



NPSTC

National Public Safety Telecommunications Council

Celebrating
10
YEARS
1997-2007

Ten Years of Progress | 1997-2007

FCC Report to Congress: Maintaining Communications Following a Major Disaster

Presented by:

John Powell, Chair

NPSTC Interoperability Committee

*NPSTC is a federation of organizations whose mission is to improve
public safety communications and interoperability through collaborative leadership.*

Survivable Communications: A Requirement

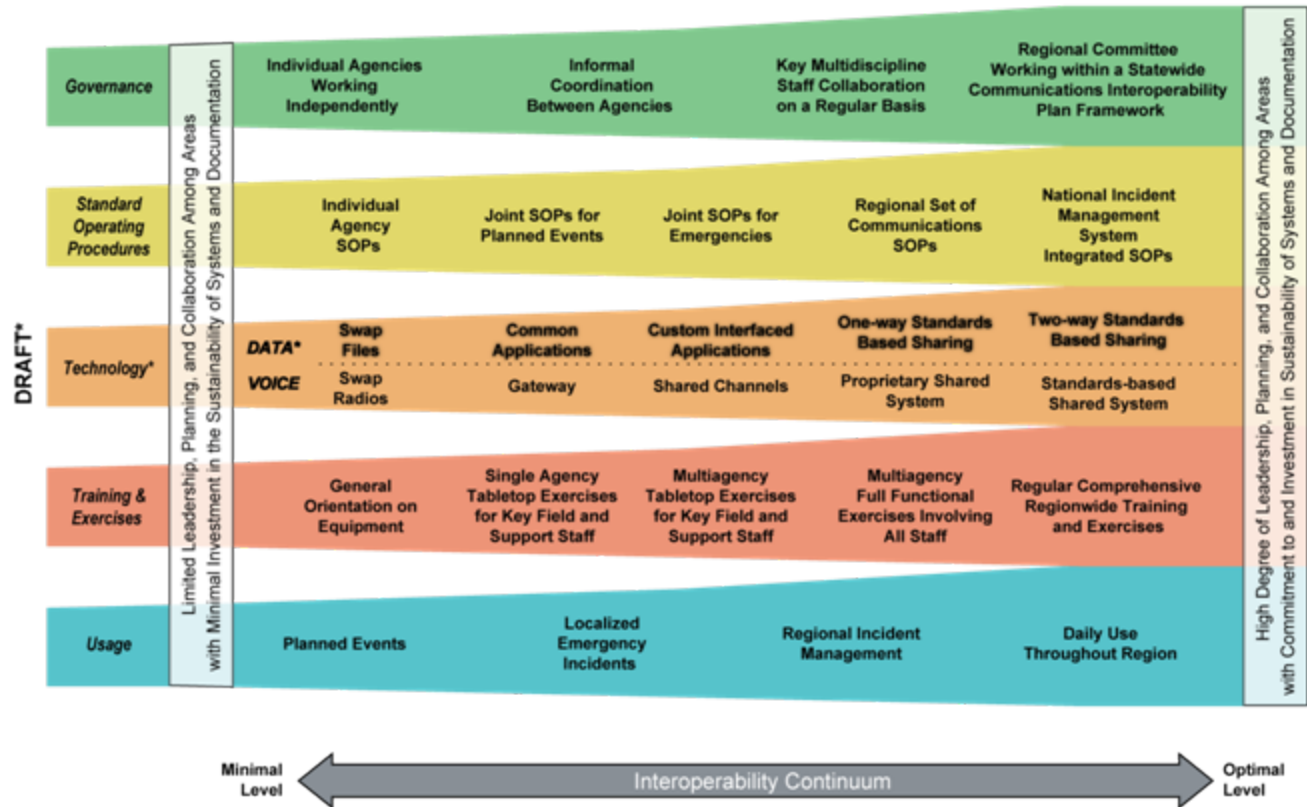


The SAFECOM Interoperability Continuum



Homeland Security

Interoperability Continuum



* Draft status applies only to the Data Lane within the Technology section.



The SAFECOM Interoperability Continuum

- Now recognized as the interoperability model (in some flavor) on 5 continents
- All elements are required for success, particularly during disasters and subsequent recovery

The Continuum Governance Lane

- **Bottoms-up planning** within a statewide planning framework is essential to success
 - Follow Statewide Interoperability Executive Committee model from NCC *Final Report*
 - Should be a Congressional requirement for grant-funded projects
 - Need to update FCC documents, including website, to show “statewide” vs. “state”
 - Can we standardize the name, e.g., “<state name> Statewide Interoperability Executive Committee”?
- **Credentialing**
 - Must be standardized at the national level
 - More on this later...

The Continuum Governance Lane

- Give the current coordination efforts some teeth.
 - DHS approved Tactical Interoperable Communications Plans (TICPs) and Statewide Communications Interoperability Plans (SCIPs) should be accepted as operational plans within the Part 90 framework, and be the ‘play book’ to be followed during declared (at any level) emergencies. [the 155.475 MHz “state plans” model]
- **Commit to building systems to be survivable in the first place**
 - “Essential services” construction

The Continuum Governance Lane

Southern California fires – Lyons Peak (San Diego County)



Before

After



Southern California fires – Lyons Peak (San Diego County)



Outside of Building

Fuel Tank Regulator



The Continuum Governance Lane

- Orlando/Orange County during hurricanes Charlie, Francis and Jeanne in 2004
 - Nine 800 MHz simulcast trunking sites
 - 20,000 subscriber units
 - Never lost a site but had generator start-up issues
 - Went to manual generator pre-start
 - New system will support remote generator pre-start
 - Fueling arrangements, including air support, arranged well in advance

The Continuum Technology Lane

- Sustainable power is the major issue
 - Both infrastructure and subscribers
 - AA batteries/clamshell cases and cigarette lighter adapter cables
 - Recommend to Congress that subscriber equipment approved for grant purchases must have AA battery power pack available
- Availability of support staff, either contract or government
 - And a way to get them to where they are needed
 - Recognized, national credentialing!



The Continuum Technology Lane: Restoration

- Deployable resources
 - Radio caches (including deployment and maintenance issues)
 - Deployable infrastructure
 - Trunking on Wheels (TOWs)
 - » San Bernardino train wreck example

- 700 MHz reserve channels in P25 trunking format
- P25/TIA already tasked to address related issues of system/unit IDs
- Appears that 4 blocks x 6 RF channels per block may be best deployment considering border, equipment size and other issues

- Would be great to have in other bands if channels could be identified

Draft NPSTC Request
For Rulemaking



The Continuum Technology Lane: Restoration

960 Narrowband Mobile Channels (6.25 kHz each, aggregate to 25 kHz)

799 MHz

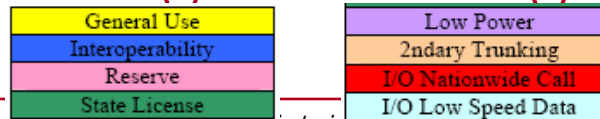
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1365	1285	1205	1125	1045	965
1366	1286	1206	1126	1046	966
1367	1287	1207	1127	1047	967
1368	1288	1208	1128	1048	968
1369	1289	1209	1129	1049	969
1370	1290	1210	1130	1050	970
1371	1291	1211	1131	1051	971
1372	1292	1212	1132	1052	972
1373	1293	1213	1133	1053	973
1374	1294	1214	1134	1054	974
1375	1295	1215	1135	1055	975
1376	1296	1216	1136	1056	976
1377	1297	1217	1137	1057	977
1378	1298	1218	1138	1058	978
1379	1299	1219	1139	1059	979
1380	1300	1220	1140	1060	980
1381	1301	1221	1141	1061	981
1382	1302	1222	1142	1062	982
1383	1303	1223	1143	1063	983
1384	1304	1224	1144	1064	984
1385	1305	1225	1145	1065	985
1386	1306	1226	1146	1066	986
1387	1307	1227	1147	1067	987
1388	1308	1228	1148	1068	988
1389	1309	1229	1149	1069	989
1390	1310	1230	1150	1070	990
1391	1311	1231	1151	1071	991
1392	1312	1232	1152	1072	992
1393	1313	1233	1153	1073	993
1394	1314	1234	1154	1074	994
1395	1315	1235	1155	1075	995
1396	1316	1236	1156	1076	996
1397	1317	1237	1157	1077	997
1398	1318	1238	1158	1078	998
1399	1319	1239	1159	1079	999
1400	1320	1240	1160	1080	1000
1401	1321	1241	1161	1081	1001
1402	1322	1242	1162	1082	1002
1403	1323	1243	1163	1083	1003
1404	1324	1244	1164	1084	1004
1405	1325	1245	1165	1085	1005
1406	1326	1246	1166	1086	1006
1407	1327	1247	1167	1087	1007
1408	1328	1248	1168	1088	1008
1409	1329	1249	1169	1089	1009
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1417	1337	1257	1177	1097	1017
1418	1338	1258	1178	1098	1018
1419	1339	1259	1179	1099	1019
1420	1340	1260	1180	1100	1020
1421	1341	1261	1181	1101	1021
1422	1342	1262	1182	1102	1022
1423	1343	1263	1183	1103	1023
1424	1344	1264	1184	1104	1024
1425	1345	1265	1185	1105	1025
1426	1346	1266	1186	1106	1026
1427	1347	1267	1187	1107	1027
1428	1348	1268	1188	1108	1028
1429	1349	1269	1189	1109	1029
1430	1350	1270	1190	1110	1030
1431	1351	1271	1191	1111	1031
1432	1352	1272	1192	1112	1032
1433	1353	1273	1193	1113	1033
1434	1354	1274	1194	1114	1034
1435	1355	1275	1195	1115	1035
1436	1356	1276	1196	1116	1036
1437	1357	1277	1197	1117	1037
1438	1358	1278	1198	1118	1038
1439	1359	1279	1199	1119	1039
1440	1360	1280	1200	1120	1040

802 MHz

802 MHz

1841	1761	1681	1601	1521	1441
1842	1762	1682	1602	1522	1442
1843	1763	1683	1603	1523	1443
1844	1764	1684	1604	1524	1444
1845	1765	1685	1605	1525	1445
1846	1766	1686	1606	1526	1446
1847	1767	1687	1607	1527	1447
1848	1768	1688	1608	1528	1448
1849	1769	1689	1609	1529	1449
1850	1770	1690	1610	1530	1450
1851	1771	1691	1611	1531	1451
1852	1772	1692	1612	1532	1452
1853	1773	1693	1613	1533	1453
1854	1774	1694	1614	1534	1454
1855	1775	1695	1615	1535	1455
1856	1776	1696	1616	1536	1456
1857	1777	1697	1617	1537	1457
1858	1778	1698	1618	1538	1458
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1862	1782	1702	1622	1542	1462
1863	1783	1703	1623	1543	1463
1864	1784	1704	1624	1544	1464
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1871	1791	1711	1631	1551	1471
1872	1792	1712	1632	1552	1472
1873	1793	1713	1633	1553	1473
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1876	1796	1716	1636	1556	1476
1877	1797	1717	1637	1557	1477
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1881	1801	1721	1641	1561	1481
1882	1802	1722	1642	1562	1482
1883	1803	1723	1643	1563	1483
1884	1804	1724	1644	1564	1484
1885	1805	1725	1645	1565	1485
1886	1806	1726	1646	1566	1486
1887	1807	1727	1647	1567	1487
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1889	1809	1729	1649	1569	1489
1890	1810	1730	1650	1570	1490
1891	1811	1731	1651	1571	1491
1892	1812	1732	1652	1572	1492
1893	1813	1733	1653	1573	1493
1894	1814	1734	1654	1574	1494
1895	1815	1735	1655	1575	1495
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1899	1819	1739	1659	1579	1499
1900	1820	1740	1660	1580	1500
1901	1821	1741	1661	1581	1501
1902	1822	1742	1662	1582	1502
1903	1823	1743	1663	1583	1503
1904	1824	1744	1664	1584	1504
1905	1825	1745	1665	1585	1505
1906	1826	1746	1666	1586	1506
1907	1827	1747	1667	1587	1507
1908	1828	1748	1668	1588	1508
1909	1829	1749	1669	1589	1509
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1911	1831	1751	1671	1591	1511
1912	1832	1752	1672	1592	1512
1913	1833	1753	1673	1593	1513
1914	1834	1754	1674	1594	1514
1915	1835	1755	1675	1595	1515
1916	1836	1756	1676	1596	1516
1917	1837	1757	1677	1597	1517
1918	1838	1758	1678	1598	1518
1919	1839	1759	1679	1599	1519
1920	1840	1760	1680	1600	1520

805 MHz



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The Continuum Technology Lane: Other Recommendations

Draft NPSTC
Request
For Rulemaking

700 MHz Interoperability channel changes

- One Calling Channel
- One Data Only channel
- Higher power on band-edge itinerant channels
 - Temporary fix for digital noise issue



The Continuum Technology Lane: Other

15w ERP itinerant, analog or digital

Single 700 MHz Calling channel

960 Narrowband Mobile Channels (6.25 kHz each, aggregate to 25 kHz)

799 MHz

1361	1281	1201	1121	1041	961
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1375	1295	1215	1135	1055	975
1376	1296	1216	1136	1056	976
1377	1297	1217	1137	1057	977
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1394	1314	1234	1154	1074	994
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1435	1355	1275	1195	1115	1035
1436	1356	1276	1196	1116	1036
1437	1357	1277	1197	1117	1037
1438	1358	1278	1198	1118	1038
1439	1359	1279	1199	1119	1039
1440	1360	1280	1200	1120	1040

Nationwide "Travel Channel"

802 MHz

1841	1761	1681	1601	1521	1441
1842	1762	1682	1602	1522	1442
1843	1763	1683	1603	1523	1443
1844	1764	1684	1604	1524	1444
1845	1765	1685	1605	1525	1445
1846	1766	1686	1606	1526	1446
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1850	1770	1690	1610	1530	1450
1851	1771	1691	1611	1531	1451
1852	1772	1692	1612	1532	1452
1853	1773	1693	1613	1533	1453
1854	1774	1694	1614	1534	1454
1855	1775	1695	1615	1535	1455
1856	1776	1696	1616	1536	1456
1857	1777	1697	1617	1537	1457
1858	1778	1698	1618	1538	1458
1859	1779	1699	1619	1539	1459
1860	1780	1700	1620	1540	1460
1861	1781	1701	1621	1541	1461
1862	1782	1702	1622	1542	1462
1863	1783	1703	1623	1543	1463
1864	1784	1704	1624	1544	1464
1865	1785	1705	1625	1545	1465
1866	1786	1706	1626	1546	1466
1867	1787	1707	1627	1547	1467
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1871	1791	1711	1631	1551	1471
1872	1792	1712	1632	1552	1472
1873	1793	1713	1633	1553	1473
1874	1794	1714	1634	1554	1474
1875	1795	1715	1635	1555	1475
1876	1796	1716	1636	1556	1476
1877	1797	1717	1637	1557	1477
1878	1798	1718	1638	1558	1478
1879	1799	1719	1639	1559	1479
1880	1800	1720	1640	1560	1480
1881	1801	1721	1641	1561	1481
1882	1802	1722	1642	1562	1482
1883	1803	1723	1643	1563	1483
1884	1804	1724	1644	1564	1484
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1891	1811	1731	1651	1571	1491
1892	1812	1732	1652	1572	1492
1893	1813	1733	1653	1573	1493
1894	1814	1734	1654	1574	1494
1895	1815	1735	1655	1575	1495
1896	1816	1736	1656	1576	1496
1897	1817	1737	1657	1577	1497
1898	1818	1738	1658	1578	1498
1899	1819	1739	1659	1579	1499
1900	1820	1740	1660	1580	1500
1901	1821	1741	1661	1581	1501
1902	1822	1742	1662	1582	1502
1903	1823	1743	1663	1583	1503
1904	1824	1744	1664	1584	1504
1905	1825	1745	1665	1585	1505
1906	1826	1746	1666	1586	1506
1907	1827	1747	1667	1587	1507
1908	1828	1748	1668	1588	1508
1909	1829	1749	1669	1589	1509
1910	1830	1750	1670	1590	1510
1911	1831	1751	1671	1591	1511
1912	1832	1752	1672	1592	1512
1913	1833	1753	1673	1593	1513
1914	1834	1754	1674	1594	1514
1915	1835	1755	1675	1595	1515
1916	1836	1756	1676	1596	1516
1917	1837	1757	1677	1597	1517
1918	1838	1758	1678	1598	1518
1919	1839	1759	1679	1599	1519
1920	1840	1760	1680	1600	1520

General Use	Low Power
Interoperability	2ndary Trunking
Reserve	I/O Nationwide Call
State License	I/O Low Speed Data

Data primary, voice secondary

15w ERP itinerant, analog or digital

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802 MHz

805 MHz

The Continuum Technology Lane: Restoration

- Non-terrestrial resources
 - Deployable infrastructure on airborne platforms
 - Who maintains and deploys?
 - States at the state level, using Air National Guard at direction of Statewide Interoperability Coordinator
 - FEMA with DoD support at the national level, with state licensee sponsors
 - » Remember that Federal agencies are not eligible to hold licenses in 700/800 MHz bands
 - Coordination required across coverage footprint
 - Function of NIMS Communications Coordinator (COMC)
 - Satellite
 - Expensive!
 - Application has limitations (buildings, canyons, etc)
 - Requires ongoing training and exercises

The Continuum Technology Lane: Standards

- Nothing is interoperable without detailed technical standards in a digital world
 - Must to be backward compatible and forward migratable
- Congress/FCC need to understand that IP is not the solution, it is only the carrier and a cost effective and sometimes elegant enabler!
 - Applications must be interoperable
 - IP-related issue are many
 - Usually requires private, robust network
 - Networks must be up 24/7/365
 - Special provisioning and QoS often needed
 - Special training for IT support staff often needed

The Continuum SOPs Lane

- Standard Operating Procedures are the basis by which we all operate
- SOPs address the three types of interoperability (each with unique characteristics)
 - Day-to-day (estimated in the PSWAC *Final Report* to be 97% of all interoperability)
 - Task-Force (2%)
 - Mutual Aid (activation of provisions of a state's mutual aid pact for planned or unplanned event – 1%)

The Continuum SOPs Lane

- The importance of using common structures and terminology nationwide
 - NIMS/ICS and the Communications Unit (COML training)
 - Standard channel naming
 - NPSTC recommendation now in APCO/ANSI standardization process
- Example: Back to sustainable power...
 - Credentials so fuel trucks and contract/govt maintenance personnel can get to sites
 - Arrangements for alternative fuel delivery (helicopters, etc)

The Continuum Training & Exercise Lane

- Training priorities are often badly skewed
 - Law enforcement officers are typically trained and qualify with their handgun quarterly
 - Most never fire their handgun outside of the range during their entire career
 - Law enforcement officers typically receive radio training at initial hire and when new equipment is implemented
 - Most use their radios several times on every single call!
- Radio use should be included in all exercises
 - Use Homeland Security Exercise & Evaluation Plan (HSEEP) guidelines for exercises
- Radio use should be integrated into all training

The Continuum Training & Exercise Lane

- Practice like you play (and vice versa)
 - Particularly important in crisis situations and under high stress
- Congress should provide grant-supported certification and training for NIMS/ICS Communications Unit personnel
- Congress should stress Training and Exercises as part of system implementation (particularly for interoperability components) for all grant funded projects

The Continuum Usage Lane

- Practice like you play (and vice versa)
 - 97% of interoperability is day-to-day
- Use breeds familiarity
 - Never introduce something new during a crisis – it won't get used!



Any
Questions?

