

2014 MITIGATION UPDATE
NAV CANADA
TORONTO AIRSPACE DESIGN

R24 L/R Base Leg Pattern Extension to the East



NAV CANADA – Airspace and Services Update – Nov. 27 2013: CENAC

- **FORMER AIR SPACE DESIGN** █
- **WIDEN ARRIVALS CORRIDOR OFF LAKE ONTARIO**
- **LONG DOWNWIND LEG, TROMBONE EXTENDING TO THE EAST**
- **SHARED AIR TRAFFIC OVER MULTIPLE COMMUNITIES**

R24 L/R Base Leg Pattern Compressed from the East

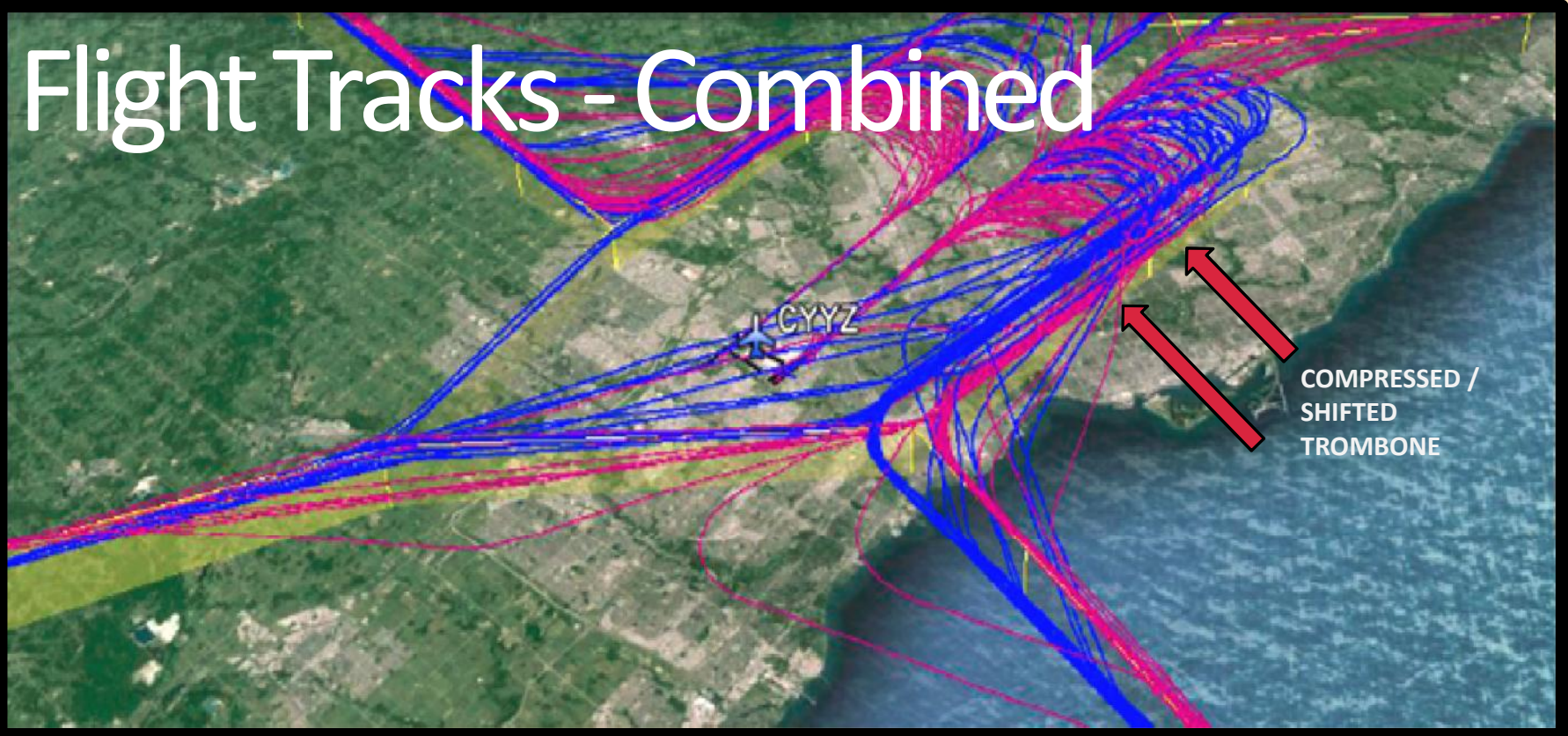


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- **CURRENT CORRIDOR / NARROW, COMPRESSED DESIGN**
- **EXTREME CONCENTRATION**
- **NEW WAYPOINT LOCATION (1.8 KM SOUTH) OVER NEWLY AFFECTED COMMUNITIES**
- **SHORT, AGGRESSIVE, BUSINESS FRIENDLY ROUTE (ICAO MINIMUM 5.2 KM).**

R24 L/R Base Leg Pattern Compression / Extension Comparison

Flight Tracks - Combined



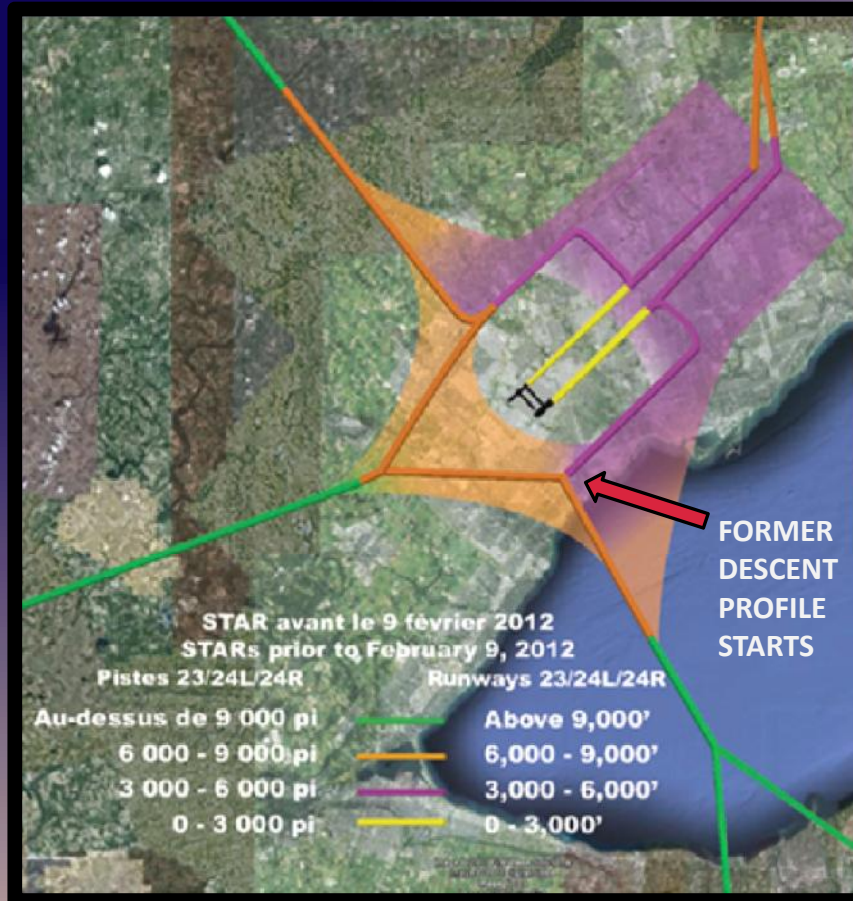
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- TORONTO PEARSON HAS 10 POSSIBLE APPROACH PATHS
- ARRIVALS ON 24 R/L REPRESENTS **40%** OF ALL TORONTO PEARSON TRAFFIC

2013 Aircraft Arrivals	R23	R24L	R24R	R33L	R33R	R06L	R06R	R05	R15L	R15R	Total
	41684	42152	44284	4832	520	9599	20580	48585	2673	738	215,647
%	19.30%	20.50%	19.50%	2.20%	0.20%	4.50%	9.50%	22.50%	1.20%	0.30%	

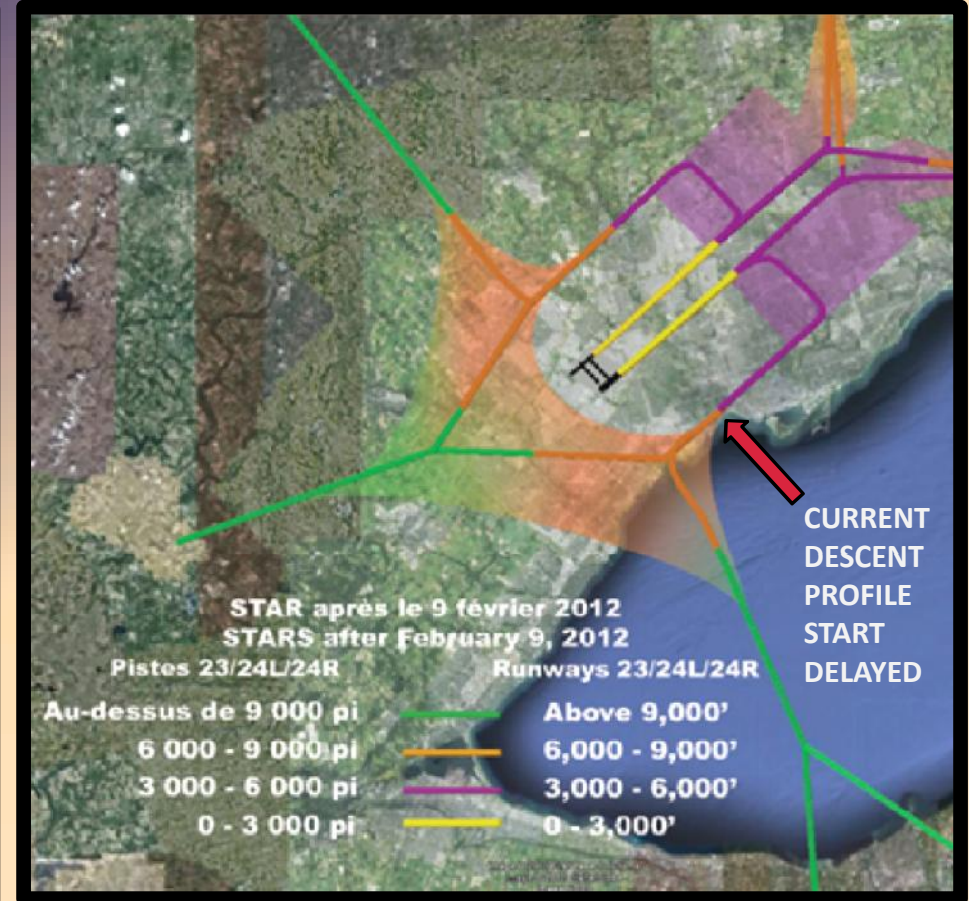
STANDARD TERMINAL ARRIVALS ROUTE

R24 L/R before February 2012



NAV CANADA Airspace Changes Related to LBPIA (Toronto Pearson)

R24 L/R after February 2012



NAV CANADA Airspace Changes Related to LBPIA (Toronto Pearson)

- **SHARP DESCENT PROFILE**
- **AIRCRAFT FREQUENTLY REQUIRE SPEED BRAKES**
- **EXCESSIVE NOISE APPROACHING AIRCRAFT TURN**

MITIGATION OPTIONS

Option 1

- Widen the downwind leg with a compromise between the old and new design
- Maintain the present design but lengthen the downwind leg further east
- Allows for higher aircraft altitude longer in segment for a greater distance
- Communities share the concentration by directing 50% of flights to the second waypoint location. (See Flight Tracks/2013, Midland/Ellesmere)
- Give back some but not all of the traffic to communities that were eliminated from the new design
- Represents a balanced approach philosophy

Option 2

- Widen the downwind leg with a compromise between the old and new design
- Shift the downwind leg further south allowing the base leg segment to lengthen
- Direct traffic over an area of commercial buildings and apartment/condo dwellers, insulated and unaffected by the noise
- No change required in descent profile.
- Allows for increased safety margins, rather than minimum ICAO standards of 5.2 km

Option 3

- All the options that NAV CANADA has been unwilling to consider between the ICAO minimum required and the ICAO maximum allowed