

Office of the Minister for Land Information

Chair, Cabinet Economic Development Committee

SouthPAN – Progress Report

Proposal

1. This paper updates Cabinet on the progress of SouthPAN, including detailed reporting on the programme budget and risks.

Executive Summary

2. The Southern Positioning Augmentation Network (SouthPAN) is a joint Australia-New Zealand project to deliver a satellite-based augmentation system (SBAS). SBAS improves the accuracy and reliability of existing Global Navigation Satellite Systems and offers benefits for the primary industries, construction, transport, and others. I can report that the project is progressing as intended. All the funding contingencies have now been agreed and funding secured.
3. Recent decisions include:
 - 3.1. **Funding and participation:** Ministers with Power to Act¹ agreed to continue New Zealand's participation in SouthPAN and provided additional funding through Budget 2022;
 - 3.2. **Indemnity:** A suitable indemnity was agreed and signed in August 2022 by the Minister of Finance;
 - 3.3. **Implementation Business Case:** The Minister of Finance, Minister for Land Information and Minister of Transport approved the Implementation Business Case in August 2022; and
 - 3.4. **On Supply Agreement:** Joint Ministers made the implementation of SouthPAN conditional on an acceptable On Supply Agreement being finalised between Geoscience Australia (GA) and Toitū Te Whenua Land Information New Zealand (LINZ). GA and LINZ signed the On Supply Agreement on 13 September 2022.
4. The project is transitioning into its build and implementation phase. Initial services have commenced and SouthPAN will be fully operational by 2028/2029.
5. SouthPAN is governed by a Joint Governance Board responsible for SouthPAN service delivery, financial management (including the active management of costs) and system security. LINZ is responsible for New Zealand centric matters. LINZ's responsibility includes undertaking its obligations in line with the agreed contractual arrangements, ensuring key relationships are well managed and monitoring SouthPAN's service uptake.

¹ In March 2022 Cabinet authorised the Prime Minister, Minister of Finance and the Minister for Land Information to have Power to Act to take certain decisions regarding New Zealand's participation in SouthPAN [CAB-22-MIN-0083 refers].

6. Costs are tracking within budget. Project expenditure will require rephasing to align budgeted amounts to match actual drawdown. This will be done after procurement of the second satellite payload is complete, likely in 2023. Budget rephasing does not increase costs. I will return to Cabinet to formally rephase SouthPAN funding at the appropriate time.
7. I will report back to Cabinet on SouthPAN's progress in May and November 2023.

Background

8. SouthPAN is an initiative to deliver a satellite-based augmentation system to Australasia, in partnership with Australia. SBAS improves the accuracy and reliability of existing Global Navigation Satellite Systems (GNSS) for any device that can receive an SBAS signal.
9. SouthPAN is delivered in partnership by LINZ and GA. Procurement and construction of infrastructure includes securing two satellite payloads and up to six ground reference stations in New Zealand (including an uplink facility in Invercargill).
10. On 21 March 2022, Cabinet authorised the Prime Minister, the Minister of Finance, and the Minister for Land Information (joint Ministers), to have Power to Act to take certain decisions regarding New Zealand's participation in SouthPAN [CAB-22-MIN-0083 refers].
11. Joint Ministers invited me to report back to Cabinet on the progress of SouthPAN in November 2022, including detailed reporting on the programme budget and risks.

Benefit realisation

12. SouthPAN will improve safety and efficiency in aviation. Benefits will also be derived from sectors where reliable sub-metre positioning accuracy can deliver productivity and safety gains. These sectors include agriculture, conservation, construction, forestry, horticulture, research, transport (road, maritime, aviation), and utilities. A more accurate navigation and positioning system will deliver quantified benefits estimated to be \$864m over 20 years².
13. Government agencies and Crown Research Institutes have identified a wide range of potential uses for SouthPAN including in the fields of infrastructure, environment, and science. For example:
 - 13.1. Improved accuracy of location data would benefit safety, search and rescue operations. SouthPAN would enable improved safety of rescue workers and provide for accurate vehicle and appliance tracking.
 - 13.2. Greater accuracy would enable initiatives like virtual fencing, therefore improving stock control around wetlands, riparian areas and waterways.
 - 13.3. Enabling precise location of objects would inform research and science, monitoring and surveillance, pest trapping and site planning.
14. As part of the implementation of SouthPAN, LINZ (alongside GA) will be shifting focus to include the evaluation of business and public awareness of the technology, user uptake and benefit realisation. This will help ensure that SouthPAN services are being utilised and benefits delivered as expected.

Recent decisions supporting the go ahead for SouthPAN

Implementation Business Case

² Source: Implementation Business Case

15. The Minister of Finance, Minister for Land Information and Minister of Transport, acting under delegated authority, approved the Implementation Business Case for SouthPAN in August 2022.

Indemnity

16. Through the contract negotiation process it became apparent that GA is unable to bear the entirety of the financial risk arising from third-party liability claims that may arise through SouthPAN. GA sought a supporting indemnity from New Zealand. I can report that the Minister of Finance agreed on 28 August 2022 that an indemnity is in the public interest under the Public Finance Act 1989. It has been assessed that the risk of an award relating to third party liability is considered negligible to very low, and there are a range of mitigations in place that reduce the risk significantly.

On Supply Agreement, official announcement of SouthPAN, and governance arrangements

17. Joint Ministers made the implementation of SouthPAN conditional on an acceptable On Supply Agreement (OSA) being finalised. The negotiations were completed in August 2022 and the OSA was signed by the Chief Executives of LINZ and GA on 13 September 2022.
18. The OSA sets out the partnership arrangements between LINZ and GA including rights and obligations. It confirms the SouthPAN services to be delivered and the operational details (including cost sharing). New Zealand will contribute 25 percent of shared project costs, with the remaining 75 percent contributed by Australia. The OSA was subject to a lengthy negotiation process which included independent legal and commercial review.
19. Through the OSA, New Zealand has equal rights to Australia in relation to input and decision-making regarding the management and enforcement of all contracts related to SouthPAN.
20. GA signed the prime contract with Lockheed Martin Australia, simultaneously to the OSA being signed. The prime contract entails the provision and delivery of SBAS infrastructure (including ground and uplink stations across Australasia) and the ongoing service of operations and maintenance of this infrastructure by the contractor.
21. Australia's Minister for Resources, Hon Madeleine King and I formally announced the signing of the related contracts and delivery of SouthPAN on 16 September 2022 through complementary media releases.
22. SouthPAN is governed by a Joint Governance Board which consists of the Senior Responsible Officers from LINZ and GA, and three external independent members. Two of the external members have been nominated by New Zealand and include the Chief Executive of Te Waihangā New Zealand Infrastructure Commission, and an Independent Director with significant experience in infrastructure projects.
23. The Joint Governance Board is accountable for SouthPAN delivery, managing the overall strategic relationship between GA and LINZ, and making decisions related to the strategic direction of the project.

Update on funding

24. The SouthPAN project is made up of direct costs (costs for New Zealand, such as staffing costs) and shared costs (costs relating to key deliverables under the prime contract, satellite procurement and shared assurance). New Zealand funds 100 percent of its direct costs and 25 percent of the project's shared costs.

25. Joint Ministers agreed to continue New Zealand's participation in SouthPAN and approved additional funding on 27 March 2022. [REDACTED]
26. [REDACTED]
- 26.1. **Operating funding** of \$297.8 million over the first 4 years [REDACTED]
- 26.2. **Capital funding** of \$10.9 million.
27. [REDACTED]
28. The year to date spend to 30 September 2022 is \$40.6 million, largely due to New Zealand's 25 percent share of the initial work activity now that participation and funding decisions have been made. The forecast spend for the 2022-23 financial year is within budget at \$71 million.

- [REDACTED]
29. [REDACTED]
30. [REDACTED]
- [REDACTED]
31. [REDACTED]
32. [REDACTED]
33. [REDACTED]

SouthPAN is now in its implementation phase and early services have commenced

34. Initial operating capability (early open services) commenced on 26 September 2022. These early open services use similar satellite and ground infrastructure to that used for the 2017-2019 SouthPAN testbed trial. These trials raised a significant level of business support for SouthPAN.

35. While the existing infrastructure can support early services, a purpose-built system is needed to meet necessary reliability standards and to secure Safety-of-Life certification. The purpose-built system will be developed over the next five years as ground stations are established and the two new satellites come online. The target date for full operating capability is October 2029.
36. Once full capability is realised, the contract will enter the operational phase. This involves ongoing delivery to at least 2041.
37. The following key milestones will be delivered:

Milestone:	Timeframe:
Initial uplink operations in New Zealand (Invercargill site) commence	December 2023
Ground Reference Station sites brought online and contributing to the service	April – July 2025
Uplink facility in New Zealand (Invercargill site) fully contributing to the service	March 2026
Satellite payload-01 comes online	February 2028
Safety-of-Life operations start (with less continuity, which will be addressed when satellite payload-02 comes online)	March 2028
Satellite payload-02 comes online	October 2029

38. Cabinet will be updated on these milestones as part of regular project reporting. I have also directed officials to prepare for me report back papers to Cabinet on the progress of SouthPAN in May and again in November 2023.

Risks and mitigations

39. SouthPAN has been assessed through the New Zealand Treasury Risk Profile Assessment process to determine the level of risk that the project presents. SouthPAN has a 'medium' rating under the assessment process and is not subject to Gateway reviews³. SouthPAN governance arrangements are in place to identify, categorise and manage risks during implementation.
40. Importantly, the Joint Governance Board will own and manage all risks pertaining to SouthPAN service delivery, financial management and system security. Regular reporting to Ministers will also occur. Through the Joint Governance Board, LINZ and GA have equal voice and equal decision rights. As a result, it is not possible for decisions to be made that have an impact on scope, cost or financial management without agreement from New Zealand officials.
41. New Zealand centric risks will be managed by LINZ, as will the interdependencies between the strategic risks managed by the Joint Governance Board.
42. LINZ (alongside GA) is employing standardised risk assessment and management methodology. As the project transitions into the implementation phase, the current risk

³ Gateway is an assurance methodology for major investments that examines projects at key points in their lifecycles to assess their progress and to rate the likelihood of successful delivery.

registers and reporting processes are being reviewed and revised. Once updated they will form part of the assurance activities.

43. There will also be independent assurance activities and processes to ensure SouthPAN services are delivered to specification on time, and to mitigate risks associated with the project. Processes such as certification and accreditation, independent external input, and standardised risk management help ensure project success.
44. Both New Zealand and Australia (who has led the procurement activity to date) have engaged expert legal and commercial advice throughout the project and will continue to do so. LINZ has also actively engaged with other agencies, including with the Treasury and Ministry of Business, Innovation and Employment in relation to procurement.
45. The underlying technical system requirements will also be subject to input from other agencies including the Civil Aviation Authority, Airways New Zealand and LINZ's intelligence partner agencies.
46. Key risks identified and being actively managed to date include:
 - 46.1. Uncertainty with cost – the project lifespan of over 19 years means it is not possible to predict or fully mitigate all possible impacts on costs. On inception of the SouthPAN programme, the Government and officials have recognised the need to ensure robust mechanisms are in place to minimise the risk of cost escalation. The mechanisms include:
 - the Prime Contract and satellite payload contracts, making up more than 80 percent of SouthPAN costs, are largely 'firm fixed price' contracts, thus providing a higher degree of budget certainty. The procurement process undertaken with the SouthPAN contractor has meant that system requirements have been negotiated extensively, mitigating some of the risk of variations in the future;
 - financial contingencies are in place to mitigate risks of cost escalation. [REDACTED]
 - foreign exchange contracts have been entered into giving certainty of the exchange rate on payments for the first 5 years of the Prime Contract;
 - adjusting the SouthPAN and satellite payload contract costs for inflation in line with the Australian CPI. The inflation rate for shared costs is in line with GA's financial modelling assumption. While the current Reserve Bank of Australia's inflation forecast is currently higher than modelled in year one, this will be managed through contingencies and will continue to be monitored across the longer term of the programme; and
 - approved funding considers the risk from inflation and foreign exchange movements, but if these movements exceed the funding allocated, they will be addressed through a Budget technical package [BRF 22-298 refers].
 - 46.2. Ensuring key relationships are well managed – SouthPAN is being delivered in partnership with Australia and it is critical that the relationship (both at the governance and working levels) remains healthy. Governance arrangements have been formally agreed, with roles, responsibilities and escalation processes clearly articulated. The relationship will be actively monitored and maintained.

Other relationships with the key contractor delivering SouthPAN, ancillary contractors, organisations involved in the development of ground sites, and regulatory agencies will be carefully managed in line with project and contract management practices.

- 46.3. Monitoring SouthPAN service uptake and benefit realisation – if there is limited uptake of services there is a risk that the expected benefits will not be realised. Officials have been engaging widely with potential users and government agencies and there is strong interest in the SouthPAN services (including participants from the 2017-2019 test bed trial).

LINZ will engage specialist resource through the implementation phase specifically for uptake and benefit realisation. These specialists will actively encourage and monitor how SouthPAN services are used. This will include active engagement with industry as services become available.

Consultation

47. The Treasury, Department of the Prime Minister and Cabinet, Ministry of Transport, Ministry of Business, Innovation and Employment, Department of Conservation, and Ministry of Education provided comments on this paper.
48. Other agencies consulted were the Ministry for Primary Industries, Ministry for the Environment, New Zealand Customs, New Zealand Infrastructure Commission and the Department of Internal Affairs.

Financial Implications

49. The financial implications and associated risks of the SouthPAN project are discussed in the body of this paper.
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Legislative Implications

50. There are no legislative implications as a result of this report back.

Human Rights

51. This report back is not inconsistent with the New Zealand Bill of Rights Act 1990 and the Human Rights Act 1993.

Gender Implications and Disability Perspective

52. There are no gender or disability implications as a result of this report back.

Publicity

53. SouthPAN was formally announced on 16 September 2022 following the signing of the prime contract and On Supply Agreement between New Zealand and Australia. No publicity is associated with this report back.

Proactive Release

54. I propose to release this paper proactively. Release is subject to due diligence process and redactions as appropriate under the Official Information Act 1982.

Recommendations

I recommend that the Committee:

1. **note** that on 21 March 2022 Cabinet authorised the Prime Minister, Minister of Finance and the Minister for Land Information to have Power to Act to take certain decisions regarding New Zealand's participation in the Southern Positioning Augmentation Network (SouthPAN) [CAB-22-MIN-0083 refers];
2. **note** that on 27 March 2022 Ministers with Power to Act agreed to additional funding and to continue New Zealand's participation in SouthPAN [BRF 22-298 refers];
3. **note** that on 28 August 2022 the Minister of Finance agreed to an indemnity to Geoscience Australia;
4. **note** that the Minister of Finance, Minister for Land Information and Minister of Transport, acting under delegated authority, approved the Implementation Business Case for SouthPAN;
5. **note** that on 13 September 2022 Geoscience Australia and Toitū Te Whenua Land Information New Zealand signed the On Supply Agreement;
6. **note** that the SouthPAN Joint Governance Board is responsible for SouthPAN delivery, managing the overall strategic relationship between GA and LINZ, and making decisions related to the strategic direction of the project;
7. **note** that initial operating capability for SouthPAN commenced on 26 September 2022;

8.

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Risks

10. **note** that cost escalation and other key risks identified to date are being actively managed;
11. **note** that LINZ (alongside GA) is reviewing and revising risks and mitigations as part of the transition into the implementation phase of SouthPAN; and

Report back

12. **invite** the Minister for Land Information to report back to Cabinet on SouthPAN's progress in May 2023 and again in November 2023.

Authorised for lodgement

Hon Damien O'Connor

Minister for Land Information