



Australian Government

Department of Defence

REPLACEMENT CHINOOK FACILITIES PROJECT

RAAF Base Townsville, Queensland

Statement of Evidence
to the
Parliamentary Standing Committee
on Public Works

Canberra, Australian Capital Territory
March 2014

[This page intentionally blank]

Contents

Need for Works	5
Identified Need	5
Options Considered to Fulfil the Identified Need	7
Reasons for Adopting the Proposed Course of Action	11
Historical Background	11
Heritage Considerations	12
Key Legislation	12
Impact on the Local Community	13
Consultation with Stakeholders	13
Purpose of the Works	14
Project Objectives	14
Details and Reasons for Site Selection	14
Detailed Description of the Proposed Scope of Works	14
Project Location	14
Scope Elements	14
Public Transport	16
Local Road and Traffic Concerns	16
Master and Site Planning	17
Structural Design	18
Materials and Furnishings	18
Mechanical Services	18
Hydraulic Services	18
Electrical Services	19
Fire Protection	19
Acoustics	19
Landscaping	20
Environmental Sustainability of the Project	20
Energy Targets	20
Measures to Reduce Energy and Water Use	21
Details of Compliance with Local, State/Territory and Commonwealth Water and Energy Policies	22
Re-Use of Existing Structures	22
Provisions for People with Disabilities	22
Childcare Provisions	22
Work Health and Safety Measures	23
Cost Effectiveness and Public Value	24
Cost Effectiveness	24
Project Budget	24
Details of Project Delivery System	24
Construction Program	24
Public Value	24
Revenue	24

Attachments

1. RAAF Base Townsville Location Plan.
2. 2009 Capability Plan (Public Version) - AIR 9000 Phase 5C Medium AIR Lift Helicopter capability.
3. Existing Site Plan, 5th Aviation Regiment.
4. Precinct Site Plan, 5th Aviation Regiment.
5. Headquarters C Squadron Ground Floor Plan, 5th Aviation Regiment.
6. Headquarters C Squadron First Floor Plan, 5th Aviation Regiment.
7. CH-47F Maintenance Facilities Ground Floor Plan, 5th Aviation Regiment.
8. CH-47F Maintenance Facilities First Floor Plan, 5th Aviation Regiment.
9. CH-47F Training Facilities Floor Plan, 5th Aviation Regiment.

A4470 REPLACEMENT CHINOOK FACILITIES PROJECT, Townsville

Need for Works

Identified Need

1. The AIR 9000 Phase 5C project was approved by the Australian Government in February 2010. The AIR 9000 Phase 5C project will replace the Australian Army's existing fleet of CH-47D (D Model) Chinook helicopters with seven CH-47F (F Model) Chinook helicopters to address current and future capability deficiencies in the Chinook weapon system and maintain commonality with the United States Army F Model Chinook helicopters. In addition to the upgrade in weapon system, the F Model is a modern digital aircraft. The most significant upgrades included in the F Model Chinook, over its predecessor, are the introduction of a common avionics architecture system, an integrated digital avionics suite in the cockpit, and a digital flight control system.
2. The new F Model Chinooks will replace the D Model aircraft operated by 5th Aviation Regiment (5 Avn Regt) at Royal Australian Air Force (RAAF) Base Townsville (See Attachment 1).
3. The F Model Chinook is a 'military-off-the-shelf' capability being procured under a Commonwealth Government agreement with the United States of America. All F Model Chinooks will be delivered in standard United States Army military-off-the-shelf configuration, with minor modifications to suit unique Australian requirements. These minor modifications will be undertaken at 5 Avn Regt, located at RAAF Base Townsville.
4. The new helicopter capability being acquired under AIR 9000 Phase 5C includes:
 - a. an increase in fleet size from six D Model Chinook helicopters to seven F Model Chinook helicopters;
 - b. the introduction of two Transportable Flight Proficiency Simulators (TFPS); and
 - c. the introduction of an Advanced Mission Planning System (AMPS) to improve tactical and battlefield situational awareness on the flight deck.
5. Army will commence the Acceptance Into Operational Service (AIOS) transition from the current fleet of D Model Chinook helicopters to the new F Model Chinook, Medium Lift Helicopters and associated equipment from May 2015. The current D Model Chinooks will be progressively withdrawn from service starting in the first quarter of 2015, with the final D Model being withdrawn by first quarter 2016. A description of the new CH-47F Chinook capability is at Attachment 2.

5th Aviation Regiment

6. 5 Avn Regt is an Army aviation unit located at RAAF Base Townsville, Queensland. The existing 5 Avn Regt working accommodation does not meet the unit's functional and operational requirements for its Medium Lift Helicopter Squadron (C Squadron), or the Approved Maintenance Organisation (AMO) that maintains the Chinook helicopters.
7. The buildings originally occupied by C Squadron Headquarters were built in 1972 to house and maintain a detachment of Caribou aircraft formerly based at RAAF Base Townsville. The facilities were not sized or functionally designed to accommodate all C Squadron personnel adequately. As a result of the limited space C Squadron Headquarters recently co-located into its current facilities in Building 802. Building 802 was constructed in 2006 for the administration and training needs of A and B Squadrons, 5 Avn Regt, under the AIR 9000 Phase 4 Additional Troop Lift Multi-Role Helicopter 90 (MRH-90) Infrastructure project.
8. Since the introduction of the MRH-90 aircraft, the available training space within building 802 has increased due to completion of AIOS for the MRH-90. Only minor modifications to Building 802, through a combination of minor refurbishments, and security upgrade works are required to ensure efficient, effective and secure continued use of the area.
9. The maintenance of the Chinook helicopters is currently undertaken in hangars originally constructed in 1972 to support Caribou aircraft operations at RAAF Base Townsville. The existing Chinook helicopter maintenance hangars do not have sufficient space for unit maintenance personnel to safely and efficiently perform day to day aircraft maintenance. This increases the maintenance periods and in turn decreases the operational readiness of the Chinook capability. Once the AIOS of F Model Chinooks is completed, the increased number of aircraft will only exacerbate the problem.
10. In addition to the space deficiencies, the hangars are beyond their life expectancy and the limited space and maintenance issues cause Work Health and Safety concerns.

Training Facilities

11. Training and support functions will be provided by Army and contracted civilian personnel for the two new TFPS devices and crew simulators. The simulator will be used to provide transition training from the D Model to the F Model, as well as continuation (Gap) training into the future. The simulator will reduce aircraft operating costs by reducing non-operational activity stress on the airframe, and reducing aircraft flight time in transit to and from training airspace. This allows aircrew to be trained in a safe, efficient manner and assists in maintaining flying hour currency, without flying actual aircraft. This benefits both reduced maintenance requirements and fuel usage.

12. A new simulator facility is proposed to provide suitable training accommodation for the two new flying simulators (TFPS), as well as collocating the existing crew virtual simulator for effective combined training requirements. The new facility is proposed to have an open space for the simulators, as well as associated workshop and office accommodation for three aircrew training instructors, and simulator equipment maintenance and operating personnel.

Summary

13. As a whole, the Replacement Chinook Facilities project proposes to provide new and upgraded facilities for 5 Avn Regt to support the introduction and operations of the new F Model Medium Lift Helicopters and associated integration systems.
14. The facilities proposed include those directly associated with the storage, security and maintenance of the new helicopters, as well as facilities for the indirect capability requirements such as working accommodation, training needs and infrastructure engineering services works.

Options Considered to Fulfil the Identified Need

15. This project proposes construction of new and refurbished facilities to meet the administrative, maintenance and training needs arising from the introduction into service and operation of the new F Model Chinook helicopters. This proposal provides facilities for three functions that directly support the new capability:
 - a. Command and Control – provided by Headquarters C Squadron, 5 Avn Regt, the flying squadron which will operate the F Model helicopter fleet;
 - b. Aircraft Maintenance and Through life Management - provided by C Squadron, Technical Support Squadron, Defence Material Organisation (DMO) staff and contracted civilian personnel; and
 - c. Training and support provided by Army and contracted civilian personnel for the two new TFPS devices and crew simulators.
16. To meet the identified need, options of adaptive reuse and new construction were considered during project development to determine the most appropriate whole of life outcome that addresses the operational needs. During the design, it was determined that some of the existing facilities would not be cost effective to upgrade due to dilapidation, structural inadequacy, National Construction Code – Building Code of Australia (NCC-BCA) compliance issues and functional inefficiencies.
17. Attachment 3 shows the current 5 Avn Regt precinct with the present building numbers and functions discussed throughout this document.

Headquarters C Squadron Facilities

18. Three options have been considered during design development for this scope element:
 - a. Option A - Status Quo. This option proposes to maintain the status quo with C Squadron Headquarters accommodated in Building 802, which is an administration and training facility originally built in 2006 to support the

MRH-90 Facilities initiative. The existing internal building layout was designed as an administration and training facility which does not meet C Squadron's operational and security requirements to accommodate the new AMPS, digitised operating environment. This system will be introduced with the new F Model Chinook helicopters under the AIR 9000 Phase 5C initiative. The internal fabric of the building does not currently meet the security requirements to house this system and is not considered acceptable in its current form.

- b. Option B - Adaptive Reuse. This option proposes the adaptive re-use of facilities currently provided for C Squadron Headquarters in Building 802 through a combination of minor refurbishment and security upgrade works. The adaptive re-use of Building 802 allows all functional requirements to be met for a significant capital cost saving compared to a new build option, and makes effective continued use of an existing, relatively new facility.
 - c. Option C - Construct New. This option proposes the construction of a new purpose built facility. To construct the proposed new C Squadron Headquarters facility option would require demolition of the previous C Squadron Headquarters and Regimental Aid Post (RAP) facility, Building 238. This would ensure the functional requirements of C Squadron Headquarters would be met and the functional layout of the precinct will be consistent with the surrounding facilities, continuing to allow future growth on a limited and constrained site. A new facility would provide improved, specific functionality for the requirements of C Squadron Headquarters, however the construction costs and whole of life costs are significantly higher than reusing an existing, relatively new facility, that meets the requirements of C Squadron Headquarters with minor works and minimal disruption to operations.
19. After consideration of all options, it was determined that Option B, the adaptive re-use of the existing facility represents the most cost effective solution to meet the identified need.

Flight line and Unit Maintenance Facilities

20. Three options have been considered during design development for this scope element:
- a. Option A, Status Quo. Maintaining the status quo in existing facilities is not feasible, as the buildings have shortfalls in floor area, functionality and are non-compliant with various statutory and Defence requirements. The ability to undertake maintenance on two Chinook helicopters concurrently is required at all times to achieve operational requirements and rates of operating effort. This cannot be achieved safely with the current arrangement.
 - b. Option B – Adaptive Re-use. This option proposes the adaptive re-use of existing facilities provided for CH-47D maintenance (buildings 235 and 236) through a combination of refurbishment, upgrade and/or extension. A major refurbishment of the D Model maintenance facilities is required in order to comply with all statutory requirements including the NCC-BCA, *Disability*

Discrimination Act 1992 (DDA) and Defence's Manual of Fire Protection Engineering (MFPE). While the building superstructure is in reasonable condition, all engineering services are in poor condition, contain asbestos, leak, are damaged from previous cyclones and are over capacity or non-compliant with current standards. These buildings would need to be completely stripped and significantly extended in order to meet the full functional maintenance and operational requirements.

- c. Furthermore, buildings 235 and 236 were originally built in 1972 to house and maintain the detachment of Caribou aircraft formerly located at RAAF Base Townsville. They are unsuited for the performance of the full range of maintenance requirements for the Chinook aircraft, reducing the ability of the flight crew to efficiently deploy. While the current hangar facility is able to accommodate two D Model helicopters for grouped maintenance activities, the required standard of fire separation between the helicopters cannot be achieved. Therefore, the requirement to undertake concurrent maintenance activities on two aircraft cannot be achieved due to non conformance with fire standards to protect the assets. In addition, the footprint within the maintenance hangar is spatially constrained and does not permit the full range of maintenance activities to be achieved if two helicopters are undergoing maintenance at the same time due to the overlapping of Chinook rotor blades. This increases the risk of damage to helicopter parts that are expensive with a long lead time to replace.
- d. The existing hangar facility has a large number of deficiencies. The adaptive reuse of the existing hangar facility and other existing buildings will not address all existing deficiencies or develop a functionally acceptable layout for maintaining and deploying aircraft in a safe, efficient and secure manner and is therefore not recommended.
- e. Option C – New Build. This option proposes the demolition of the current D Model maintenance facilities to be replaced with new, purpose built facilities. Construction of new facilities will provide high amenity buildings and address the existing shortfalls in space and functional requirements. This option allows a safe working environment to be achieved, addressing existing spatial deficiencies and inefficient management practices currently required in order to maintain the Chinook helicopters. New construction also provides an opportunity to maximise Ecological Sustainable Development (ESD), Green Building principles and provides opportunities to integrate functions to achieve economies of scale.
- f. The existing D Model maintenance facility currently houses C Squadron flight line activities in addition to maintenance functions. The layout of the existing facility is creating inefficiencies in deploying aircraft quickly. As the flight line activities are undertaken in part of the existing hangers, demolition of the maintenance hangar will give rise to a need to provide new flight line working as part of the project. The new proposed maintenance facility would accommodate the capability requirements to support flight line activities with working accommodation provided in the most efficient, streamlined manner

to ensure efficient deployments are achieved. This function is proposed to be located in the northern section of the facility.

21. Option C, the demolition of existing facilities, to be replaced with new facilities is the proposed solution, as the refurbishment of the existing facilities is not cost effective, practical, or an efficient method to meet maintenance and operational requirements of Chinook helicopters.

Training Facilities

22. Two new TFPS are being acquired under the AIR 9000 Phase 5C initiative. The simulators are being acquired to increase training safety, as well as reduce aircraft operating hours, airframe fatigue and reduce the Regiment's operating expenses through reduced maintenance and fuel costs.
23. Increased efficiencies and improved training outputs can be achieved in a simulator compared to what can be achieved in real flying scenarios. Although the simulators are a deployable unit, facilities are required to house and operate these simulators in order to protect equipment from exposure to long term tropical conditions such as salt spray, high humidity which affects electronic equipment and the unit structure itself, and the occasional high winds associated with cyclonic conditions.
24. In addition to the TFPS for pilots, 5 Avn Regt also utilises two Aircrew Virtual Reality Simulators to conduct simulator training for helicopter aircrewmembers. The simulators are currently located in the Technical Support Squadron area within the maintenance facility and are used to train aircrewmembers on hoist and cargo activities, obstacle clearance activities, and use of self defence weapons. With the construction of the proposed new facility to house the new TFPS, the Squadron Chinook training devices will not be colocated, leading to inefficiencies in the conduct of training. Training personnel, Troop Leaders and Commanders will be separated from at least one training device, compared to completing the training activity together, as one Troop, in one location, with one set of instructions and scenarios. Co-location will generate efficiencies in training outcomes, as well as enabling future improved training outcomes by connection of both simulator types together for combined simulated, integrated training activities.
25. Two options have been considered during design development for this element:
 - a. Option A – Adaptive Reuse. This option proposes the adaptive re-use of facilities currently available within the 5 Avn Regt precinct through a combination of refurbishment, upgrade and/or extension. Investigations during development of this option noted that a suitable adaptive reuse solution was unable to be identified on a long term basis within the existing building footprints due to the size of the TFPS, without impacting the protection and security of existing capability. Existing hangers currently utilised for maintenance and storage of the new MRH-90 aircraft were considered but could only provide a limited short term solution on an ad hoc basis as they are required to meet MRH-90 helicopter de-humidification, protection and security requirements. Accordingly existing facilities are unsuitable as a permanent solution.

- b. Option B – New Facilities. This option proposes the construction of a new purpose built facility. Construction of a new facility would provide the TFPS protection from the harsh Townsville tropical weather and provide certainty in addressing the spatial requirements within the 5 Avn Regt precinct, as well as collocating like functions together to increase training outputs and throughput.
 - c. New construction also provides an opportunity to maximise ESD and Green Building principles in the building design to ensure efficient Whole of Life facility costs and would reduce issues regarding pedestrian traffic around the precinct. New construction provides opportunities to integrate functions to achieve economies of scale, including colocation of the TFPS with other Chinook training functions in the south end of the precinct.
26. After consideration of all options, it was determined that Option B, the construction of a new facility represents the most cost effective and efficient solution to meet the identified need to protect and support simulator and training functions.

Reasons for Adopting the Proposed Course of Action

27. The reasons for adopting the proposed options outlined above are that they all:
- a. meet the full facilities requirement and address all existing facilities shortfalls to support the new F Model Chinook Helicopters in a cost effective manner;
 - b. create effective and streamlined interaction between like functions which will improve efficiency of Squadron operations;
 - c. meet the minimum requirements to satisfy the current NCC-BCA , the *Disability Discrimination Act*, Defence’s MFPE, and other statutory requirements;
 - d. maximise opportunities to achieve optimised ESD and Green Building outcomes;
 - e. maximise opportunities to integrate similar functions to achieve construction economies of scale and facility performance efficiencies post construction;
 - f. minimise the requirement for temporary facilities and decanting, which in turn minimises disruption to ongoing training and operations; and
 - g. minimise whole of life costs.

Historical Background

28. The initial linking of the City of Townsville and the RAAF came in early 1939, when the Townsville City Council agreed to transfer the city aerodrome to the Department of Defence, as RAAF aerodrome Garbutt. In January 1951, RAAF aerodrome Garbutt was renamed to RAAF Base Townsville. It has continued to operate as a RAAF Base since then.
29. RAAF Base Townsville is located approximately 4 kilometres m west from the Townsville Central Business District (CBD) and covers 880 hectares. The Base falls within the Federal Electorate of Herbert and the State Electorate of Mundingburra.

30. On 10 June 1998 the Commonwealth formalised an airport lease on the eastern side of the airfield with joint use of the runways and taxiways to continue civilian air transport to and from Townsville.
31. Today, RAAF Base Townsville is home to approximately 1400 personnel, including Australian Defence Force (ADF), Australian Public Service (APS), and Contractor personnel from 10 key functions, including 5 Avn Regt.

Environmental Impact Assessments

32. The Defence Engineering and Environment Branch has considered the proposed works for all sites against the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (Cth) and has determined that a referral under the Act will not be required for this project.
33. An Initial Environmental Review (IER) prepared in 2011 did not identify any significant environmental concerns for the facilities proposed under the project. The design of the proposed works has specifically considered the outcomes and recommendations of the IER and has incorporated features to mitigate environmental impacts. This includes siting facilities to maximise passive solar design, the appropriate use of insulation and the use of energy efficient equipment to minimise energy consumption.
34. The Replacement Chinook Facilities project will be managed in accordance with the Defence Environmental Management framework. The building contractor will be required to produce a Construction Environmental Management Plan (CEMP) to articulate how the contractor will control environmental measures during construction. Furthermore, the building contractor's CEMP is a contractual requirement and compliance with the CEMP will be periodically audited throughout the project. The building contractor will not be able to commence construction activities until a Defence Environmental Clearance Certificate is issued by the Regional Environmental Officer.

Heritage Considerations

35. The proposed works have been considered against the RAAF Base Townsville Heritage Management Plan and were found to be compliant. A separate heritage study was not undertaken as there are no buildings in the 5 Avn Regt precinct with sufficient heritage value to trigger further investigations.

Key Legislation

36. The following key legislation is relevant to this project:
 - a. Defence Act 1903 (Cth);
 - b. Native Title Act 1993 (Cth);
 - c. Environment Protection and Biodiversity Conservation (EPBC) Act 1999 (Cth);
 - d. Fair Work (building industry) Act 2012 (Cth)
 - e. Work Health and Safety Act (WH&S) 2011 (Cth);
 - f. Work Health and Safety Act (WH&S) 2011 (QLD);
 - g. Disability Discrimination Act 1992 (Cth); and
 - h. Fair Work Act 2009 (Cth).

37. The design of the proposed works will comply with all relevant and current Defence standards, Australian standards, codes and guidelines including the following:
- a. National Construction Code - Building Code of Australia (NCC-BCA);
 - b. Defence Manual of Fire Protection Engineering (MFPE); and
 - c. Defence Estate Quality Management System.

Impact on the Local Community

38. The proposal will generate short-term employment opportunities predominantly in the building, construction and unskilled labour markets in the Townsville area. It is expected that approximately 50 personnel will be directly employed for the duration of the construction activities, which will also generate some off-site job opportunities through the manufacture and distribution of materials over the construction period. Defence anticipates that local building sub-contractors will be employed on a large proportion of the construction works generating further employment opportunities. This will provide a positive economic impact to small and medium enterprises in the Townsville region.
39. The building contractor will be required to manage construction traffic routes in accordance with the Site Management Plan to minimise any disruption to the local community during the construction period. The construction site is located well within the base boundary and construction activities are not expected to cause noticeable disruption to businesses and residences adjacent to RAAF Base Townsville. There are two entrances to RAAF Base Townsville, both of which connect onto Ingham Road in Townsville. This area is zoned as commercial/industrial so it is anticipated that construction traffic will have limited impact on the local community.

Consultation with Stakeholders

40. Consultation has occurred, or will occur with the following stakeholders:
- a. Mr Ewen Jones MP, Federal Member for Herbert;
 - b. Mr John Hathaway MP, State Member for Townsville;
 - c. Townsville City Council;
 - d. Queensland Department of Transport and Main Roads;
 - e. Energex; and
 - f. Queensland Fire and Rescue Services.
41. Defence undertook a community consultation evening in Townsville on 18 July 2012 and will hold another community consultation activity in March 2014.

Purpose of the Works

Project Objectives

42. The aim of the project is to provide the facilities and supporting infrastructure necessary to support the new F Model Chinook Medium Lift Helicopter capability. The project will enhance the Army's Land Force and Aviation capability by improving efficiencies in the delivery of the capability through the provision of either new or expanded and modified facilities.

Details and Reasons for Site Selection

43. RAAF Base Townsville was chosen as the selected site as it is the home of 5 Avn Regt, which will operate the new aircraft.

Detailed Description of the Proposed Scope of Works

Project Location

44. The proposed works are to be undertaken at RAAF Base Townsville, Queensland. RAAF Base Townsville is one of northern Australia's primary Defence installations, situated approximately 4 kilometres west of Townsville's Central Business District.
45. The proposed works are within the 5 Avn Regt precinct and are proposed to be built adjacent to existing maintenance and administrative facilities, including the new MRH-90 facilities. A precinct site plan showing the location of the proposed works is provided at Attachment 4.

Scope Elements

46. Five Scope elements are proposed to meet the needs of the AIR 9000 Phase 5C capability acquisition project.
47. **Scope Element 1 – Headquarters C Squadron Facility.** The proposed C Squadron Headquarters facility comprises refurbished and security upgrades to working accommodation for C Squadron Headquarters, 5 Avn Regt. The proposed facilities include command, control, operational office areas, subordinate Troop offices, briefing and meeting areas, an orderly room, administration area, and ablutions. These facilities will allow the Squadron to exercise effective command and control of F Model flying operations and to prepare for exercises and deployments. Floor plans for this refurbished facility are provided at Attachments 5 and 6.
48. Defence proposes to refurbish and upgrade the existing two storey concrete, masonry and steel structure, Building 802. This building will accommodate the 46 personnel of C Squadron's Headquarters.
49. This is a mixed use building with an office focus. Dedicated office spaces are proposed for the administration areas, ready rooms, briefing rooms and training rooms. An upgraded operations room will be provided which will allow the Squadron to coordinate F Model flying operations from a secure location and to support the security requirements of the new AMPS. Other proposed works include

relatively minor reconfigurations to existing office partitions and the associated modifications to engineering services for the modified spaces.

50. **Scope Element 2 – Chinook Maintenance Facilities.** The introduction of the new capability into 5 Avn Regt will require the unit to operate and maintain seven F Model helicopters. Due to the lack of suitable available maintenance facilities, there is a need for construction of two new helicopter maintenance hangars, workshops and associated office areas. A floor plan for this proposed new facility is provided at Attachments 7 and 8.
51. The proposed new building containing two maintenance hangars is designed to be a large structure constructed of concrete tilt-up panels and steel framed roof sections. This building is proposed to be a large secure multi-function facility that includes separate office accommodation and two separate helicopter maintenance hangars for the Headquarters Technical Support Squadron, F Model Technical Support, Flight line and a small detachment of DMO support personnel. Each helicopter maintenance hangar will have a gantry crane, power, fire detection and protection, and ground support equipment storage areas.
52. A number of small specialist maintenance workshops are proposed to be attached to the hangars, including avionics, sheet metal, non-destructive airframe inspection and aviation life support equipment, with associated repair parts store and specialist test and repair equipment. Separate external storage facilities for petroleum, oil and lubricants, and other dangerous goods including batteries are also proposed to be provided.
53. **Scope Element 3 – Chinook Training Facilities.** In addition to the new helicopters, the AIR9000 Phase 5C capability project is delivering two new TFPS. A secure, sheltered facility for the two TFPS that supports their operation as aircrew training devices is proposed. A floor plan for the proposed new facility is provided at Attachment 9.
54. The Training Facility is proposed to be a steel framed structure with steel cladding and roller shutters that will be constructed to meet the required security standards.
55. The facility will allow the F Model aircrew to undertake training activities as well as provide weather protection to the equipment due to its value and long lead time to replace if damaged. The facility will also provide a small office, storage and workshop area for maintenance, as well as ablutions. The existing Aircrew Virtual Reality Simulator will be relocated to the new simulator facility.
56. The two TFPS will be temporarily housed in an existing MRH-90 hangar until the training facility is constructed. This temporary location mitigates the impact on transition training during the construction period. There will be minor impacts to training when the two TFPS are moved to the proposed new permanent training facility. The transition from the temporary location to the proposed new facility will be undertaken during a low tempo period after the capability project's New Equipment Training (NET) phase is complete, in order to minimise impacts to integration and operations.

57. **Scope Element 4 – Engineering Services Infrastructure.** The proposed works associated with engineering services infrastructure within the 5 Avn Regt precinct includes sewer upgrades to address existing deficiencies, and relatively minor works for all other engineering services to allow connection of the new buildings to existing services.
58. **Scope Element 5 – Interim Works.** Due to scheduling conflicts between the proposed facilities construction programme, the requirement for ongoing operation of the D Model helicopters, and the F Model capability introduction activities, there is a need to provide interim facilities to ensure Army aviation capability is not compromised. This impact is minimised by allowing time for the introduction of the aircraft in the construction program and providing a suitable flooring solution to three of the current Chinook D Model storage hangars to allow them to be used as interim maintenance hangars. The D Model helicopters can continue to operate from the interim maintenance hangars, thereby allowing 5 Avn Regt to maintain operational readiness. The interim maintenance hangars will also be used for introduction into service activities for the F Model airframe to meet airworthiness standards.
59. The interim works will be supported by existing deployable cranes instead of a permanent gantry crane, to cater for the lifting of parts off the airframe.
60. In addition to the interim maintenance hanger, suitable temporary working accommodation will be provided via an existing demountable facility for flight line activities and temporary residence of NET personnel while the facilities are demolished and rebuilt. A minor fit out to accommodate flight line specific activities is proposed. Once the flight line and maintenance facility is completed, personnel from the flight line unit will be relocated into the new proposed facility. NET personnel will return to their home unit location upon completion of NET activities, so long term accommodation is not required. The demountable will be removed upon completion of its use.

Public Transport

61. RAAF Base Townsville is not directly serviced by public transport. Townsville has a public transport system which provides regular services between many parts of the city, however, the service does not stop at the base. As a result, Defence personnel use private transport or taxis to and from the Base.

Local Road and Traffic Concerns

62. RAAF Base Townsville is accessed from Ingham Road. This capability project will see an increase of up to eight personnel on RAAF Base Townsville, which will have negligible impact on traffic on surrounding roads. The capacity of the existing car parks within the 5 Avn Regt precinct has been assessed and determined to have sufficient capacity to meet requirements arising under this project.
63. Defence will require the building contractor to maintain a traffic control plan to manage traffic during construction. There are two entrances from Ingham Rd into RAAF Base Townsville. The first is the main entrance into the Base. The second entrance is opened during peak times in the morning and afternoon and is closer to

5 Avn Regt. It has previously been used as a contractor gate during other construction activities within the 5 Avn Regt precinct, and will be utilised for construction traffic for this project.

Zoning and Local Approvals

64. All proposed works will be constructed within the designated boundaries of RAAF Base Townsville, which is Commonwealth owned and Defence controlled land. The land is designated 'Defence Special Purposes'.
65. RAAF Base Townsville is under a Joint user Deed between the Commonwealth and the Townsville Airport Pty Ltd (TAPL). The works are not expected to impact on TAPL use of the airfield.
66. The proposed works do not require acquisition of additional land or involve any land disposal actions. There will be no change to existing land use conditions. The works will comply with the relevant Australian Standards and Regulations as applicable.

Master and Site Planning

67. The selection of sites for each scope element has been undertaken in accordance with Defence Estate Planning Policy requirements. Site Selection Boards have been convened to assess the appropriate location for each of the new facilities in accordance with Defence policies, including environment, heritage and operational requirements.
68. The selected siting locations for all new buildings proposed under this project are consistent with Defence's Zone Planning principles. The facilities at RAAF Base Townsville are also consistent with Defence's Townsville Area Zone Plan and meet the operational requirements of 5 Avn Regt.

Planning and Design Concepts

69. The general philosophy adopted for the design of the proposed facilities incorporates the following considerations:
 - a. provision of cost effective and functional facilities of energy efficient design suitable for the climate of the site and of a style compatible with the existing base aesthetics;
 - b. adoption, where possible, of conventional construction techniques and materials, in particular those commonly used by the construction industry and consistent with those already utilised on the Base;
 - c. maximum use of existing infrastructure and facilities to minimise capital costs;
 - d. utilisation of readily available and durable materials that combine long life while minimising maintenance;
 - e. recognition of site constraints, security requirements, the established Zone Plan, functional relationships to existing facilities, operational and flight line determinants; and
 - f. planning services and structural design to accommodate flexibility.

Structural Design

70. The structural design will take into account the soil and weather conditions encountered in the Townsville area. Proposed new facilities will generally be steel framed structures with concrete floor slabs, concrete tilt-up panel or equivalent external walls, and a metal roof appropriate to the environment. Internal walls to office areas will be generally non-load bearing frames lined with plasterboard. This provides maximum flexibility for future floor layout changes if required during mid-life refurbishment or upgrades.

Materials and Furnishings

71. The architectural expression of the proposed new facilities is consistent with the adjacent 'industrial character' of other working and training facilities. The predominant architectural character is one of consistency and restraint in keeping with predominant metal cladding with judicious use of translucent sky lights. Materials and finishes will be selected from those readily available locally for their functionality, durability, and low maintenance and for their ESD properties.

Mechanical Services

72. The mechanical services for each new and refurbished facility under this proposal have been designed according to the individual building function and needs. The purpose of the mechanical systems is to provide mandatory ventilation, thermal comfort and air quality conditions in accordance with specific user needs and the requirements of the NCC-BCA.

Hydraulic Services

73. The local council municipal water reticulation main provides domestic and firefighting water supply to the site. Further discussion on fire reticulation is provided in the fire protection section of this document. Hydraulic services works for water supply, sewerage and stormwater within the precinct or individual facility involve extension of infrastructure within the Base.
74. Potable water will be connected to the existing supply, with water saving fittings provided to meet environmental initiatives. The sewer will use the existing, albeit upgraded, sewer network.
75. Preliminary investigations of trunk services for all proposed development sites were conducted during the concept design development, with the following findings:
- a. **Water.** The water services supply from the existing water main provides adequate pressure and is in a satisfactory condition. The proposed new water services supply will extend from the existing water main to the proposed new facilities. No modifications or upgrades to the mains infrastructure are required.
 - b. **Sewer.** The Base internal sewer reticulation network includes a number of sewer catchments and rising mains which transfer sewage to the municipal system. The 5 Avn Regt sewer catchment collects waste from the northern and western areas of the Base and pumps via a rising main to the municipal system. The existing sewer infrastructure on the 5 Avn Regt precinct is at

capacity. The project proposes to upgrade the sewer pump station to address existing deficiencies and to permit all facilities to be connected to the existing rising main. All work required to this sewer main will be undertaken in accordance with Townsville City Council requirements for 'live works'.

- c. Sanitary drainage from all fixtures located within the proposed new facilities will connect to this upgraded system. Trade waste will be separately drained to a centrally located drain and treated with an above ground coalescing plate separator. Water from the drains on the floors of workshop and maintenance areas will be treated to the standard required by Defence's trade waste agreement prior to discharging to the sewer. Waste oil will be stored on site for appropriate disposal.

Electrical Services

- 76. All electrical systems will demonstrate proven reliability and performance, ease of maintenance and replacement, energy efficiency and cost effectiveness, and will comply with current standards.
- 77. Electrical infrastructure and new switchboards will have spare capacity to allow future growth. Sub-metering will be included. The new meters at 5 Avn Regt will be monitored through a Building Management System to support an active energy management program on this site.

Fire Protection

- 78. The Queensland Fire and Rescue Service has been consulted for the proposed works at 5 Avn Regt. The proposed fire detection systems, indication panels, and emergency lighting protection systems will suit the existing systems. All construction and fire protection will comply with the NCC-BCA, the MFPE and all other applicable codes and Australian Standards.
- 79. Due to the construction of fire separated walls within the proposed maintenance facility, the fire protection used will not require Aqueous Film Forming Foam (AFFF). All fire suppression systems within the proposed works will be connected to the recently upgraded fire pump station.
- 80. The design includes the installation of automatic fire alarm and detection systems as required by the Defence MFPE. The fire indicator panel in each of the buildings will be monitored centrally on Base.

Acoustics

- 81. The proposed new facilities will comply with the NCC-BCA and Australian Standards for noise and acoustics. Noise assessments have been conducted for the proposed facilities. Externally located mechanical plant and acoustic fabrics will be appropriately selected and treated to minimise noise impact on the environment and facilities within a suitable internal and external noise range.
- 82. The external building fabric will restrict noise transmission ingress as per the Australian Standards with respect to road traffic noise, aircraft noise (as per AS2021-2000 - Acoustic – Aircraft Noise intrusion – Building Siting and Construction) and the externally located building services plant.

Landscaping

83. This proposal will not cause any substantial change in the essential landscape character of the site. Landscaping works will restore areas disturbed during construction and provide general improvement to the built environment. Precautions will be taken to avoid compromising environmental sensitivities by adopting landscaping practices in accordance with local environmental conditions and the Contractor's Environmental Management Plan (CEMP).

Environmental Sustainability of the Project

84. The Commonwealth is committed to ESD and the reduction of greenhouse gas emissions. Defence reports annually to Parliament on its energy management performance and on its progress in meeting the energy efficiency targets established by the Government as part of its commitment to improve ESD. Defence also implements policies and strategies in energy, water and waste to improve natural resource efficiency and to support its commitment to the reduction of energy consumption, potable water consumption and waste diversion to landfill. This project has addressed this policy by adopting cost-effectiveness and sustainability as key objectives during the design development and subsequent delivery of new facilities.

Energy Targets

85. All facilities will be designed, constructed, operated and maintained to ensure that they use energy efficiently and comply with:
- a. the NCC-BCA;
 - b. Defence Green Building Requirements (DGBR);
 - c. the Energy Efficiency in Government Operations (EEGO) policy; and
 - d. the NABERS Energy rating system.
86. All facilities will comply with the relevant energy efficiency provisions in the NCC-BCA, except where there are energy efficiency requirements imposed by Defence that are of a higher standard. In this project, each facility is subject to the standards provided in the DGBR Part 1 and the NCC-BCA minimum energy efficiency performance requirements. All new offices and offices subject to major refurbishment are required to comply with the minimum energy performance standards in the Energy Efficiency in Government Organisations (EEGO) policy for office buildings greater than 2000m².
87. Defence has adopted the principles of the EEGO policy in relation to office accommodation. The Chinook maintenance facility scope element has a total office floor area of approximately 2,200m². The office accommodation area will target 4.5 star rating using the National Australian Built Environment Ratings System (NABERS) Energy for Offices as required by Defence Green Building policy.
88. Although not specifically identified by legislation, enhanced environmental outcomes will be achieved for the remainder of the facilities proposed under this project that are less than 2,000m² in gross floor area. Those that are mixed-use facilities will have separate digital on market status metering and office lighting that supplies up to 10 W/m². Where available, fit for purpose and cost-effective

appliances that comply with the United States Environmental Protection Agency 'Energy Star' program will be selected.

Measures to Reduce Energy and Water Use

89. The ESD measures for the project have been balanced with other requirements for Defence buildings, including security, heritage and work health and safety considerations, to ensure that Defence's operational capability is not compromised.
90. Each new facility has been modelled to predict energy consumption levels, which determine the design targets based on the building classification. Energy management is a key aspect in the design of the new facilities. Energy management initiatives which have been considered include:
 - a. orientating the facilities to minimise east and west solar gain;
 - b. installing a Building Management System (BMS) in each facility, with the capability to link in to a future site wide Regional Utilities Management System;
 - c. in-building load control devices such as motion sensors where practical;
 - d. natural ventilation and mixed mode systems wherever feasible and cost effective;
 - e. installation of ceiling fans in selected areas to enhance comfort without the use of air conditioning;
 - f. separate digital energy metering for tenanted areas, central services and computer (data) centres;
 - g. energy efficient lighting (T5 fluorescent light fittings in office areas) supplemented by energy efficiency techniques such as occupancy sensing and after-hours automatic shut-off controls; and
 - h. energy efficient appliances.
91. Efficient water use is a key aspect of the design. Key water saving measures for all new construction will include:
 - a. all tap ware and fittings being compliant with the Water Efficiency Labelling Standards scheme to provide a minimum of a 3 Star water conservation rating;
 - b. pressure limiting valves to limit water pressure at all appliances; and
 - c. sub-metering of all major water supplies to each new building.

Details of Compliance with Local, State/Territory and Commonwealth Water and Energy Policies

92. The proposed buildings will be designed, constructed, operated and maintained to ensure that they use energy efficiently and comply with:
- Part I.2 and Section J of Volume One of the NCC-BCA;
 - Part 3.12 of Volume Two of the NCC-BCA;
 - DGBR;
 - the EEGO policy; and
 - NABERS Energy rating system.

Re-Use of Existing Structures

93. Building 802 – Headquarters C Squadron facility is proposed for adaptive re-use at RAAF Base Townsville, as it is the most efficient and cost effective way to meet the facilities requirements.

Demolition and Disposal of Existing Structures

94. A number of buildings in the 5 Avn Regt precinct are proposed for demolition as they have reached the end of their service life, are not cost effective to upgrade, need to be demolished to make space available for the new replacement buildings within the otherwise space constrained site, or are surplus to Defence requirements. These include:
- Building 228 – petrol, oils and lubricants storage building;
 - Building 235 – current Chinook flight line, maintenance offices and workshops building;
 - Building 236 – current Chinook maintenance hangar;
 - Building 237 – current Technical Support Squadron Headquarters, maintenance workshops and training building;
 - Building 240 – dangerous and hazardous goods storage building; and
 - Building 279 – current C Squadron Q-Store (warehouse) and Chinook equipment storage building.

Provisions for People with Disabilities

95. Disabled access and facilities will be provided where required in accordance with the *Disability Discrimination Act 1992* (Cth), NCC-BCA, Australian Standard AS1428 - 2009 Design for Access and Mobility – New Building Work, and Defence's policy 'Disabled Access and Other Facilities for Disabled Persons'. Where possible, the use of existing facilities and access has been identified and incorporated into the design. All building designs are compliant with statutory requirements.

Childcare Provisions

96. The AIR 9000 Phase 5C project results in a very small (up to 8 persons) increase in Defence personnel numbers on the Base. Existing childcare services on Base and in the community would be used by these personnel if required. Therefore, there is no

requirement for additional childcare facilities on RAAF Base Townsville as a result of this project.

Work Health and Safety Measures

97. The proposed facilities to be provided under this project will comply with the Department of Defence Occupational Health and Safety policy, the *Work Health and Safety Act 2011* (Cth), Occupational Health and Safety (Commonwealth Employment - National Standards) Regulations and the Defence Occupational Health and Safety manual.
98. In accordance with section 35(4) of the *Building and Construction Industry Improvement Act 2005* (Cth), building contractors will be required to hold full occupational health and safety accreditation from the Office of the Federal Safety Commissioner under the Australian Government Building and Construction Occupational Health and Safety Accreditation Scheme. All construction sites will be appropriately secured to prevent unauthorised access during the construction period. No special or unusual public safety risks have been identified.

Cost Effectiveness and Public Value

Cost Effectiveness

Project Budget

99. The estimated out-turned cost of this project is \$54.8 million, excluding Goods and Services Tax (GST). This cost estimate includes all construction costs, management and design fees, furniture, fittings and equipment, contingencies and an escalation allowance.
100. An increase in net operating costs is anticipated due to the addition of new facilities which increase the associated facilities maintenance, cleaning and utilities expenses.

Details of Project Delivery System

101. The proposed delivery system is a single Defence Head Contract. This project delivery system has been selected on the basis of the well-defined scope, the limited risk of disruption to operational activities and the lack of interdependencies with other concurrent projects.
102. A single Project Manager/Contract Administrator has been engaged to represent Defence as it's Agent in the Development Phase. Subject to satisfactory Development Phase performance and negotiation outcomes for the Construction Phase, the current Project Manager/Contract Administrator may be re-engaged to continue to provide Project Management and Contract Administration services for the Construction Phase.
103. A single Design Services Consultant has been engaged to prepare design documentation and cost estimates for the proposed facilities in the Development Phase. Subject to satisfactory Development Phase performance and negotiation outcomes for the Construction Phase, the current Design Services Consultant may be re-engaged to provide design services for the construction phase.

Construction Program

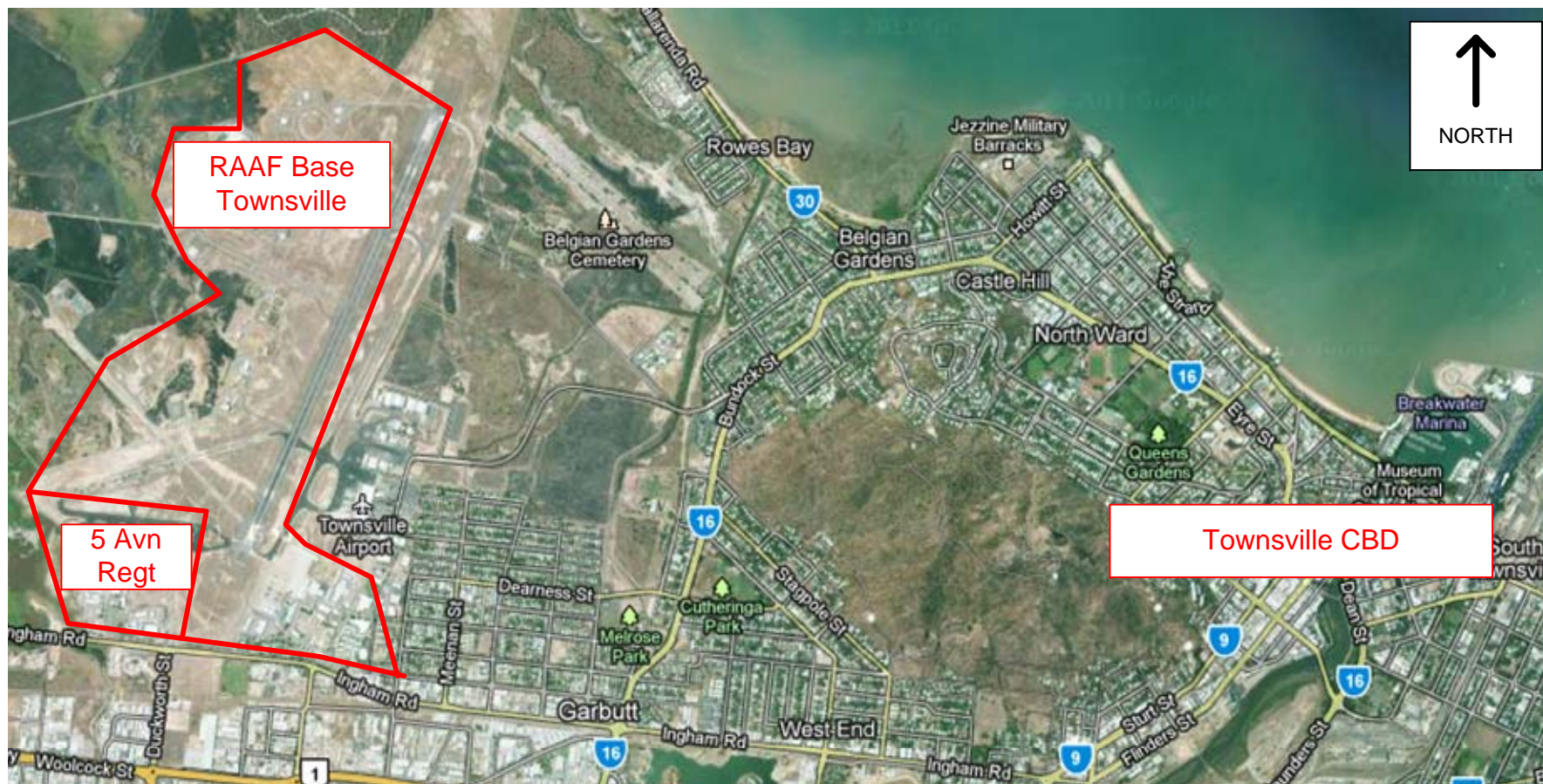
104. Subject to Parliamentary approval of the project, construction is expected to commence in late 2014. All major works are expected to be complete by mid 2017.

Public Value

105. The proposed works are an enabler for the Army's Medium Lift Helicopter capability. The proposed works will provide a workplace that is fit for purpose and allows personnel to undertake their duties, roles and responsibilities in an environment that meets a specific task. The works will also improve personnel morale, impacting on recruitment and retention, which will have a flow-on impact to capability support levels.

Revenue

106. No revenue will be derived from this proposal.



RAAF BASE TOWNSVILLE LOCATION PLAN

ATTACHMENT 2

AIR 9000 Phase 5C CH 47F Chinook Medium AIR Lift Helicopter Capability Project

1. The aim of AIR9000 Phase 5C is to replace the Australian Army's existing fleet of seven CH-47D aircraft, with seven CH-47F helicopters, two CH-47F Transportable Flight Proficiency Simulators (TFPSs) and associated support systems.

2. The aircraft and associated equipment are being purchased through a Foreign Military Sales program with the US Army. The first aircraft is due to arrive in May 2015 while the first TFPSs is due for delivery in May 2014, and the second will arrive in August 2014.



3. The role of the CH-47F is to provide the following:

- a. Combat tasks including air assault and air mobility tasks in direct support of combat forces.
- b. Combat support including:
 - (1) tactical movement of ground forces and tactical movement of combat supplies, including the establishment of forward arming and refuelling points within secure areas;
 - (2) tactical aero medical evacuation;
 - (3) support to communications operations; and
 - (4) command and control operations.
- c. Combat service support operations including:
 - (5) Air transport and logistics operations; and
 - (6) Logistics over the shore (LOTS) operations.
- d. Aircrew training.
- e. Parachute drop operations.

Chinook capability enhancements in comparison to CH-47D

4. The CH-47F is a modern digital aircraft. The Common Avionics Architecture System, essentially an integrated digital avionics suite in the cockpit, and the Digital Automatic Flight Control System are the two most significant upgrades included on the CH-47F Chinook over its predecessor. These systems have been certified by the US Army, and Boeing and are currently in service in the US. The inclusion of a rotor brake to allow for faster embarked amphibious operations will also be included on the ADF purchased CH-47F.

5. The Project includes delivery of two Transportable Flight Proficiency Simulators (TFPS) to provide an organic ADF CH-47F simulator capability. Previous

simulator training support for the CH-47D has been provided in the USA by the US Army. The new simulators will provide greater cost efficiencies and safety in training the flight crew for operations.

CH 47 F Helicopter General Characteristics

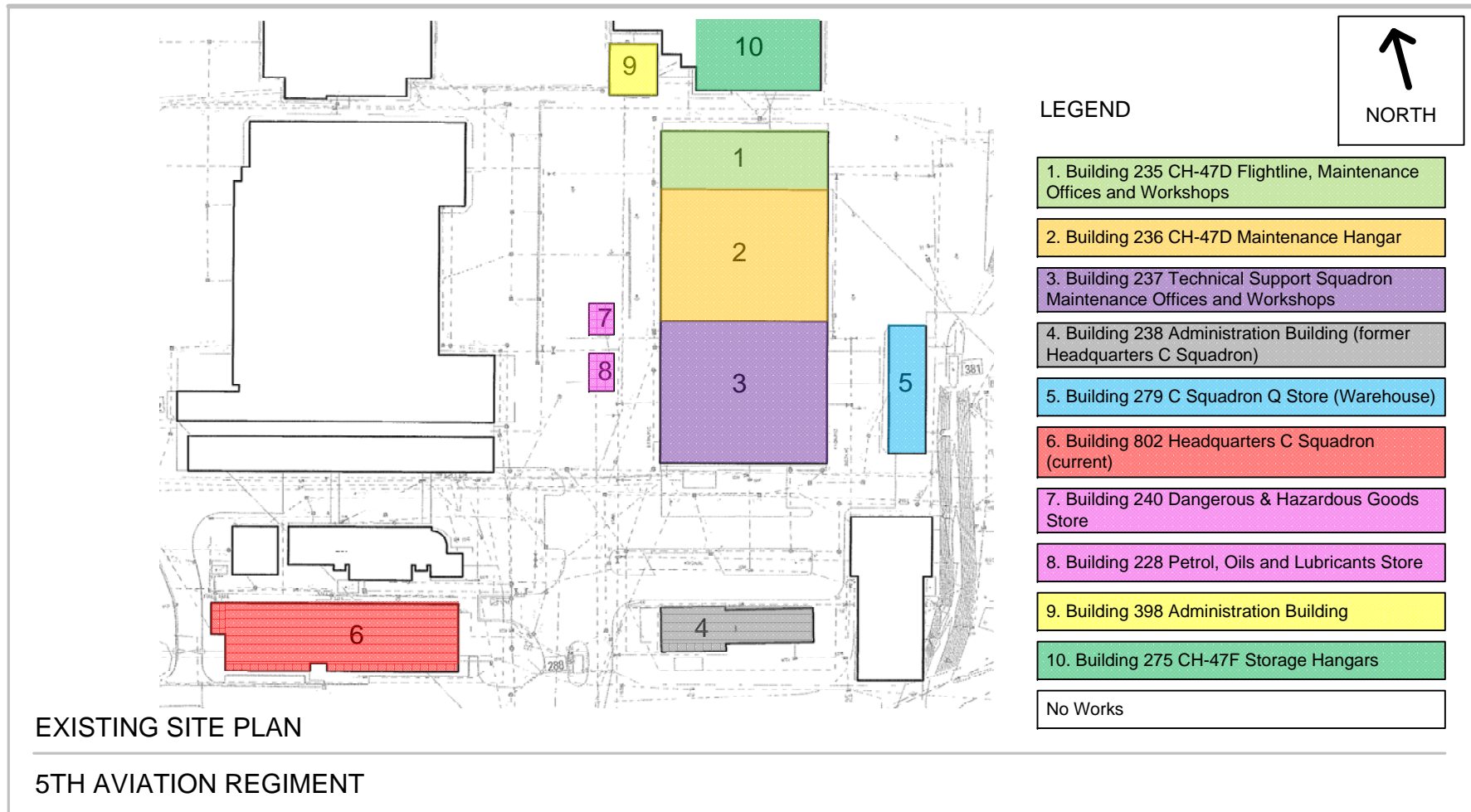
- **Crew:** 3 (pilot, copilot, flight engineer)
- **Capacity:**
 - 33–55 troops *or*
 - 24 litters and 3 attendants *or*
 - 12,700 kg cargo
- **Length:** 30.1 m
- **Rotor diameter:** 18.3 m
- **Height:** 5.7 m
- **Disc area:** 260 m² per rotor disc
- **Empty weight:** 10,185 kg
- **Loaded weight:** 12,100 kg
- **Max. takeoff weight:** 22,680 kg
- **Powerplant:** 2 × Lycoming T55-GA-714A turboshaft, 3,5296 kW) each

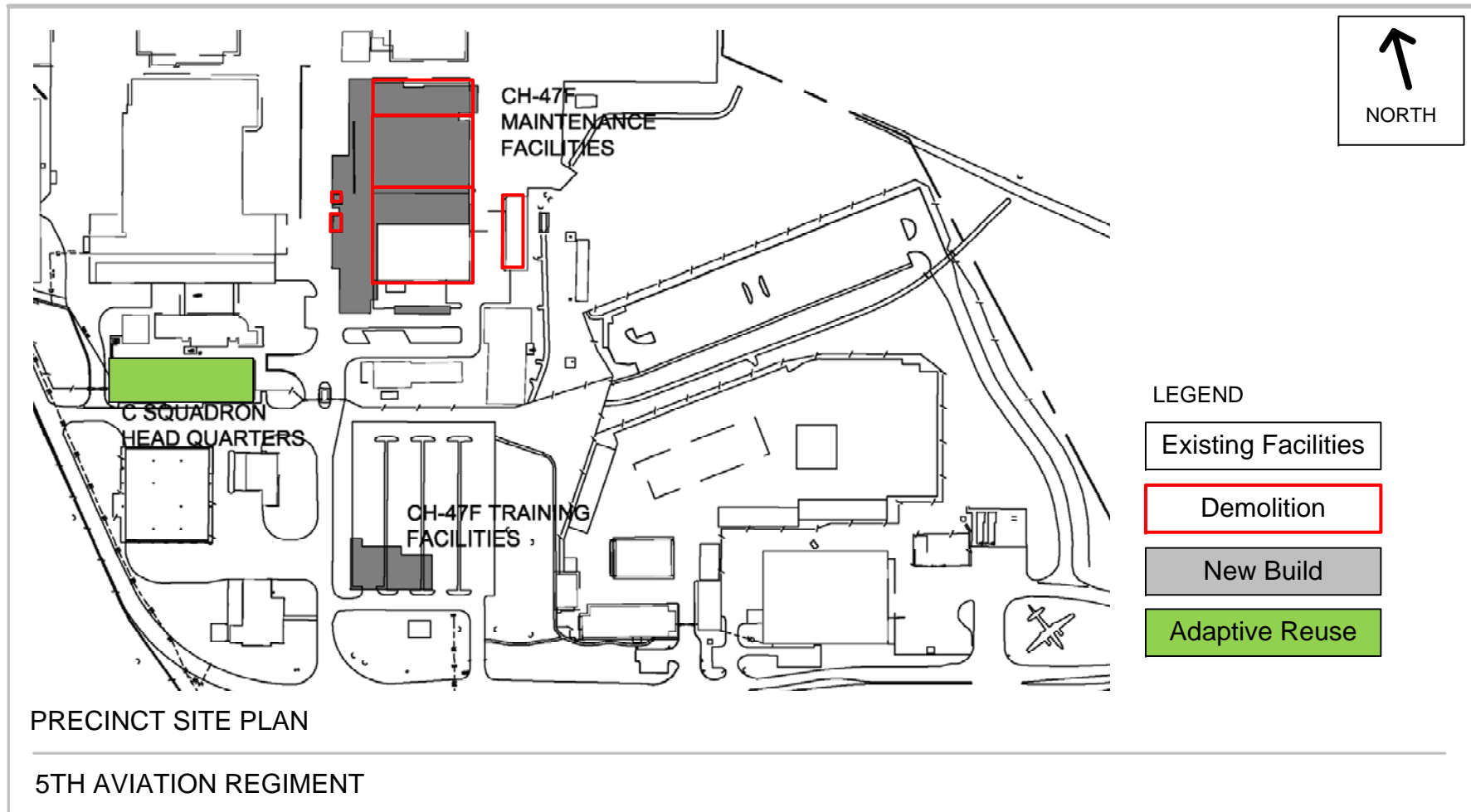
Performance

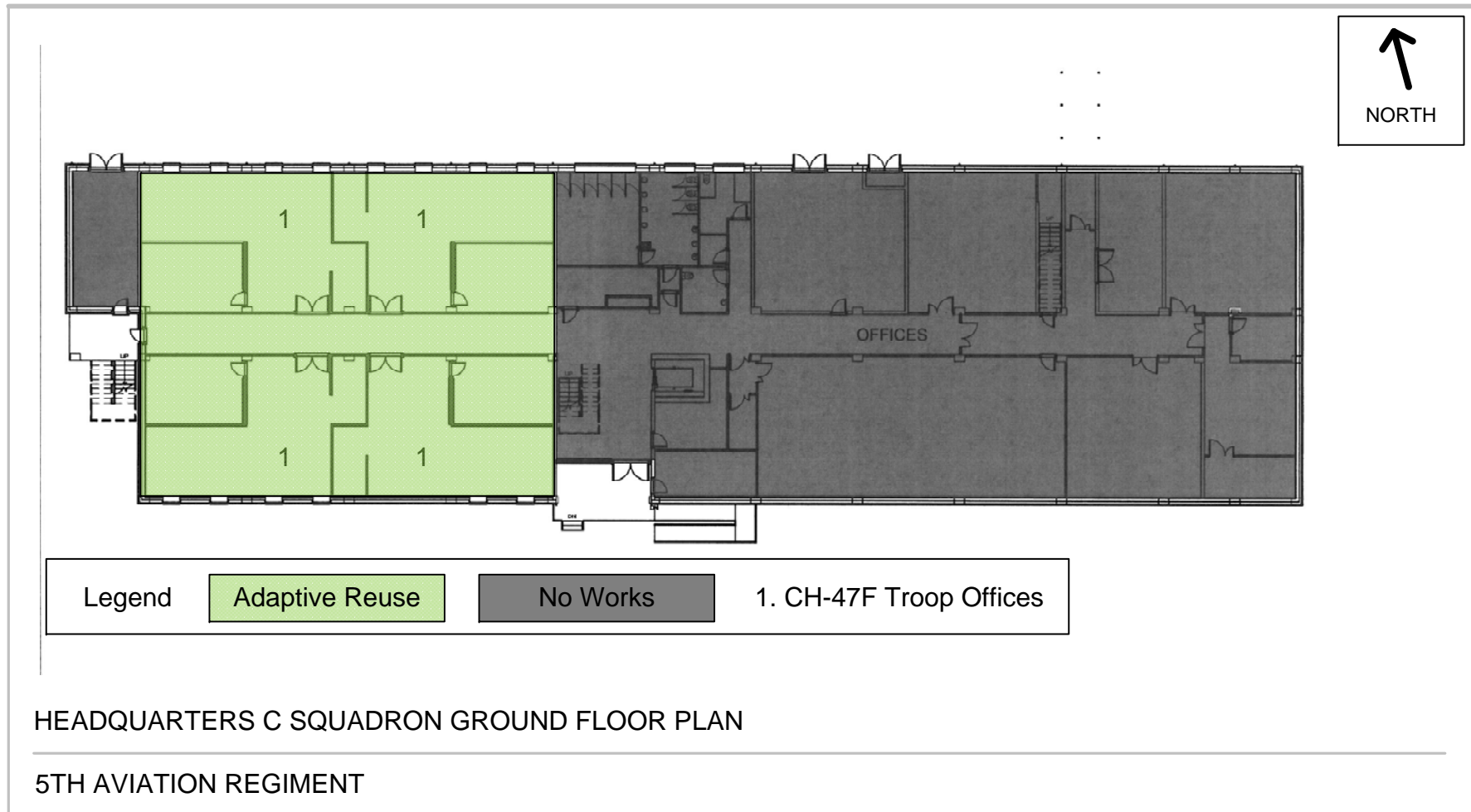
- **Maximum speed:** 170 knots (315 km/h)
- **Cruise speed:** 130 kt (240 km/h)
- **Range:** 400 nmi (741 km)
- **Combat radius:** 200 nmi (370,4 km)
- **Ferry range:** 1,216 nmi (2,252 km)
- **Service ceiling:** 18,500 ft (5,640 m)
- **Rate of climb:** (7.73 m/s)
- **Disc loading:** 47 kg/m²
- **Power/mass:** 460 W/kg

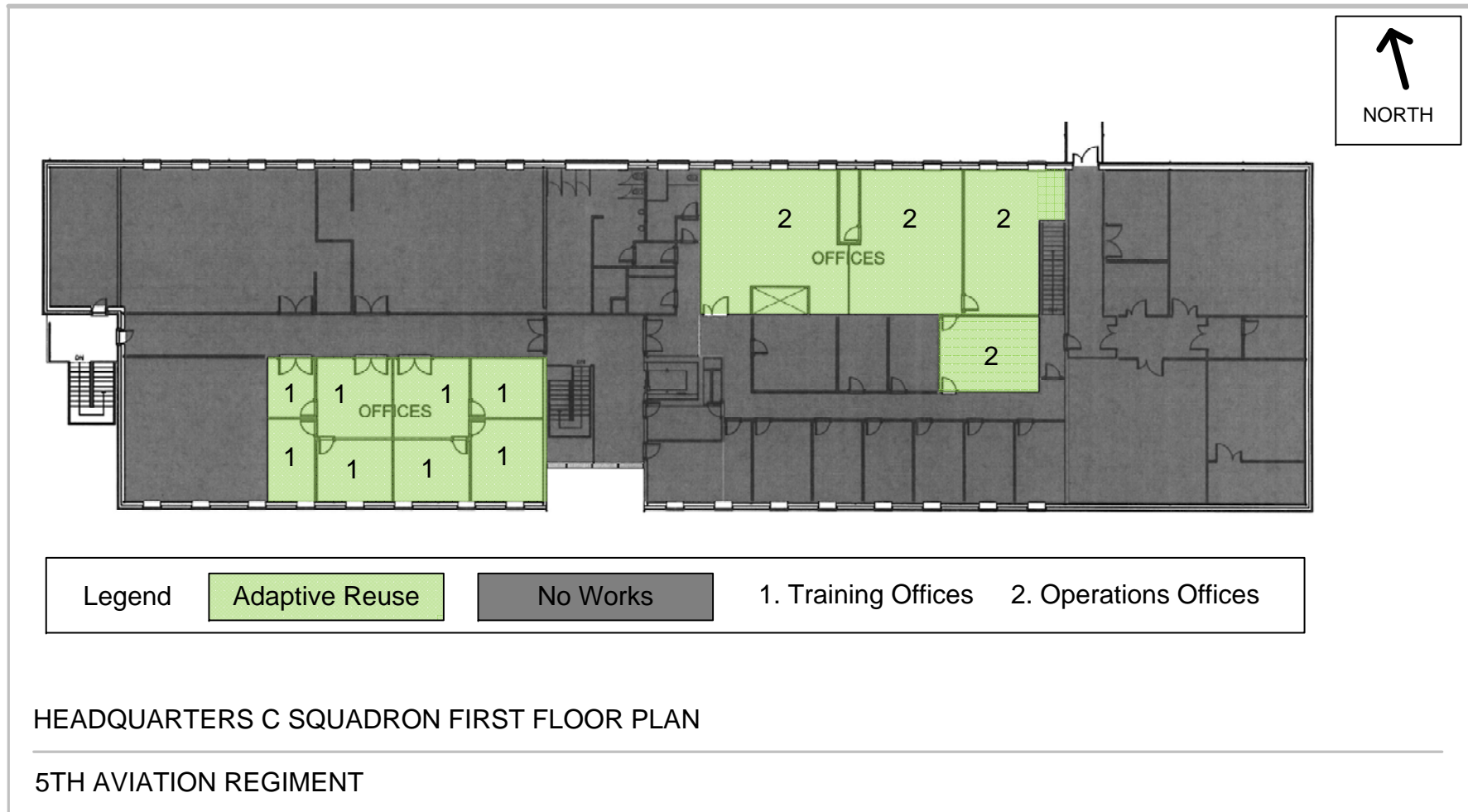
Avionics

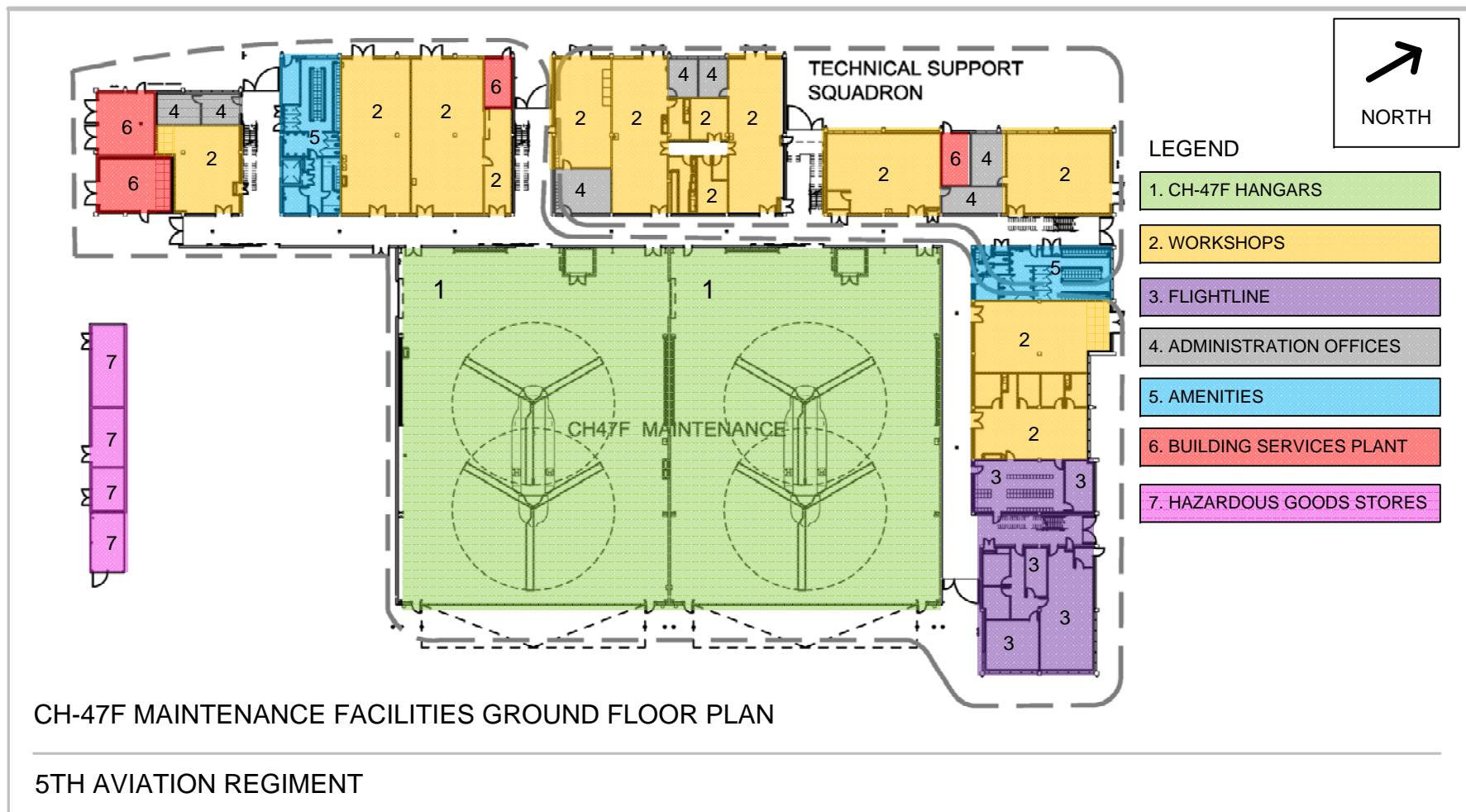
- Rockwell Collins Common Avionics Architecture System (CAAS) (MH-47G/CH-47F).

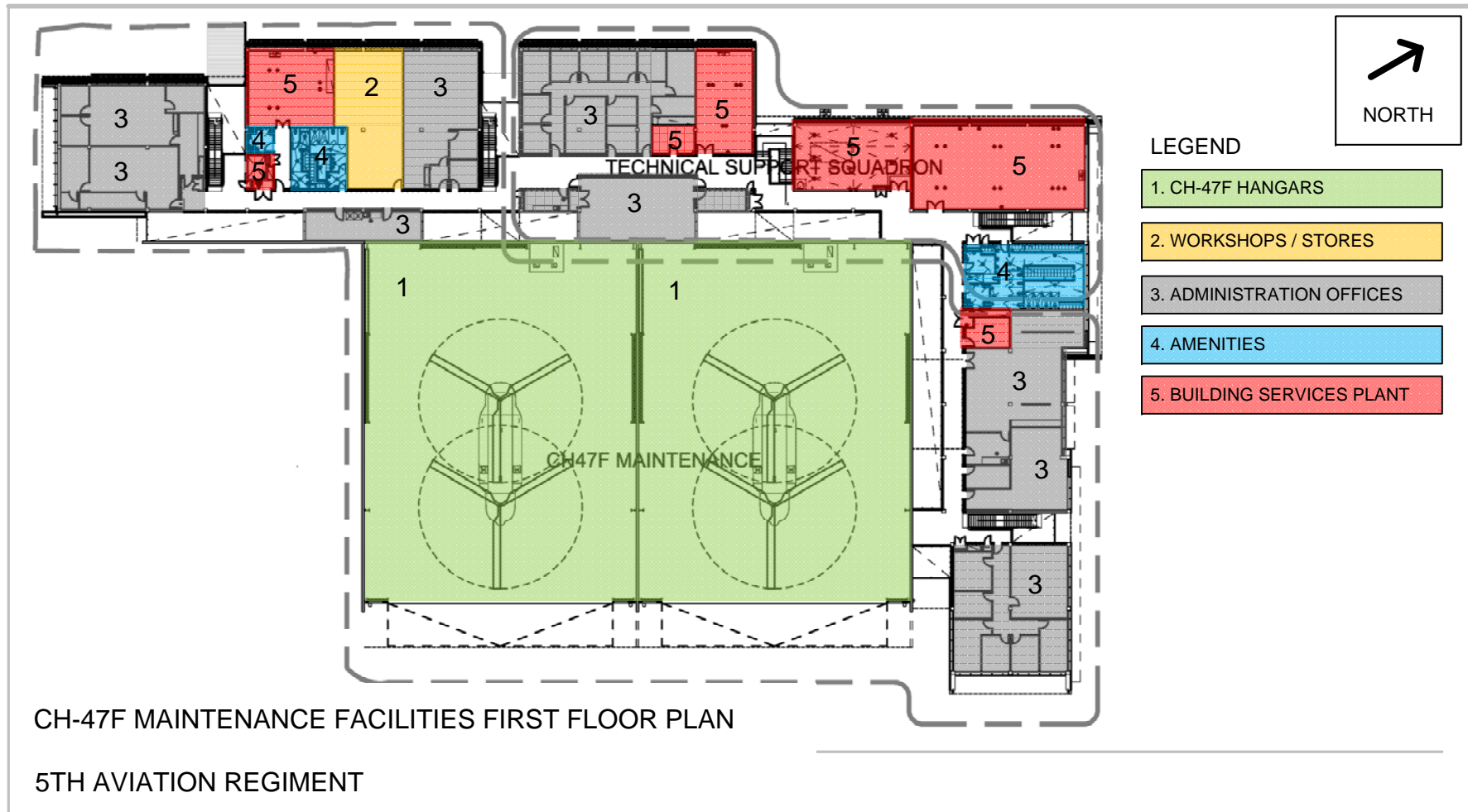


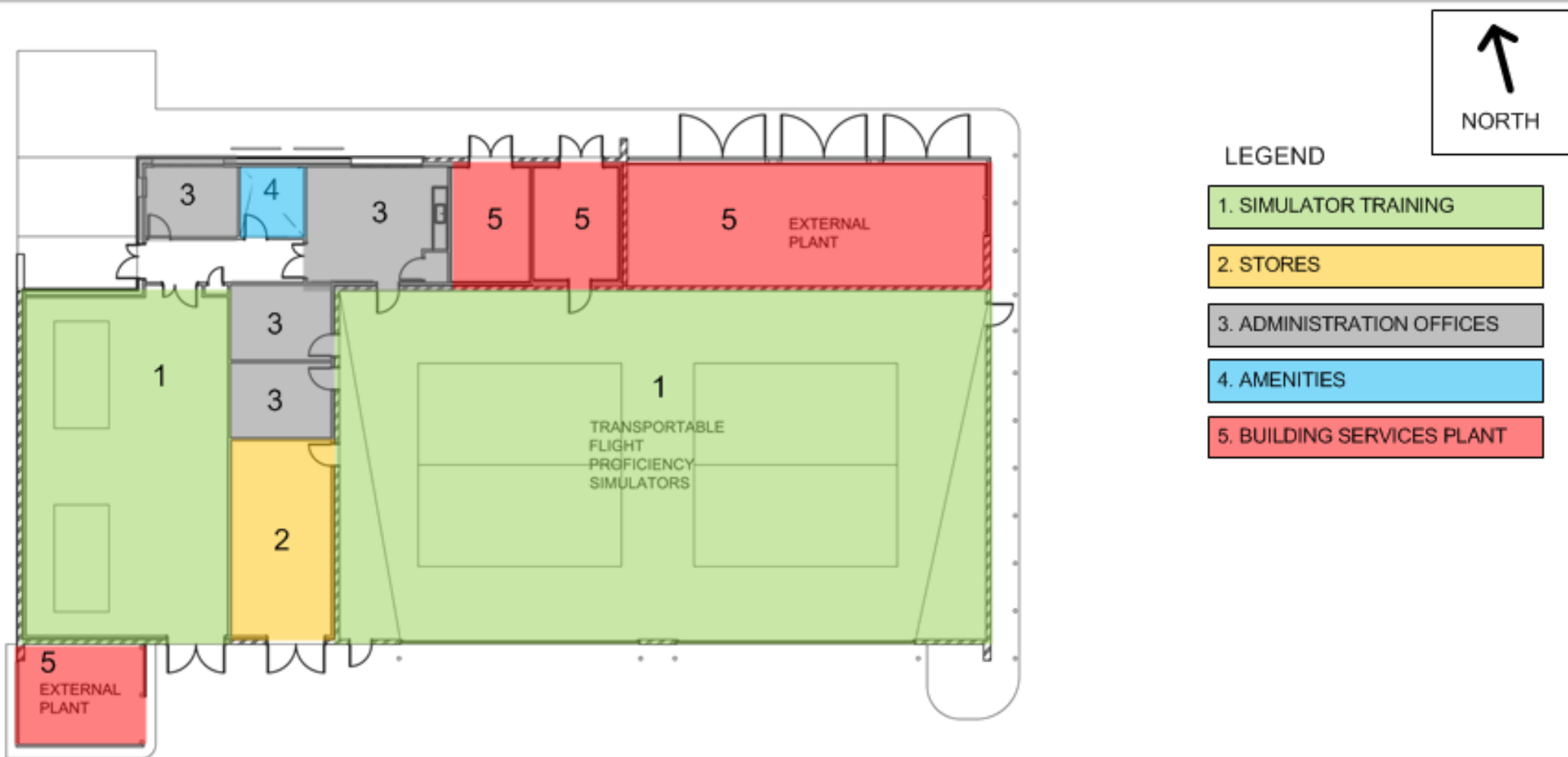












CH-47F TRAINING FACILITIES FLOOR PLAN

5TH AVIATION REGIMENT