

A HISTORY OF SWRFM OUTSIDE BROADCASTS

Broadcasting live from out in the community has been a staple of SWRFM's activity since the very first test in 1992. Coupled with a strong focus on local talent delivered through SWR's "Live Bands Days", whenever something of significance was going on in the broadcast area, SWR always does its best to "be there."

A categorical list of all of the live broadcasts SWR has ever staged, would fill pages so we won't do that here. What we will do however, is focus on the unique technology and approach SWR has used to deliver to these events. Sufficed to say, SWR "didn't do things like everyone else did" So lets begin with the story..

SWRFM Outside Broadcast Audio Links

Before the van came along in 2005 and again now since 2024, a SWR O/B generally consisted of some sort of table, some haphazardly assembled equipment sitting on top of said table and a bunch of wires connecting it all together. More often than not, this was all hidden behind hoardings of "SWRFM" banners, posters or signs.

From the very beginning at SWRFM, it was never good enough simply to go to an OB site, set up some gear and then stand around looking like we're on air when in reality, control of the program stream still remained firmly in the studio. This approach was extremely common among commercial and even other community stations back in the day, usually because they believed that to conduct a "proper O/B" would be too hard or expensive, or both. For them, studio sourced content would instead merely be interrupted by the occasional three minute "live cross" to an OB site. Any suggestion of SWR doing such a thing was always met with very stern disapproval. *That would simply not be good enough!*

For a long time at SWRFM, an OB always had to be just that. A technical "Outside Broadcast." Every bit of audio would be sourced *from the OB site itself*. Anything less was sacrilege! Voice, music, ambience, spontaneity and even technical problems all played critical parts in a SWRFM OB. In a station who's signature song at the beginning had always cried: "*Right here, Right now, there is no other place I want to be,*" at a SWRFM OB *you are there. Listening. Now. That's even if we're not ready for you!*

"Crossbar" links. That 1990's analog magic solution

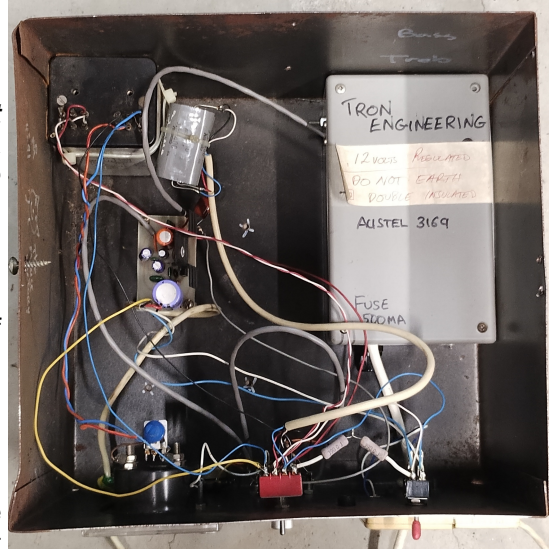
In the commercial industry, stations would pay Telstra upwards of several thousand dollars per O/B just to patch telephone lines together through equalization amplifiers at local exchanges and a centrally located SOC (Sound Operations Centre). This would provide wide band analogue links between an O/B site and a studio. These had a typical equalised bandwidth of around 10kHz. This was more than enough for FM broadcast. Of course SWR didn't have "several thousand dollars" hanging around just to do an O/B. So they needed an alternative.

The favoured method of getting audio from an OB site back to the SWRFM studio back in the 1990s was to use what SWRFM referred to as a "*Crossbar Link*". A crossbar link was more or less exactly the same thing as the expensive "outside broadcast" line.. except it cost SWR \$0.25 and used existing telephone lines. Depending on the total line length and the amount of equalization used at each end, the performance of a *crossbar link* was more or



Above : Outside Broadcast at Mt Druitt Markettown for SWR's second test broadcast in June, 1992.

Below : Outside Broadcast Line Driver, as used with Crossbar Links in the 1990s. Lower photo shows inside.



less the same as a Telstra O/B Broadcast Line. *But it only worked within a single local exchange area.*

Crossbar links were called such, because they relied upon a path through the old, analog relay based “crossbar” telephone exchanges to work. Until the late ‘90s, every Western Sydney Telstra exchange had around a 50/50 split of phone lines connected between the old crossbar equipment, and newer digital solutions.

In the 1960’s era “Crossbar” electromechanical machines, telephone lines were switched using banks of metal contacts called *cross bar switches*. Two lines would be physically and electrically connected together when one called the other. The only isolation between the two lines, was a pair of 2uF impedance bridge capacitors. These were located in the exchanges’ “SR” relay sets. In effect, a call through these machines created what was known as an *“analog metallic path”* through the exchange.



Above : Typical “Crossbar” telephone exchange equipment, as found in all Western Sydney exchanges in the 1990s.

The practical upshot of all this, was that unlike in more modern digital exchanges which restricted bandwidth to the awful “telephone quality” 300 to 3.4kHz bandwidth, *the old crossbar exchanges did not limit bandwidth at all*. A call through a Crossbar machine was as good as having someone at the exchange literally soldering the two lines together. The only issue, was the need to do something about the frequency response of the long telephone lines. This often rolled off somewhere between 4kHz and 6kHz at the top end, depending on line length. The 2uF capacitors also meant bass response rolled off at around 80Hz at the bottom end, but this could also be compensated for by using EQ. It was more than good enough for FM broadcast.

For their expensive “SOC” O/B lines, Telstra would insert special “equalising amplifiers” at the exchanges which compensated for the high end roll off. To make the SWR “Crossbar link” work, equalisation was simply inserted at each end instead. Some at the “transmit” end at the O/B, some more at the “receive” end in the studio.

The restricting factor in all this was that in order for the magic to work, it was necessary to ensure that *the telephone lines used on both ends of the link were both connected to the crossbar equipment in that local exchange*. For some O/B’s, such as at Blacktown Showgrounds, suitable lines were deliberately installed where none existed. However it was far more common at SWR O/B’s to just “borrow” an existing line for a few hours, for example by jumpering across an MDF at a local shopping centre or venue. The temporary jumper would then be removed again after the O/B. Invariably the used crossbar line would be owned by a shop in the centre, who would become a sponsor of the outside broadcast, losing access to their phone line for a few hours as “payment”.

Crossbar links only ever worked between two lines that were connected to the *same exchange*. Any call placed over the inter exchange network would invariably be switched over a *digital bearer* (and thus be bandwidth limited) or over a *loaded junction pair*, which ran between two exchanges and had loading coils inserted on the line. Loading coils were put there to improve performance at telephone frequencies. Their presence would be at the expense of performance outside those bands, making them useless for FM broadcast.

The lions share of SWRFM OB’s in the ‘90s, took place through *Rooty Hill Exchange*. Until 1999, all of SWRFM’s studios had been located within the Rooty Hill exchange zone. It is however ironic that SWR’s last studio at the Greenhouse, was located at the absolute extreme Eastern end of this zone, compared with its first studio established at Emerton which was on the extreme Western end.

The Outside Broadcast exception of course was the 1993 “Doonside High School” test broadcast. This took place entirely within Blacktown Exchange zone. It used the same magic though, as Doonside High School and the Blacktown Showground were both in the Blacktown exchange area. It too still had a crossbar machine in service at that time.

“POTS” Codecs

Once SWRFM had moved to the Showground site in 1999, both the Blacktown and Rooty Hill crossbar exchange machines had been replaced with digital. “Crossbar links” faded into history. Never to be used again.

However by this time, the first “POTS Codec” devices were becoming available from the likes of Comrex (USA) and later, Tieline in Australia. Costing up to \$5k per unit at that time (two were needed to establish a link), these units essentially provided more or less the same convenience as the old crossbar links did. A mono “broadcast quality” audio link with a bandwidth stretching from around 50Hz to 8kHz, established over *any standard dial up telephone line*.



They did this by combining a set of fast 28.8k dial up modems with a severe digital audio coding algorithm, *far more severe than mere MP3*. A POTS codec could *encode, send, receive and decode* the audio all in real time. The other obvious advantage was that POTS Codecs could work with *any line*. Anywhere. Regardless of the technology at the exchange end. However its important to note that this magic *wouldn't work on any telephone line that already used compression codecs as part of their set up*. Fortunately in the noughties, these were still very rare. All phone lines still encoded digital audio, sending this across the network as uncompressed 64kb/s streams.

Well, it's more accurate to say that the transmission was *almost* in real time. In actual fact, the delay time between the “send” and “receive” ends was closer to something like 100 milliseconds. This wasn't much as far as the listener is concerned. But it was *an eternity as far as a broadcast engineer is concerned!* The old crossbar links would deliver audio in true “real time,” meaning that you could safely listen to yourself on air as you talked. The POTS Codecs' 100mS delay meant that it was no longer viable to *monitor your own FM broadcast* for the purpose of talkback in an O/B environment. Trying to do so, would result in the listener hearing themselves as a giant delayed echo. This would confuse and stop all but the most hardened talent dead in their lips!

This meant that it was now necessary to *provide alternative means on site to monitor O/B's* at the O/B site. This was especially relevant where there were other shops or PA's on site taking a signal and re broadcasting it. This was common with a local PA at a performance stage or in a shopping centre. It was also critical where broadcasters were conducting live interviews outside the O/B van, or using portable FM radios to monitor the on air signal. In some cases SWRFM would deliberately establish a separate, very low power FM local broadcast for this monitoring purpose. Just enough power to be heard in the immediate area of the van and the O/B.

The severely compressed audio from a POTS Codec was still *far from ideal*. It might be good enough for few hours' broadcast, but it was very tiring and unpleasant to listen to for extended periods, especially at higher levels. For this reason, SWRFM limited the use of POTS codec OB links to a maximum of a few hours only. Any O/B lasting longer than this, would require a higher quality audio link using alternative technology.

SWRFM purchased a set of Tieline POTS Codecs (there goes another \$10k) in 2004. These remained variously in use until the NBN progressively replaced Telstra's copper telephone network in the mid tweens. In the final years of POTS codec use, the poor “un maintained” quality of the Telstra copper network rendered them virtually useless.

VHF and UHF Links

In the noughties, with the Crossbar links gone, the Telstra network deteriorating and internet capacity not yet “ubiquitous,” *wireless links* increasingly became a weapon of choice for linking audio back to the studio from an outside broadcast. In some early cases UHF “Studio to Transmitter” equipment was tried. However the strict “point to point” nature of this technology required virtually “line of sight” between studio and the O/B site. This was rarely practical.



Australia Day 2009—A manually erected 9m Tri Truss tower supports an FM link antenna

One of the more regular SWR alternatives used during those years, *perhaps a slightly less than legal one*, was to establish a *separate VHF broadcast* at the O/B site for a few hours, with a strong enough signal to be received at

the studio on a regular FM receiver. This would then be rebroadcast in the conventional way. These “VHF Links” only ever operated for a few hours at a time. It was usually on weekends or public holidays, when the business world (*and for that matter any ACMA detector vans driving around*) were most likely asleep. The team always carefully chose frequency and power specifications unlikely to draw attention or cause any interference with any other licensed service.

Most O/B's from Blacktown City itself in the noughties (specifically for the “Streets Alive” festival) used this approach, as only a few watts were needed to flip the signal just across the railway line into the Blacktown Showgrounds studio. Another common O/B that used this approach was the annual “Australia Day on the Hill” O/B at Eastern Creek. Once again, just a few watts were needed to get the signal across the creek and into an FM receiver located at a member's house, conveniently located on the other side of the creek, where the POTS Codexes were then used to get the signal the rest of the way back to the station using a phone line.

Perhaps the most famous use of VHF Link Technology though, was during the 1998 “Blacktown Cities Marathon” event..



Australia Day 2010—a boom lift provided by the promoters of the event, doubles as an antenna platform—and excellent promotional opportunities!

The Blacktown “Cities” Marathon

One historically notable but short series of SWRFM Outside Broadcasts, took place in the late '90s to cover the *Blacktown “Cities” Marathon*. This Council sponsored sports event is now known as the “Westlink M7 Blacktown Running Festival.” However back then, it *ran from the Sydney CBD, down public roads* to the Blacktown Showgrounds site. Ironically the first of these would be a *full year* before SWR actually moved there.



Above : A SWR Outside Broadcast conducted in 2001. This event was notable in that none of the original team (Ken, Enayat, Paul) were involved. SWR was growing up!
Below : Part of the facilities established atop the Blacktown Workers Club Restaurant, for the 1998 “Cities” Marathon.

The team were eager to prove the capacity of SWRFM in those aspirant days. It was also a bit of an attempt to impress Blacktown Council. As such, SWRFM threw it's support behind several of these marathons between 1997 and 2001. The first 1997 attempt utilized the crude Greenhouse studios, with simple mobile phone reports from a van pacing the runners during the event.

However it was the 1998 event which would become the technical bonanza. In many cases, this would be a hike back to the early days of “*proving that doing the impossible with a budget of zero.. was possible*”. These “marathon” events were all RF engineer Ken Jones' babies.

For the 1998 event, it was considered that the Greenhouse studios were in such poor condition that they were not suitable for use at all. Instead, Ken negotiated access to the top floor restaurant of Blacktown Workers' Club. Here, a complete temporary broadcast studio would be established to



cover the event, linked directly back to Horsley Park via the same UHF STL relocated from the Greenhouse.

This ambitious “test” involved the SWR technical team being locked inside the club the night before. It was impossible to otherwise allow enough time to set up the studio by the required 5am on Sunday, so it was very much one of those “all nighters.” In the restaurant, which was one of the highest sites in Blacktown, a series of

broadcast panels were set up. The first acted as a communications desk. This would bring in the news and patching in reports as they could be established. The second would act as the actual broadcast studio, constructed of "live PA" style equipment, not very unlike SWR's first test broadcast in 1992.

In all events like this, the standard SWRFM practice of the day was to use the FM broadcast itself as the return audio path for talkback "out in the field." This was possible because being all analog, there was no coding delay in any of the paths. The FM signal would then be received generally by talent using standard "walkman" style receivers, or for the more distant OB's, specially modified car radios with vertical antennas. In this way, it was possible for the field interviewers to hear everything that was said in the studio. Conversations between studio and remote site could be easily carried out in an instant and comfortable manner, which led to very high quality and spontaneous on air content.

The race would be paced by Ken's HiAce van plus two motorcycles, both with rider and "commentary" passenger. The motor cycle talent was equipped with AMPS (Analogue) mobile phone helmet headsets. Considerable effort had to be taken to ensure the mobile phones were all analogue, otherwise the excessive coding delay experienced over the GSM networks of the day would clearly be heard over the broadcast and destroy the seamless and instant conversation between the mobile unit and the hub at Blacktown.

The first problem experienced was that it was virtually impossible to receive the SWRFM broadcast *at all* in the Sydney CBD itself at the all important race starting line. It turned out equally difficult anywhere east of about Strathfield. Ken came up with a temporary fix for this, which involved a repeat of the SWRFM Broadcast on a commercial UHF channel not used on weekends. This was then received using standard Motorola "two way" radios repeatered off Centrepoint Tower.

In addition to this, a second shadow communications network was established, not designed for "on air" as the voice quality was too low. This used conventional two way UHF commercial radios running through repeaters both at Horsley Park and Centrepoint Tower. These were made available to allow for communications between the Blacktown hub and the three "mobile units". You needed a lot of hands available, holding all these radios and phones. Especially if you were on the back of the bike!

The star attraction of the SWRFM "Live Coverage" however would be a **fully operational, wide band high quality voice link from the van back to the Blacktown hub**. This was done using a standard VHF FM "broadcast" at about 20 watts, complete with a *full sized folded dipole antenna* on the roof of the van. This operated in an unallocated frequency band just below 88MHz which nowadays, is used for low power (LPON) narrowcast services. *It's likely this was the first time such a FM transmission was ever made from a mobile van*. Add to this the complications of needing 240v power in the van to run all this and.. Well.. Yes, *as you can imagine, this was SWR madness on wheels at its very, very best!*

Naturally this wouldn't work all the way from the CBD. However it was anticipated that the van would "come into range" of Blacktown after traversing about one third of the marathon route. This would allow it to be used for coverage of the all important second half and final moments of the race. *"Up to the second"* reports of the winning runners would then be relayed direct to air in conversational style, which would sound like it was taking place in the studio. In actual fact one side of the conversation was.. *trundling along Parramatta Road in a Hiace van, trying desperately to get visual on which runner was actually in front!*



Above : "On Air" presenters' table at the 1998 event. Note the computers available for instant display of runners' details, plus the strip of light indicators to signal silently to the talent when broadcasting would commence.

Below : Tech member Peter Cunningham with the equipment set up inside the HiAce van



Of course even *this* wasn't enough for our insane SWR tech team. Allowance was also made to use *UHF cordless microphones*, linked with the moving van, so as to allow SWR interviewers to *run alongside the participants!* They would get "*on the spot*" commentary of how the runners were going.. including heavy breathing noises! The number of signals flying in all directions was ridiculous. *ALL analogue*. Not a bit or byte anywhere.

Somehow..in reality.. *it worked!* More than it didn't, anyway! All three mobile units used analog mobile phones to get audio back to the Blacktown as the race started. Then, the two motorcycles alone would continue with the mobiles once the HiAce came into range of the VHF link. *It's fitting that an audio log still exists today of this historic broadcast!*

The communications desk at Blacktown Hub (the Workers' club) was equipped with three phone lines, as usual "borrowed" from the restaurant's MDF. These in turn could be patched to any of two "cannibalized" telephone hybrid units. Which of course, had been "*pinched from work.*" These were used to receive audio from the AMPS mobile phones, plus other calls made by the public via a diversion of the station's own studio number from the Greenhouse.

An FM car radio receiver and high gain antenna received the wide band FM signal from the van. Another desk was covered in two way radios. In fact.. just about *everything used on this broadcast had been "pinched from work."* It would always be a mystery as to how much of it ever made it's way back afterwards.

The van? Well, it was equipped with a similar collection of two ways, a FM receive on 100.3, a 20 watt FM broadcast transmitter on 87.6 and associated audio desk, plus radio mic receivers and monitoring gear. Bolted to the back of the van was a *full size VHF folded dipole and pole*. This extended well above the roof line of the van. It made for a very tall vehicle indeed.

Apart from the usual endless crises, trouble, laughter and things that result from not having any sleep for 36 hours straight, the broadcast proceeded more or less as planned. It *really did sound quite good*. The broadcast was able to relay information about the runners which the people listening at the finish line in particular, actually *wanted to hear*. Likewise, many western Sydney based family member relatives of the runners, who hadn't otherwise been able to get themselves out of bed at 6am on a cold Sunday to attend in person, also tuned in at home and joined in on the madness.

However.. it all came to an end in the final laps. Thanks to a rather low slung tree on Flushcombe Rd. Which unfortunately collected the FM dipole on top of the van. Leaving it stranded about 500m from the finish line! Fortunately the bulk of the final interviews were still able to be carried out via the two motorcycle mobiles. Most listeners may not have been able to tell the difference.

At the time this sports coverage OB was unique. On the eve of Sydney's Olympics it pioneered many concepts that are taken for granted in the industry today. All with volunteers. 100% Community Radio. Budget? Around the \$500 mark. *100% SWR!*

SWRFM in 1999 and 2000 also covered the Blacktown "Cities" marathon. By 2000 of course, SWR's move to the Showgrounds had already been effected. With the finish line located in the same place as the studio, it was a mere matter of jumpering a few long cable pairs down the telephone lead in from Francis Park to the Simpson Pavilion to get the audio back "home".



A shot of the Showgrounds studio in 2000 as the "Cities" Marathon broadcast was put to air. In this year great effort was taken to produce a computerized database of all participants' personal details for instant recall during the broadcast. Comprehensive details of the marathon route were also provided.

2000 was of course also the year of the Sydney Olympics. The 2000 Cities Marathon was the last Marathon in Australia before *the big one*. This led to many very famous sporting faces becoming involved. The coverage came exclusively from the main SWRFM studio, with mobile phones relaying news from the start of the race and trackside. This time, there was no van. Just the two motorcycles.

The 2001 event again bought another change of location. It was a throwback to the '98 event, because a *complete, working studio* was again established independent of SWR's main studio. This time it was ironically at the *Blacktown Olympic Park athletics track*. This was just a stroll from where the old Greenhouse had stood, merely two years earlier!

This broadcast was notable for technical reasons for the *UHF link back to Horsley Park*. The old athletics track building was not high enough to successfully establish the link. It was necessary to hurriedly relocate the UHF link transmitter to the roof top area of the nearby baseball stadium, which was about 300 metres away to the south but still on the same site. Audio from the “studio” was then transferred via a single telephone pair, picked out of a 10 pair telephone cable that ran about 250m between the two buildings. Amazingly, *the bandwidth of this was high enough* to not only provide full band audio without EQ but also easily extended to 70kHz. This meant that the stereo coder was kept at the studio end. The entire MPX signal was simply sent down the analog “broadcast” line to the STL transmitter, via a few isolating transformers.

This sort of thing is typical of what happened at SWRFM OB’s and sometimes still does. Every problem had a cheap engineering solution. There was nobody to tell the team “you can’t do that.” So they just did it. *And it ALWAYS worked!*

The **Relay for Life OB’s**, conducted in the late noughties, were another SWRFM OB success story from the same site. These O/B’s drew together a community connected with the event which couldn’t always be there on site for the full 24 hours. Parents had kids there. Families had relations there. It brought together the true “marathon” feel of the event. Every bit of signal originated from the SWRFM van for the entire duration of these events, relayed back to the Blacktown Showgrounds studio, just down the railway track, using a low power VHF FM link.



The SWRFM Outside Broadcast Van

The “SWRFM OB Van” originally began its life back in the ‘80s as a *purpose built commercial radio unit for Sydney Radio 2GB*. It was later acquired by *Steve Wakely’s “Wireless Sound”* in the early ‘90s, who made it available for hire to a range of broadcasters until it was replaced by a newer van in early 2001. The story of how it ended up at SWRFM.. is amusing to say the least!

In 2005, Blacktown Council in their infinite wisdom, decided to invite Radio 2UE to present an official “Live OB” from the Blacktown Festival instead of SWR. The mistake Council made there has long since been recognized and not repeated. But as a result, in 2005, SWRFM’s “OB tent” was relegated to just a desk, buried well away from the action.



A few SWRFM members didn't like this at all.

They decided, unofficially of course, to hit back. They took some SWRFM stickers and went for a walk, secretly sticking them on the back of the 2UE van, before slinking away again to leave them to discover the “tag”.

However *what they had actually tagged* was not 2UE’s property. It was in fact *Steve Wakely’s new van*, which 2UE had hired for the day for the OB at Blacktown. These were permanent stickers. *They did not come off easily.*

Sufficed to say, “Wireless Sound” were not impressed! A very stern phone call to SWRFM the next day was made!

Accusations flew. Apologies were eventually made. After all, no association can really be fully responsible for everything their members do in public. In this case, the members concerned were still found and disciplined. However there’s no doubt that both Steve and SWRFM ended up winners as a result of the “shenanigans” that took place on that particular day.

During the phone call to SWR, Steve let it slip that he had another, older van in his possession that was up for sale. He asked if we might know anyone who might be interested. His older van was unlikely to ever see action again. It was taking up expensive storage space in Windsor. *The price? \$10,000.*

Sufficed to say that after heated discussion at several Board meetings, a *motion was moved for SWR to purchase Steve’s van*. It was passed.. but definitely not unanimously! The transaction took place in August 2005. Shortly afterwards, SWR had a somewhat old and clapped out OB van, sitting outside its studio at the Showgrounds.

Another \$10k later, and a lot of haggling to Council, led to the construction of the *van's storage shed on the Western side of the Simpson Pavilion* which remains today. Once this was in place, reconstruction of the van began. Inside the van it was an *audio wiring disaster*. However the van itself was structurally sound. It was registered and had two working air conditioners. A mechanical service and total rewire from the SWR tech team saw it enter service as the SWRFM OB van soon afterwards. *This acquisition would "pay for itself many times over" in coming decades!*

When the main SWRFM studio was rebuilt in 2006, most of the original equipment that came out of it that still worked, was re installed into the van. This then became SWR's temporary "main studio" for the *four weeks*, over which the main studio underwent a total rebuild with all new equipment. At the end of this complex and expensive project, SWR was left with both a new main studio *and* a completely rewired, refitted and equipped OB van to rival anything available in Sydney. *Ironically, it was even better than Steve Wakeley's new van!*

In the late noughties and throughout the twothousandtweens, the SWR OB Van was used on average every month and was also occasionally even rented out to other broadcasters. It also served as a production space for members while parked in it's shed in Blacktown, before SWR built it's second studio. It also saw occasional use as a mobile recording studio on SWRFM "SDI" events.

However all communities change over time. A good community station stays tuned to these changes. It bends with them. As SWR's focus began to change over the covid period, "huge and majestic" outside broadcasts fell out of favour, replaced by more frequent but smaller affairs often held indoors, where the van couldn't go. However the SWR van would conduct just one more herculean effort before being set free from SWR's grasp.

In 2022, when it was decided to completely demolish and replace the studios at Blacktown, SWR would need somewhere to continue broadcasting from. Once again, the SWR van came to the rescue! It was parked in the Showground, under a shelter about 50m from the main SWR building. A complete broadcast studio was then established within it, right down to the UHF link transmitter. *This temporary setup would remain operating as SWRFM's main studio facility for a whopping 18 months!*

It would be the very last duty the SWRFM van performed for SWR. Once the new studios were commissioned with the new fully digital technology and with good high speed internet now almost ubiquitous everywhere, outside broadcasts became considerably easier to stage. They required much less equipment. A small mixer, a few mics, a laptop and an IP codec could command total control of the station, from literally *anywhere*.



The van had become a large and cumbersome asset that was no longer being used. The complexity of moving it around didnt suit the new "minimalist" approaches that volunteers were now engaging for outside broadcasts at SWR. It was clear to the Board that it's days were done in Blacktown. It should be "set free" to find a new role elsewhere. SWR had taken excellent care of it during that time, outfitting it with new furniture, carpets and racks and keeping it mechanically sound and registered.

In June 2024, *18 years after SWR had first purchased it for \$10k* and with it now nearly 40 years old, the SWR O/B van was sold, for, *you guessed it, \$10k!* The van was purchased by another active community broadcaster in the Northern Rivers region of NSW. They have since completely overhauled it, re fitted it and given it a new identity. *It has been reborn yet again!*

Now THAT'S asset use! And all because some "misguided" SWR members mischevously stuck SWR stickers on someone else's van at an event back in 2005!

The technology behind SWRFM's "Small Day In" events

SWRFM has been putting live bands on the air since it's first test in January 1992. That first "Live Bands Day" saw *eight local bands put to air in six hours*. It set the bar very high for years to come. The mixer used was a vintage Jands 26-4-2, reportedly fresh from the Chisel's truck a decade beforehand.

Just as with O/B's, the SWRFM Live Bands Day had to be *absolutely live*. Nothing less would do. Every bit of feedback. Every rattle and hum. Every embarrassing mistake and sometimes even more, would be heard live by the listener.

Over the years, two types of SWR Bands days evolved. Those which had a public audience were known as a *Public SDI* and those which were staged for broadcast only were known as a *"private SDI"*. Known simply as live bands days throughout the '90s, the name *"Small Day In" or "SDI" didn't catch on until 2001*.

The difference between "Public" and "Private" is predominantly a technical one. In a Public SDI, everything works just like any other community style battle of the bands show. A PA is set up, the bands shuffle onto the stage, play a set and then get off. A "desk mix" is taken from the PA and then delivered to the SWRFM studio or OB van and then broadcast. Because the audio is a "desk mix", the sound which is broadcast is exactly the same as the sound that is coming through the PA speakers at the event. Some times ambience mics are added to the broadcast feed, to make it feel more "live".

Over the years SWR has conducted many Public SDI's. It started in '05 and '07 from Blacktown PCYC, mostly with heavy metal events. There was also a fateful one in '04 staged at the now long gone Blacktown Ice Rink. But by far the most popular "Public SDI" that SWR regularly broadcasts, is the *Rooty Hill 26th January Australia Day Concert*. SWR has enjoyed exclusive broadcast rights to this very high profile and popular event for decades.

The problem with the public SDI's in the end comes down to *sound quality*. Large outdoor events are rarely a problem, because just about everything needs to go through the PA or it won't be heard. However taking a desk mix at smaller indoor events invariably leaves the listener feeling cheated. This is *because they're only hearing "half" of the performance*.

For a band playing indoors, the PA compliments the sound coming off the stage. For example for a guitar heavy band such as heavy rock or metal, there are lots of guitar amps on stage making lots of noise. So the PA operator rarely needs much of this to run through the PA, because there's already more than enough in the room coming directly off the stage. The result is that in the broadcast feed.. The will actually lack guitars!

Most "desk mix" feeds, even the outdoor ones, tend to be heavy on bass, kick drum and vocals. This is because these are the three weakest instruments normally on the stage. They need the most "help" in order to balance the sound the audience will hear. Louder instruments such as guitars, brass and a snare drum are often very low in the mix or even worse, missing altogether.

A SWRFM *"Private SDI"* however, is staged specifically for the broadcast. Quite often there is no real live "audience" on site at



Above : Blues band "Livestock" belt it out at the very first SWRFM Live Bands Day in January 1992—a tradition which continues to this day.



Above : SWR's first live bands day mixdown was on this venerable Jands 26/4/2 dating from 1976. Reportedly toured with Cold Chisel in the late '70s..



Above : A successful SDI from Blacktown Police Citizens Youth Club in March 2006.

Below : Local group "Spent" belt it out in front of the SWR studios at a classic SWR SDI in 2001.



all. There's still only one mixer. One PA. But the mixer is now located in a sound isolated room. The "desk mix" is created solely for the broadcast. This gives the broadcast feed a very balanced, full sound on air. All the instruments will be present in their right proportions and in most cases, in full stereo. The performance is also usually recorded, often in full multi track. This is for the benefit of the bands performing, who often use these recordings for mix downs and demo tapes later.

On a traditional private SDI, the PA is normally *fed from auxiliaries on the mixing desk*. The PA basically functions as a foldback system, so that the band themselves can hear what they are doing. A set of "Left / Right" main PA speakers is still included, but these too are fed off an auxiliary. They are there more to act as side fills and to give the band an overall sound like the one they would expect when playing live.

Because the Live PA mix is secondary to the main mix intended for broadcast, some times this means the PA mix on site isn't as good as it might be if it had been created in the conventional way. The SWRFM experience has shown this is generally acceptable for outdoor events, however it becomes a mess when a private SDI is moved indoors. This is where the challenge of trying to get two completely different mixes out of one PA system usually becomes too much for one isolated operator to handle.

SWRFM has also experimented with a handful of public SDI's where *two independent live mixes were created* at the venue, one such example being the Blacktown Ice Rink event back in 2004. One mix was created for the PA and one isolated mix on a separate mixer, for the broadcast. This is the traditional way live band OBs have been done in the industry for decades.

However back in the analog days this was a complex and convoluted way to do things. Especially for small community style events. It demanded a lot of equipment and demanded expertise to run it. SWRFM repeatedly found this tends to slow down the event. It often demanded more than *double the change over time between bands* that would otherwise be experienced when all the control remains under one person.

It's a method that in those days, worked against the speed and spontaneity that were synonymous with SWRFM SDI's. In the analog days, this method of operation was rare. It was generally reserved only for indoor events in venues with poor acoustics, where a tight control can be kept over the proceedings of the night and where there is sufficient capacity both in the budget and with skilled volunteers to do things that way.

A number of SDI events held at the Ettamogga Pub in the late 'teens fall into this category. With a bit more money behind those events from a sponsor, it was possible to engage extra specialists to watch both the live PA mix and the Broadcast mix separately.

Most SWRFM SDI's generally adopted the "private" model, but the actual events became less and less private! By the early and mid 'teens, over 150 attendees in the crowd was common. The event was attracting big name stage acts such as Dragon and Spy Vs Spy as headliners. The quality of audio both on air and on site was always very high, despite things still being done with one mixer and all the on site PA running through auxiliaries.

SWRtember Live Gig in 2009. This event has risen to become one of the premier showcase events for new talent in Western Sydney.



Above : The SWRFM "Small Day In The Country" in 2006. Amongst other things, this broadcast was the first success in linking audio back to the studio using IP (internet) based technology, meaning that crystal clear stereo audio was broadcast despite the very distant source.

Below : A typical scene from a SWR "Small Day In" in the parking lot outside the Blacktown studios. The van can be seen to one side, housing the mixdown studio.



Until the mid 'teens, these SDI events were normally held on a stage set up outside SWRFM's main studios at Blacktown Showgrounds. The SWR OB Van would double as the "recording studio". The regular SWRtember events were held in September each year, showcasing a very wide variety of live local talent direct to air, very much in the same vein as was done all those years ago in 1992.

As the tweeny decade closed, the Sydney A&R scene became more involved with what's happening at SWR's SDI's. It was pretty much known that the SWR events sat "right on the pointy edge" of what was happening in the Sydney music scene. If you want to know what people are playing, *right now in venues around the city and in the west*, it would always be live on a SWR SDI.

Digital mixing first came to SWR SDI's in 2010, with the addition of a Pre Sonus Studiolive 16Ch desk. This compact and feature packed unit had full EQ and compression on all inputs and outputs. This greatly improved the ease at which good mixes could be created both for broadcast and for the on site PA from the same desk. Coupled to this, was the ability to take full 16 track recordings of all performances for later mix down and broadcast as individual tracks. Still bloody cheap, still all live. And still very much "right here right now."

But then..in 2020.. Covid. "The great fkening."

It killed the live scene cold dead. With it, went the SWR SDI events. In addition, SWR's project to completely rebuild its studios for the digital era, stole time from volunteers that would previously have been directed towards live events.

Its only now after 2024, that the candle is being lit again. Live broadcasts from the Rooty Hill Australia Day event finally recommenced in 2025. And a return to the "Small Day In" is planned in 2026 this time utilising the latest digital technology available.
Stay tuned!

Below & Left : SWRFM return to their stamping ground at the Rooty Hill Australia Day 2025



Above : Typical scene in the SWR O/B Van for SWR LRG Mixdown at a remote site—this time the Etamoggah Pub in Rouse Hill
Below : Stage of the Ettamoggah Pub SDI in 2018.

