example set-up**

- Make the guy at the top
  "mezzanine comm"

- Make the guy at the platform
  "platform comm"

- When transmitting a message that needs to be repeated begin with "message for relay"

  Ex. Platform Comm to Mezzanine Comm, message for relay…" "Mezzaning comm to platform comm ready for message…" "Platform comm to Mezzanine comm, advise command rescue group supervisor is requesting two additional companies for support." etc…

**If you are in the operational area and you hear, "..message for relay…" that would be your clue to stop talking so the message could get out…**

# Limitations

**DO NOT BELIEVE THAT THE COMMUNICATIONS WILL BE PERFECT ON CONVENTIONAL CHANNELS**

**YOU STILL HAVE TO DEAL WITH WAVE PROPAGATION ISSUES**

# Things to think about

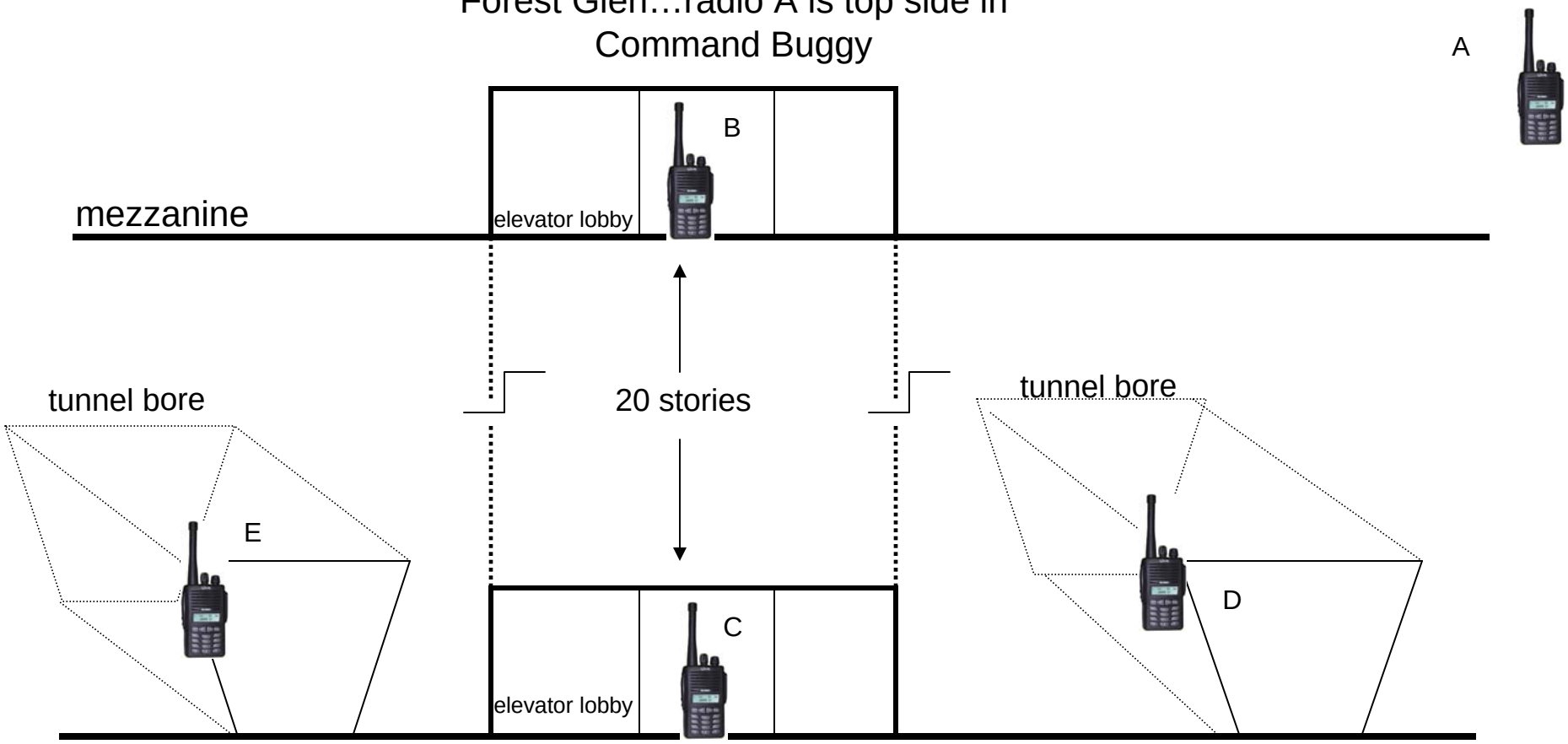
- A train in the station affects communications
- There was no IDLH so we could all hear and speak clearly…
- It would take an entire 4-person engine crew to set up this relay while assuring that no-one was alone…
- The mobile is more powerful than the portable..if you can get a mobile close on 7-Oscar top side and leave the drive with it that would help
- Think about all the talking the relay radios will have to do you will need more batteries
- Prioritizing and sending quality relay messages is not the job for a rookie!

# Forest Glen

# The Layout

- Street level where command is
- Kiosk…where command could be
- Mezzanine elevator lobby (area between the two elevator banks on the mezzanine level)
- Platform elevator lobby (area between the two elevator banks on the platform  level)
- The mezzanine and platform are separated by 20 stories

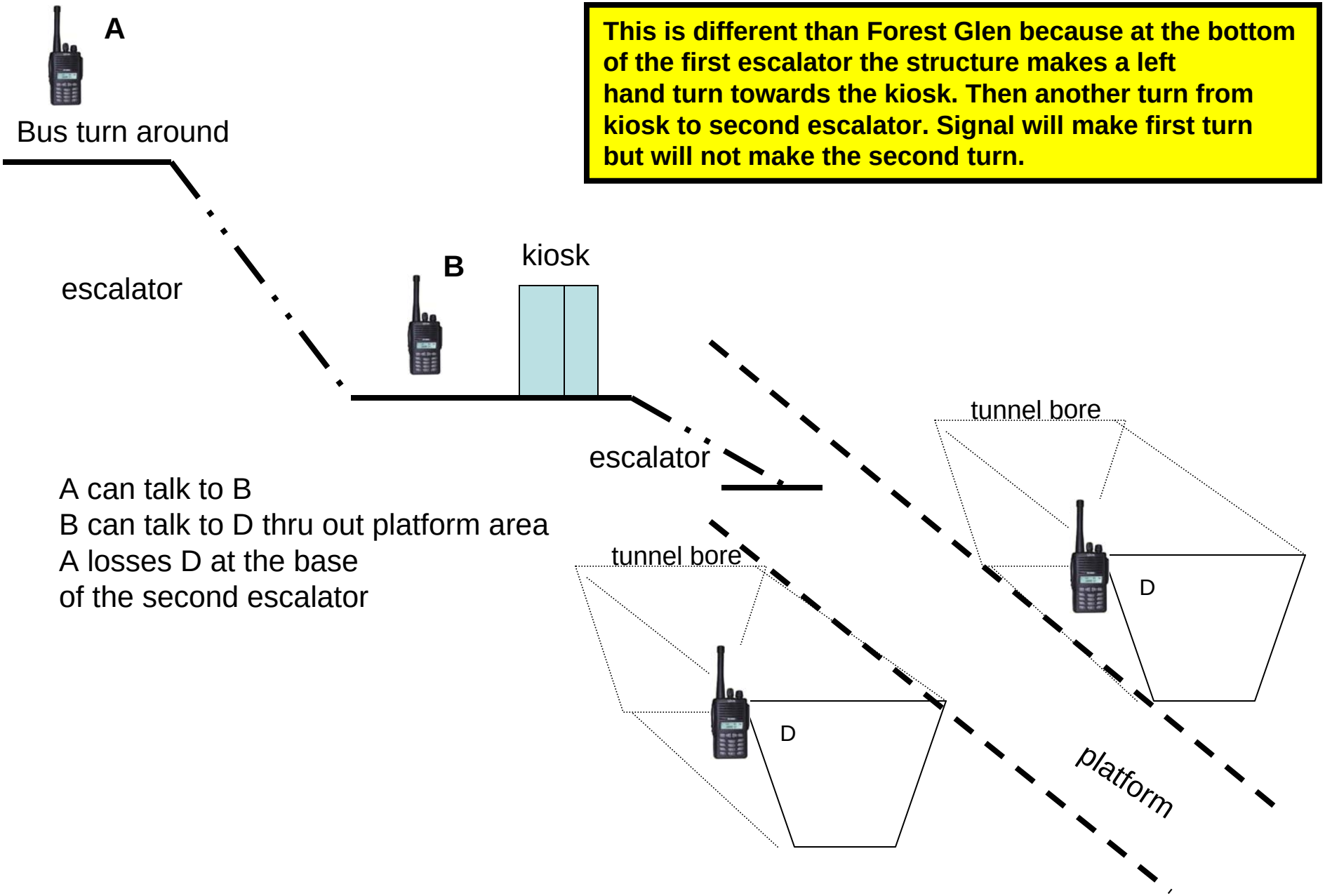
# Forest Glen…radio A is top side in Command Buggy




<u>The Findings:</u>

Radio A can talk to radio B
Radio B can talk to radio C IF both stay in the elevator lobby
Radio C can talk to radios B, D, &E but not to radio A
Radio D can talk to radio C and MAYBE radio E
Radio E can talk to radio C and MAYBE radio D

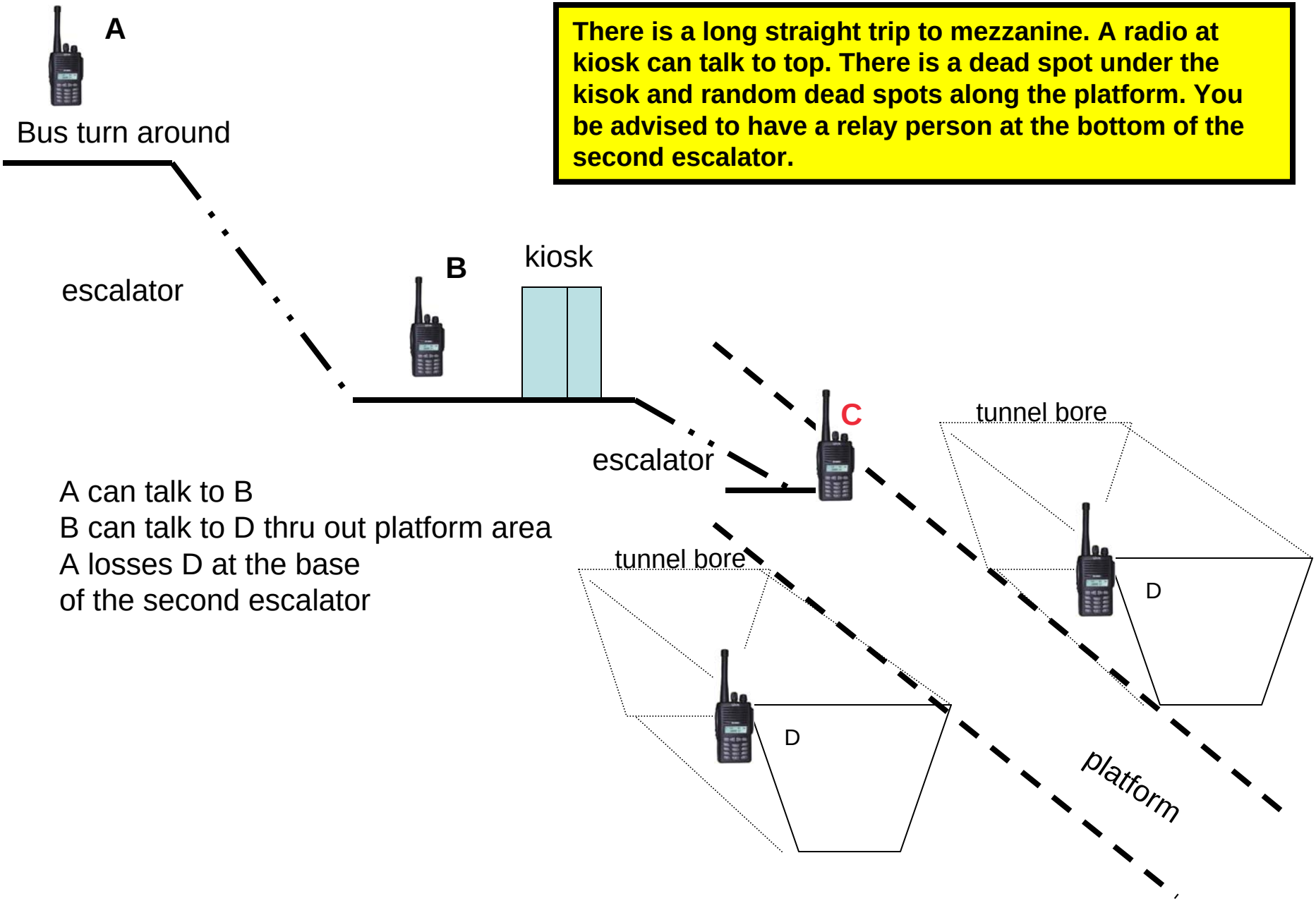
Bethesda




**This is different than Forest Glen because at the bottom of the first escalator the structure makes a left hand turn towards the kiosk. Then another turn from kiosk to second escalator. Signal will make first turn but will not make the second turn.**

A can talk to B
B can talk to D thru out platform area
A losses D at the base
of the second escalator

# Medical Center




**There is a long straight trip to mezzanine. A radio at kiosk can talk to top. There is a dead spot under the kisok and random dead spots along the platform. You be advised to have a relay person at the bottom of the second escalator.**

A can talk to B
B can talk to D thru out platform area
A losses D at the base
of the second escalator

# VRS?

7O and 7N(F/J) are similar enough that if 7-O cannot reach all the way back to the top it is unlikely that 7N (F/J) will.

# Tactical Comm Options

Options Include:

- Telecomm Section
- Communications Interoperability Group (NCR-CIG)

- Request via contacting ECC

# NCR-CIG

They bring:

- Advanced understanding of wave behavior
- Portable repeater devices
- Practice operating in tunnel spaces

# NCR-CIG

- Consider reflex time for deployment
- Consider reflex time for set-up
- Consider the need to conduct operations in smoke filled tunnel with zero visibility