Berks County System Overview

- System Components:
  - ASTRO 25 Digital Trunked System - 700 MHz
    - South Simulcast Cell
      - 16 channels and 10 Sites
      - 30 talkpaths
    - North Simulcast Cell
      - 12 channels and 9 sites
      - 22 talkpaths
  - Conventional Subsystems
    - Interoperability Overlays in 800 MHz, UHF, VHF, Low Band
    - Analog Simulcast VHF Paging
    - Single Site Backup Paging Repeaters
    - DES
  - Dispatch/Console Subsystem
  - Microwave Backhaul & MPLS Network
  - Logging Recorder Subsystem
  - Network Management and MOSCAD

- Subscriber types:
  - Mobiles
    - APX7500
    - APX6500
    - APX4500
  - Portables
    - APX7000
    - APX6000
    - APX4000
  - Control Stations:
    - Consolette Control Stations
      - MCD5000 desksets
    - Mobile in a Tray
  - Digital Vehicular Repeaters (DVRS)
ASTRO 25 Trunked System – 700 MHz

- **South Simulcast Site:**
  - One Control Channel
  - 15 TDMA Channels - 30 Talkpaths
  - 10 Remote Sites:
    - Courthouse (Prime Site)
    - Mt. Penn II (Redundant Prime Site)
    - Bally
    - Earl
    - Alsace
    - Cumru
    - Union
    - Robeson
    - Ontelaunee
    - Turnpike

- **North Simulcast Site:**
  - One Control Channel,
  - 11 TDMA Channels - 22 Talkpaths
  - 9 Remote Sites:
    - North Campus (Prime Site)
    - Hamburg (Redundant Prime Site)
    - Kutztown
    - Albany
    - Bethel
    - Blue Mountain
    - Longswamp
    - West Penn
    - N. Heidelberg
BERKS COUNTY PUBLIC SAFETY RADIO PROJECT PROPAGATION BY SITE

Coverage - Portable On Hip On Street 95% DAQ 3.0
- North Cell Coverage
- South Cell Coverage
- Overlap Coverage
700 MHz P25 System Map
Control Sites

- Hamburg - N. Redundant Prime
- N. Campus N. Prime
- BCCC Master Site
- Mt. Penn - S. Redundant Prime
- Courthouse Master Site
- Courthouse S. Prime

Master Site
North Prime Sites
South Prime Sites
System Map
Backhaul

Ring 1

Ring 2

Ring 3

“5 9’s Reliability”
Conventional Subsystems

- Analog Conventional Interop Subsystems:
  - 800 MHz: 11 Sites, 5 Channels
  - UHF: 8 Sites, 3 Channels
  - VHF: 14 Sites, 5 Channels
  - Low Band: 11 Sites, 2 Channels

- DES Subsystem:
  - 4 Repeater Sites

- Analog Main Paging Subsystem:
  - 12 Analog Simulcast Sites
  - One channels: 151.22 MHz

- BU Paging Repeaters:
  - 10 Repeater sites
  - Standalone operation
<table>
<thead>
<tr>
<th>Site Name</th>
<th>Master Site</th>
<th>Prime Site</th>
<th>Dispatch Site</th>
<th>700 MHz (North)</th>
<th>700 MHz (South)</th>
<th>800 MHz UHF</th>
<th>VHF Low Band</th>
<th>Paging</th>
<th>Paging Backup</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCCC (Direct Link)</td>
<td>Main</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Simulcast Cell</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Campus</td>
<td>X</td>
<td>T/R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hamburg</td>
<td>X</td>
<td>T/R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Albany</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td></td>
<td>T/R</td>
<td>T/R -New</td>
</tr>
<tr>
<td>Bethel</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td></td>
<td>T/R</td>
<td></td>
</tr>
<tr>
<td>Blue Mountain</td>
<td>T/R</td>
<td></td>
<td>R</td>
<td>T/R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kutztown</td>
<td>T/R</td>
<td>R</td>
<td></td>
<td>T/R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longswamp</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td></td>
<td>T/R</td>
<td></td>
</tr>
<tr>
<td>N. Heidelberg</td>
<td>T/R</td>
<td>T/R</td>
<td>R</td>
<td>T/R</td>
<td></td>
<td>T -New</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Penn</td>
<td>T/R</td>
<td>T/R</td>
<td>R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Simulcast Cell</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Courthouse</td>
<td>DSR</td>
<td>X</td>
<td>X</td>
<td>T/R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mt. Penn II</td>
<td>X</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td></td>
<td>T/R</td>
<td></td>
</tr>
<tr>
<td>Alsace</td>
<td>T/R</td>
<td>T/R</td>
<td></td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bally</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td></td>
<td>T/R</td>
<td>T/R -New</td>
</tr>
<tr>
<td>Cumru</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>R</td>
<td>T/R</td>
<td>T/R -New</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earl</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td></td>
<td>T/R</td>
<td></td>
</tr>
<tr>
<td>Ontelaunee</td>
<td>T/R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robeson</td>
<td>T/R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnpike</td>
<td>T/R</td>
<td>R</td>
<td>R</td>
<td>T/New</td>
<td>T/R -New</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Union</td>
<td>T/R</td>
<td>T/R</td>
<td>T/R</td>
<td>R</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centre</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>T/R</td>
<td>T</td>
<td></td>
<td>T/R</td>
</tr>
<tr>
<td>City Hall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Tripoli</td>
<td>T/R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>T/R</td>
<td>T/R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mt. Penn-RMI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>T/R</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>8</td>
<td>14</td>
<td>11</td>
</tr>
</tbody>
</table>

Site System Matrix
Dispatch/Console Subsystem

- MCC7500 Dispatch Sites
  - BCCC Location (County)
    - 13 Dispatch Op-Positions
    - 4 Training Op-Positions
  - Courthouse (County)
    - 6 Backup Dispatch Op-Positions
  - City Hall: (City)
    - 6 Dispatch Op-Positions
Logging Recorder Subsystem

- Console Recording – IP Logging of up to 256 resources (talk groups and conventional channels)
- Console Recording – Analog recording of Select and Unselect speakers at all positions
- 9-1-1 – Analog recording of all calls (includes ANI/ALI information)
- 9-1-1 – Digital recordings of all phones at DES
- VoIP – Digital recording of select administrative phones

All recordings and data storage centers are redundant
Network Management, MOSCAD and Security

- Network Management Clients
  - Administrative Access to the System
  - Management of the Radio Fleet
  - Usage
  - System Maintenance and Health
- MOSCAD
  - Component Level Monitoring of Electronics
  - Environmental Conditions At Tower Sites
- Security
  - Door Controls and Electronic Access
  - Interior and Exterior Camera Systems