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15 June 2020

Committee Secretary
Joint Standing Committee on Foreign Affairs, Defence and Trade
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Dear Committee Secretary,

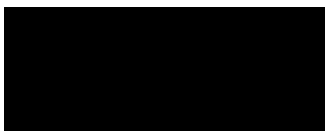
Northrop Grumman Australia welcomes the opportunity to provide an updated submission to the Joint Standing Committee on Foreign Affairs, Defence and Trade's inquiry into Australia's defence relationships with Pacific island nations.

Northrop Grumman Australia's original submission to the Committee on 18 February 2020 has been revised to reflect our understanding of the emerging challenges for Pacific island nations and other accelerated geostrategic trends resulting from the devastating impacts of the Covid-19 pandemic.

This submission reflects Northrop Grumman Australia's appreciation of current defence relationships and activities with Pacific island countries and draws upon our global experience to support nations to address critical defence and security challenges in a post-Covid-19 environment.

We urge the Committee to consider the recommendations contained within the enclosed submission and would welcome the opportunity to present at a public hearing to discuss our recommendations with the Committee in further detail.

Yours sincerely
For Northrop Grumman Australia



Chris DEEBLE AO, CSC
Chief Executive



SUBMISSION

Joint Standing Committee on Foreign Affairs,
Defence and Trade

Inquiry into Australia's defence relationships with Pacific
island nations

15 June 2020

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INQUIRY TERMS OF REFERENCE

With respect to the inquiry into Australia's defence relationships with Pacific island nations, we ask that the JSCFADT, in particular the Defence Sub-Committee give particular regard to:

1. Current activities and outcomes undertaken by Defence in the South West Pacific, including the relationship between Defence's longstanding Cooperation Program and its Step-Up activities;
2. How Australia's Defence Cooperation programs and Pacific Step up activities correspond to the needs, requests and feedback from partner nations in the Pacific (including consultation with civil society, parliaments and executive governments);
3. Opportunities for closer coordination and collaboration between Defence and other Government departments on Australian programs and activities across the South West Pacific;
4. Opportunities for closer coordination and collaboration between other nations seeking to invest and engage in the South West Pacific, including planning and execution of joint activities and preparation for HADR;
5. Any related matters.

INTRODUCTION

Northrop Grumman Australia welcomes the opportunity to make a submission to the Joint Standing Committee on Foreign Affairs, Defence and Trade's (the Committee's) inquiry into Australia's defence relationships with Pacific island nations.

Northrop Grumman Australia is a wholly owned subsidiary of the Northrop Grumman Corporation, which is a leading global security company providing innovative systems, products and solutions in autonomous systems, cyber, command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR), space, strike and logistics, and modernisation to customers worldwide. Northrop Grumman is proud of our established relationship with the Commonwealth of Australia and are committed to enhancing our business and geographic footprint in Australia. We have a strong customer base in Australia and have been supporting a variety of defence and civil programs in the country for more than 20 years. We work with the Australian government and the Australian Defence Force (ADF) to ensure border and Pacific-region security mission success through a number of programs.

In particular, Northrop Grumman Australia is working with the ADF to support maritime security in the Pacific through *Operation Solania* by providing through-life sustainment support for the Royal Australian Air Force's (RAAF's) C-27J Spartan Battlefield Airlift capability, which are often deployed in support this operation. Northrop Grumman's maritime security capabilities also extend to its Harbour and Coastal Security system, which forms the basis of the Australian Border Command's Australian Maritime Identification System (AMIS). This system facilitates whole-of-government maritime domain awareness of shipping and other activity in Australia's offshore zones.

The Australian government, in partnership with Northrop Grumman and the US Navy, has also commenced the acquisition of a fleet of high-altitude, long-endurance remotely piloted maritime aircraft – the MQ-4C Triton. This aircraft will complement the maritime surveillance role of other intelligence, surveillance and reconnaissance (ISR) aircraft, such as the P-8A Poseidon, through sustained maritime operations. The Triton will be able to undertake a range of ISR tasks in support of ADF activities both domestically and abroad, including in the Pacific region. It will provide Australia with a persistent and sovereign intelligence collection capability, with greater utility for information sharing among government agencies and with regional partners.

SUMMARY

Northrop Grumman Australia welcomes the federal government's renewed commitment to the Pacific, as Australia's security is intimately linked with that of the Pacific region. Australia's focus on this part of the world should rightly be on building regional capacity and capability for Pacific island nations to meet their own security needs, which is a recognised principle in the development and ongoing management of Defence Cooperation Programs (DCPs) and other Defence operations and exercises.

Strategic contest and great power competition has long been a feature of the Pacific and the Covid-19 pandemic has intensified this competition and extended it to economic, military, diplomatic and ideological aspects. Covid-19 has also accelerated a range of other regional geostrategic trends, with the spectre of failed states and a US that is distracted by dealing with the fallout of the pandemic. As nations grapple with their own responses to the pandemic and its economic impact, there will be a much greater need for Australia to carry out operations without the aid of allies and do more in our own backyard.

While most Pacific countries demonstrated great foresight in their response to Covid-19 by enforcing early travel restrictions, no amount of foresight could help these countries avoid the economic fallout resulting from the pandemic. On average, the economies of the region may experience a contraction of as much as 10 per cent.¹ Covid-19 has made the economic and political systems of the Pacific far more fragile.

This submission considers the effects of climate-related and maritime security threats on Pacific island countries (PICs) and notes that these threats remain a priority for the Pacific's defence engagement with Australia. It identifies opportunities for Australia to address these threats and recommends ways to enhance the humanitarian and disaster relief (HADR), maritime security and information sharing components of our defence engagement in the Pacific with the support of defence industry partners. This submission reflects Northrop Grumman Australia's understanding of current defence relationships and activities with PICs and draws upon our global experience in supporting nations to address critical defence and security challenges.

This submission also explores the relationship between the Department of Defence (Defence) and defence industry and recommends that the Australian government consider opportunities for greater collaboration with industry when designing cooperative security solutions in support of PICs. Many of the challenges faced by PICs can be better addressed by integrating industry into the design and execution of innovative solutions.

As new technologies and platforms are developed by industry and acquired by the ADF, the Australian government will need to consider how these emerging capabilities can be best utilised to support Australia's efforts in the Pacific, while also managing concurrency pressures in other missions both domestically and internationally. Defence's Force Structure Review provides an opportune time to consider how these assets can be most effectively acquired and deployed to provide ongoing support to Pacific island nations and continue to grow our close security relationships with these countries.

¹J Pryke, *The world after Covid: The Pacific*, <https://interactives.lowyinstitute.org/features/covid19/issues/pacific/>.

RECOMMENDATIONS

As described in detail later in this document, Northrop Grumman Australia recommends to the Committee that the Australian government:

1. Engage PICs on the value of additional maritime aerial surveillance and develop an understanding of their capability requirements;
2. Consider options to enhance logistics and aerial surveillance support to the Pacific Islands as part of the Pacific Step Up, *Operation Solania*, the Pacific Maritime Security Program and other maritime security activities, including the possible forward deployment of Defence airlift and ISR assets;
3. Prioritise the timely acquisition of maritime ISR and HADR capabilities to maximise Australia's support to Pacific maritime security activities and humanitarian assistance operations;
4. Enhance maritime intelligence and information sharing with PICs to support a range of security activities, including maritime domain awareness and maritime security operations;
5. Engage in greater consultation with defence industry to utilise the collective expertise of industry partners in the design and execution of security solutions that will enhance Australia's defence relationships with PICs; and
6. Develop a framework to enhance disaster management arrangements in the Pacific, which considers the capability of defence industry partners to enhance the mission success of HADR assets through deployed sustainment and maintenance support.

IMPORTANCE OF AUSTRALIA'S DEFENCE RELATIONSHIPS WITH PACIFIC ISLAND NATIONS

The federal government's renewed commitment to the Pacific is welcomed, as Australia's security is intimately linked with a secure and stable region. As the *2016 Defence White Paper* notes, "instability in our immediate region could have strategic consequences for Australia should it lead to increasing influence by actors from outside the region with interests inimical to ours".²

Stability and prosperity in the Pacific region are the responsibility of all resident states. Australia should be prepared to underwrite the security of the Southwest Pacific for the foreseeable future, noting that PICs often face significant capacity constraints when developing responses and solutions to security threats. The task that PICs face in managing the effects of climate change and protecting their economic resources is significant, particularly when considered in the context of their combined exclusive economic zones (EEZs), which cover around 27.5 million square kilometres.

The Australian government's 'Pacific Step-up' is a welcome contribution to assist PICs in strengthening their ability to manage internal, transnational and border security challenges, including natural resource protection, and to build their resilience and ability to respond to natural disasters. These efforts build on the successes of *Operation Solania*, the Pacific Patrol Boat Program and the Pacific Maritime Security Program (PMSP). *Operation Solania* is the annual ADF mission to support the Forum Fisheries Agencies (FFA) to protect fisheries and other resources within the EEZ of its partner countries. The PMSP is Australia's A\$2 billion commitment to the South Pacific region over the next 30 years, consisting of three components administered by the Department of Defence; a Pacific Patrol Boat replacement program, integrated regional aerial surveillance, and strengthening regional coordination through cooperative patrols and equipment upgrades.

The application of new Defence capabilities – such as the MQ-4C Triton unmanned aerial system – to contribute significant ISR capabilities to *Operation Solania* and maximise the utility of PMSP activities, through the targeted tasking of Pacific Patrol Boats, will further elevate Australia's capacity to support our Pacific neighbours and be seen as a strategic partner of choice.

² *2016 Defence White Paper*, p. 16.

ADDRESSING THE SECURITY CHALLENGES OF PACIFIC ISLAND NATIONS

Pacific island nations face a range of security challenges that include climate change, maritime and border security, transnational crime, illegal, unreported and unregulated (IUU) fishing, and illegal migration. These can be overwhelming for any nation, but they are multiplied exponentially when they exist within the vastness of the Pacific Ocean. Of these challenges, there are none more pressing than climate change and maritime security, both of which require sophisticated domain awareness and maritime security capabilities to manage and overcome.

Australia's security cooperation with the Pacific should rightly focus on building the capacity and capability of our Pacific partners to manage climate-related and maritime security threats in order to meet their own security needs. Capacity building activities increase resilience and protect PICs' sovereignty from influence by states with interests at odds with Australia's. Noting the dependence of PICs on marine resources and the challenges faced by the scale of climate-related and maritime security threats, Australia should focus on Defence Cooperation Programs, exercises and other related activities on developing solutions to monitor and protect Pacific island nations' maritime security and HADR responses.

CLIMATE-RELATED THREATS

The Indo-Pacific region is regarded as the most disaster-prone region in the world. The Boe Declaration on Regional Security, signed by all members of the Pacific Islands Forum in 2018, reaffirms that climate change remains the single greatest threat to livelihoods, security and wellbeing of the Pacific peoples. During the 2019 Pacific Islands Forum, Pacific leaders presented a united stance on the pressing need for accelerated and ambitious global action on climate change, noting that it remains the single greatest threat to PICs as its impacts will undermine – and potentially reverse – economic development, create instability and conflict, and threaten lives.³

While communities in the Pacific have survived environmental hardships and have a high degree of local resilience, climate change can make it more difficult for communities and governments to recover from disasters and resolve issues. Climate change is also a significant multiplier that can increase the risk posed by maritime security threats, such as protecting EEZs in the face of rising sea levels.

In response to climate-related threats, HADR is becoming a central part of Australia's military doctrine for the Pacific region. PICs are highly exposed to a range of natural hazards, which often lead to disasters that affect large population centres and exacerbate existing development and security challenges in the region. Climate change predictions identify challenges for the Pacific including an increase in rainfall and extreme weather events, intensity of tropical cyclones, rising sea levels and ocean acidification.⁴

Australia should continue to provide HADR assistance to vulnerable communities in the Pacific region to mitigate and manage climate-related threats. Defence plays a vital role in supporting emergency response and disaster recovery throughout the Pacific region. As noted in the *2016 Defence White Paper*,⁵ Defence must be prepared to cooperate with PICs to conduct HADR, security or stabilisation operations in our immediate region, as it has done successfully in Solomon Islands and in Bougainville and in response to the devastation of Tropical Cyclone Evan in Fiji in 2016 and Tropical Cyclone Pam in Vanuatu in 2015.

³ *Pacific Islands Forum Statement: Blue Pacific's Call for Urgent Global Climate Change Action*, 15 May 2019, <https://www.forumsec.org/pacific-islands-forum-statement-blue-pacifics-call-for-urgent-global-climate-change-action/>.

⁴ W Morgan, *Climate change at the front lines*, <https://www.lowyinstitute.org/the-interpreter/climate-change-frontlines>.

⁵ *2016 Defence White Paper*, p. 74.

MARITIME SECURITY THREATS

The ocean is critically important to PICs for food security, economic development and national security. They have a natural dependence on the maritime domain and are consequently vulnerable to maritime security threats. IUU finishing and the impacts of climate change are the highest priority risks and threats to PICs, as reinforced by the Australian Strategic Policy Institute's (ASPI's) *Oceans Horizon*⁶ report (the report).

ASPI's analysis of the Pacific island maritime security environment assessed that IUU fishing costs PICs over US\$600 million per annum.⁷ It also identifies drugs and human trafficking, and sea robberies of natural resources as growing threats, and notes that PICs' limited search and rescue (SAR) capabilities are ill-equipped to address maritime incidents like ferry accidents and lost vessels.

The report notes that there are significant operational gaps in PICs' maritime patrolling capabilities, especially in remote island areas. At present, air surveillance of remote areas, EEZs and adjacent areas of the high seas is conducted on a limited basis with no sovereign, dedicated aerial surveillance capability. Most maritime security agencies lack the equipment, maintenance and operational funds to develop an effective, integrated approach to deliver long-term maritime security for their countries, with the level of air and maritime surveillance particularly inadequate.

There are a number of cooperative programs, exercises and initiatives that the Australian government has developed – in consultation with PICs – in order to help build the maritime security capabilities of Pacific island nations. *Operation Solania* and the Pacific Maritime Security Program (PMSP), the latter of which is funded through the Defence Cooperation Program, are two great examples of these initiatives.

While the ADF is well-equipped to deal with traditional military threats, there is scope to further enhance Australia's ability to assist PICs in dealing with non-traditional maritime security threats. Maritime domain awareness is the foundation for maritime security and is currently lacking in the Pacific. PICs require assistance with developing a sophisticated maritime domain awareness capability and better mechanisms for information sharing and cooperation.

Enhanced maritime domain awareness will assist PICs with resource security, which has a significant impact on Pacific island economies, reducing their reliance on assistance from other state actors whose interests and intentions may not align with our own. Greater maritime security support also obstructs illegal activities, such as people trafficking, illegal migration, drug smuggling and piracy – thus reducing the likelihood of these threats reaching Australian waters.

MARITIME DOMAIN AWARENESS: INFORMATION SHARING AND COORDINATION

Efforts to enhance the maritime security of PICs must also recognise the importance of enhancing maritime domain awareness, and information sharing and coordination, which are essential elements to effective maritime security. These capabilities underpin a national – or regional – maritime governance system.

Importantly, enhanced maritime domain awareness is not always achieved through the collection of more data and information. Rather, agencies must have the ability to share and fuse available information, which may sit across several agencies and commercial sources, in a way that can maximise the utility of the information and create a common operating picture for all agencies involved in the governance and protection of PICs' maritime security.

⁶ A Bergin, D Brewster and A Bachhawat, *Ocean horizons: Strengthening maritime security in Indo-Pacific island states*, <https://www.aspi.org.au/report/ocean-horizons-strengthening-maritime-security-indo-pacific-island-states>.

⁷ A Bergin, D Brewster and A Bachhawat, *Ocean horizons: Strengthening maritime security in Indo-Pacific island states*, p. 20.

In September 2018, the Australian government announced that it will work with regional partners to establish a Pacific Fusion Centre to strengthen the ability of Pacific governments to enforce their laws and protect their sovereignty. The centre was formally established in 2019, to equip Pacific decision-makers with the information they need to better identify and respond to security threats. The Pacific Fusion Centre will assist PICs with the strategic analysis of information to help strengthen maritime domain awareness and provide security alerts and advice for Pacific security agencies.

The creation of the Pacific Fusion Centre is a significant step in enhancing the maritime domain awareness capabilities of PICs. As the concept of operation for the fusion centre is refined, the emphasis should be on maximising the collection, fusing and analysis of all sources of data to produce and disseminate strategic assessments in support of Pacific maritime security activities. The Australian government is also encouraged to consider leveraging the use of its ISR assets to collect sovereign data and intelligence, which it can share more freely with the Pacific Fusion Centre, FFA and other Pacific security agencies without the same restrictions placed on intelligence sources collected through the Five Eyes network. Industry, as the creator of these technology platforms, can assist with the design and integration of these systems according to the requirements of the Australian and Pacific island governments.

In addition to setting up the necessary structures and systems to enable greater maritime domain awareness, training in these systems and encouraging regional cooperation to achieve a force multiplication effect is just as important. Integrating maritime domain awareness training and regional cooperative activities into extant Defence Cooperation Programs with PICs will better enable these countries to maximise the utility of Pacific Fusion Centre capability and new systems that are brought online to support the management and dissemination of information and intelligence.

OPPORTUNITIES TO ENHANCE AUSTRALIA'S PACIFIC SECURITY ENGAGEMENT

ADDITIONAL AERIAL SURVEILLANCE CAPABILITIES

Australia's new fleet of P-8A Poseidon aircraft and MQ-4C Triton aircraft will join the E-7A Wedgetail to fulfil Australia's aerial ISR requirements. Demands on these platforms are only going to grow as competition between global powers intensifies, and as climate-induced disasters affecting Australia and our regional partners require increased humanitarian assistance.

While the strategic contest in the Pacific has long been escalating, Covid-19 has accelerated the nature and threat of a number of geostrategic trends in the region with moves to leverage opportunities created by the pandemic.

There is a possibility that the world that emerges post-Covid-19 will be more unstable, with the spectre of failed states and a world that is distracted by dealing with the fallout of the pandemic. As nations grapple with their own responses to the pandemic and its economic impact, there will be a much greater need for Australia to carry out operations potentially without the aid of allies. In an era of post-Covid-19 strategic competition, Australia will need to monitor its own regional interests more than ever before, relying heavily on its own capabilities and ensuring the safety and security of the region for our benefit as well as that of our allies and partners.

The evolving threat environment and resulting concurrency pressures will stretch the ADF's ISR assets. In the near future Australia will likely find itself operating concurrently in several critical theatres of operation – conducting high-end ISR missions in the South China Sea, providing maritime security ISR support to PICs, responding to a domestic natural disasters, conducting ISR support for border security operations and supporting allied sanctions-enforcement missions. In this context, Defence will need to carefully consider its future force posture, as well as the role that emerging technologies and capabilities like unmanned and autonomous systems can play in delivering persistent monitoring and situation

awareness. The Pacific region's security – and by extension, our own – will depend on Defence's ability to deliver monitoring and awareness capabilities in a number of theatres.

In order to meet Australia's post-Covid-19 security needs, a mix of sovereign and Five Eyes ISR capabilities will be fundamental enabling capabilities and also offer a 'deterrence by detection' effect on our adversaries, as espoused in a recent US Centre for Strategic and Budgetary Assessments report.⁸ The persistent nature of layered, coalition wide-area surveillance operations would provide a "pattern of life" picture for allies to discern regional changes that might be of concern. Importantly, Australia must have sufficient depth in sovereign ISR capabilities to mitigate the risk of reduced access to US capabilities as the US priorities evolve post-Covid-19.

Commentators have acknowledged the value that enhanced aerial ISR will provide in combatting security threats and illegal activity in the Pacific.⁹ Contributing to the surveillance of Pacific EEZs, in particular to safeguard their fisheries resources, builds considerable goodwill and influence for Australia in these small states for whom fishing is often the largest industry. This complements the significant investment Australia has made in the PMSP. The Australian government's acquisition of its fleet of seven MQ-4C Triton surveillance aircraft will offer both a persistent and surge capability for aerial surveillance in support of key operational and ad hoc activities that form part of Defence's engagement with and support to the Pacific. Further information about the Northrop Grumman Triton capability has been provided below, which highlights its application in monitoring and responding to a range of Pacific security threats.

Recommendation one: The Australian government should engage PICs on the value of additional maritime aerial surveillance and develop an understanding of their capability requirements.

Recommendation two: The Australian government should consider options to enhance logistics and aerial surveillance support to the Pacific islands as part of the Pacific Step Up, *Operation Solania*, the Pacific Maritime Security Program and other maritime security activities, including the possible forward deployment of Defence airlift and ISR assets.

MQ-4C TRITON

The MQ-4C Triton is a high-altitude, long endurance (HALE) Remotely Piloted Aircraft System (RPAS) developed by Northrop Grumman in partnership with the United States (US) Navy. It is an unarmed, high-altitude, long-endurance, remotely piloted aircraft that will operate in the maritime environment, providing a persistent maritime patrol and ISR capability.

The *2016 Defence White Paper* foreshadowed the need to acquire seven Triton aircraft, with the accompanying Integrated Investment Program (IIP) confirming the requirement for seven platforms. Both documents explicitly identify the MQ-4C Triton as the platform to meet the ADF's ISR requirements. In June 2018, the Australian government announced an initial investment of A\$1.4 billion in the Triton program, which will cover the cost of the first of six aircraft, as well as the construction of facilities, development of ground control systems, training, and an investment into the US Navy cooperative program. In March 2019, the government announced the acquisition of the second Triton aircraft.

The Triton will fly missions in excess of 24 hours' duration at a range of more than 8,000 nautical miles, while providing 360-degree surveillance and imagery of an area up to 2,000 square nautical miles. It will allow the ADF to monitor and respond to a range of contingencies in the Pacific and can monitor 1.6 million square kilometres of ocean in a single flight. The Triton possesses a leading-edge sensor suite that enables multi-spectral targeting, automatic identification, multi-function active sensor radar and multi-intelligence sensor capability. These sensors provide Defence with an enhanced terrain, resource and

⁸ T Mahnken, et al, *Deterrence by Detection: A key role for unmanned aircraft systems in great power competition*, <https://csbaonline.org/research/publications/deterrence-by-detection-a-key-role-for-unmanned-aircraft-systems-in-great-power-competition>.

⁹ S Brady, *Pacific air patrols will do more than combat illegal fishing*, <https://www.lowyinstitute.org/the-interpreter/pacific-air-patrols-will-do-more-combat-illegal-fishing>.

hydrographic mapping capability, which will provide real-time maritime surveillance data via line-of-sight links.

HALE platforms have a proven ability to provide critical ISR support to conventional military and HADR missions. Northrop Grumman's family of Global Hawk and Triton HALE platforms have been used extensively to support emergency response efforts in a range of HADR scenarios; including bushfires, typhoons, tsunamis, earthquakes and hurricanes. This support is critical to PICs, noting that many of Australia's Defence Cooperation Programs focus on HADR aspects of military cooperation and disaster relief, which represent an enduring threat to Pacific island nations.

The Triton can extend the capabilities of the ADF by providing greater operational reach and freeing up personnel and assets to be deployed elsewhere. It is the only platform with the range, endurance and sensors to meet Australia's persistent maritime ISR requirements. It provides greater endurance than manned aircraft, and is capable of manned and unmanned teaming with other ADF assets to enhance the ADF's overall mission performance. In this capacity, the Triton will complement the RAAF's current ISR capabilities such as the P-8A Poseidon aircraft, as well as aircraft deployed in support of *Operation Solania*. It will also provide the Australian government with a sovereign intelligence collection capability, with greater utility for information sharing with Pacific partners.

The provision of information from the Triton aircraft will help Defence protect the sovereignty and resources of PICs and ensure continued economic viability. This capability has the potential to offer a more frequent and persistent version of the contracted PMSP air surveillance and the ADF's *Operation Solania* air patrols. The Triton's ability to cooperate with manned platforms will enhance the efficiency of manned response assets owned by PICs, including patrol boats, to provide more effective and targeted support to maritime security and HADR missions. As the aircraft transitions into service, the Triton can form part of a comprehensive package of assistance being provided to PICs by the Australian government – alongside the gifting of Guardian Class Patrol Boats, training and joint operations – focused on building and maintaining the sovereign capacity of PICs.

A total Triton fleet of three to four aircraft will provide Australia with a limited capability to conduct ISR operations and will provide the RAAF with the ability to develop experience in operating HALE systems. However, to enable continuous surveillance of one point of interest in operating areas at a significant range from Australia, at least four to five aircraft would be required (two in transit, one on station, one conducting pre-flight preparations and one in maintenance). Seven or eight air vehicles would enable persistent surveillance of two points of interest at range. A fleet of at least seven Triton aircraft will also free up the capacity of Australia's P-8A Poseidon fleet to focus on conducting high-end anti-submarine warfare missions in response to the growing proliferation of submarine capabilities in the region.

Northrop Grumman Australia recommends that the Australian government consider the timely acquisition of the remaining Triton aircraft fleet, in order to ensure the timely delivery of this important capability. When considered in the context of Triton's utility to support Pacific security activities – both civil and military – the timeliness of this acquisition is particularly critical to ensure the aircraft are delivered on time and can be used to maximise Australia's Defence engagement and relationships with PICs.

Recommendation three: The Australian government should prioritise the timely acquisition of maritime ISR and HADR capabilities to maximise Australia's support to Pacific maritime security activities and humanitarian assistance operations.

ENHANCED INTELLIGENCE AND INFORMATION SHARING WITH PACIFIC ISLAND PARTNERS FOR GREATER MARITIME DOMAIN AWARENESS

In addition to assistance with maritime surveillance, Northrop Grumman Australia notes that the basic requirements of enhanced maritime security and HADR response in the Pacific includes information management and the appropriate systems that underpin the management and dissemination of data and intelligence.

The sovereign nature of the MQ-4C Triton capability will enhance Australia's ability to share intelligence and information with PICs, to assist with developing a more coordinated and targeted responses to security threats. Australia's ability to use its sovereign ISR assets to collect intelligence is critical to the government's ability to share unrestricted information with our Pacific partners. This intelligence will equip Pacific decision makers with the information they need to better identify and respond to security threats, such as illegal fishing, people smuggling and narcotics trafficking.

In addition to sovereign intelligence collection capabilities, it is also critical that Australia invests in information processing, exploitation and dissemination capabilities to ensure that both the ADF and Pacific island nations can receive timely information and intelligence to inform domain awareness requirements. The Distributed Ground Station – Australia (DGS-AUS), which will be the RAAF's centralised ISR processing, exploitation and dissemination system, will receive information from ADF and allied ISR assets in diverse operational theatres – including the Pacific – and combine it with strategic reference material from the Australian intelligence community to improve situational awareness. As the DGS-AUS matures and the capability is refined, the ADF can leverage this system to share information and assessments with Pacific island nations and enhance the intelligence feed that informs the Pacific Fusion Centre.

Northrop Grumman Australia recommends that the Australian government develop the appropriate procedures for the analysis and sharing of information and imagery with PICs as the DGS-AUS capability matures and in advance of the Triton aircraft's transition into service. A proactive approach to developing these procedures will ensure that information sharing can commence as soon as the capability enters into initial operational capability in Australia, which is scheduled to be in operation by 2021.

Recommendation four: The Australian government should enhance maritime intelligence and information sharing with PICs to support a range of security activities, including maritime domain awareness and maritime security operations.

INDUSTRY SUPPORT TO DISASTER RELIEF AND MARITIME SECURITY IN THE PACIFIC

Industry plays a key role in the design, production and sustainment of ADF assets that support Defence's operations and cooperative activities with PICs. Industry can provide the ADF with the capacity to augment sustainment teams deployed on operations and provide insights into innovative capability solutions to support Australia's regional priorities. Australian industry can also provide opportunities to integrate local Pacific island industry in support of ADF operations, generating both capability and economic outcomes for PICs.

Northrop Grumman Australia has assisted with the success of maritime security operations in the Pacific, such as *Operation Solania*, through the contracted through-life maintenance provided to the RAAF's C-27J Spartan Battlefield Airlifter (C-27J) fleet. In addition to its maritime surveillance assistance, these aircraft give the ADF much greater flexibility in moving personnel and cargo to remote locations in the Pacific for civil, humanitarian and conventional military purposes. Where capacity allows, Defence should consider augmenting its force posture to forward deploy assets like the C-27J that can provide both airlift and ISR support to Pacific island nations.

As the C-27J sustainment contractor, Northrop Grumman Australia would be supportive of an ADF decision to forward deploy RAAF surveillance and airlift assets such as the C-27J to the Pacific and would welcome the opportunity to consider ways that industry can support the ongoing maintenance of capabilities while on deployment. Northrop Grumman Australia can also work with the RAAF and Pacific island industry to consider opportunities to integrate local industry partners into operational support roles. One area that we have identified as a possible first step or pilot program is logistics and supply chain support. The integration of Australian and Pacific island industries in ADF logistics and supply chain support will produce capability and economic outcomes for PICs, through exposure to best-practice

processes and the development of local industry capability, in addition to the economic benefits associated with the employment opportunities that these partnerships could generate.

To take these opportunities forward, Northrop Grumman Australia would welcome further engagement with the RAAF, in the first instance, to gauge views on the effectiveness of a forward-deployed airlift and aerial surveillance capability. Northrop Grumman Australia would also welcome the opportunity to discuss options for Australian industry to support the deployment of these assets with ongoing sustainment and maintenance to maximise operating hours and generate outcomes for local Pacific island industry partners.

Northrop Grumman Australia also recommends that the Australian government develop a framework to enhance disaster management arrangements in the Pacific, which considers the capability of defence industry partners to enhance the mission success of HADR assets through deployed sustainment and maintenance support. Industry consultation when designing Defence's HADR posture and response is critical to developing solutions that can maximise Australia's emergency assistance to Pacific island nations during and in the immediate aftermath of natural disasters. The value to Australia of enhanced HADR capability in the region is significant and reinforces Australia's position as the principal security partner for PICs.

Recommendation five: The Australian government should engage in greater consultation with defence industry to utilise the collective expertise of industry partners in the design and execution of security solutions that will enhance Australia's defence relationships with PICs.

Recommendation six: The Australian government should develop a framework to enhance disaster management arrangements in the Pacific, which considers the capability of defence industry partners to enhance the mission success of HADR assets through deployed sustainment and maintenance support.

CONCLUSION

Northrop Grumman Australia acknowledges the work of the Australian Government and the Department of Defence in renewing Australia's commitment to the Pacific. As our geostrategic circumstances continue to evolve and increase in complexity, it is essential for Australia to continue our execution of defence and security objectives in partnership with our Pacific neighbours. In particular, these objectives should focus on strengthening the capacity of PICs to manage climate-related and maritime security threats in order to meet their own security needs in a post-Covid-19 environment.

Northrop Grumman Australia encourages Defence to maintain its focus on maritime security and HADR activities in the Pacific, and recommend that the Australian government consider further ways to enhance cooperation and engagement in these areas. We also recommend that new approaches to industry consultation be explored by the government and the Department of Defence in the design of Australia's future force posture to maximise our support for PICs.

A focus on Defence and whole-of-government activities that support the capacity of PICs to manage and respond to climate-related and maritime security threats, and enhance information sharing with and between our Pacific partners, are essential to achieving a secure nearer region, which is identified as one of three Strategic Defence Interest in the *2016 Defence White Paper*. Effective contributions that support and strengthen the security of PICs is critically important for maintaining Australia's position as a trusted, principal security partner for Pacific island nations.

ANNEX A**INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE PLATFORMS:
HUMANITARIAN ASSISTANCE AND DISASTER RELIEF SUPPORT**

Designed as a high-altitude, long-endurance (HALE) remotely piloted aircraft system, Triton delivers intelligence surveillance and reconnaissance (ISR) support to a range of humanitarian and disaster relief (HADR) contingences domestically and throughout the Indo-Pacific region. Operating day and night, Triton's persistent and unique array of sensors, high-resolution and near-real-time imagery, and communications technology make it well-suited for complex HADR missions, including firefighting and disaster recovery operations. Using its air-to-ground or air-to-satellite data links, Triton can rapidly provide critical information to commanders and civil authorities that are leading emergency response and recovery efforts.

HADR capabilities

The Triton can remain airborne in excess of 24 hours and fly at a range of more than 14,000 kilometres, while providing 360-degree surveillance and imagery of an area up to 1.6 million square kilometres in a single flight. Australia's Tritons will have an integrated functional capability 4.0 (IFC-4) configuration, which will include a leading-edge sensor suite of:

- Turreted electro-optical/infrared cameras (panning and staring modes) for high-resolution imaging and full-motion video;
- Advanced electronically scanned array radar, including synthetic aperture radar, inverse synthetic aperture radar and automatic information systems for ship tracking;
- Communications relay equipment and Link-16; and
- Multi-intelligence sensor capabilities.

These sensors provide high-resolution images of large geographical areas and full-motion video, which can be relayed to commanders in near-real-time, to develop a clear operating picture and enable rapid disaster responses. Importantly, the aircraft's radar can persistently see through any type of weather, including cloud and smoke, using the synthetic aperture radar capability. As Triton evolves, the aircraft's engine inlet and wing and tail design will allow it to fly through adverse weather conditions, thus enabling even greater operational flexibility.

Australia's IFC-4 configuration will enable the Tritons to have a robust and important communications capability with five tactical radios and dual common data links that can relay information around an operational theatre. For example, the Global Hawk HALE platform was the first asset to respond to the Haitian earthquake disaster in 2010, and was able to assist with relaying communications when all satellite-based communications systems were down.

The Triton provides greater endurance than manned aircraft, and can cover larger distances in a single flight. It is the only aircraft system with the persistence required to cover the over 8 million square kilometres of ocean that encompasses Australia's exclusive economic zone. During Australia's bushfire emergency, P-8A Poseidon aircraft conducted surveillance missions in support of recovery efforts to survey roads and route connectivity in fire-affected communities. Triton's ability to provide 24/7 persistence and extraordinary reach with near-real-time communication is its discriminating factor over manned aircraft like the P-8A when used for these types of ISR missions. In contrast to manned aircraft, the Triton is also controlled from a ground-based mission control station, which enables crews to swap out seamlessly mid-mission without losing data collection over specific areas of interest.

HADR mission support

HALE platforms have a proven ability to provide critical ISR support to HADR missions. Northrop Grumman's family of HALE platforms have been used to support response efforts in a range of HADR scenarios; including bushfires, cyclones, tsunamis, earthquakes and hurricanes. These platforms have the ability to capture high-resolution images and full-motion video of large geographical areas and relay this information to commanders and civil authorities in the field as they lead emergency response teams.

For example, high-resolution images capture by the Triton's predecessor aircraft, Global Hawk, have proved useful in assisting fire authorities in responding to severe Californian wildfires since 2007. Hundreds of high-resolution infrared images mapped fire lines through persistent 24/7 operations, which enabled fire authorities to rapidly deploy resources in response to near-real-time data. This asset was particularly critical in tracking fire movements at night, when the majority of other support aircraft were unable to operate. Northrop Grumman's HALE platforms also have a communications capability, which have relayed fire mapping information between fire authorities to deliver rapid and coordinated responses to Californian wildfire emergencies.

In September 2008, the Global Hawk aircraft surveyed damage caused by hurricane Ike across Texas and Louisiana. Synthetic aperture radar imagery of the damage was captured to generate high-resolution remote sensing images of surface and topographical features. This radar imaging technology can identify flooding and operate in all-weather environments in order to assess damage and aid in response efforts to save lives.

In November 2013, the Philippines was hit with Typhoon Haiyan, bringing flooding, landslides and widespread damage in the central Philippines. A Global Hawk aircraft was deployed in support of recovery efforts and captured distress messages constructed on rooftops and roads by local communities requiring assistance. These images were relayed to authorities to assist with disaster relief responses.

In March 2011, Japan was struck with a significant 8.9 magnitude earthquake, which was followed by a tsunami along Japan's eastern coastline. Three Global Hawks were launched within 48 hours from Guam and flew continuously for 21 days, spending 300 hours on-station and 500 hours in the air, in support of Japanese relief efforts. Using long-range infrared cameras, more than 3,000 images were collected of the disaster zone. The remotely piloted operation of the aircraft enabled it to fly through radiation, to conduct reconnaissance missions of the Fukushima Dai-Ichi nuclear power station that had been damaged by the tsunami.

In January 2010, a 7.0 magnitude earthquake hit less than 25 kilometres southwest of the Haitian capital, Port-au-Prince. The Global Hawk was dispatched within 24 hours and was the first asset to arrive on-station. The aircraft flew two missions; providing communications and about 2,000 images of some 1,000 targets.

Interoperability: Civil-military and US alliance

As the Triton is a military aircraft, it will require military-civil interfacing for data to be shared with civil authorities during HADR missions, similar to what is required for the existing P-8A Poseidon aircraft. However, the near real-time communications to the ground-based mission control station will enable relevant civil authorities to participate in the mission if required.

The United States Air Force and United States Navy operate variants of the Triton HALE platform. The Australian Tritons will form part of a larger, global fleet operated by the United States, which will enhance Australia's interoperability and coordination with the United States when responding to HADR contingencies both domestically and throughout the Indo-Pacific.