

# The Northland Emergency Services Trust

## A history of efficiency, capability and growth

**THE NORTHLAND** Emergency Services Trust (NEST) was conceived at a public meeting in 1988 which had been called to discuss the positioning of a rescue helicopter in Northland for three months over the coming summer. This territory covers the top 42% of the North Island and of course includes many places that could not be reached by ambulance.

An option was put forward by an Auckland group to fulfil a three month contract over summer. The St John ambulance contingent present (including John Bain who would become the Trust's Chairman) felt however that for the same cost, a local effort based at the ambulance station could be sustained for 12 months. This proposal was pursued and within a month, a new Trust had been set up with trustees from the St John road ambulance service. They immediately leased a Bell JetRanger and pilot.

NEST's first job was not actually a medical rescue, but a homicide at Hokianga. Advantageously for its later growth and management, this brought Police involvement to the Trust. Today, the operation is overseen by nine trustees who include representatives from the Police, Ambulance Services, ACC, Health

Board, legal services and local business. The District Health Board is more of a partner than a customer to the service, with the Trust's management regularly meeting with medical staff to ensure a common understanding and alignment of goals. CEO and Chief Pilot, Peter Turnbull

1994. The AS350 performed well until an "unscheduled landing" on the local tidal flats and an incoming tide resulted in a total write off. Within a month, the Trust had purchased a BK117 from Japan which they operated from 1994 to 1997. Financial burdens from unexpected maintenance on this machine led to its sale and the purchase of the current Sikorsky S-76 ISJ.

The S-76 came with a particularly interesting history. Purchased from Dick Smith in Australia, it is the aircraft that Dick and his wife Pip used to make the first around-the-world helicopter trip in a westerly direction. At journey's end they had flown more than 73000km and taken some 10700

describes NEST as a boutique operation that relies heavily on goodwill and on staff that will go the extra mile to provide an EMS service second to none in New Zealand. Since their first flight on 15 November 1988, NEST has transported just under 10,000 patients.

### From JetRanger to S-76

It was not long before the Trust decided to purchase their JetRanger helicopter and its leasing company, then selling the JetRanger and ordering a brand new AS350 which was operated from 1990 to

photographs.

It was immediately obvious how much more suited the new helicopter was to NEST's EMS (Emergency Medical Services) requirements. It had a greater range, much larger cabin, could carry more equipment and could also easily accommodate parents or concerned spouses on trips to hospitals in Auckland and Northland.

As their reputation grew and workload increased, flight requirements during maintenance downtime became more regular. Leasing an aircraft during such



The two NEST Sikorsky S-76's, on this occasion both at Thames Hospital on the Coromandel Peninsular.



Serious vehicle accidents provide a regular requirement for helicopter support. At left ISJ attends a road accident, and at right IAL on the beach.

times started to become quite expensive for the trust and the decision was taken to purchase a second machine in 2003. A Bolkow Bo-105 was selected for the role, these being commonly in use for EMS roles at the time. This machine soon proved its value throughout the busy summer months when often both helicopters would be in the air on missions at the same time. Another advantage to the two helicopter operation was that crew training became a much more predictable process. The Bo-105 also highlighted just how good the S-76 was in its role with crew expressing a clear preference for the S-76 when it was available. Thus in 2005 the Trust decided to sell the Bo-105 and purchase a second S-76.

### Funding a Rescue Service

Helicopter operations such as NEST and the other rescue organisations are funded in part by sponsors and fundraising and in part by ACC or the Ministry of Health (via District Health Boards, Ambulance services, etc.) The latter provide a rate per hour for the aircraft's use. This rate is fixed nationally and while there are two different rates for single or twin engine machines, there is no consideration or compensation for providing additional services or technology (IFR, NVG, etc) or for employing more than one pilot in the cockpit. This rate covers little more than half the actual cost of operations per hour, with rescue services being required to seek sponsorship and fund raise for the balance.

Northland is a socio-economically depressed part of the country which doesn't make fundraising an easy task. John says the Trust has been very fortunate to have the support of NorthPower and Top Energy since their first days of operation. They are also very grateful to their other major sponsors, Pub Charity and the Oxford Sports Trust. More support and a particular surety of income is supplied from the Northland Regional Council in the form of a targeted rate on all Northland ratepayers. This rate, which John says is about 2 cents a day per ratepayer exists because the Regional Council understands the need for the service in Northland, and recognises NEST as being a particularly efficient provider. In this regard, John and Peter are proud to note that they run the two helicopter IFR service on a substantially smaller budget than some other services require to operate just one VFR helicopter in an EMS role. In the same sentence, they are quick to credit their staff with this achievement, all of whom are "supremely dedicated to the cause and often go beyond the call of duty to do the right thing".

### A Lean Team

NEST runs a very lean operation that is directly focused on delivering an efficient EMS service. Administration is handled by one (less than full time) office person and the CEO of the Trust is also the Chief Pilot, Peter Turnbull. NEST's sponsors can rightly assume they are getting very good value for their money.

Six pilots are employed on a four day on, four day off basis, including some on call time.

NEST is the only EMS organisation in NZ flying helicopters with two pilots as a matter of policy, considering that there are huge safety benefits for the type of work they are involved in. This two pilot approach has provided some great opportunities for enthusiastic low-time pilots to take on a co-pilot role with many having progressed their career during a stint at NEST before going on to fulfil greater ambitions, something that has given the Trust a worldwide reputation for developing disciplined and skilful pilots.

The Northland ICU flight team is made up of eight critical care Flight Nurses and three Doctors, all being experienced critical care



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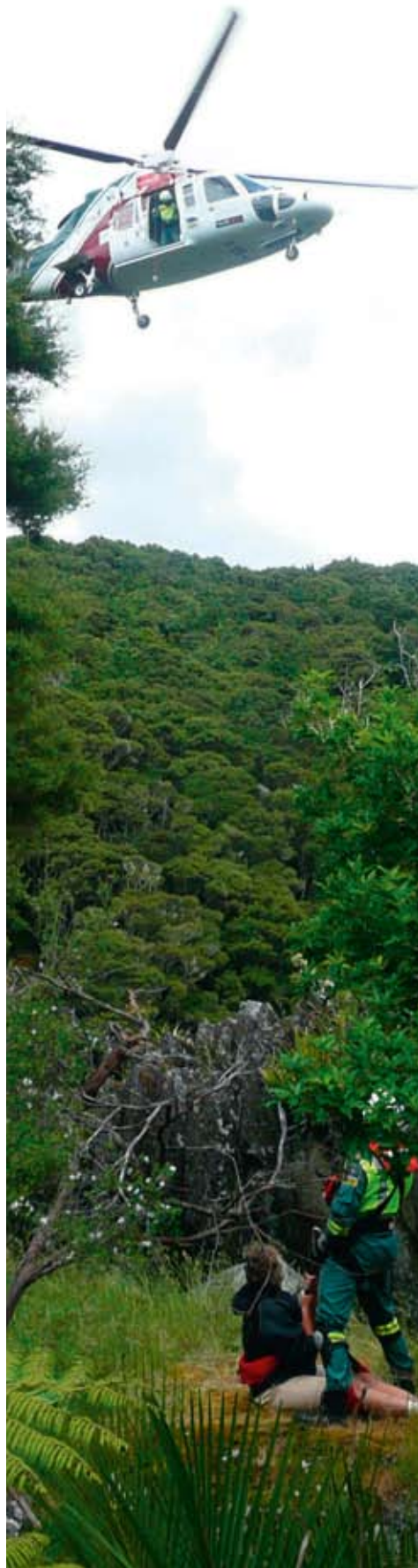
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personnel who have also been trained in aviation medicine.

**Training**

10% of the Trust's flight time goes into training. For pilots, this involves everything from basic VFR and IFR recurrency, through to specific tasks such as winching, both unaided and aided (NVG) night currency, and more.

All pilots undertake a Sikorsky factory S-76 training course at West Palm Beach, Florida that is specifically tailored to EMS and IFR operations. These 5 day courses include use of a 6 axis motion simulator, allowing pilots to venture into areas of the flight envelope that they would not be able to attempt in the real aircraft.

Doctors, Nurses and Paramedics undergo annual training for safety around aircraft and the team also run an outreach programme where they travel to fire stations for example and train staff there in the correct setup of landing zones etc. The team are also always on the lookout to increase the number of helipads and designated safe landing zones in their area.

**Typical Missions**

In their first year, NEST flew less than 100 hours. They are now flying approximately 1000 hours spread over the two aircraft.

On any day, the team might be tasked onto support for road accidents, farm accidents, police searches, armed offenders squad callouts, other rescues, etc. The weekend prior to KiwiFlyer visiting, they had searched for, found and retrieved two kayakers on the West Coast who had got into trouble, initially because there was not

enough water and then after "about a foot of rain", too much. They had abandoned their kayaks and become overdue. When found, they were winched out of the bush.

NEST's S-76's are increasingly being tasked towards time-critical medical transfers throughout the North Island by hospitals with staff who appreciate the extra capacity, space, seats and speed of the aircraft. On the same day as the kayaker search, NEST's second S-76 completed two medical transfer missions, one from New Plymouth to Auckland and then another from Rotorua to Auckland.

Offshore retrievals provide extra variety for the team, sometimes in very difficult conditions. These are typically to fishing boats or cruise liners and often involve delicate calculations in order that the ship can be met as soon as possible and the helicopter can remain in safe range of returning to land. Maximum range is usually 180nm.

**IFR Operations**

Particularly with the distances they cover, weather often dictates that IFR flights are undertaken. NEST was the first New Zealand rescue service to fly IFR and they have now been doing so for 14 years.

Over the years, NEST have developed their own low level IFR network around Northland with links to ten Airways GPS approaches in the area. They have also installed their own weather stations in strategic locations. As a result, low level IFR is no longer the major obstacle that it once was.

Major customers such as the ambulance service and hospitals often don't even ask if they can fly, they simply request the service,



At left: ISJ preparing to lift an injured trampster out of the bush. At right: Offshore search and rescue can sometimes involve very difficult conditions.



ISJ and IAL at home in Whangarei and ready for work outside the Northland Emergency Services Trust base.

which John is proud to say is available 99.9% of the time.

**Maintenance and Upgrades**

NEST have essentially stayed with the same maintenance provider since their inception, first being Wing and Rotor at Ardmore and then Hawker Pacific, who bought Wing and Rotor when establishing their own presence at Ardmore in 2004. Peter describes their working relationship as being very harmonious and understanding and says that Hawker Pacific have been very tolerant of the highs and lows of the Trust's workload and cashflow demands. The two S-76's are primarily maintained remotely at Whangarei by Hawker Pacific's on-base engineer Michael Couchman. Michael has become an integral part of the NEST team and operation at Whangarei with the S-76's only returning to Ardmore for major maintenance requirements.

This latest avionics upgrade and refurbishment programme was first conceived some two years ago, with

planning happening on a near continuous basis since then. As well as design details and approvals, funding had to be secured.

Some of the helicopter's avionics now have "airline standard redundancy". It is equipped with the most up to date TAWS (Terrain Awareness) available for helicopters – something that is critical in their operational arena, has new active TCAS (Traffic Avoidance) systems, and a new digital system for all radio and intercom communications. A new interior was also fitted and has received very favourable comments from the medical people.

A few months after being taken from service, ISJ has returned to Whangarei, in Peter's words, not far different in specification from the latest model S-76. Peter says that the aircraft left the hangar and was test flown virtually without any need for remedial actions, being returned to service immediately with very pleasing results. Peter says that he can't speak highly enough of the work done by the Hawker

Pacific team, especially when he considers the state the aircraft was in half way through the project.

**Looking Ahead**

The Trust is continually looking ahead on a 7-10 year timeframe and has already started setting funding aside for future aircraft upgrades and replacement. It is hoped that the same project can soon be undertaken on NEST's second S-76, IAL.

**Sikorsky S-76 Facts and Figures**

Length of fuselage	13.21m
Width of fuselage	3.05m
Width including rotors	13.41m
Height	4.41m
Maximum speed	155kts (287km/hr)
Maximum weight	4600kg
Power	650hp each of 2 engines
Fuel capacity	1054 litres
Fuel usage	168 litres/hr per engine
Endurance	3hrs 10min (standard)
Endurance (LR)	5hrs 30min (extra tank)



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