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MEDIA BACKGROUNDER
DIGITAL FACILITIES

What are Digital Facilities?

In 2022, NAV CANADA announced its digital facilities initiative to modernize and digitize how air traffic services (ATS) will be delivered at Canadian airports over the next 15 to 20 years, as part of its strategic direction.

Digital facilities provide an opportunity to re-imagine how NAV CANADA delivers ATS, and where it's delivered from. It combines the use of NAV CANADA's existing Air Traffic Management (ATM) systems with advanced optical sensors and other technology to provide the same level of situational awareness that exists today, but from a location that is independent of the airport.

In this context, on January 18, 2023, NAV CANADA confirmed that Kingston, Ontario has been selected as the site for a new digital facility as part of its new multi-year Digital Aerodrome Air Traffic Services Program (DAATS).

How does DAATS work?

The DAATS concept consists of three main technology elements: airport sensors; a digital facility; and the data network.

DAATS will use high-resolution optical sensors (video) and other sensors to capture what is happening at an airfield in place of a traditional out-the-window view from the air traffic control (ATC) tower and flight service station (FSS). The onsite hardware will include both fixed and pan-tilt-zoom (PTZ) optical sensors that can track aircraft in the air and on the ground, as well as vehicles and wildlife that could pose a hazard.

The live video and data feed, transmitted through secure data networks will provide an immersive visual presentation of the airfield and surrounding area on a large set of integrated video screens at a digital facility that could be located anywhere.

These screens — along with the other communication and surveillance ATM technology you'd expect at a ATC tower or FSS — will provide NAV CANADA employees at their workstations with the visual surveillance required to safely manage the air traffic movements on and around an airport.

Pilots arriving and departing Canadian airports today will receive the same level of service from NAV CANADA employees working in digital facilities.

Pioneering Work

In 2010, NAV CANADA became an industry pioneer when it started using video camera technology to provide enhanced situational awareness of critical zones where the controllers did not have a clear out-of-window view within the maneuvering area and nearby airspace.

Then in 2015, the world's first remote digital tower was implemented in Sweden – providing air traffic control at Ornskoldsvik airport from a remote tower centre 123 km away in Sundsvall –, which demonstrated that controllers could provide safe ATS for an airport remotely by digital means.

DAATS leverages NAV CANADA's previous learning experience providing afterhours Aerodrome Advisory Services (AAS) at Fredericton International Airport (CYFC) remotely from Saint John, New Brunswick (CYSJ). The trial integrated the optical sensors in Fredericton into NAV CANADA's workstation at Saint John began in 2020 and demonstrated how optical sensor technology can increase levels of safety, efficiency and flexibility in air traffic services and aircraft operations. Working with Transport Canada, the facility started supporting on-going operations in 2021.

A three-year ATC technology test was also conducted at Red Deer Airport, Alberta between 2019 and 2022 that saw the installation of 46 optical sensors mounted on four masts at the airport.

By late 2022 there were more than 65 airports in more than 30 countries that have Digital facilities in operation, under development or in feasibility study, out of which 16 airports are already operational and handling day-to-day air traffic.

The number of facilities is expected to grow exponentially in the coming years. Some ANSP's call these digital facilities Remote and Digital Towers, and Remote Tower Centre's.

Kingston Digital Facility

The new digital facility in Kingston, Ontario will initially provide AAS to aircraft using Kingston Airport (CYGK). Working closely with the safety regulator, validation of the technology and operating model will occur over approximately three years.

The work at the Kingston digital facility over the next four- to six-years will provide a foundation for creating a potential DAATS hub in Kingston that will provide air traffic services to airports in other communities.

NAV CANADA's long-term vision is to deploy digital hubs in different regions, with each hub serving several airports. This is a long-term program that will incrementally transform how ATC, AAS and Remote Aerodrome Advisory Service (RAAS) are delivered at airports across Canada.

Program Benefits

The DAATS program will provide the groundwork for enhanced service and safety as well the ability to integrate new capabilities that support more efficient and resilient operations.

Service will be delivered from modern facilities designed for flexibility, ease of maintenance, improved contingency management, and will also provide a platform to innovate. A hub will facilitate common processes and procedures and enable greater rostering flexibility for staff and harmonized training programs. They will also bring positive impacts to the environment.

The geographic location will make it easier to recruit new employees and pave the way for new and rewarding career paths at NAV CANADA.

Safety will remain NAV CANADA's highest priority as it moves forward with implementing the DAATS program.