



## Idyllwild's Emergency Broadcast Station

**WNKI 578 – 1610 AM**

March 18, 2014

This preliminary report provides a number of thoughts regarding the broadcast and station improvements deemed required of WNKI578. During the past couple of months we have attended a number of meetings with various County Operation of Emergency (OES) Officials, County Supervisor Stone and the Fire Safe Council of Idyllwild seeking their input and thoughts towards a better broadcast station on the mountain.

WNKI's primary purpose

1. During normal (or nonemergency) conditions, WNKI will broadcast general road conditions and pending weather updates, evacuation and re-entry information, and other information vital to the welfare of citizens of the Community. The broadcasts may also include other briefs on forest activity restrictions, general preparedness, items to consider for an emergency and any schedules pertaining to local exercises or demonstrations of emergency preparedness and or emergency communication operations.
2. During times of emergency WNKI shall broadcast 24 hours a day, 7 days a week, with updates as to the emergency at hand. A time of emergency may be determined by the IFPD Fire Chief or by the Public Information Officer ("PIO") assigned by Incident Command. The updates relating to the emergencies are provided to WNKI from IFPD (or any other designated public service office) or the PIO and then broadcast to the general public.

After a review of the Community Wildfire Protection Plan (CWPP) as presented by the Fire Safe Council it is evident that a major overhaul of Station WNKI578 is necessary. The station resides at Idyllwild Fire (IFPD) shrouded by a circle of mountains and is limited in coverage due to a maximum (FCC regulated) broadcast power of 10 watts and a poorly tuned antenna system. The current range that the station covers effectively is basically IFPD's boundaries. Once one travels north of Marion Ridge in Pine Cove or South of Lower Saunders Meadow along Highway 243 the station begins to cut out. Based on the comments of the neighboring communities that the CWPP covers a broader range of coverage is paramount for the safety of our citizens.

The CWPP covers several areas outside the scope of IFPD's jurisdiction. Basically the CWPP takes in Twin Pines, Poppet Flats, clear through Pine Cove, Idyllwild, Garner Valley and Pinyon Pines. Therefore the suggestion on the table is that we pull multiple agencies together and consider multiple broadcast sites for a greater range of coverage, effectively reaching a wider population in times of emergency.

The following is an outline of goals, talking points, response and potential costs for improving WNKI and broadening its range of operation to better support the CWPP. All of these details were discussed at length with an expert in the field regarding such AM broadcast type stations. The company has submitted preliminary bid proposals and *responses in blue* based on the following outline. You will notice that within this outline some costs have been tagged to the various topics. Then in conclusion a list of priorities have been proposed for consideration and again their costs have been noted based on the bids received.

WNKI578 - CWPP - Proposed Goals



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### Station WNKI578 – 1610 AM

#### Goals

1. Improved performance – Current Station Range is limited and quality of transmission is poor. **Quote 1a - Upgrades to the present WNKI Antenna System** *As mentioned, your grounding is great, but you would likely benefit from a tuned antenna, lightning arrestor and ground bus. This includes the #4 wire you need to connect properly to your ground rod system. Total cost \$1,800.*
2. Maintain ability to call in if you are out of range to listen to an alert or emergency. **StreamCast** *this example quote is for the electronics required plus a full year of streaming service at \$29.95/month. It also includes ISS's hosting service and the URL name "HearMoreInfo.Com" if you find it useful to use on signs and promotions and such. Of course you would also link the stream from any/all of your existing websites that the public is familiar with. This cost may be in lieu on one of the two phone lines currently in the stations budget.*
3. Modern programming or software – willing to accept current technology "Audio Files". **Quote 1b – Upgrades to WNKI's Audio System....***so that it is based on high quality, AM processed & EQ'ed standard audio files that automatically rotate in a playlist...accessible via network, modem or by flash drive. Includes a D/A and an audio delay unit for the home location. Not included is the means to shoot the network or the audio stream up to the mountain-top antenna site. This can be added or you can do it yourselves, of course. Total cost \$3,700.*
4. Both phone in and UHF/VHF programming. *Yes this is available as an option, not herein discussed.*
5. Capable of programming different subjects based on the time of day, day of the week or day of a given month. *Yes this is available as an option, not herein discussed.*
6. Maintain current transmitter to avoid additional cost of a new transmitter. **WNKI Synch – To make WNKI synch with new stations once they are added, add about \$3K for the synch system. The WNKI Transmitter must also be able to accept a reference synch signal from GPS. If the transmitter you have cannot, add \$3.5K for a 10 watt type accepted transmitter. (Might be a good idea anyway, since the 1K unit you have will not stand up to FCC scrutiny!)**
7. Is there a way to keep some of the stations original messages to honor some of the legacy and station history? *Yes, If they are (or can be converted to .wav or .mp3 format.)*

#### Community Wildfire Protection Plan – CWPP

1. WNKI578 is discussed in the local CWPP and in many of the outlying areas to the San Jacinto Mountain Range they are asking for broadcast coverage, they cannot hear the station. Many in the outlying areas are asking that we crank up the power, but we know the FCC will not allow it. *Ten (10) watts is the maximum allowed power output.*



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2. Some of the thoughts to address the added range of coverage are to place simulcast AM station(s) in strategic locations capable of reaching the intended locations. Please see the attached maps that may cover key locations. ***New AM Repeater Locations – Each repeater location will cost about \$20-\$22KK. That includes all the new AM gear, license and engineering, the GPS synch equipment and the Wireless audio link receiver, antenna, etc. The stations would be installed by local labor with ISS's assist and likely training at some point.***
3. We discussed Low Power FM transmitters (LPFM) but the difficulty in obtaining a frequency that is not in use may prohibit FM as an option. Competition for frequency, limited application periods and added programming requirements are all an added burden on the station administrator's. Are there any FM options worth exploring that would fall under the "PW" or "TIS" license category? ***Not an easy task given our location and competition for frequency. Additionally, the LPFM window is now closed.***

#### Changing Station Location and or Adding Additional Sites – for Improved Broadcast Coverage

1. Can the current WNKI578 license be transferred say from the Idyllwild Fire Protection District to Riverside County Operations of Emergency Service (OES) / Cal Fire and still maintain the same License Number? The license in our community has history as if it's a brand name. ***This can be done, yes.***
2. What are our major challenges in moving the station location, say from Idyllwild to Pine Cove, from in a bowl to a ridge line? ***Antenna location at the ridge location is not suitable for an AM groundplane and the height of the antenna itself would be required to be taller than the existing antennas at the repeater site in Pine Cove. There would be a lot of AM signal pushing near the other antennas up there, which can create issues. No clear way to accomplish at this location.***
3. What are our options for linking up other (FM or AM) stations (using our current license) throughout our mountain range? ***Wireless Audio Link Transmit Equipment – To send the signal to the new AM repeater locations. This normally retails at \$5995 including all electronics. Antennas, masts, license, engineering and even cable. It would be a good 25% less for you because we can remove some of the install labor that we budget for.***
4. How many linked, simulcast repeater type stations could we operate under one license. ***Only limited by others using 1610 within the area of coverage – and there are not any at this time. WNKI has a protection area of 9.3 miles in all directions current that will prevent other 1610's from being licensed, but that would not prevent Caltrans from doing so down on the I-10, for example. Therefore, it is recommended that if expansion is inevitable, licensing should be done as soon as funding is available. Cost thru ISS is \$895 for the initial location and \$150 for each additional.***



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### RadioSTAT and or remote Fixed Sites

1. Can these units be deployed either at fixed locations or remote and still be operated under WNKI578? *Yes.*
2. If there were multiple stations on the air under our one license, could they be in sync with one another delivering the same broadcast? *Yes.*
3. Could these same stations deliver specific messages to a specific location? *Typically this is not the design of a synchronized system, but could be done if the stations did not overlap or were on separate frequencies.*
4. Can these RadioSTAT or remote fixed stations be equipped with VHF / UHF programming radios if the phone lines and internet goes down? *Yes.*

### Suggested order of priority

1. Improve antenna performance = \$1,800 current estimate.
2. Perform a field test in conjunction with May 22, 2014 Fire Drill exercise (if it is OES's intention to invite WNKI) with portable rented equipment = \$1,700.
3. Study results of the above pair of priorities and determine the path forward.
4. Further station upgrades at IFPD to effectively improve station efficiency and simplicity of operations = \$10,000.
5. Deploy fixed site remote location units if study proves effective = \$22,000 per site.

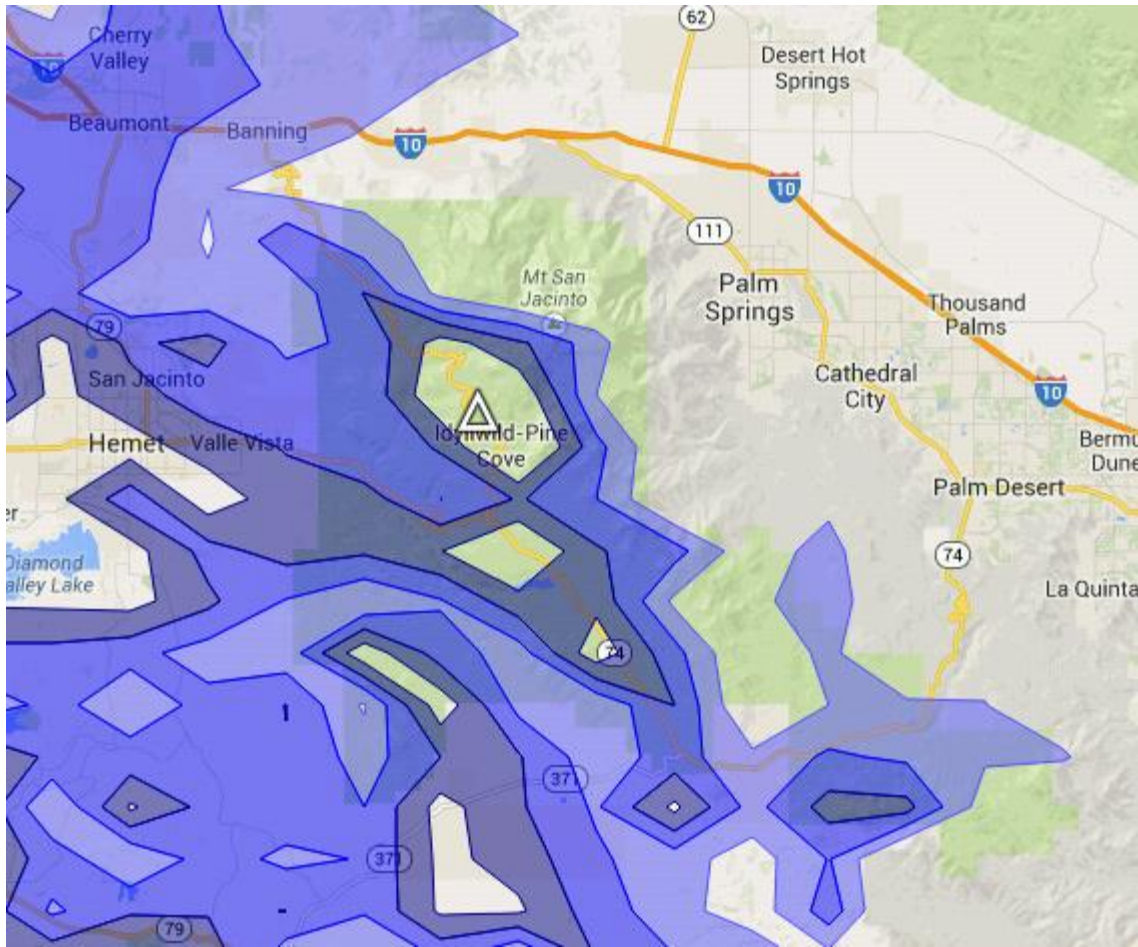
Respectfully submitted,

Bill Tell KD6KTV









Idyllwild Wireless Audio Link Coverage on 72 MHz, 25 watts.

Transmit location at 33-45-54.1N 116-43-54.3W, 10 meters AGL

Light blue -80 to -70 dBm

Med blue -70 to -60 dBm

Dark blue -60 to -50 dBm

Transparent: Greater than -50 dBm or blocked/no signal area

-75 dBm required for quiet signal reception