

# Radio Communications

## Recommendation

That the Board:

- I. Note that AT has renewed its TeamTalk contract for another 12 months to ensure continuity of services for radio communications, within its existing contract renewal rights.
- II. Approve that AT should continue working with Auckland Emergency Management, to ensure the proposed integrated communications solution is suitable, meets business needs and is cost effective for AT as a long-term solution.

## Executive summary

1. The current radio network (Kordia) used by AT for Parking, Special Events and Train Management is being de-commissioned in October 2018. AT has secured continuation of service for 12 months using TeamTalk's radio network using its current contract extension term rights. TeamTalk are the current resellers for Kordia.
2. New requirements have been identified for continuous connectivity in the rail corridor to support the SaFE project, which the current radio networks cannot provide.
3. Technology convergence of Digital Mobile Radio (DMR) and Cellular Services (4G) technologies now provide the opportunity and capability to simplify, unify and enhance multiple communication channels used by AT staff, contractors and third parties.
4. Such enhancement also provides unified communications to connect daily operations between Parking Enforcement, Transport Officers and Management teams irrespective of the device being used to communicate.
5. AT has been working with Auckland Emergency Management and the Council family on investigating a combined solution, and has also completed market scans as to other options.
6. AT's preferred approach is to continue working with Auckland Emergency Management to achieve an outcome for AT.

## Strategic context

7. Auckland Emergency Management is establishing a Steering Group to discuss a unified approach for Council and Council Controlled Organisations (CCOs) for use of Digital Radio. The desired outcome is to create an interoperable Radio Communications environment between

Council / CCOs and external agencies for both daily and emergency situations. Preliminary meetings have indicated a preference for a Motorola WAVE solution. This solution provides the unified communications environment by creating a seamless virtual network of inter-connecting radios, smart phones, landlines, and PCs.

## Background

8. TeamTalk Limited, as the supplier of Digital Radio Services, have advised AT that Kordia Communications Limited will be decommissioning their Digital Radio Network in October this year (2018). The Kordia Network is used by Parking Services, Rail Operations and Major Event communications. This network is not used by KiwiRail Train Control.
9. TeamTalk have built and commissioned their own Digital Radio Network in Auckland using the latest available technologies. As such, they have presented an option to AT to migrate to this network under the current contract terms, which has been agreed to for 12 months concluding in March 2019.
10. Recent advances in technology enable Push To Talk (PTT) devices that operate across multiple communication channels, 3G / 4G, Wi-Fi and radio. AT is working on the evaluation of this technology as an alternative option.
11. AT is aware that some of the Rail Corridor is not covered by cell phone coverage, and this is required to support SaFE.
12. AT has invested in some facilities such as carparks and Britomart to ensure cell phone and radio coverage for staff.

## External Consultation/Engagement

13. Auckland Transport is represented on the Steering Group chaired by Auckland Emergency Management.
14. Vodafone (as the incumbent supplier for AT Cellular Services) was requested to provide analysis of their coverage within the rail corridor. This report has highlighted that some areas of the corridor are not adequately covered by 4G.
15. KiwiRail also provided a report to AT on communication networks inside their tunnel infrastructure. This report indicated there is limited coverage of 4G inside tunnels. Based on this report, Vodafone have been asked to identify what would be required to extend 4G coverage into the tunnels.
16. Auckland Transport has engaged with both Vodafone and Spark respectively to establish availability of Push to Talk Radio on their 4G networks.
17. A small cell site is to be tested in the emerging technologies lab to establish its potential for other weak signal locations (such as the New Lynn and Newmarket under-grounding) and its capability around 3G, LTE and MCPTT (Mission Critical Push To Talk) which uses the LTE network as an option to infill the missing coverage areas.

## Issues and options

18. Two possible options are available to AT for Enhanced Communications.

19. **Option 1** is to work with the Auckland Emergency Management Steering Group on an Auckland-wide solution.

20. Benefits:

- a. Assessment has already been completed for other options at a reduced (shared) cost with other CCOs
- b. Combined purchasing
- c. The operational cost will be shared amongst all participants
- d. The risk of moving to a new environment is reduced as each agency coming on board learns from the previous one
- e. The migration to the new environment can be staged (team by team) which reduces risk
- f. The seamless integration between CCOs and third parties will be achieved (vital for upcoming events like APEC)
- g. The timeframe for assessment and roll-out overlaps with the carrier network software release upgrades, so any carrier issues should be resolved prior to any contractual commitment.

21. Option 1 raises the following issues:

- a. Potential increase in initial capital expenditure to bring the current radio equipment fleet up to standard
- b. A requirement to ensure there is comprehensive network coverage in all operational areas prior to commitment
- c. A shared platform may mean the loss of some operational control, especially in emergencies – the scope of this is to be established within the discovery phase by the Steering Group
- d. Coverage will have to be extended for AT to cover our facilities
- e. The solution will take longer to acquire given the committee approach to procurement

22. **Option 2** is to migrate the existing solution as proposed by TeamTalk.

23. Benefits:

- a. AT uses a commercial network but retains control of the Radio and Communications Network without the need to consider other party's requirements
- b. The transition is managed by the vendor

24. Option 2 raises the following issues:

- a. Increased risk that coverage will have to be redone for carparks and other facilities
- b. Increased operational cost to a combined solution for a period of transition

25. Regardless of which option is chosen, there will be some disruption to communications with a temporary impact to operational efficiencies.


## Next steps

26. BT will continue working with Auckland Emergency Management concerning the integrated solution and will report back to the Board in due course for approvals regarding procurement.

27. BT will monitor the gap analysis within the current radio environment to ensure that the new solution solves these issues.

28. BT will continue to assess alternative solutions independently of the integrated solution.

## Document ownership

Submitted by	Andrew Carr <b>Telecommunications Specialist</b>	
	Geoff Tribble <b>Emerging Technology Manager</b>	
Recommended by	Roger Jones <b>Chief Technology Officer</b>	
	Shane Ellison <b>Chief Executive</b>	

## Glossary

Acronym	Description
APEC	Asia Pacific Economic Cooperation. Forum to be hosted in Auckland in 2021.
CCO	Council Controlled Organisation
DMR	Digital Mobile Radio – An open standard used in commercial radio products to enable interoperability between different suppliers.
LTE	Long Term Evolution – commonly called 4G. A standard for high speed wireless communication for mobile devices and data terminals.
MCPTT	Mission Critical Push To Talk – functionality that meets the requirements of public safety mission critical voice communications (high availability / reliability, low latency, support for group and 1:1 calls, talker identification, device to device direct communications, emergency calling, etc.). In this context these capabilities to be delivered over LTE.
PTT	Push To Talk – a method of having conversations using a button to switch from voice reception mode to transmit mode.
SaFE	Safety and Fare Evasion