



KING COUNTY FIRE RESOURCE PLAN

Section 9 A – Mutual Aid Communications Plan

King County Regional 800 MHz Trunked Radio Network
Adopted March 22, 1995

Fire agencies in King County routinely provide automatic-aid and mutual-aid support to other fire agencies in the county. Often this involves the routine dispatching of units from bordering departments on a first-alarm basis. Sometimes units are moved in from a neighboring agency to cover an area of a department that is heavily deployed on other incidents. Sometimes the inter-zone moves developed in the King County Fire Resource Plan are used to bring large groups of resources into major incidents.

Whichever level of assistance is being provided, effective communications is key to successful incident management. With the implementation of the county-wide 800 MHz trunked radio network, fire agencies in King County have a unique opportunity to improve the way Mutual Aid communications are accomplished and develop a communications plan to best fit the way services are delivered.

This plan is intended to serve as a guide on how automatic aid and mutual-aid communications will be accomplished.

ROUTINE "AUTOMATIC" OR "FIRST ALARM" MUTUAL AID

Fire agencies routinely cross jurisdictional boundaries to assist neighboring agencies. Complicated mutual-aid communications procedures would be counter-productive in these circumstances. This type of routine mutual-aid communications will be best accommodated by having the main talkgroups of neighboring agencies pre-programmed into the radios and available for use in automatic-aid situations. Neighboring departments who support each other on a routine basis will need to coordinate their talkgroup plans so that cross-programming of radios will be as manageable as possible.

INTER-ZONE MUTUAL AID

Five (5) Mutual Aid talkgroups are established on the system. The names of these talkgroups are:

MA ZONE1
MA ZONE2
MA ZONE3
MA ZONE4
MA ZONE5

These talkgroups will be programmed into all fire radios in the County that have the potential to be involved in an inter-zone mutual aid move. When inter-zone resources are dispatched, responding units will switch to the Mutual Aid talkgroup as assigned through dispatch. One Communications Center will be designated in each Zone as the control point for the Mutual Aid talkgroup. This Communications Center will be responsible for *Talkgroup Merging* the Mutual Aid talkgroup into the working talkgroup for the incident the units are responding to, even if the incident is not being dispatched from that Communications Center.

At this time, the three (3) controlling Communications Centers will be:

Zone 1 Bellevue Dispatch Center
Zone 3 Valley Communications Center
Zone 5 Seattle Fire Dispatch Center

As a back-up, each of the Communications Centers will be able to initiate any required *Talkgroup Merge* if the primary Communications Center is unable to do so due to technical problems.

In addition to the main Mutual Aid talkgroup assigned to each Zone, a "pool" of two (2) additional Mutual Aid talkgroups are established in the region. These 2 talkgroups will not be assigned to any specific Zone. Instead, the "pool" will be managed by the Seattle Fire Dispatch Center and any Zone in the County who needs to utilize a second Mutual Aid talkgroup to support multiple mutual aid incidents will notify Seattle Fire and get an assignment from the "pool". A procedure for notification and utilization of pool talkgroups has been circulated to all fire communications centers in the County.

The assignment of a POOL Talkgroup will be broadcast at the time of dispatching the second mutual aid group so they know which Mutual Aid talkgroup to switch to for the incident they are responding to. These talkgroups will be programmed into all fire radios in the County that have the potential to be involved in inter-Zone mutual aid.

The "pool" Mutual Aid talkgroups will be named:

MA POOL1
MA POOL2

MUTUAL AID TO THE PORT OF SEATTLE/SEA TAC INTERNATIONAL AIRPORT

The Port of Seattle's 800 MHz system is not directly connected to the regional network's switch. Therefore, all fire radios in the County that have the potential to be involved in providing mutual aid to the Port of Seattle will need to have a mutual aid talkgroup programmed on their radios that will place them on the Port's system so they can then be *Talkgroup Merged* into the incident talkgroup on the Port's system.

The name of this talkgroup is MA POSFD

HANDLING TRUNKED RADIO SYSTEM EMERGENCY ALARMS AND CALLS

Background

The 800 MHz trunked radio system has the ability to allow individual portable radios operating on the system to activate a button which places them in an EMERGENCY mode. When this button is pushed, a number of different system and dispatcher events can be set in motion to allow the proper handling of the emergency situation.

Fire Service "Definition" of What an Emergency Alarm Means

The King County Fire Chief adopted an unified interpretation of what an EMERGENCY alarm activation means. This will aid in the uniform processing of EMERGENCY alarms and calls when they occur during day-to-day and mutual aid activities. The following is a summary of the comments/discussion that received universal support by those participating in the planning effort:

Even in times of stressful on-scene situations, fire service personnel will likely use their radios in a normal manner to advise of deteriorating conditions, request further assistance, give direction to other crews or conduct other incident-critical communications.

Activation of the EMERGENCY button will be interpreted as the radio user or crew being in a life threatening situation in which normal communications operations will not meet their need for immediate assistance. It is a "CALL FOR HELP"

Normal fire-ground communications (and the continuing dispatch of other incidents) needs to continue while resources are also directed to interaction with the radio user in the EMERGENCY status and providing them the assistance they need.

It was further observed that it is important in any discussion of the EMERGENCY function that we keep in mind the limitations of the feature itself. While it can indeed improve the ability of a radio user who is in distress to notify others of this fact, it is a supplement to not replacement for, other well established accountability mechanisms and individual PASS alarms. Users will need good training so they know what the EMERGENCY function can do for them and what it can't.

We also need to recognize that the EMERGENCY function only works on the trunked radio system. If a radio is switched to a conventional channel (such as ICALL or ITAC) or a simplex channel (such as STATEOPS1 or 4) the EMERGENCY feature is not available.

Emergency Activations

After considerable debate and discussion on the pros and cons of perhaps up to a dozen different alternative approaches, it was decided that the following strategy provides the best mix of functionality and manageability, both for field personnel and for communications center personnel. Further detailed documentation of this approach may be needed for the System

Managers to establish the proper radio programming parameters and for the Communications Centers to develop detailed procedures for implementing these concepts, but the following discussion provides an overview of how Fire Service EMERGENCIES would be handled in King County.

The fire service will be better able to monitor and manage EMERGENCY Alarms and Calls if the Default Talkgroup approach is utilized.

There will be established on the system a total of four (4) EMERGENCY TALKGROUPS, one for each Zone in the King County Fire Resource Plan. The names of these talkgroups will be:

EMER Z - 1
EMER Z - 3
EMER Z - 4
EMER Z - 5

A minimum of one Communications Center in each Zone would be tasked with the responsibility of monitoring that Zones EMERGENCY TALKGROUP and reacting to any EMERGENCY activation. These Com Centers can choose to monitor the EMERGENCY TALKGROUPS of other Zones as needed, such as when they have sent units to another Zone. Initially, the Monitoring Communications Centers will be:

ZONE 1	Bellevue Dispatch Center
ZONE 3	Valley Communications Center
ZONE 5	Seattle Fire Alarm Center

A regional Radio ID number blocking scheme will be developed and maintained so that the Monitoring Communications Centers will be able to determine, at a minimum, the normal controlling Communications Center for any radio ID number. The Sub-regional System Managers will be asked to further develop a number blocking scheme that will allow the identification of the specific agency a particular radio ID number belongs to.

The Monitoring Communications Centers will potentially receive EMERGENCY Alarms and/or Calls under two possible scenarios:

Incidents Occurring in Agencies who are Dispatched by the Monitoring Com Center

If an EMERGENCY Alarm is received from a unit operating on an incident under the control of the Monitoring Communications Center, dispatch personnel will immediately attempt to establish communications with the radio user. They will also immediately notify the Incident Commander for the incident the unit is on that they have received an EMERGENCY from the specific radio. This notification will include the unit designator for the radio (such as Engine 12) if it is known.

If communications are established with the radio user, the EMERGENCY TALKGROUP could be Talkgroup Merged to the incident talkgroup so the Incident

Commander could communicate directly with the radio user in trouble. Whether or not to do this will be at the discretion of the Incident Commander. Alternately, the Incident commander could switch a radio to the EMERGENCY TALKGROUP to communicate with the radio user that is in distress. This is likely the preferred approach.

Incidents Occurring in other Agencies in the Zone that are not Dispatched by the Monitoring Com Center

If an EMERGENCY Alarm is received from a unit operating on an incident that is not under the control of the Monitoring Communications Center, dispatch personnel will immediately attempt to establish communications with the radio user. They will also immediately notify the Communications Center that normally controls the unit that they have received in EMERGENCY from that particular radio ID number and whether they were able to establish contact with the unit.

The normally controlling Communications Center can then continue to attempt to communicate with the radio on the EMERGENCY TALKGROUP and notify the Incident Commander of the EMERGENCY activation. As described above, The EMERGENCY TALKGROUP could be talkgroup Merged with the incident talkgroup or the Incident Commander could switch a radio to the EMERGENCY TALKGROUP to establish communications.

It should also be noted that if a unit is out of their jurisdiction on a mutual aid assignment (automatic aid, mutual aid, Zone move, etc.) and activates their EMERGENCY button the Com Center handling the situation will notify the normally controlling Com Center of the EMERGENCY activation. This will only be done when time allows and will not be of so high a priority that it distracts from the handling of the EMERGENCY itself.

EMERGENCY activations may also be monitored at other fire communications centers by way of Zone Manager/Dispatcher X-Terminals, System Watch Terminals or alternative console connection methodologies.

Every portable radio in the system would be programmed with a minimum of five (5) personalities, one for each fire Zone. Any talkgroup programmed into the radio will be put into one of these Personalities, depending on which Zone the talkgroup is normally used in. This will allow agencies to program neighboring agencies talkgroups into their radios and have any EMERGENCY activation go to the Com Center responsible for monitoring EMERGENCIES in that Zone. More than a single Personality may be needed for the home Zone since radios will have multiple talkgroups in them that are routinely used in their own Zone.

There are several region-wide interoperability talkgroups on the system that are used for communications with law enforcement agencies and local government agencies. These will be programmed into the Personality for the home Zone so that any EMERGENCY activation on one of these talkgroups would be routed back to the Communications Center that monitors the EMERGENCIES for the Zone the radio is normally operating in.

Accidental activations of the EMERGENCY button will occur. When this happens, the user needs to answer up on the EMERGENCY TALKGROUP, confirm that they are OK, and then reset their radio. If the Com Center is unable to establish contact with a radio following an EMERGENCY activation it will be treated as a true EMERGENCY and every attempt will be made to identify who the radio user is and where they are so help can be sent. Training will reinforce this issue so that users take the activation of the EMERGENCY button very seriously.

MANDATED CONVENTIONAL COMMUNICATIONS CAPABILITIES

State and National 800 MHz licensing rules require that 800 MHz radios be programmed to operate in conventional and talk-around modes so that radios from dissimilar systems can communicate when they are outside the coverage of their parent system. These channels have the following names in the State Plan:

ICALL	STATEOPS1
ITAC-1	STATEOPS2
ITAC-2	STATEOPS3
ITAC-3	STATEOPS4
ITAC-4	STATEOPS

Detailed descriptions of the policies and rules in using these channels are developed in a State-wide plan. The following is a summary of the key points:

ICALL

The International Calling Channel (ICALL) has been established as a mechanism to request aid or assistance when outside the coverage system of your parent system. Over time, ICALL repeaters will be developed nation-wide and in Canada (particularly in urbanized areas) as 800 MHz systems are required to monitor ICALL in their area.

ICALL really has two purposes. First, it is a means for our radios to request assistance if we are out of the coverage of our system. For example, if one of the King County system radios were to be in the Portland area and witness an accident, they could identify themselves on ICALL and be answered by a local Communications Center who could coordinate sending the assistance we needed. Similarly, 800 MHz radio users from out of our area could request assistance from monitoring Communications Centers in King County.

ITAC CHANNELS

The International Working Channels (ITAC-1, 2, 3 & 4) have been established to provide additional conventional repeater capability to be implemented as needed to accommodate mutual-aid communications between radios from dissimilar systems. The number of ITAC channels implemented in any region is dependent on the number of radios operating in the region. In King County, all 4 ITAC channels will be implemented.

The fundamental concept in the use of the ITAC channels is that they will be assigned by the Communications Center that answers an ICALL request for assistance. Lets say that an out-of-jurisdiction radio comes up on ICALL and advises that they are on location of a serious auto accident and need assistance. The answering Communications Center may advise that unit to switch to the best ITAC repeater for their location and advise dispatched units to contact the on-the-scene unit on that ITAC. This frees the ICALL channel from being burdened with working incidents and keeps it available for other calls for assistance.

It is not anticipated that ICALL and ITAC channels will be very heavily utilized so it will be necessary to develop regular testing processes to assure that Communications Center and operational personnel keep familiar with the practices of their use.

STATEOPS CHANNELS

These channels are established as non-repeater channels for use in the talk-around mode so similar and dissimilar 800 MHz radios can communicate when they are out of contact with their parent system or an ITAC repeater. The STATEOPS channels are apportioned as follows:

STATEOPS1	Primarily for tactical Fire and EMS use
STATEOPS2	Primarily for tactical Law Enforcement use
STATEOPS3	Primarily for tactical Local Government use and a State-wide common channel
STATEOPS4	Primarily for tactical Fire and EMS use
STATEOPS5	Primarily for tactical Law Enforcement use

We are required at a minimum to have STATEOPS3 in our radios to accommodate interoperability with any other 800 MHz radio in the state. We can choose to program in one or more of the other STATEOPS channels to fit our own operational needs.

Just for further clarification, the following language is extracted from the Washington State plan for 800 MHz frequencies:

CHANNEL USAGE

Plain English shall be used on all interoperability channels at all times; encrypting shall be prohibited. Units will use the unit identifiers they normally use in their system, but will then adapt to any prescribed identifier and on-air protocol as determined by the controlling agency.

Paging, alerting and other means of signaling on these Mutual Aid channels is prohibited.

The use of the Calling Channel for intra-system normal dispatch and routine

agency operations is strictly prohibited. Normally, the ITAC channels are to be used only for activities requiring communications between agencies not sharing any other compatible communications system. Under emergency situations, one or more of the ITAC channels may be assigned by the controlling agency for the duration of the incident.

All of the Mutual Aid channels are subject to a priority usage concept. These priorities are as follows:

Priority 1:	Disaster and extreme emergency operations, for mutual aid and inter-agency communications.
Priority 2:	Emergency or urgent operations involving imminent danger to the safety of life or property.
Priority 3:	Special event control activities, generally of a pre-planned nature, and generally involving joint participation of two or more agencies.
Priority 3a:	Drills, tests and exercises of a civil defense or disaster nature.
Priority 4:	Single agency secondary communications. (Applicable to the STATEOPS channels only.)

RESULTING MUTUAL AID TALKGROUP/CHANNEL PLAN

It is important for fire service radio equipment to be programmed in a consistent manner to support mutual aid communications. The talkgroups and channels identified in this Plan can be grouped into a single bank of sixteen (16) modes on the portable radios used on the system. Conformance to this approach will maximize the ability of field units to communicate effectively when involved in large-scale mutual aid events. The following table lists the identified position on the radio, the official talkgroup or channel name, and the EMERGENCY processing protocol.

1	STATEOPS 1	Simplex channel, NO EMER
2	STATEOPS 4	Simplex channel, NO EMER
3	STATEOPS 3	Simplex channel, NO EMER
4	ICALL	Conventional channel, NO EMER
5	ITAC-1	Conventional channel, NO EMER
6	ITAC-2	Conventional channel, NO EMER
7	ITAC-3	Conventional channel, NO EMER
8	ITAC-4	Conventional channel, NO EMER
9	MA POOL 1	EMER Z-5
10	MA POOL 2	EMER Z-5
11	MA ZONE 1	EMER Z-1
12	MA ZONE 2	EMER Z-2
13	MA ZONE 3	EMER Z-3
14	MA ZONE 4	EMER Z-4
15	MA ZONE 5	EMER Z-5
16	MA POSFD TACTICAL EMER	Port of Seattle System, on this Talkgroup