NAV CANADA proposes rate reductions that would save customers $100 million in fiscal year 2017

At the beginning of April, NAV CANADA announced a proposal to reduce its rates once again. This is the third time in the past 12 years that rates will have been reduced.

The proposed changes consist of a one-year rate reduction averaging 3.7 per cent, in addition to revisions to current base rates amounting to an average reduction of 3.9 per cent. Customer savings as a result of these proposals are estimated at approximately $100 million for fiscal 2017, and approximately $50 million for fiscal 2018 when the temporary adjustments expire.

"Strong cost controls coupled with a growth in air traffic have resulted in a forecast surplus for 2017, putting us in a position to make this proposal consistent with our cost recovery mandate," said Neil Wilson, President and CEO. Under the current proposal, NAV CANADA base rates would only be 1.5 per cent higher than March 1999, when they were originally introduced on a full cost-recovery basis.

For the current fiscal year ending August 31, 2016, NAV CANADA forecasts a year-end notional balance of $150 million in the Company's Rate Stabilization Account, compared to the target balance of $100 million. "The purpose of the one-year temporary rate reduction is to return this additional $50 million to customers," said Wilson.

In addition to the temporary reduction, the Company also proposes revisions to its base rates. The adjustment to each base rate varies in order to ensure each is aligned with anticipated costs and traffic by service. These adjustments would address an imbalance that has occurred due to the stronger growth in overflight traffic.

The proposed changes to base rates include a 1 per cent increase for Terminal services; a 7.3 per cent reduction for Enroute services

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SPRING/SUMMER 2016

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President's Point of View

This is my first President's Point of View column and I am delighted by the opportunity to take this "direct route" to sharing my thoughts with NAV CANADA's customers and stakeholders.

Despite having been associated with NAV CANADA in various capacities since the Company's beginning, my first few months as President and CEO have been a bit of a whirlwind. It has been an opportunity to delve into the key issues facing the Company and to travel extensively as I seek to visit and speak with employees, customers and other stakeholders across Canada and around the world.

The year 2016 is our 20th as Canada's air navigation services provider, and it's a fantastic time to examine how we are attempting to provide value to all stakeholders, and how we can do better. As I look at where we are, and where we are headed, my anticipation of greater things to come fuels my optimism and enthusiasm.

I am a strong believer in the power of relationships, especially in an organization such as NAV CANADA. Collaboration and communication cannot be emphasized enough in our day-to-day delivery of essential safety services, and in the continued evolution of a responsive, customer-focused ANS whose people are well supported and recognized by the Company.

This principle is embodied in our revised mission statement which we finalized earlier this year: "To be a world leader in the provision of safe, efficient and cost effective air navigation services on a sustainable basis, while providing a professional and fulfilling work environment for our employees."

It's also the driving force behind a shift in our business strategy to ensure that the Company fulfills its promise to all stakeholders – customers, employees, and the flying public.

Over the coming year, there will be lots of opportunity to look back on our first 20 years and to celebrate our accomplishments. We have a strong safety culture, skilled and dedicated people, a modern technology platform and an unwavering focus on the customer. We also have strong financials as a result of an emphasis on cost effectiveness, which is allowing us to deliver value to our customers as traffic grows.

It is that strong financial base – combined with healthy traffic growth – that has enabled us to announce proposed reductions in our service charges to take effect this fall, even as we continue to make strategic investments in the ANS, our technology and our people.

While we reduce rates, we have also committed to an additional $40 million per year in capital spending over the next three years, for a cumulative total of $500 million. This will be directed at upgrading and replacing facilities; further enhancing our CNS and ATM technology; and making needed changes to critical business systems.

There is a lot to celebrate after 20 years managing the ANS within Canada and in collaboration with our international partners. And there is a lot to look forward to, starting this summer with the first planned launch of the Aireon payload on board the first of the Iridium NEXT satellites.

Aireon embodies the early promise of NAV CANADA – an organization with the flexibility to make strategic decisions in the interests of our customers. In this case, the investment in satellite-based surveillance promises to revolutionize the provision of ANS services over the world's oceans and remote areas, with billions in fuel savings and equivalent GHG emission reductions.

I can't think of a better way to start my journey as CEO of this exciting Company, and I am humbled by the opportunity to be part of it all, as we move forward together.

Neil Wilson
President & CEO

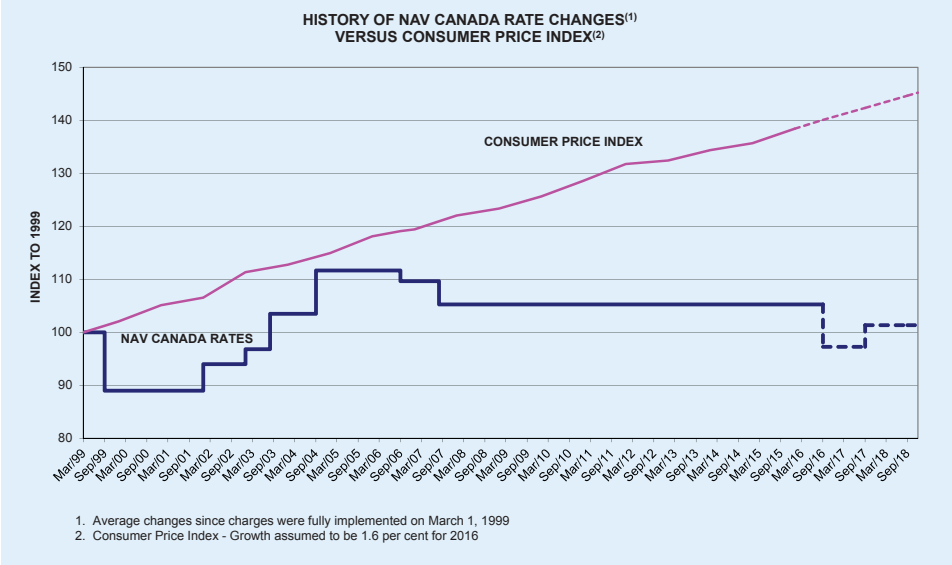
NAV CANADA proposes rate reductions... (cont. from pg. 1)

including overflights; a 6.5 per cent reduction in the North Atlantic charge; and a 13.7 per cent reduction in the International Communications charge. Flat charges would be reduced by 0.5 per cent under the proposal.

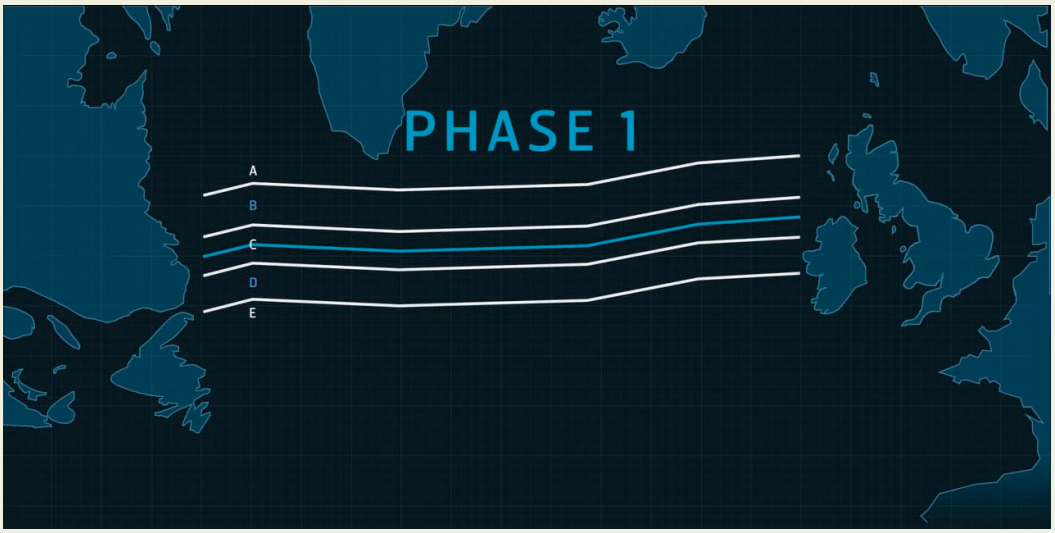
"Customers expect and deserve safe and efficient air navigation services at a reasonable cost. We are pleased to be able to deliver on these expectations through this rate proposal, while continuing to ensure appropriate compensation and a professional and fulfilling workplace for employees," said Wilson.

The proposals are subject to a consultation period, which will end on July 6, 2016. Input received during the consultation period will be reviewed by our Board of Directors, who will make a final decision on the proposal.

For more information, visit www.navcanada.ca.



Reduced Lateral Separation introduced over the North Atlantic



The airspace over the northern part of the Atlantic Ocean is the busiest of its kind in the world, with over 400,000 flights per year. In December, 2015, NAV CANADA and the UK air traffic services company NATS launched an International Civil Aviation Organization (ICAO) trial program called Reduced Lateral Separation (RLat), which seeks to increase Oceanic airspace capacity, cut fuel burn and reduce carbon emissions.

Most aircraft transiting the North Atlantic do so by following tracks that are set daily based on the traffic demand and prevailing weather conditions, such as the jet stream. The tracks are separated by one degree of latitude – the equivalent of 60 nautical miles – but advances in aircraft and air traffic management technologies mean that they can now be safely reduced to half a degree, or approximately 25 nautical miles.

This reduction will allow more aircraft to achieve their optimum route and flight level, helping to cut flying times and reducing fuel burn and emissions. Initially, one additional track has been added, creating three half-degree separated routes for suitably equipped aircraft to fly; however, half a degree is expected to become the standard separation minimum across the entire organized track structure by late 2016.

Alastair Muir, Operations Director at NATS' Prestwick control centre, said: "With RLat we are essentially turning a dual carriage way into a three-lane motorway without expanding the current road infrastructure."

In the first three months, a total of 9,240 flights operated on the RLat tracks, with approximately a quarter of these operating on the centre RLat track. The number of flights using the tracks has increased month over month and this trend is expected to continue. Once fully implemented, the change will save an estimated 52,000 tonnes of carbon a year, the equivalent to 14,000 transatlantic flights.

Doug Dillon, NAV CANADA General Manager, Gander Flight Information Region said: "RLat is a significant step forward in air traffic management over the North Atlantic. It immediately adds capacity and considerable improvements to efficiency as we prepare for we prepare for further reductions in separation as a result of the introduction of satellite-based ADS-B surveillance that the Aireon project will bring in 2018."

Weather upgrade program completed

Aviation weather equipment at Chatham Point, British Columbia

Over the past eight years, NAV CANADA has been expanding and upgrading the country's aviation weather systems in order to provide more accurate and reliable reporting of essential weather information from coast, to coast, to coast. The $66 million program, involving 463 systems at 338 sites, was completed in August 2015.

The modernization project has expanded weather-services coverage, adding weather observations at 23 airports that previously did not have any. "With such extremes of weather throughout this northern country, we can't overstate the importance of these updated and expanded aviation weather systems," said Rudy Kellar, Executive Vice President, Service Delivery.

These thoughts were echoed by Minister of Transport, Government of the Northwest Territories, Tom Beaulieu: "I am pleased to recognize the recent and ongoing improvements made by NAV CANADA ... these investments to the weather observation systems will benefit our residents and communities through improved air services between communities and allow for improved decision-making and faster response times for the medevac service contractor."

The major components of the upgrade program include Automated Weather Observation Systems, Aviation Weather Cameras, Human Weather Observation Systems, and Limited Weather Information Systems.

Automated Weather Observation Systems

New Automated Weather Observation Systems (AWOS), which have the capability to

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A Quick Call, A Clear Plan:
Get the complete picture from NAV CANADA's Flight Information Centres in just a few minutes

Access to accurate and up-to-date weather information and flight planning tools has grown significantly over the past decade. Improvements in automated weather gathering systems and weather camera technology - combined with web access - have placed more information at a pilot's fingertips than ever before.

When the services delivered through NAV CANADA's network of Flight Information Centres (FICs) are added to the mix, pilots enter the cockpit knowing they have a clear flight plan and understanding of conditions.

"Specialists have an advanced understanding of weather and typography, and the latest information on NOTAMs, hazards and restricted areas," says Peter Hamm, Manager of the Winnipeg Flight information Centre. "The result is an interpretive, value added service that brings all the pieces together for pilots.

"Whether we're speaking to a highly experienced pilot or a student, our team's objective is the same: making sure they have the best information to get them on their way, safely," says Hamm.

In just a few minutes, flight service specialists at a FIC can provide:

- current and forecasted weather conditions along your route;
- the best route to your destination;
- NOTAMS, restricted airspace and special advisories; and,
- assistance opening, closing and updating your flight plan.

Each specialist goes through an intensive training program that delves in to weather and procedures in a highly contextualized manner. In addition to advanced training,

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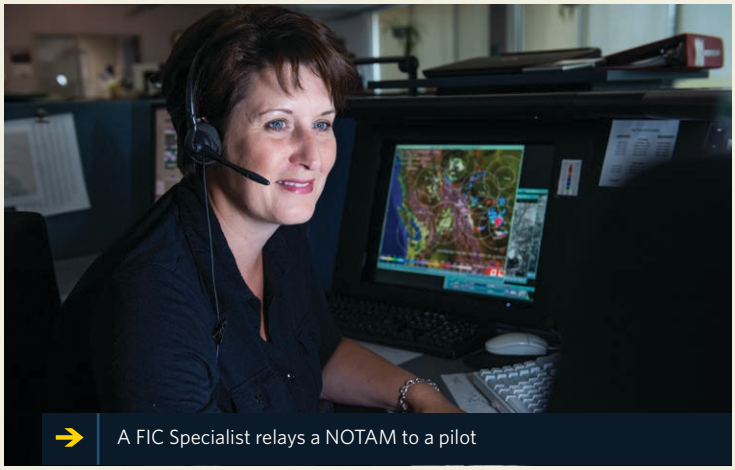


A FIC Specialist relays a NOTAM to a pilot

NAV CANADA modernizes its radar systems

The radar at the JA Douglas McCurdy Sydney Airport in Cape Breton, Nova Scotia undergoes spring cleaning

Terminal Surveillance Radar (TSR) is used for air traffic surveillance by air traffic controllers and flight service specialists across Canada. The current radar systems are over 30 years old and are nearing the end of their lifecycle, so NAV CANADA has begun a multi-year project to upgrade 12 of its TSR at a cost of more than $125 million.

"Radar is one of the key surveillance sources for air traffic control and will continue to be an indispensable tool for the mid and long-term in its existing role and as a complement to satellite-based ADS-B surveillance," said Kim Troutman, Vice-President, Engineering. "Due to the age of the systems, various electronic components are becoming obsolete and parts are sometimes difficult to replace."

The TSR renewal project is no small undertaking – the challenge is to update the equipment while maintaining the radar site infrastructure in place.

In order to achieve this, a portable radar system will be moved from site to site to support the program. The portable radar will be installed temporarily close to the site prior the start of the refurbishment work to ensure radar service continuity during the main radar down-time.

The refurbishment involves key electronics and power equipment at each site. New radar electronics and radar equipment shelters will be installed, power equipment shelters will be upgraded, existing cables will be replaced, and facility monitoring systems will be upgraded to meet current standards.

Upgrading the Company's radars will improve reliability and lower ongoing maintenance costs. The upgrades will also advance the exchange of data, and mitigate potential service outages. A total of 12 sites across the country will be upgraded over the next decade, starting with the Ottawa non-operational test site, then moving to Hamilton, Toronto, Calgary, and Vancouver, followed by the remaining sites.

Selex ES, a subsidiary of Finmeccanica, was chosen as the supplier for this project, following a competitive request for proposals. Finmeccanica – Selex ES has delivered air traffic control radar systems to more than 150 countries over the last 60 years.

The Terminal Surveillance Radar at the Vancouver International Airport

DEPARTURES

By Anthony MacKay, Director, Flight Operations

Note: This article is part of a recurring feature called Pilot's Corner by NAV CANADA's Director of Flight Operations Anthony MacKay.

IFR departures from airports can be a little confusing, given all the different procedures possible. Is it a Standard Departure? Specified Visibility? Not Assessed? Engine-Out Route?

Then there are the Special Authorizations that an air carrier can obtain for 1200, 600, and now 300 RVR. When can these special authorizations be applied to the different departure procedures?

Standard departures typically have a visibility requirement of ½ stature mile and a climb gradient requirement of 200'/nm. When NAV CANADA cannot build a departure via TP308 rules that ensures obstacle clearance on departure with a 200'/nm climb gradient, we look at using an increased climb gradient requirement (greater than 200'/nm) and those climb requirements are stated on the departure plate.

In these instances, we also provide a Spec Vis departure for aircraft that cannot meet the increased climb requirement. A Spec Vis departure is a visual maneuver, which positions the aircraft in a climb over the airport to a point where it can safely enter IFR conditions and continue to climb IFR at 200'/nm to the MEA.

Sometimes, we cannot do anything at an airport under TP308 and the departure is listed as "not assessed." In this case, it is up to the pilot to ensure that they have a procedure to safely depart. One way I have seen this done is to maintain visual conditions while climbing, in order to position the aircraft into the IFR missed approach procedure for the approach serving the airport.

All of the procedures above assume all engine and normal aircraft operations. NAV CANADA does not design engine out (engine failure) departure routes for aircraft; however, there are third party vendors that provide this service.

RVR Special Authorizations

So what can 1200, 600, and 300 RVR Special Authorizations be applied to? First you must consider the airport certification and lighting requirements and then, as mentioned above, you cannot rely on a visual segment at the start of the procedure. As a result, Special Authorizations can only be applied to departures with a ½ sm visibility requirement.

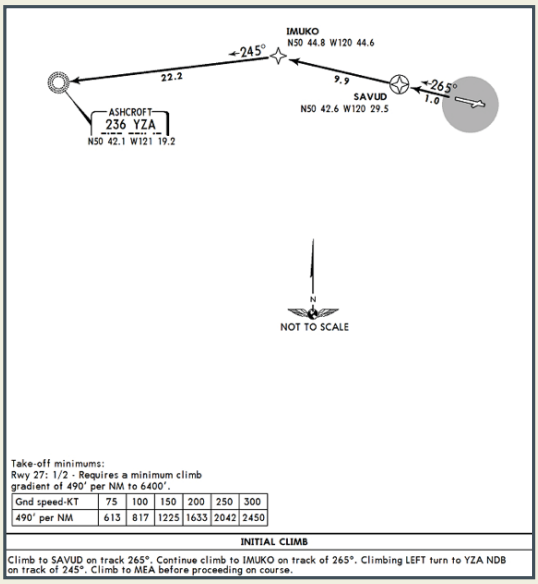
Kamloops Example

Using Kamloops as an example, when departing runway 27 we see the following:

TAKE-OFF & DEPARTURE PROCEDURE		
		Rwy 09, 27
	Rwy 27	Refer to Departure RNAV (GNSS) or, climb visual over airport to 4700', then climb on track of 086° to YKA NDB. Shuttle to MEA before proceeding on course (max 200 kt).
A	Refer to Departure RNAV (GNSS).	1
B		1½
C		2
D		

One option is the RNAV Departure Runway 27, with a ½ sm departure limit and a climb requirement of 490'/nm. If the aircraft does not have the performance to make the 490'/nm climb gradient, then the Spec Vis procedure is required. It requires better weather and a climb visually over the airport to 4700' with either specified visibility of 1, 1½ or 2sm prior to entering IFR conditions. Then track 086° to the YKA NDB and shuttle climb (hold while climbing) to the MEA of the route before proceeding on course, all while climbing at 200'/nm.

Here is the RNAV 27 Departure that is usable if the aircraft has the proper navigation equipment and the climb gradient required can be met.



With the proper RNAV equipment and climb gradient, this is a much easier procedure to fly than the visual climb over the airport. With only a ½ mile visibility requirement, an air carrier could apply the special authorizations taking the airport and aircrew requirements into consideration.

The obstacle assessment diagrams that were used to design and flight check both the RNAV departure and the spec vis departure provide a better understanding of why each of these procedures is different.

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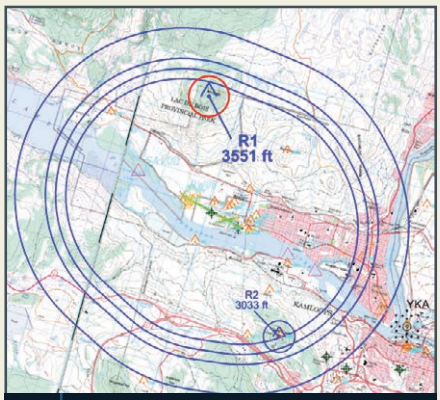
Departures (cont. from pg. 6)

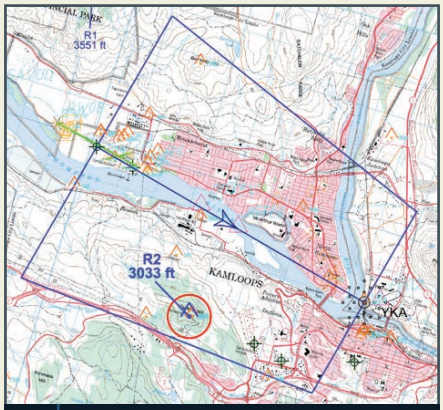
RNAV 27 Departure Obstacle assessment area

As this diagram shows, the departure track proceeds over some high terrain west of the airport using the 490′/nm climb and the primary assessment area (between the black centre line and the first blue lines above and below the black line) is positioned to avoid as many obstacles as possible.

With standard TP308 climb performance of 200′/nm, an aircraft cannot remain clear of those obstacles so the Spec Vis below is assessed.



Specified Visibility Visual Climb Area



Specified Visibility Track to YKA NDB

Once the aircraft is delivered to the YKA NDB then it is a standard hold assessment area at the YKA NDB for the shuttle climb to MEA.

Engine Failure

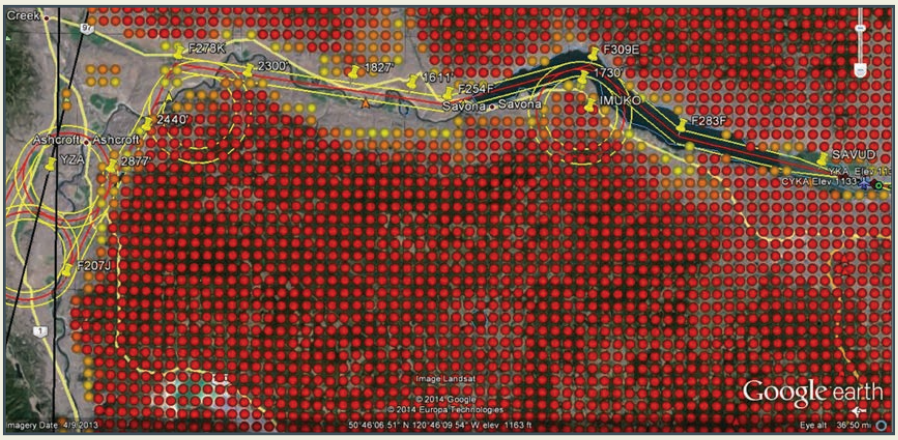
These procedures account for all engines operating, but what happens if an engine were to fail on departure?

An operator has two choices: using the RNAV 27 departure as an example, the aircraft weight could be limited to ensure a 490′/nm climb gradient after an engine failure or, a company that specializes in engine failure departures and aircraft performance could build a departure that takes into account the reduced aircraft performance. As reducing the departure weight would eliminate most of the useful payload of the aircraft, most operators opt for the engine out departure design.

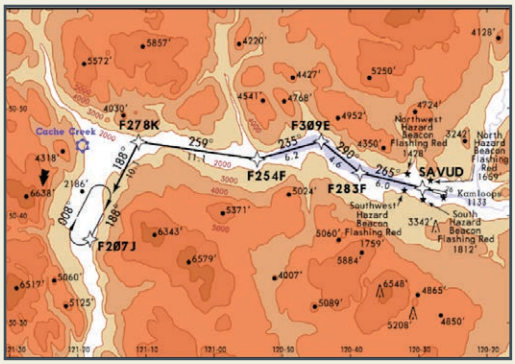
The engine-out departure rules assess a much smaller area for obstacles than TP308 because the likelihood of an engine failure on departure is so low. TP308 assesses obstacles on routes that are used by many aircraft day in day out.

Engine-out departures are tailored to specific engine and airframe combinations that see most of their use in the simulator during training. While pilots must train for engine-out departures in the simulator, with today's modern turbine-powered aircraft, it's rare that they would ever have to put them in practice.

Below is the area assessed for our CRJ 200 using an RNP .3 departure assessment area for an engine failure on departure off of runway 27 in Kamloops.



The track starts out off the runway to SAVUD like the all-engine RNAV 27 departure, and then splits to keep the aircraft over the lake and away from terrain until it gains enough altitude over the Ashcroft area. This engine-out path is only to be used in the event of an engine failure on departure in an emergency situation. It does not meet TP308 requirements for everyday IFR use.



From this, the data is coded into the FMS and is shown on a special Engine Failure Departure Procedure Plate for our flight crew.

Using the correct combination of departure procedures, understanding visibility and climb requirements, and knowing what paths are available in an emergency should assist you in safe operations for all IFR departures.

Weather upgrade program completed (cont. from pg. 4)

An aviation weather camera on a lighthouse in Estevan Point, British Columbia

broadcast weather data 24/7, on the minute, are operational at 91 sites across the country. The new AWOS systems are highly advanced with more robust weather sensors, significantly improving data quality and assurance.

The new AWOS are designed to report thunderstorms and other weather elements, and where available, runway visual range (RVR) information. They are also equipped with ice-resistant anemometers that report wind speed and direction and will not ice-up during freezing precipitation, freezing fog or wet snow.

The result is more reliable and accurate provision of METAR/ SPECI bulletins, which in turn improves airport accessibility and safety.

Aviation Weather Cameras

New digital Aviation Weather Cameras have been installed to replace the existing analog camera systems and to expand the network by 22 sites. The camera images, which are updated every 10 minutes on the NAV CANADA Aviation Weather Web Site (AWWS), supplement existing weather information products.

The images on the AWWS can be superimposed with reference markers, such as a hill in the distance, a tower, or a building, to help pilots determine visibility conditions. A photo of the exact same location, taken during ideal weather conditions, is also available for comparison.

The cameras, with a 91-degree viewing angle and improved, higher resolution images, provide near real-time weather information, which can help pilots with their flight planning.

Human Weather Observation Systems

The Human Weather Observation System (HWOS) assists with quick, accurate and reliable weather reporting where staffed weather observations are an integral part of aviation operations. HWOS is connected to a set of new sensors that provide data on wind speed and direction, temperature and humidity, and atmospheric pressure.

HWOS also provides RVR data to the weather observer. Other elements of the weather observation, such as cloud information, visibility, and present weather conditions, are entered into the system manually by a weather observer at the site. This data entry capability, which allows the HWOS to replace two systems previously used, provides improved safety because the sensor data is now automatically ingested into the system.

NAV CANADA has installed HWOS at all 176 human weather observation sites across the country.

Limited Weather Information Systems

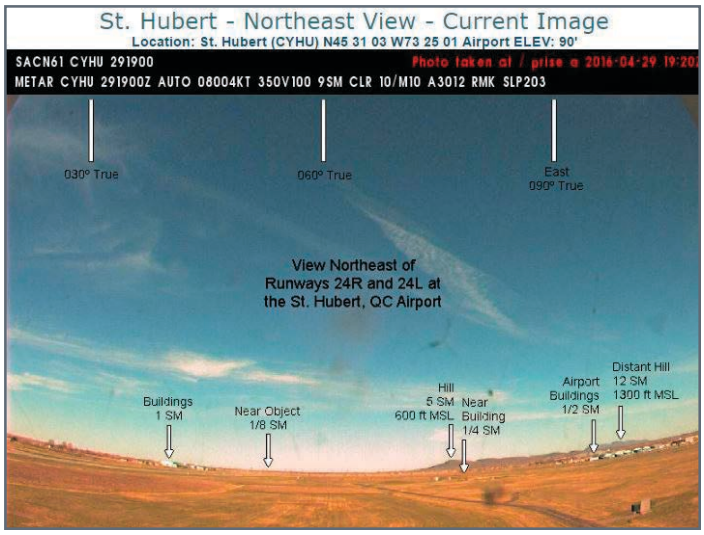
To further enhance the capability of the HWOS, NAV CANADA has implemented Limited Weather Information System (LWIS) at many locations. Sensor readings from the HWOS are used to issue an hourly LWIS bulletin that gives temperature, dew point, wind, and altimeter setting at the airport when human observers are not present.

LWIS bulletins are made available via Flight Information Centres (FICs), Area Control Centres (ACCs), or the AWWS. This solution has exponentially expanded weather data availability at all sites.

The LWIS has been enabled at 33 full-time HWOS sites, and at 70 part-time weather reporting sites. The LWIS, which is unique to Canada, provides access to essential weather information for take-offs and landings 24/7.

Impact of the weather systems upgrade and expansion

"The completion of the program is not just a service delivery milestone – it's already bringing important safety and efficiency improvements to aircraft operators, airports, and the communities we all serve. This is especially important in remote and northern locations, where air services are a lifeline," said Rudy Kellar.



A Quick Call, A Clear Plan (cont. from pg. 4)

A FIC Specialist provides weather information to a pilot

most Flight Information Centres have a combined experience pool that numbers in the hundreds of years.

"There are some weather phenomena that raise concerns that are fairly unique to aviation, sometimes unique to certain types of aircraft or regions," says Hamm, citing the things like Lake Effect Snow (LES) as a potential hazard. "A FIC specialist makes the most of available weather information and air navigation system resources to identify highly complex patterns at a local level.

Hamm adds that the people at the country's FICs are genuinely committed to NAV CANADA's safety and customer service values. "Give us a quick call and you'll be on your way in no time – with peace of mind."

Call 1-800-Wx-Brief (1-800-992-7433) to access the Flight Information Centre network. There is no additional cost for FIC services.