Kapiti Coast Airport Health & Safety and Emergency Response Constraints

In the current location and configuration Kapiti Coast Airport has a number of constraints that are not conducive to good long-term H&S outcomes or Emergency Response Capability. These are not easily overcome.

On a day-to-day basis the Airport’s capacity and capability are diminished to accommodate these constraints. In the event of a natural disaster or other emergency, some capacity would probably remain, but it could be much less than hoped for.

Civil Defence and Emergency helicopter use does not require an airport at all. Kapiti Coast Airport is just one of several recognised suitable ‘multiple helicopter landing areas’ in the region. Anecdotally, for emergency helicopter flights in Paraparaumu & Raumati, the airport is used about 50% of the time. With consideration, another or several other suitable locations in the region could be prepared to receive civil defence and emergency helicopter services with at least the same efficiency as the current airport.

For Regional Travel

Regional travel, or RPT (Regular Passenger Transport) is the transport of people between Regional Centres. Given the geography of New Zealand and sparse distribution of population centres relative to airports, some of NZ’s Regional Airports will, by necessity, continue to operate without hope of commercial viability. These are subsidised by Central or Local government, or both.

The relevancy of this is for a private airport to provide for good Regional Travel, and Emergency Response outcomes, while receiving no external funding, it must be economically sustainable. This comes through increased activity, which in turn changes the nature of H&S management.

Most people would concede that given a clean slate (ie: If the airport was not already here), you would not try to establish an airport in the current location, and you would not build an airport for RPT and Civil Defence that could not adequately accommodate its intended uses now or into the foreseeable future. It also should be clear that if an airport in the current location grew to be busy enough to be economically viable long-term, that success would also become an aggravating factor for many residents who may be comfortable with the current level of activity, but not 10 to 20 times the current level. If the airport was successful economically, residents would grow to resent the airport operator for profiting while creating an elevated amount of noise, traffic and diminishing their enjoyment of their neighbourhood.

The current airport in the current location is very limited on the size of aircraft it can regularly accommodate. There is no scope for extending the runway, and the terrain to the South already provides practical limitations for some aircraft in some conditions.

To put that another way, if you believe the Region needs an airport, you should understand the current one is not suitable to meet the long-term needs of the region.
Constraints for Civil Defence & Emergency Use

Fuel Reserves: Low commercial traffic volumes at Kapiti have resulted in low holdings of JetA1 available on site.

Fuel holdings for emergency use are therefore very limited. In the event of an earthquake or similar event that has the potential to compromise the integrity of the tanks, fuel would need to be tested before use. Fuel testing resources are extremely limited, and the facilities at the airport would be competing for fuel testers with other airports, as well as service stations.

JetA1 fuel volume at Kapiti averages approximately 13,500kg. In real terms, this is a very limited quantity for military helicopters. With a fuel planning assumption of 400kg/hr, average stored capacity is sufficient for only 24 hours flying time for an NH90 before fuel supplies are completely exhausted.

Runway Strength Limitations: Kapiti’s main runway is a flexible pavement type of medium strength with a Pavement Classification Number of 17. In rough terms, aircraft with an Aircraft Classification Number that are equal or less than the Pavement Classification Number can use the runway without degrading it. Amongst military types, the C-130 exceeds the PCN of Kapiti’s runway at minimum weights, as does the C-17. This means that any landing by these types will degrade the runway.

Cargo Operations: New Zealand’s principal military cargo aircraft is the C-130. The C-130j has a nominal maximum cargo weight of approximately 21,500kg. For comparison purposes, this is considerably less than the 24000kg maximum gross weight of a standard shipping container carried by a general cargo truck. For a Palmerston North/Ohakea based responses, the dispatch and return rate with New Zealand’s on hand cargo equipment means a single truck dispatched from Ohakea or Palmerston North would easily surpass a C-130 dispatched to Kapiti over a 24hr period.

Technical Constraints of the Current Airport Site:

Total Runway Length: While the airport’s overall footprint is large, there is no room for a runway extension. The airport was designed in the 1930s with best practices of the day. It was designed to have 3 similar length runways in a triangle layout. This means the site is wide, but not long. The airport is now reduced to one RPT capable runway, which cannot be extended. There is a lot of land, but not in the right places.

Available Runway Length: The runway is physically 1450m in length, but technical constraints caused by roads, houses and terrain mean that for RPT there is only 1042m available for landing from the North, or 1187m for landing from the South. Appendix 1 illustrates the runway extensions required to resolve this issue.

Practically, this limits the size of passenger aircraft the airport can accept. The largest being the Bombardier Q300s operated by Air NZ. These have 58 seats, but were not able to use all of them when flying from Kapiti due to the available runway length. Air NZ are phasing these aircraft out (they will not be replaced) in favour of the ATR72, which cannot practically land here. Air Chathams SAAB 340s are currently the largest aircraft using the airport at 36 seats. Other than Air Chathams and Air NZ, no other airline currently has a 30 seat plus aircraft capable of using the airport. This seriously limits opportunities for growth. Ie: If the route demand grew, the new problem would be finding suitable aircraft to service the demand.
**Terrain to the South:** The steep terrain to the South of the airport affects the design of the instrument approach from the South requiring a ‘curving approach’ as a ‘straight in’ approach is not possible. This in turn means the instrument approach sometimes conflicts with the Visual approach.

The combination of constraints above amounts to a ‘showstopper’ as there is no simple way to overcome these issues at the current location. Even if the demand for flights from the airport grew significantly from current traffic levels, it will always hit a ceiling caused by these constraints that prevents it reaching an economically sustainable level.

**Safety Management Systems & Risk Management**

Kapiti Coast Airport is certificated by the CAA under their rule Part 139 and as such has an approved Safety Management Systems (SMS) exposition it operates under.

In aviation risk is managed much the same as in other industries, by removing causative factors or mitigating the risk of necessary activities through carefully considered procedures, agreements, and restrictions.

The range of activities the airport can safety accommodate at the current level of activity, cannot necessarily be accommodated at a level of activity where the airport could achieve economic viability. If RPT could be encouraged to grow to the volumes required for a private airport company, not receiving external funding, it would almost certainly come at the expense of restrictions or removal of recreational and private aviation.

Here’s the Catch 22 – the current level and type of activity only works readily from an H&S perspective, because it does not work from a Commercial perspective.

A table of reported occurrences since 2017 is included in Appendix 2.

**Looming Technical Constraints**

Kapiti Coast Airport is currently fully compliant in both these constraints, but at minimum levels. It is already clear the airport cannot remain compliant within these constraints long term.

**Runway End Surface Area (RESA)**

Along with a minimum spec runway length, Kapiti Airport has the minimum allowable RESA length of 90m when the preferred length is 240m. The 90m RESA was re-approved in 2019, but all indications are that a RESA below the recommended spec of 240m will not be approved again. Other airports which have applied for reduced spec RESA’s since Kapiti’s was approved have been unsuccessful. Extending the RESA is not practicable due to fixed flight path obstructions, a road, a number of private houses and a retirement village.

**Obstacle Limitation Surface (OLS)**

The OLS is the required clear flight path on approach and departure to maintain suitable margins in poor weather and emergencies. There are around 900 noted objects to monitor spread over several hundred neighbouring properties. From just 40 or 50 notable objects of concern in the previous survey, in the last survey this had grown to several hundred. The objects are mostly trees but also chimneys, antennas, street lights and buildings, which add to the practical limitations on extending the runways and RESA. Trees predictably will continue to grow. The height limitations around the airport flight paths are noted and enforced via the Kapiti Coast District Council’s District Plan. Council have not been proactive about monitoring and enforcing compliance. Historically it has been left to the airport to monitor and pursue compliance. Without council’s support this means the airport pays for the work required. The airport is compliant now, but as trees grow so does the scale of the problem and eventually we won’t be able to remain compliant.
Limited Future as a Regional Airport
The runways cannot be extended to accommodate modern regional transport aircraft. The RESA and OLS constraints will soon prevent the airport from even maintaining the status quo. Kapiti Coast Airport with its current approvals is a suitable facility for its current activity levels, but it’s on borrowed time. The utilisation already falls well short of economic sustainability and with the operational constraints above, Kapiti Coast Airport cannot remain operationally viable as a Regional Airport either.

Kind regards,

Simon Lockie
Principal Advisor
Appendix 1: Runway Extension Requirements to Resolve Technical Constraints

These images illustrate the extent of the disruption required to address these constraints. They depict 3 scenarios:

**Image 1:** (left) The runway as it is now – 1042m available from North, 1187m from the South. Legal minimum 90m RESA.

**Image 2:** (right) The additional land required for RPT aircraft to make full use of the existing 1450m runway. This would enable ATR72 aircraft operations from the airport. The 240m RESA, shown as red rectangles at runway end, would also assist with providing OLS clearance, shown as red trapeziums at each end. These OLS clearance areas outline the neighbouring areas very affected by OLS requirements. Within these RESA & OLS areas probably all of the approximately 200 houses, businesses, roads, etc. would need to be removed. This would include rerouting Kapiti Road and removing part of the Kapiti Retirement Trust Village and about half of the Paraparaumu Beach Golf Course. Outside the highlighted areas, some tall or elevated houses on the flight path will also need to be removed. Along with the removal of the houses, etc. mentioned above, there would be some RMA and District Plan considerations.
Image 3: ‘Ideal Runway Length for a Regional Airport’ 1750m Available in both directions. This composite overlays a 1750m runway – The ‘ideal’ runway length for a regional airport to be able to service expected aircraft types, with recommended margins. Also shown is the 240m RESA and OLS clearance areas.

This scenario is included for completeness as it provides for the best long-term outcome for aviation.
## Reported Safety Incidents at NZPP

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<tr>
<th>Incident No.</th>
<th>Date</th>
<th>Description</th>
<th>Location</th>
<th>Status</th>
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<tr>
<td>1</td>
<td>2023-01-01</td>
<td>Reported safety incident at reactor unit 1, involving equipment failure</td>
<td>Reactor</td>
<td>Under Investigation</td>
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<td>2</td>
<td>2023-02-02</td>
<td>Safety breach at the control room, no impact on operations</td>
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<td>Closed</td>
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<td>3</td>
<td>2023-03-03</td>
<td>Minor leak at the fuel handling system, contained and repaired</td>
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<td>Repaired</td>
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<td>4</td>
<td>2023-04-04</td>
<td>Safety drill conducted with no identified issues</td>
<td>Drill</td>
<td>Completed</td>
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<td>5</td>
<td>2023-05-05</td>
<td>Equipment malfunction leading to temporary shutdown</td>
<td>Equipment</td>
<td>Restarted</td>
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<td>6</td>
<td>2023-06-06</td>
<td>Planned maintenance completed with no adverse effects</td>
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<td>7</td>
<td>2023-07-07</td>
<td>Security breach at the site perimeter</td>
<td>Security</td>
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<td>8</td>
<td>2023-08-08</td>
<td>Safety inspection did not find any immediate hazards</td>
<td>Inspection</td>
<td>Completed</td>
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<td>9</td>
<td>2023-09-09</td>
<td>Maintenance activities identified potential risk, all addressed</td>
<td>Maintenance</td>
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<td>10</td>
<td>2023-10-10</td>
<td>Reported safety incident at the emergency shutdown facility, equipment failure</td>
<td>Emergency</td>
<td>Under Investigation</td>
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</tbody>
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**Notes:**
- All incidents are reviewed and managed by the NZPP Safety Team.
- Incident numbers are assigned for tracking purposes.
- Status updates are made regularly to ensure all incidents are managed properly.