To: Region 21 National Plan Update Committee.
Joe Turner , Chairman

Re: Interim Report #1 of the Interference Subcommittee
Feb. 2, 2004

1. CHARGE. As charged by the main committee the Sub Committee on Interference has been investigating the recognition of co channel and adjacent channel conflicts in the 806mhz and 821mhz bands licensed in the area of the City of Detroit and Oakland Co.

2. ACTION: Sub committee meetings have been held and considerable action taken by all committee members resulting in approximately 80 man hours or more expended. The results are this report and attachments. The next step is the submission of this report to the licensees involved and the solicitation of their input toward resolution of some of these problems.

3. INVESTIGATION OF PROBLEM: Several database reviews were made , some field measurements made and committee members conducted interviews. It was determined that in the area reviewed there are cases of adjacent channel interference present as well as the potential for more instances. Existing licenses do conflict and will not allow the necessary expansion of adjacent channel systems and will create more adjacent channel interference as systems are activated. There were no unused channels found that could be licensed in the area without considerable engineering and short space studies or letters of concurrence, to relieve the congestion. The area under investigation includes the states largest city and two of the largest counties. Two of the states largest radio systems are under construction in the area, one serving 5,580 mobile users and the other serving 10,057 mobile users. There is a lack of useable radio channels to properly accommodate these systems. Further complicating the situation this area rests on a National border with resulting rules that limit the number of available radio channels for use in the US. A review of the licenses of both of these large systems reveals that at least 10 channels in BOTH systems suffer from adjacent channel restrictions that will prohibit licensing of further system sites and potentially cause interference. These adjacent channel collisions occur not only between the two new systems but also with the new systems and at least five existing licensed and operating systems in the immediate area.

3. SUGGESTED SOLUTIONS: Several avenues of action have been suggested by interested parties and committee members. Some have been dismissed as impractical or illegal and others will be held in reserve if more acceptable solutions cannot be developed. It is in the interest of the committee and the licensees involved to arrive at an acceptable solution that will allow the construction of both new systems in the area with minimum conflicts. It is possible that any resolution by the FCC to these problems would be less than desirable to all parties. The solution of licensing new channels to avoid conflicts and accommodate users is not possible as currently no channels are available in these bands. A suggestion was put forth to swap channels between the two newer systems to relieve many of the problems and this is the solution pursued in this report.

4. SUPPORT FOR SOLUTION INVESTIGATED: The following points were suggested and considered for supporting the solution of swapping frequencies between the parties whose systems are under construction. A) It was estimated that 80% of the identified problems could be resolved in this manner; B) Both parties have frequencies in the 806 and 821mhz bands; C) one of the new licensees is using a system that can benefit from 20khz bandwidth and 25khz spacing offered by the 806mhz band; D) much of the equipment for the new systems has not been constructed or delivered yet; E) only a few of the sites in both new systems have been licensed so far; F) only two parties licenses will have to be modified; G) this swap will solve some adjacent channel problems that both parties have with other licensees also. This solution is certainly not a "silver bullet" or cure all for this problem. It certainly does not help the problem of channel shortages in the Detroit area and it will require innovative use of antenna selection and other parameters in both systems.

5. DEVELOPMENT OF SWAP PLAN: As work progressed on the development of a swap plan for improvement of this problem the following guidelines were used and followed wherever possible. 1) Channels were not included in the swap plan unless they were licensable in the new area and caused no apparent conflicts; 2) Because of the lack of available channels in this area short spacing is a must in all bands and is considered a useable process; 3) Basically we used only channels currently licensed to the parties, there are a couple of exceptions; 4) Channels currently licensed but NOT on the swap list will remain with the current licensee; 5) Most channels that are on pending applications were not included on the swap list, there may be an exception to make the balance right, 6) In fairness the same number of channels were considered to go in each direction, however not all of the original licensed and non swap channels are useable in their original areas, there is also a big imbalance between the systems regarding the number of units per channel as the reader will see due to a lack of available channels.

6.CHANNEL TRANSFER LISTS: Attached to this report are four lists, the first two lists are the swap or transferable channel lists. There is a list for channels that would be transferred from Oakland County to Detroit and another list of channels to be transferred from Detroit to Oakland County. Both lists contain 19 channels and a great deal of work went in to being sure these channels were licensable in their intended jurisdiction at a majority of sites. It must be noted that due to co channel and adjacent channel considerations there may be sites that are not licensable at every spot in the intended jurisdiction.. For example there may be a corner of Detroit or Oakland Co that cannot support a particular channel due to co channel or adjacent channel systems in other counties however we are comfortable that those channels can be used effectively at sites necessary to give complete coverage. There is no magic to the number 19, that just happened to be the number of channels that we could do equally, in fact our first drafts had 21 channels however deeper studies indicated that only 19 would meet our strict standards and balance.

7. USEABLE CHANNEL LISTS: Attached also are two lists that take the transferred channels from the lists in paragraph #6 and adds the remaining licensed channels at that jurisdiction that do not have serious co channel or adjacent channel conflicts. We suggest that those channels that are not useable return to the pool for users out side the congested area. As the reader reviews these lists you will note that there are thirty-two channels available for Detroit who has demonstrated a user base of 10,057 units, which results in 285 units per channel. The Oakland Co list develops thirty-five channels and with a demonstrated user base of 5,580 units results in 159 units per channel. The committee also recognizes that licensees are attempting to license new additional channels in this area. We are aware that Oakland County has applications filed or pending for five channels and that Detroit/State has one pending. The committee has not considered these channels in the lists as we are unsure whether they will be able to be licensed or not.

8. IMPLEMENTATION: Upon acceptance of this plan or any other plan that is adopted the Interference Committee will work with licensee's representative to file FCC licenses to implement the plan. This could include development of interference curves to submit with licenses for short spacing and electronic submission of 601 forms. It has been suggested that we may be able to file licenses for the new channel configurations and then sometime within a year cancel the old licenses after conversion has taken place. This of course will all depend on FCC and Coordinator rules. The Sub Committee intends to solicit the Coordinator APCO to consider waiving fees on the license changes to implement a solution to this interference complaint and problem.

9. AGREEMENT: Upon selection of an agreed upon resolution a written agreement will be developed and approved by all parties to be signed by the participants to confirm there acceptance and cooperation with the agreed plan of action.

10. CONSIDERATION AND SUGGESTIONS: This Interim #1 report is submitted to the Main Committee and to the involved licensees, Oakland County and City of Detroit for their review and comment. Sub Committee members will try to answer any questions at a meeting in Pontiac on Feb 9th at 10am. We ask that official requests for change or acceptance come from the licensee only in writing by e-mail, US mail or hand delivered so that they may be distributed to Sub Committee members and given careful consideration and review. After receipt of responses and review a second report will be submitted to all parties confirming the current status.

Respectfully submitted:

Interference Sub Committee
David H. Held, Chair