A View of Porter Airlines' Proposed Airport Expansion

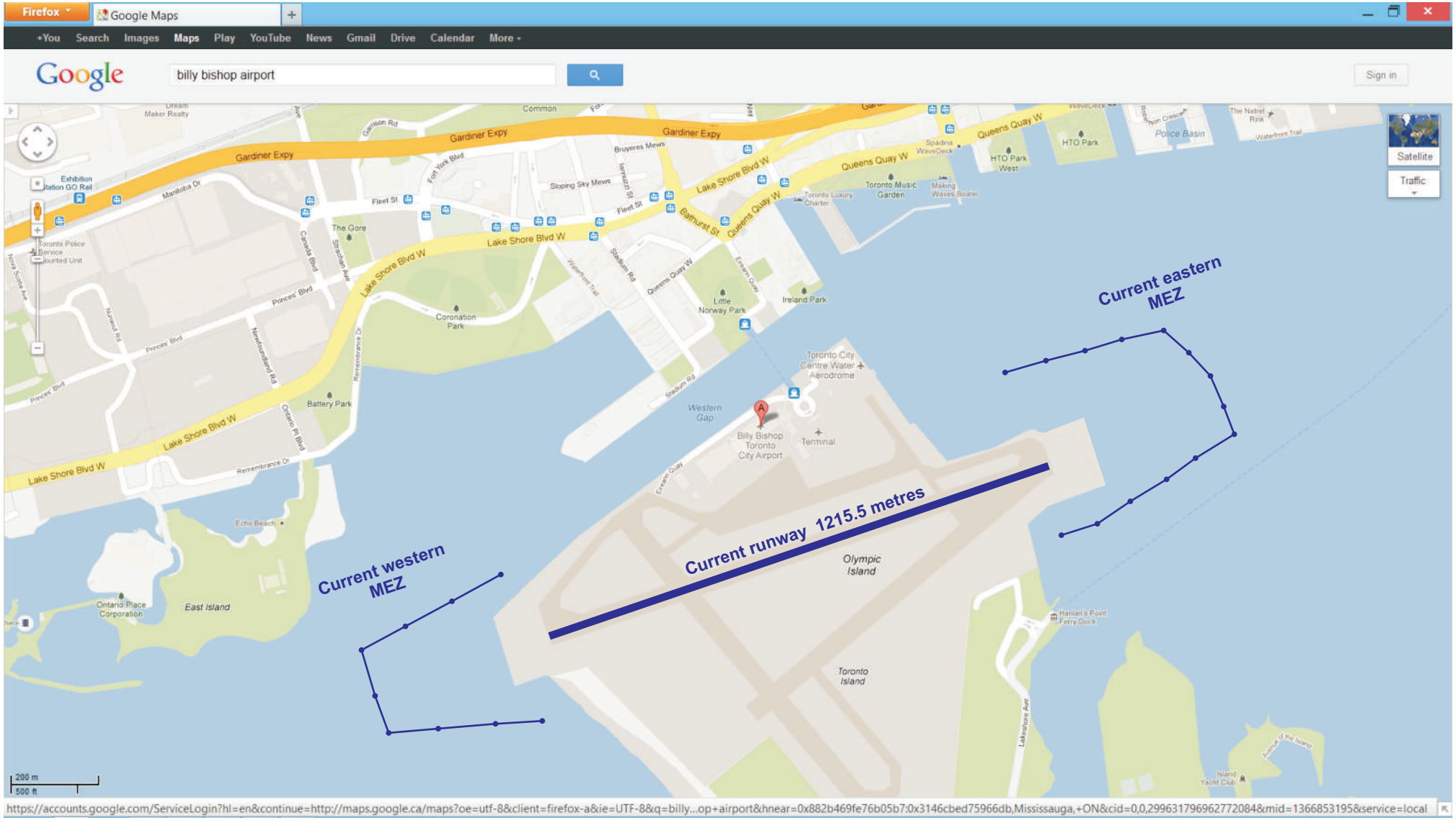
at

Billy Bishop Toronto City Airport

Rev. A06

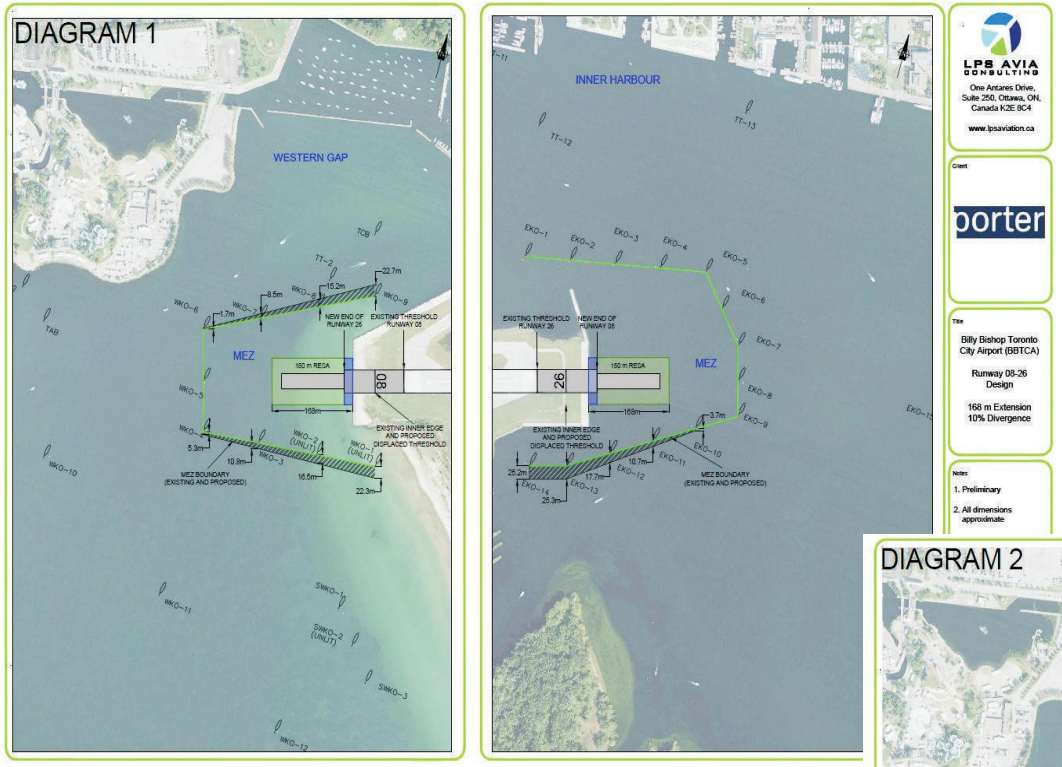
Runway Scenarios

The Current Reality

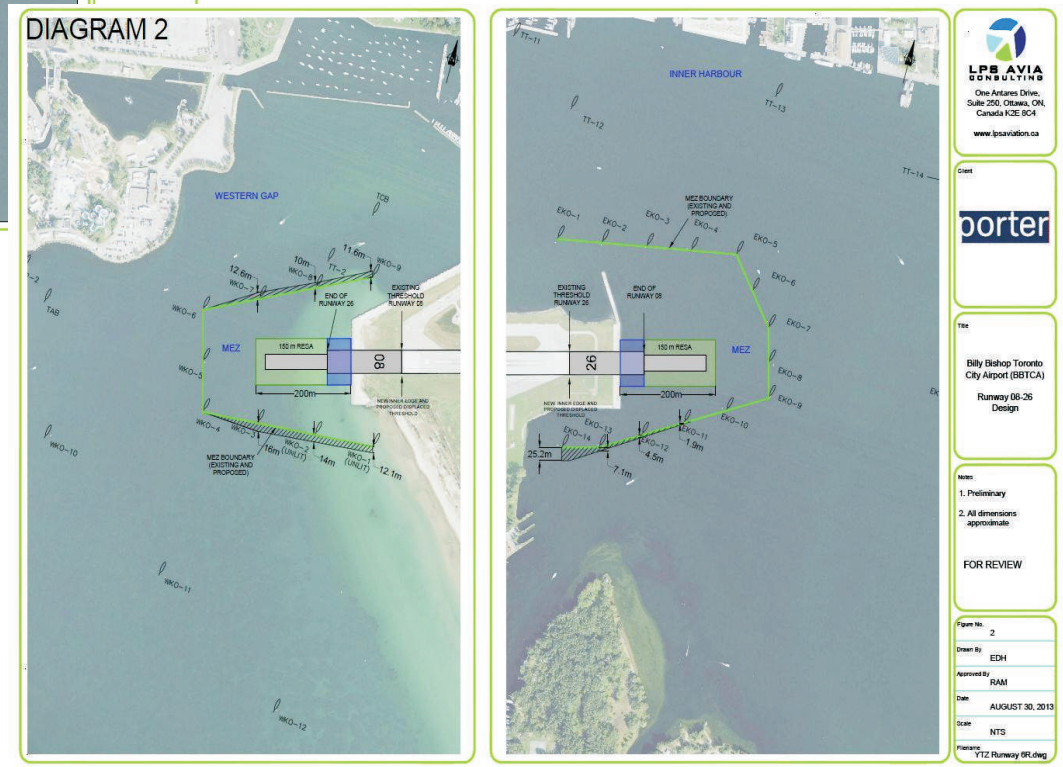


A 1215.5 metre main runway and two 309 metre Marine Exclusion Zones (MEZs).

Porter Airlines has now presented two airport expansion plans to the public.

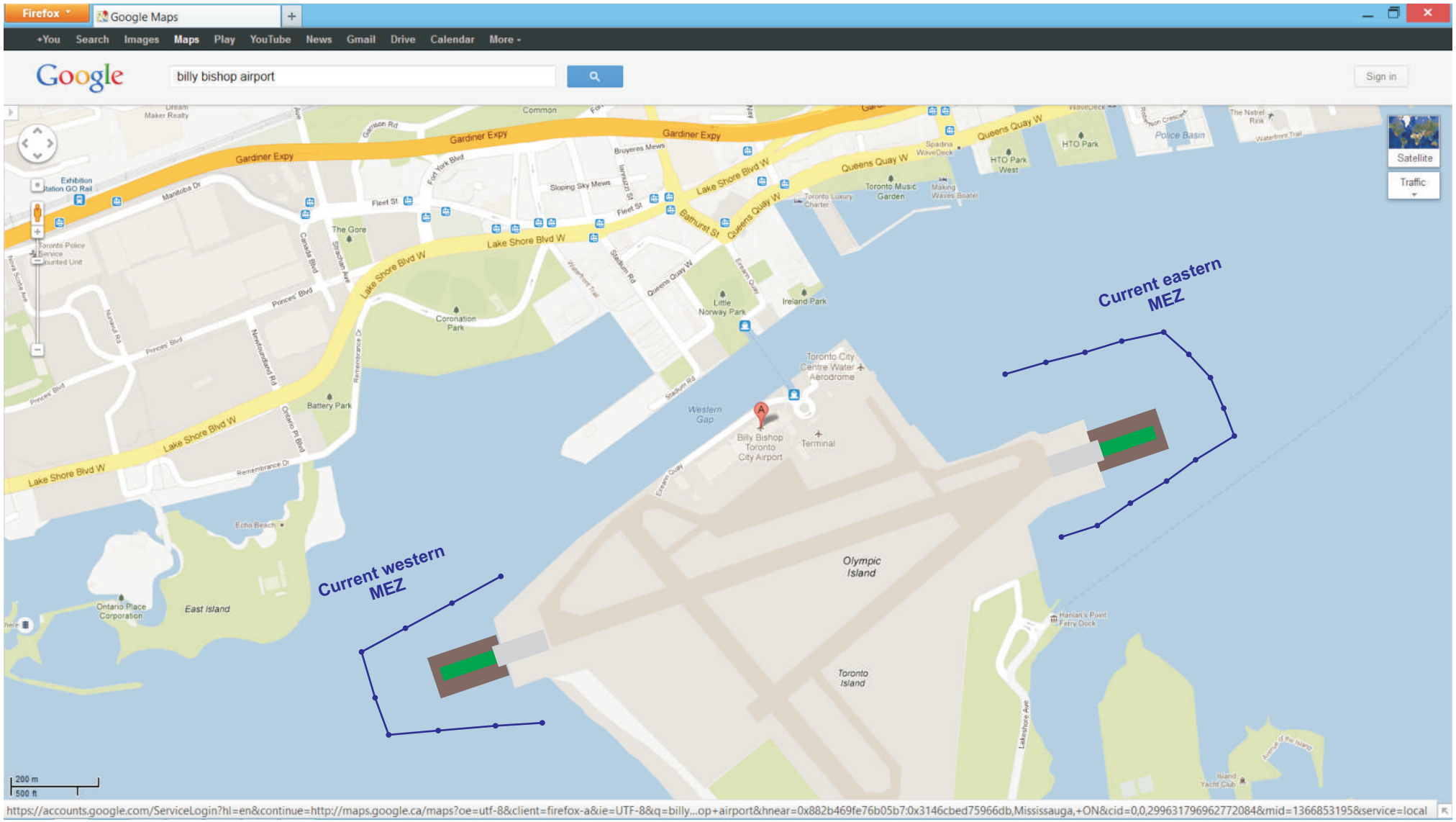


Option 1: 336 metres (168 metres added to each runway end)



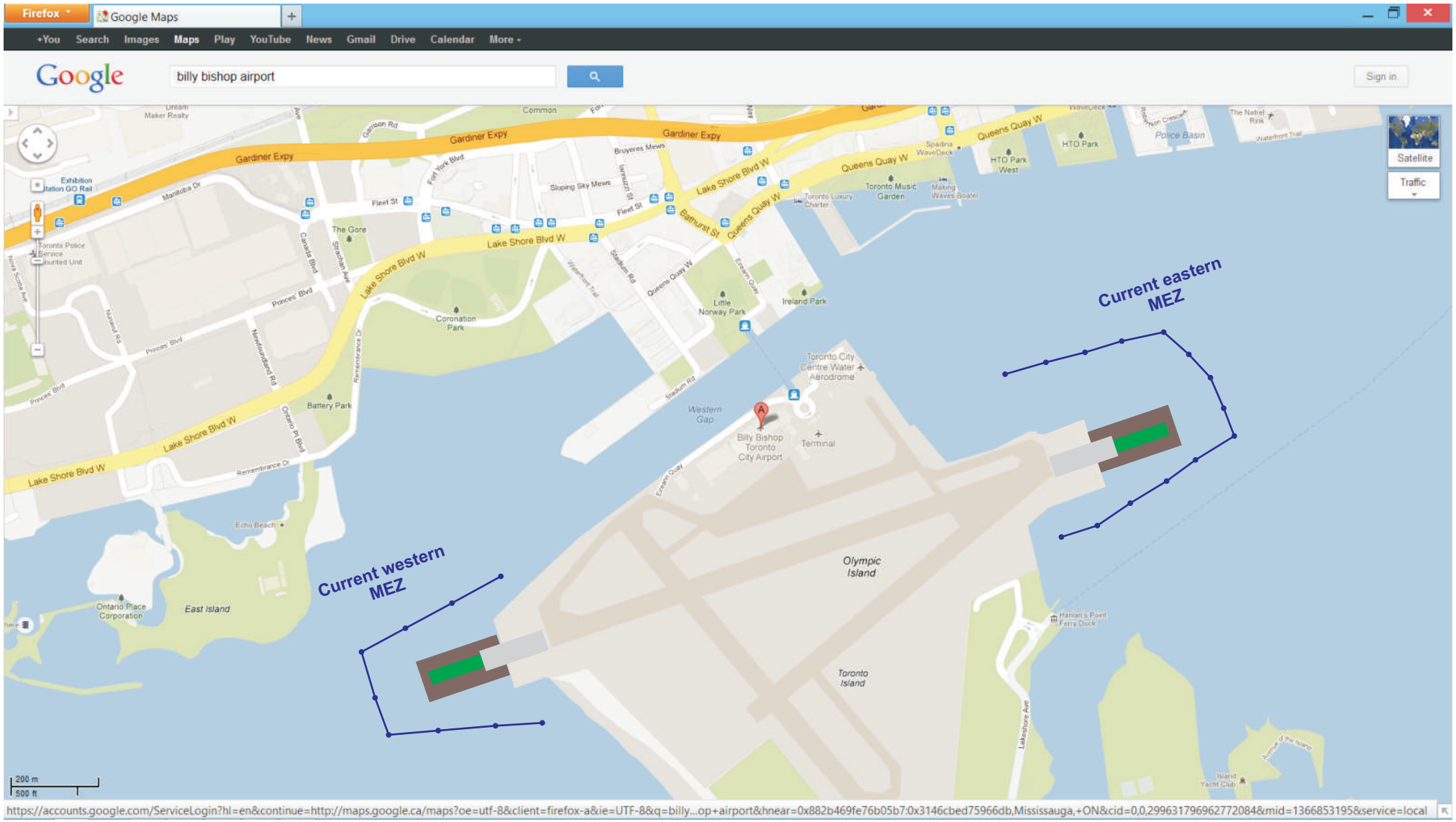
Option 2: 400 metres (200 metres added to each runway end)

Porter Option 1: 336 Metres



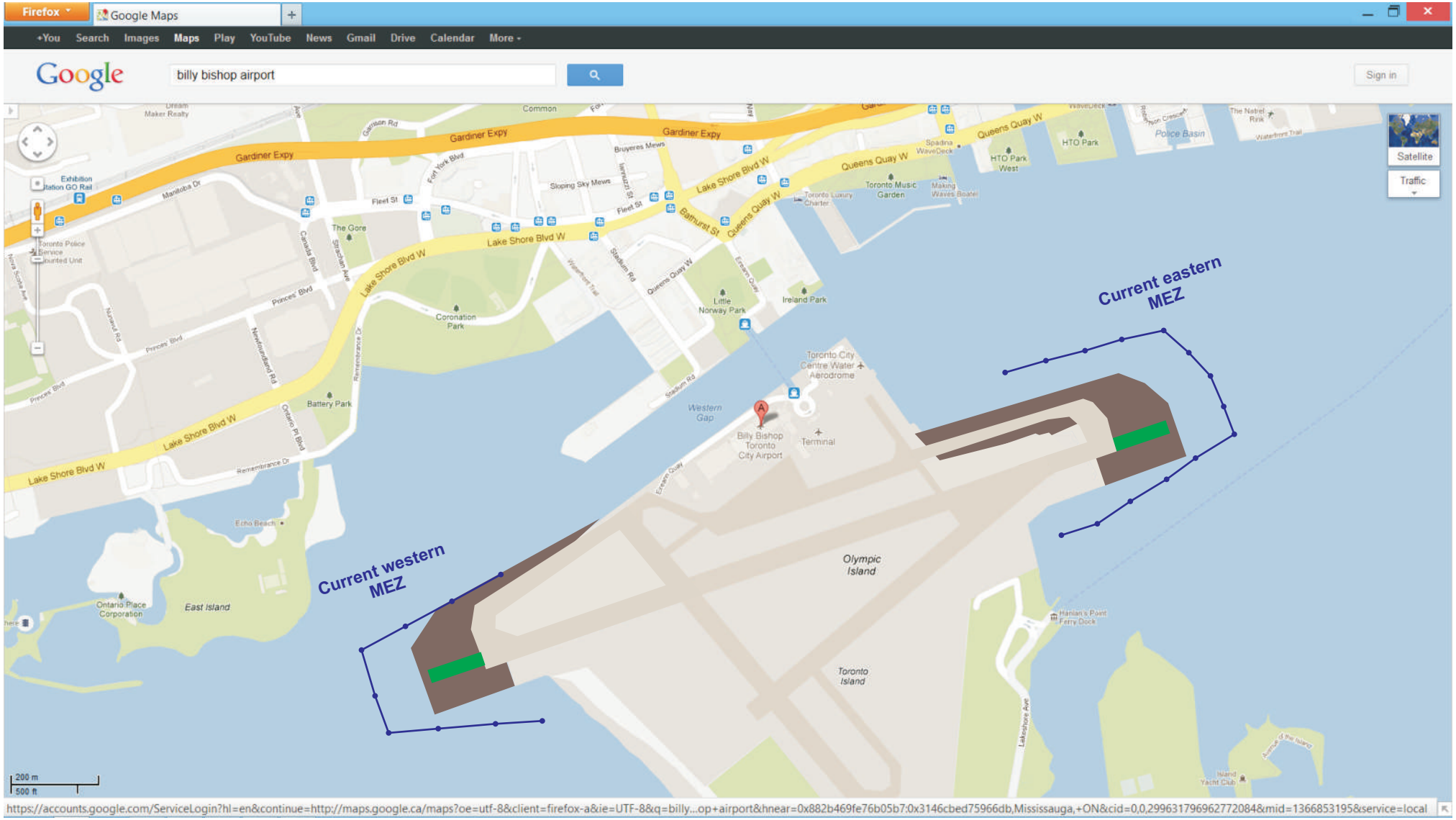
(168 metres added to each runway end)

Porter Option 2: 400 Metres



(200 metres added to each runway end)

These illustrations do not show an expansion of taxiways, a logical outgrowth of the plan.



Extending taxiways would entail considerably more filling, more like this.

Air France, August 2, 2005

The Air France incident, rare as it was, has nonetheless led to a review of Runway End Safety Area (RESA) requirements at Canadian airports.

Transport Canada
http://www.tc.gc.ca/eng/civilaviation/publications/tp185-6246.htm

Transportation Safety Board
http://www.bst-tsb.gc.ca/eng/recommandations-recommendations/aviation/2007/rec_a0706.asp

"Air Canada Component" site of Canadian Union of Public Employees (CUPE)
http://www.accomponent.ca/en/news/air-france-aftermath-transport-canada-looking-extend-runway-overrun-zones

ICAO Aerodrome Standards
ICAO Annex 14 Volume I - Aerodrome Design and Operations, 5th Edition, 2009
[Defining aerodrome category (a factor determining RESA requirements), and defining Runway end safety areas]

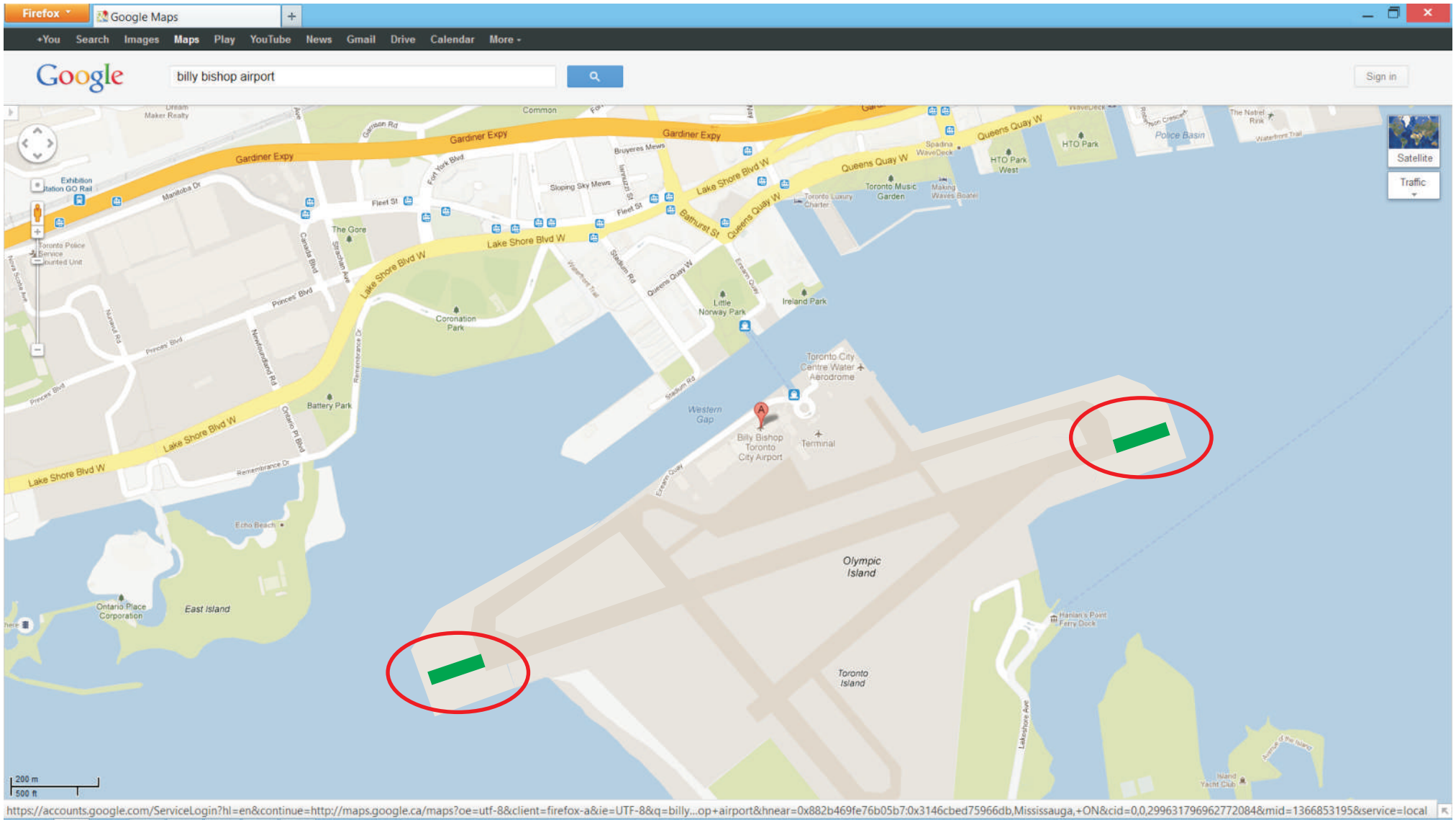
Asiana Airlines Flight 214, July 6, 2013

San Francisco Airport has substandard RESAs

Lion Air Flight 904, April 13, 2013

1.1 km short of runway seawall

Future Transport Canada Requirement

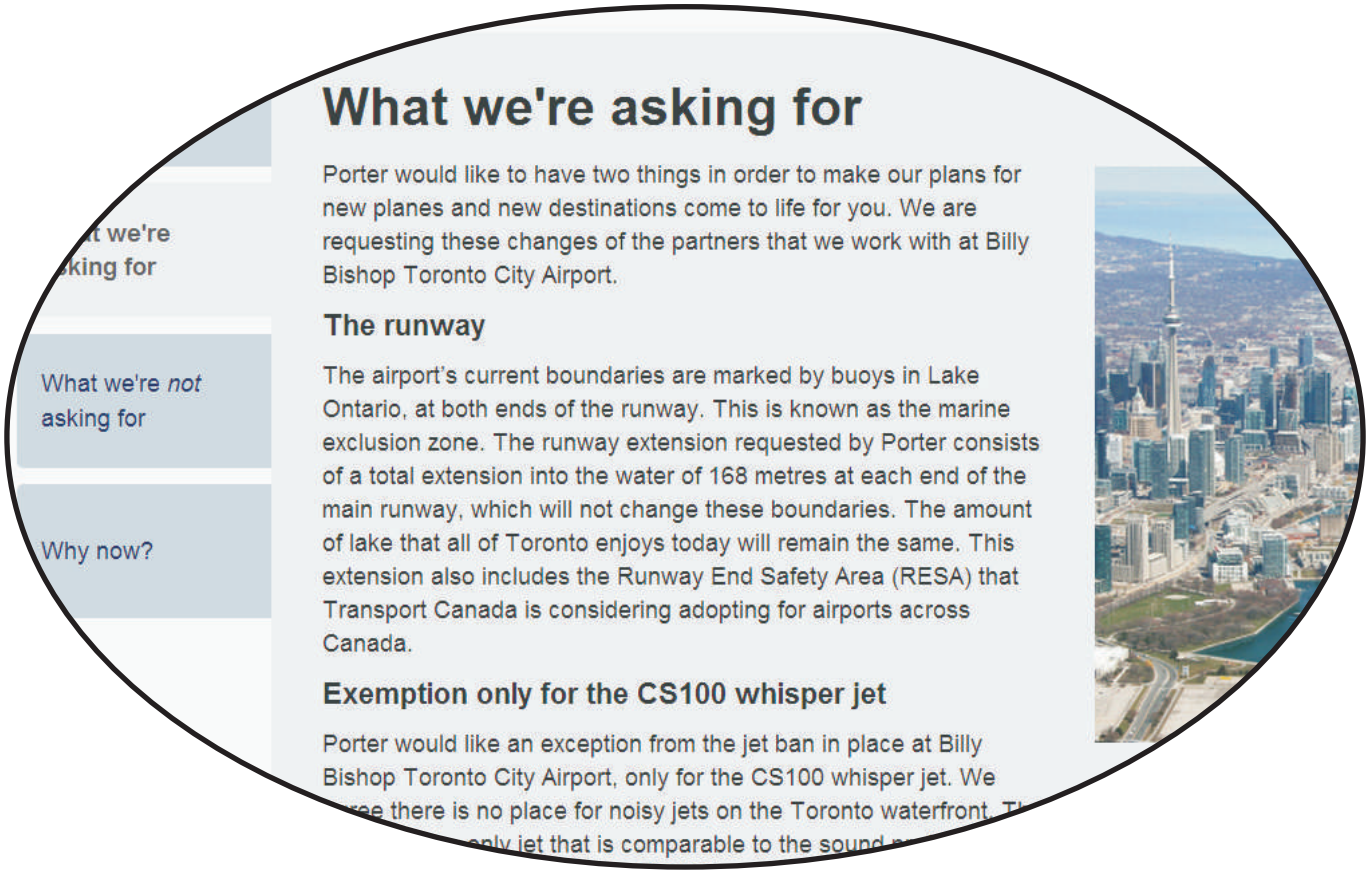


150 metre Runway End Safety Areas (RESAs) at the ends of such runways.

NOTE: Porter expansion + Transport Canada RESAs together fit inside the current MEZs. So Porter states:

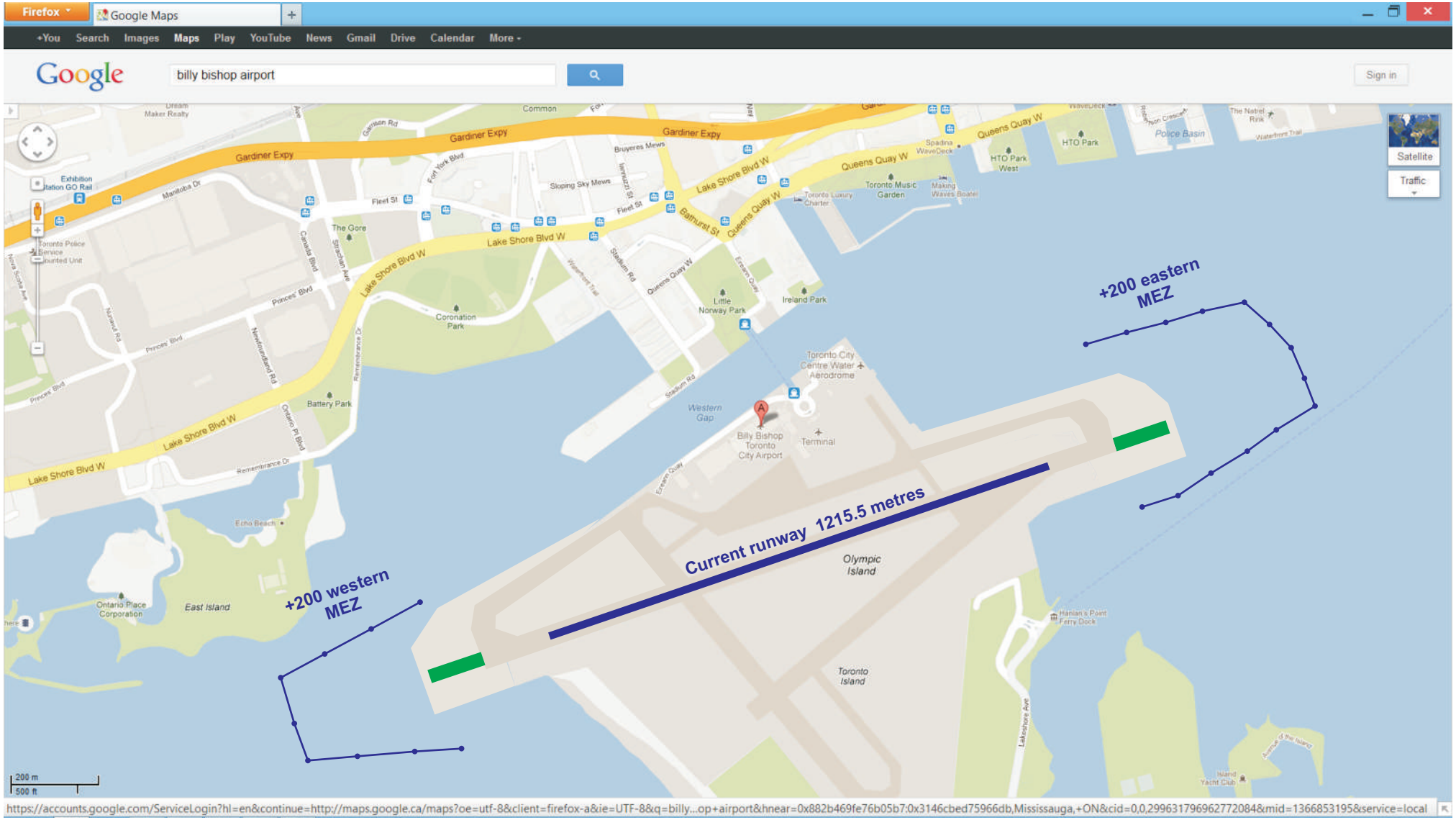
" The amount of lake that all of Toronto enjoys today will remain the same."

— Porterplans.com



But the logic of MEZs remains,
and if the landmass moves outward, so must the MEZs.

Conservative Interpretation



The MEZs move out by the total degree of the expansion, but do not otherwise change in response to new aircraft or regulations.

Consequences of Either the 336 or 400 Metre Scenario:

No safely navigable Western Gap

Considerable encroachment into the inner harbour

When Marine Exclusion Zones are modified to suit regulations:

Navigation through the Western Gap would be blocked.

NOTE: none of these scenarios enlarge MEZs for jets, with their flatter angles of approach.

Transport Action Ontario

report of September 23, 2013

"Essentially the western gap will be closed by the expansion of runway 08-26."

http://www.transport-action.ca/dc/TAO_TorontoIslandAirportSafetyZonesInterim-Sept23-13.pdf

Another Marine Threat: Jet Blast

- The effect of jet ground operations
- A function of jet thrust, weight, engine placement
- No public CS100 information yet exists
- Boeing 737-600, 737-700 are close equivalents

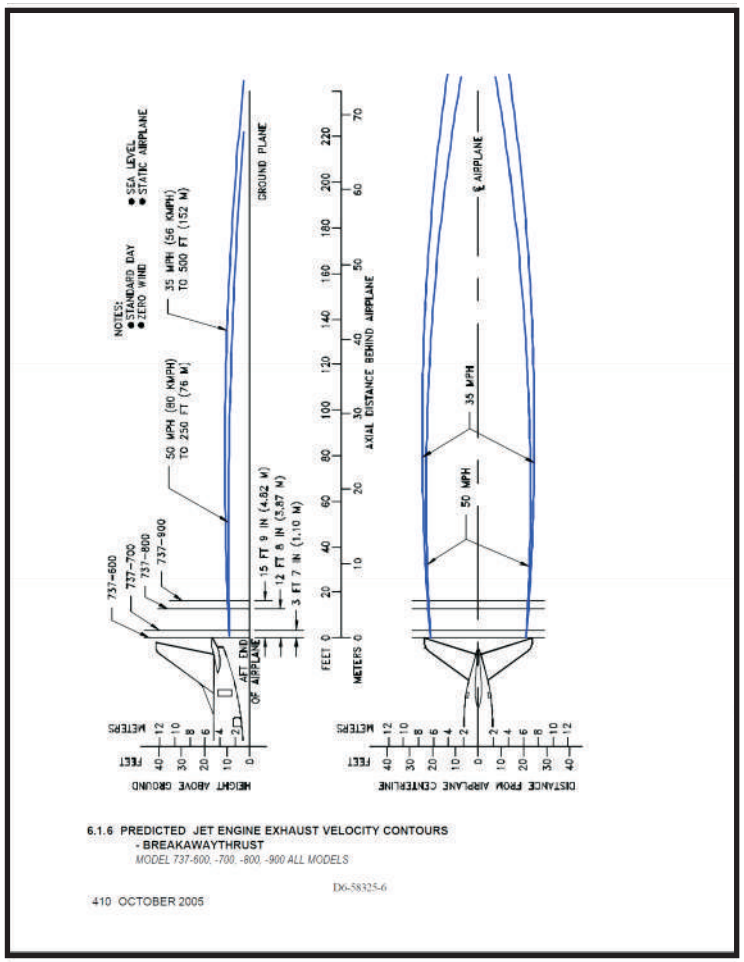
Backgrounder: http://asrs.arc.nasa.gov/publications/directline/dl6_blast.htm

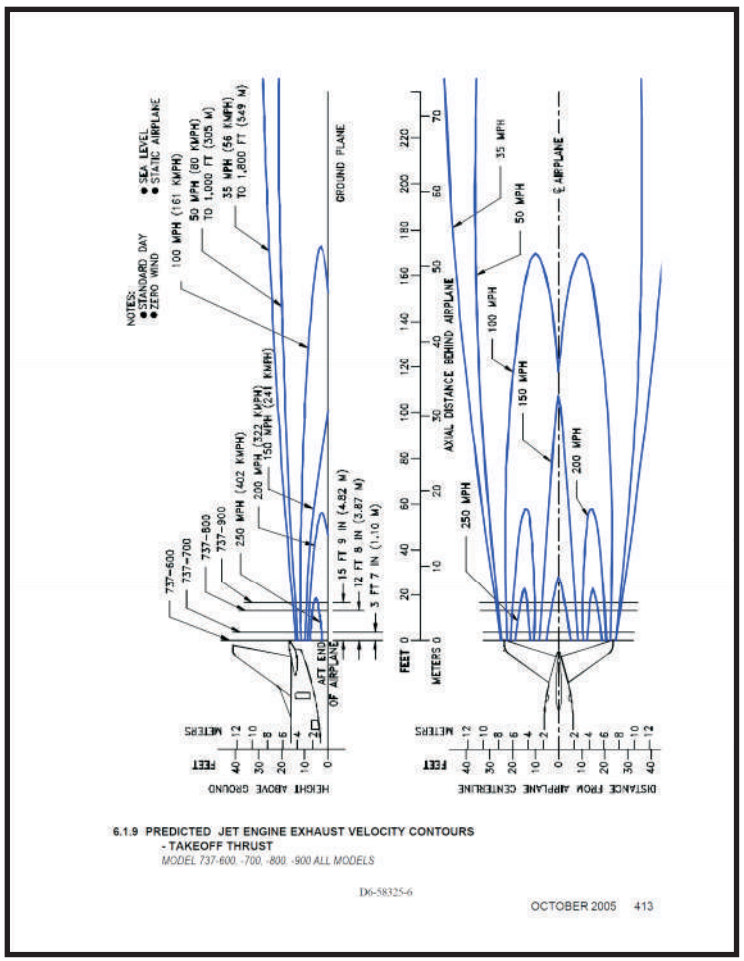
Airbiz Consultancy report to the City

"A jet blast analysis would be recommended for all new aircraft types under consideration for use at the BBTCA to ensure the compatibility of aircraft operations with marine operations."

http://www.toronto.ca/bbtca_review/pdf/city-airbiz-interim-findings-062513.pdf page 5.

Boeing 737-600/700 Data



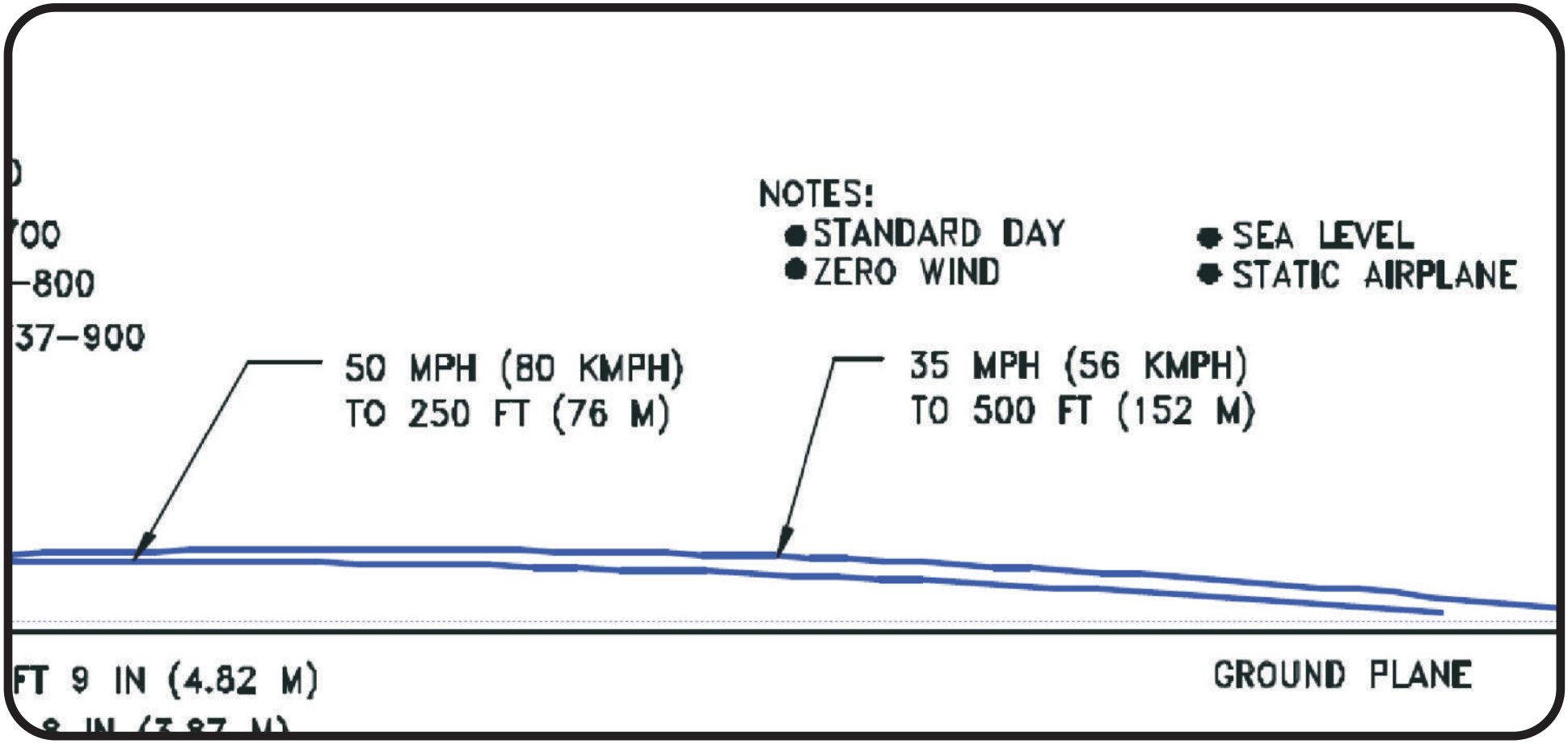


Breakaway Thrust Engine Exhaust Velocity Contours

Takeoff Thrust Engine Exhaust Velocity Contours

http://www.boeing.com/boeing/commercial/airports/737.page
http://www.boeing.com/assets/pdf/commercial/airports/acaps/737sec6.pdf

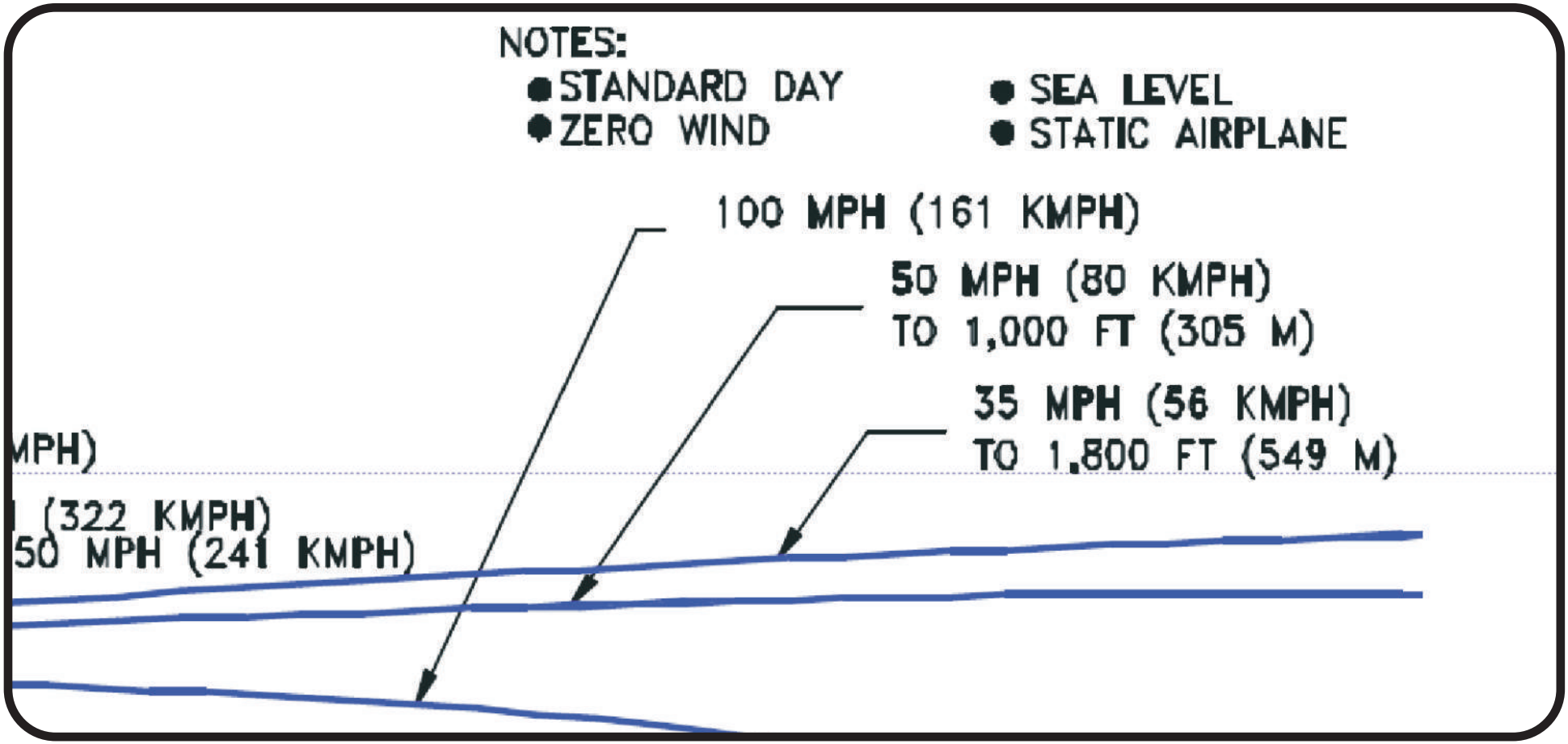
Breakaway Thrust



50 MPH breakaway blast zone of approximately **250 feet**

35 MPH breakaway blast zone of approximately **500 feet**

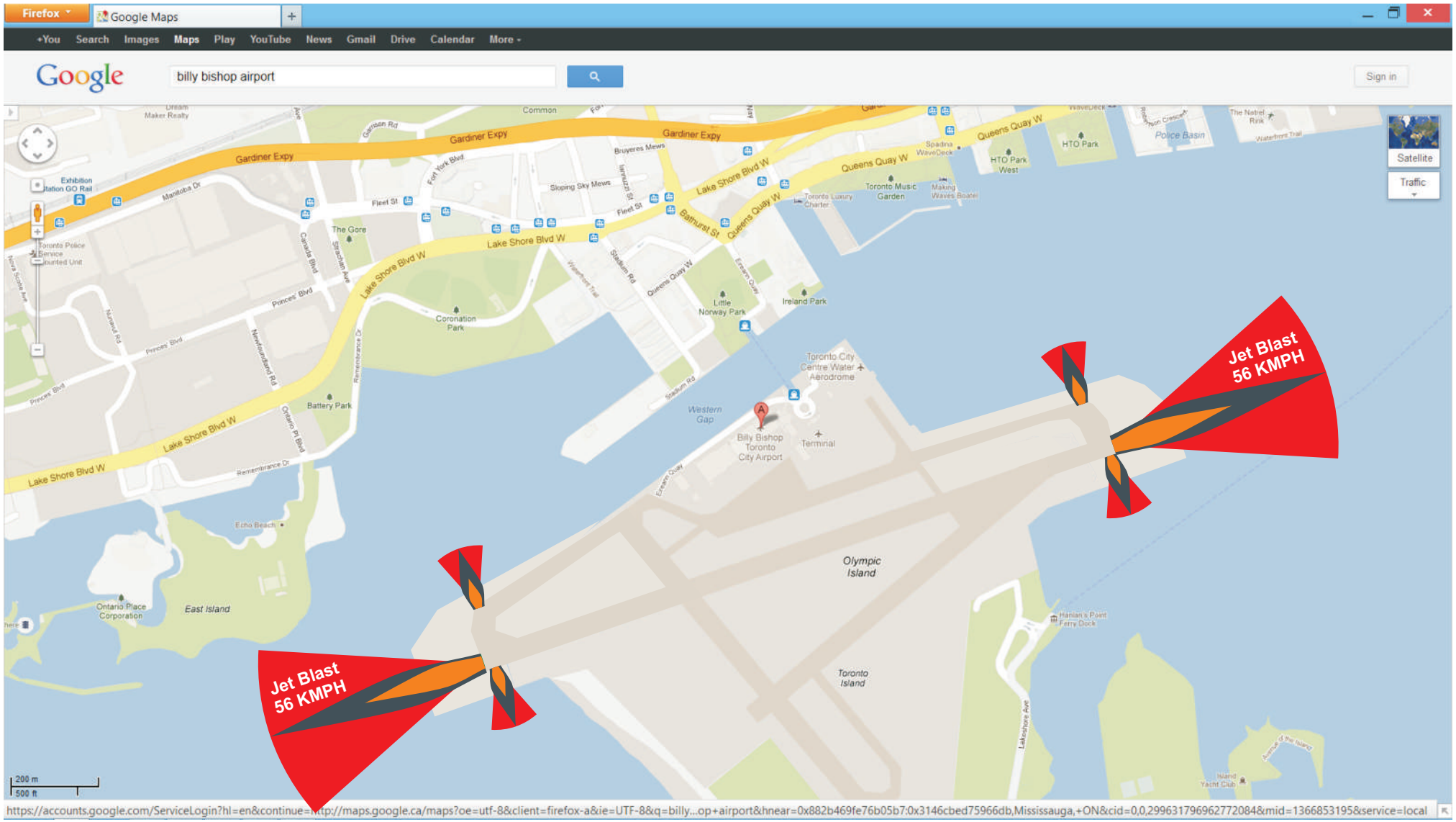
Takeoff Thrust



50 MPH takeoff blast zone to 1000 feet

35 MPH takeoff blast zone to 1800 feet

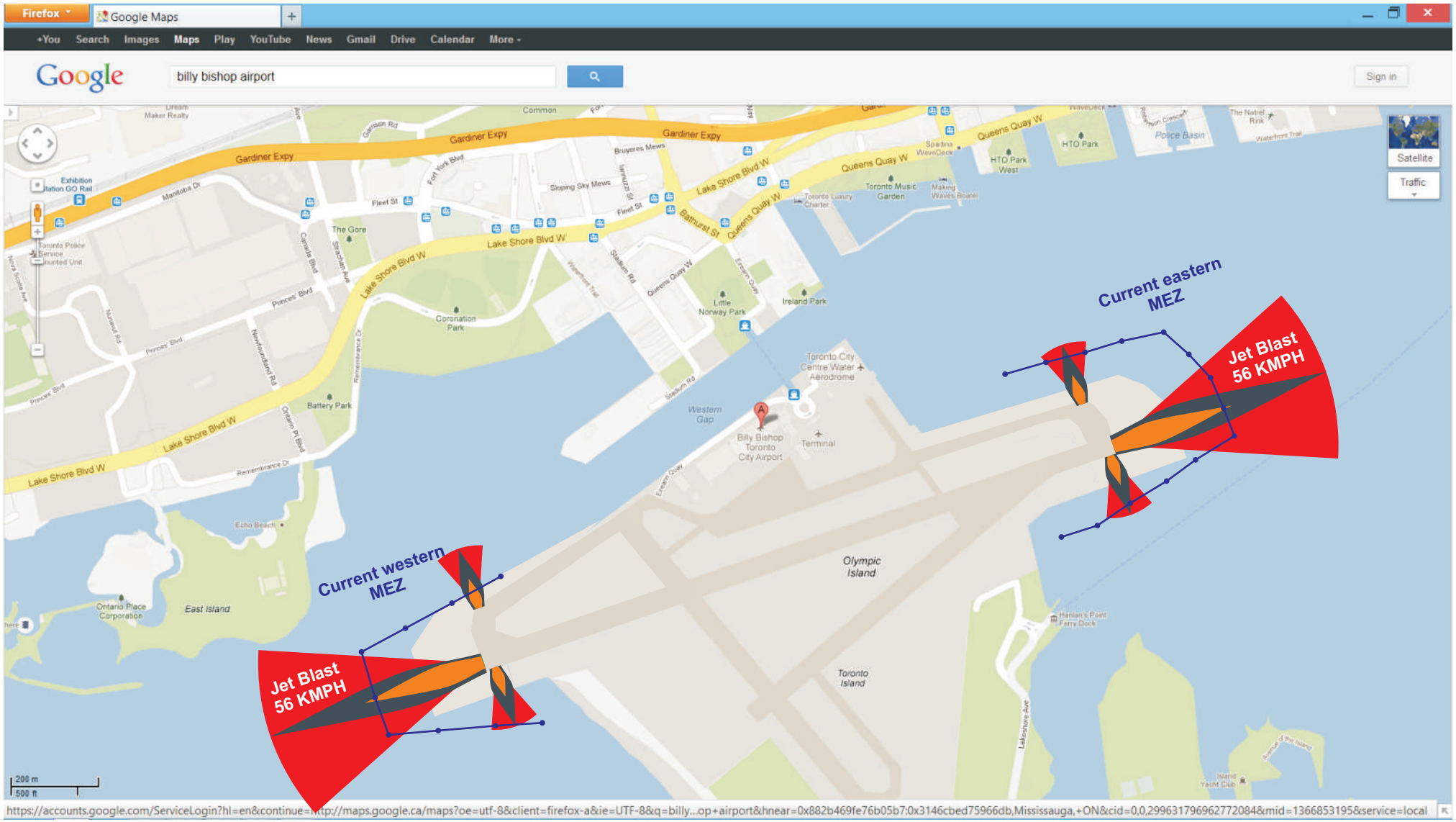
Jet Blast Areas



Note: Orange areas conservatively depict deflection of jet blast envelopes by ambient winds, as described in Boeing data sheet

http://www.boeing.com/boeing/commercial/airports/737.page

Jet Blast Areas



Jet blast areas greatly exceed current MEZs.

These jet blast areas are in themselves

a risk to boaters and a

reason the MEZs must increase

should BBTCA expansion proceed.

The LANDMASS EXPANSION needed

to accommodate this ambition

and the effects on MARINE EXCLUSION ZONES

of runway expansion would

be catastrophic to the waterfront.

Airplanes

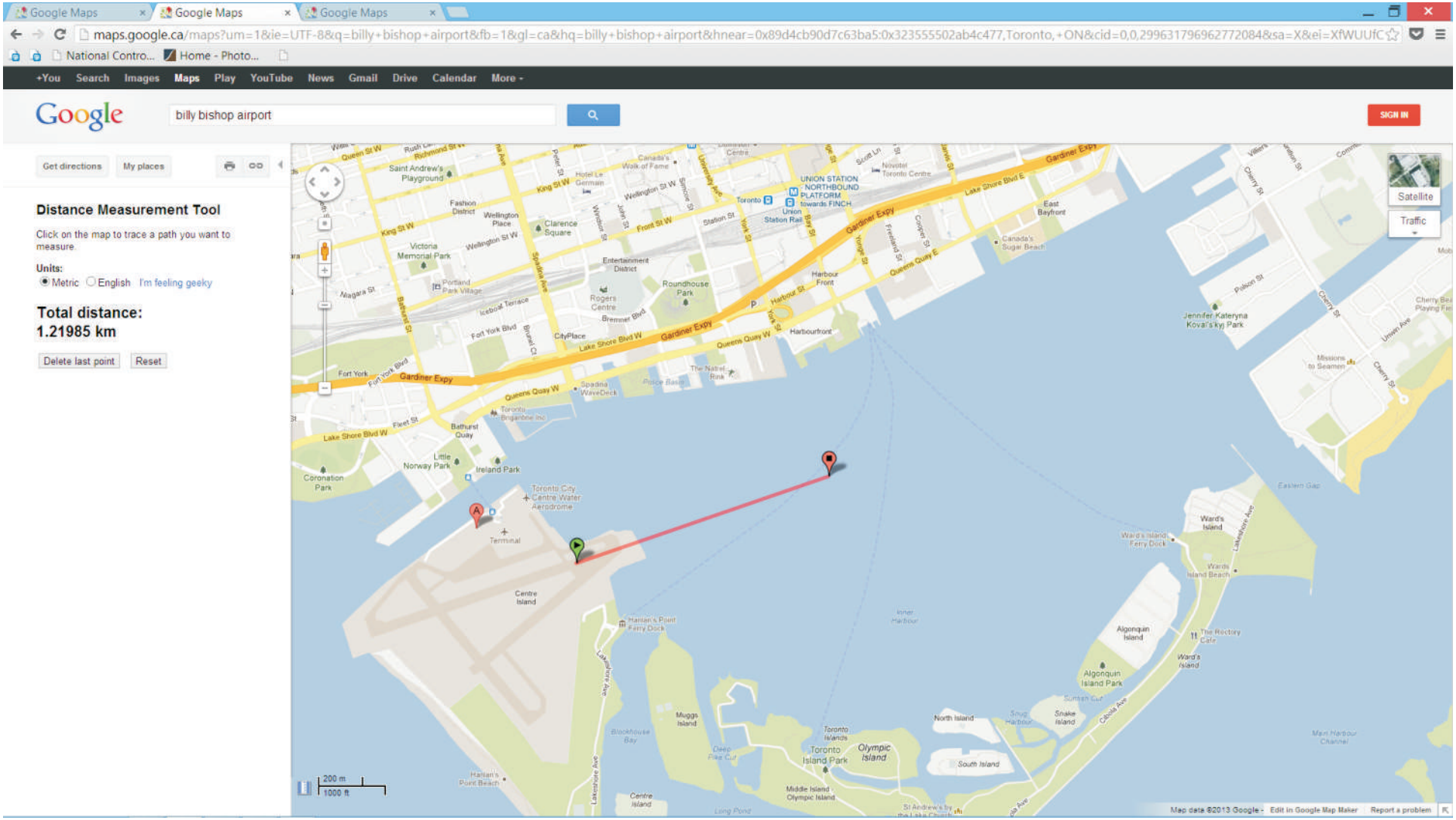
A lot of the discussion of the CS100 jet is abstract.

The CS100 had its maiden flight Sept 16 so its noise parameters are estimates.

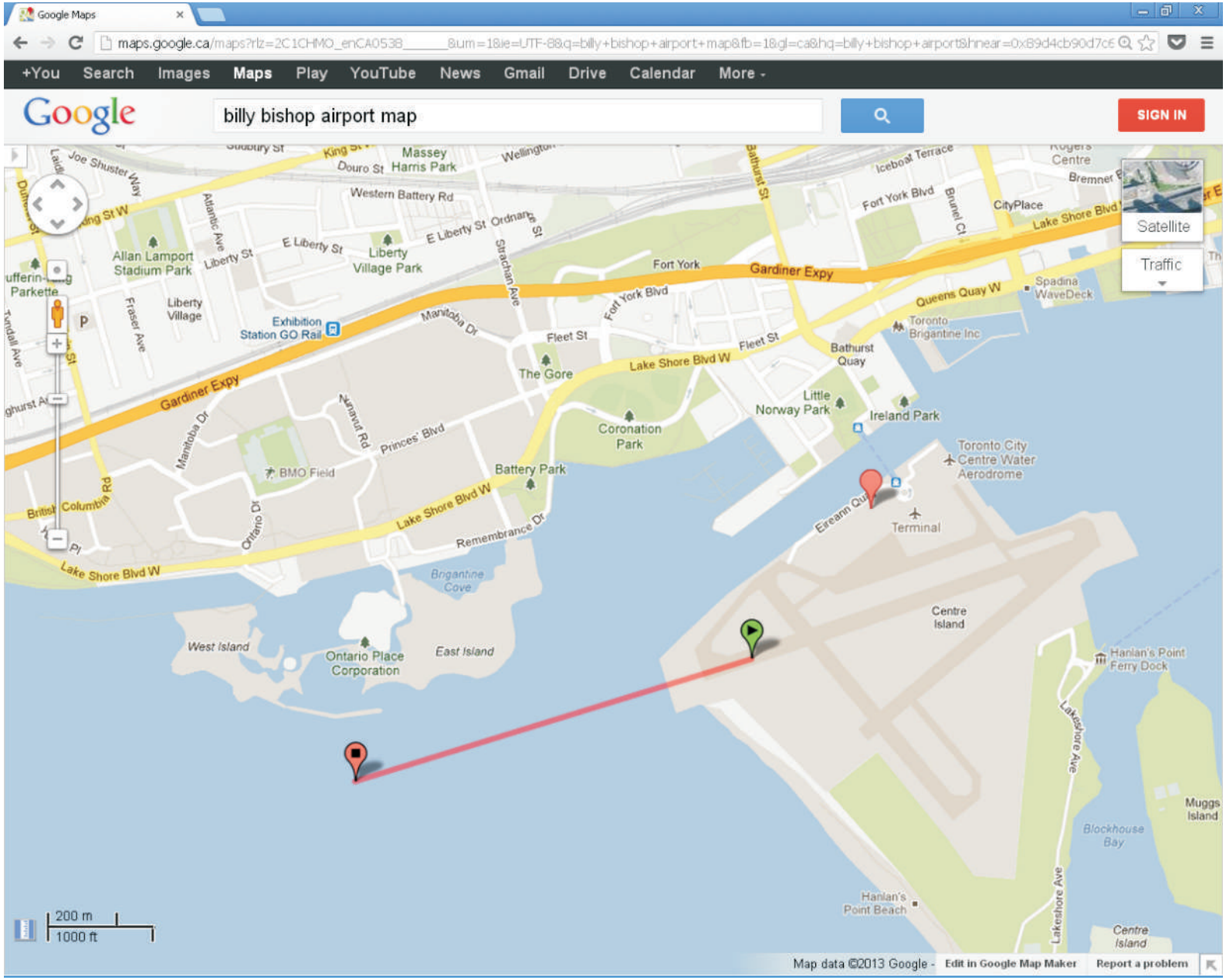
But we can know very well what it will look like and how large it will be.

Let's put it in the context of the Toronto waterfront.

Visualizing Things

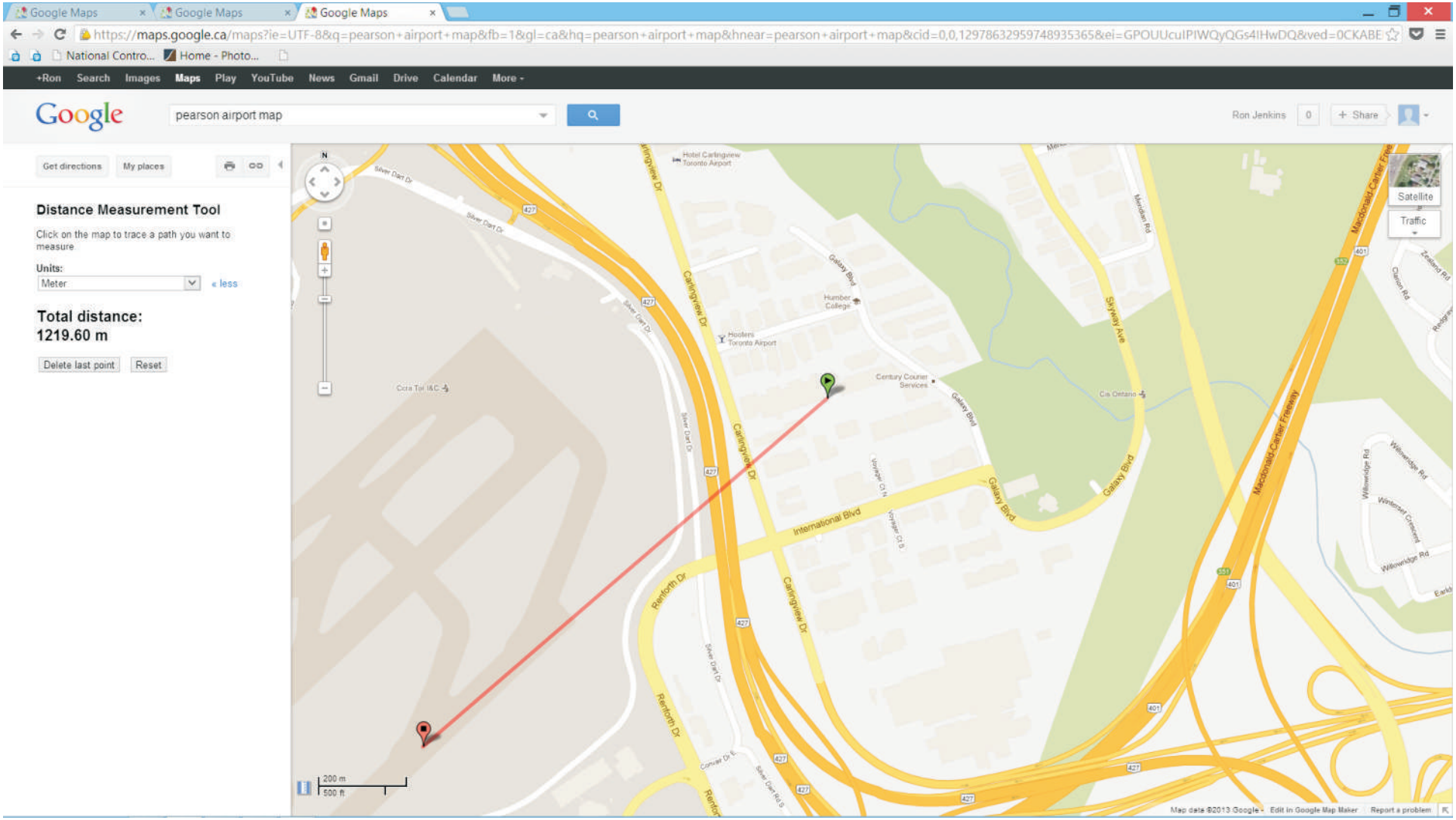


Halfway across Toronto Harbour is about 1.2 km from the usual touchdown point at BBTCA.



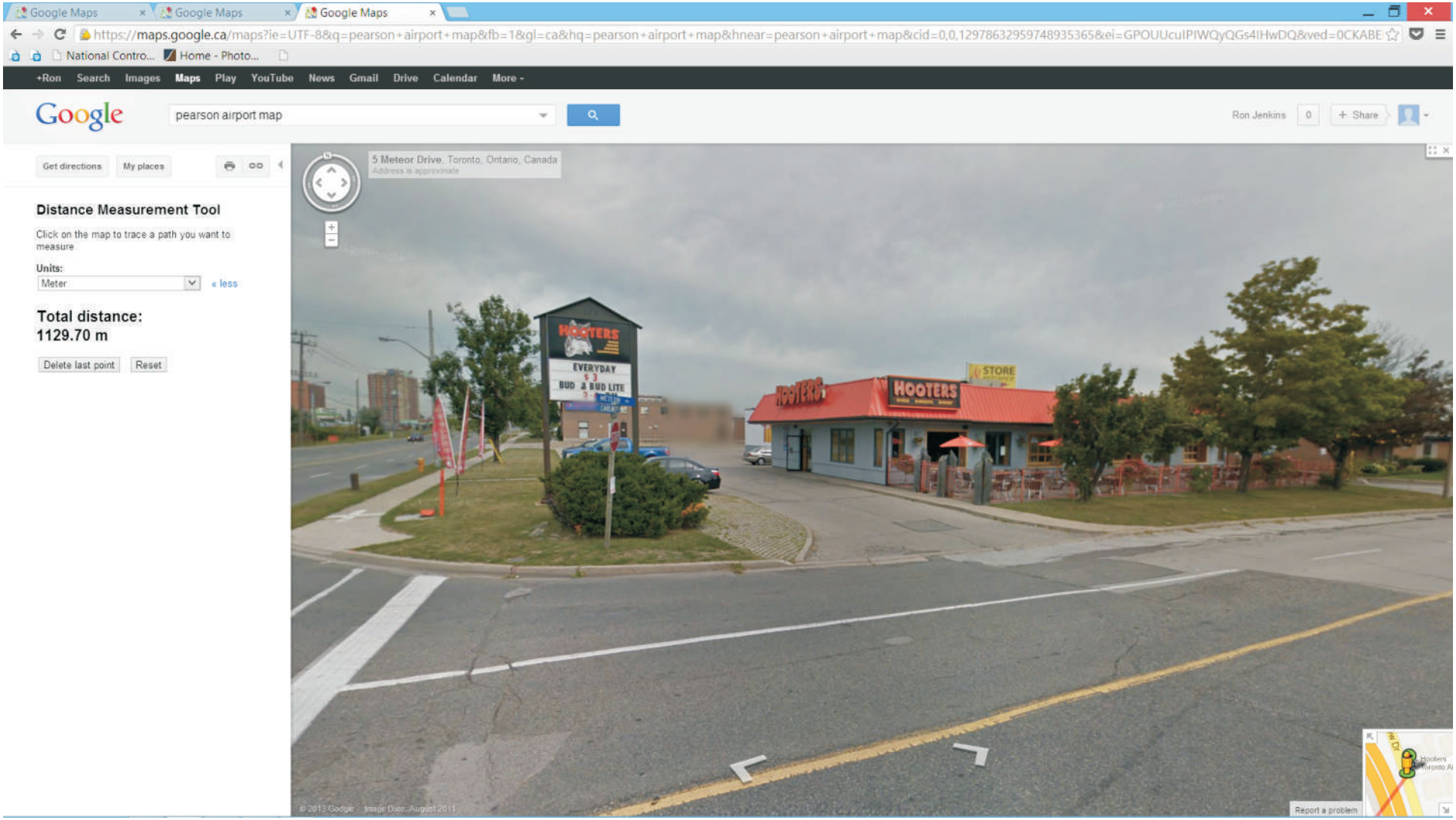
Ontario Place is also about 1.2 km from the usual touchdown point at BBTCA.

Visualizing Things



That same distance from the Pearson runway touchdown point is in the parking lot of an industrial unit.

Visualizing Things



Just around the corner from Hooters!
(1130 meters from the runway).

Here's a WestJet Boeing 737-600 at that distance.

(Photo with 45mm lens (not telephoto), not cropped).

Note that the Boeing 737-600 pictured is smaller than the CS-100 jets proposed to fly across the waterfront.

	Boeing 737-600	Bombardier CS-100
Overall length	102 ft 6 in (31.2 m)	114 ft 9 in (35.0 m)
Wing span	112 ft 7 in (34.3 m)	115 ft 1 in (35.1 m)
Tail height	41 ft 3 in (12.6 m)	37 ft 8 in (11.5 m)
Passengers (typical configuration)	110	110

http://www.boeing.com/boeing/commercial/737family/pf/pf_600tech.page

http:// media.bombardiercms.com/cseries/medias/cseries/galleries/ cseries_download_high_en_2ad637.pdf

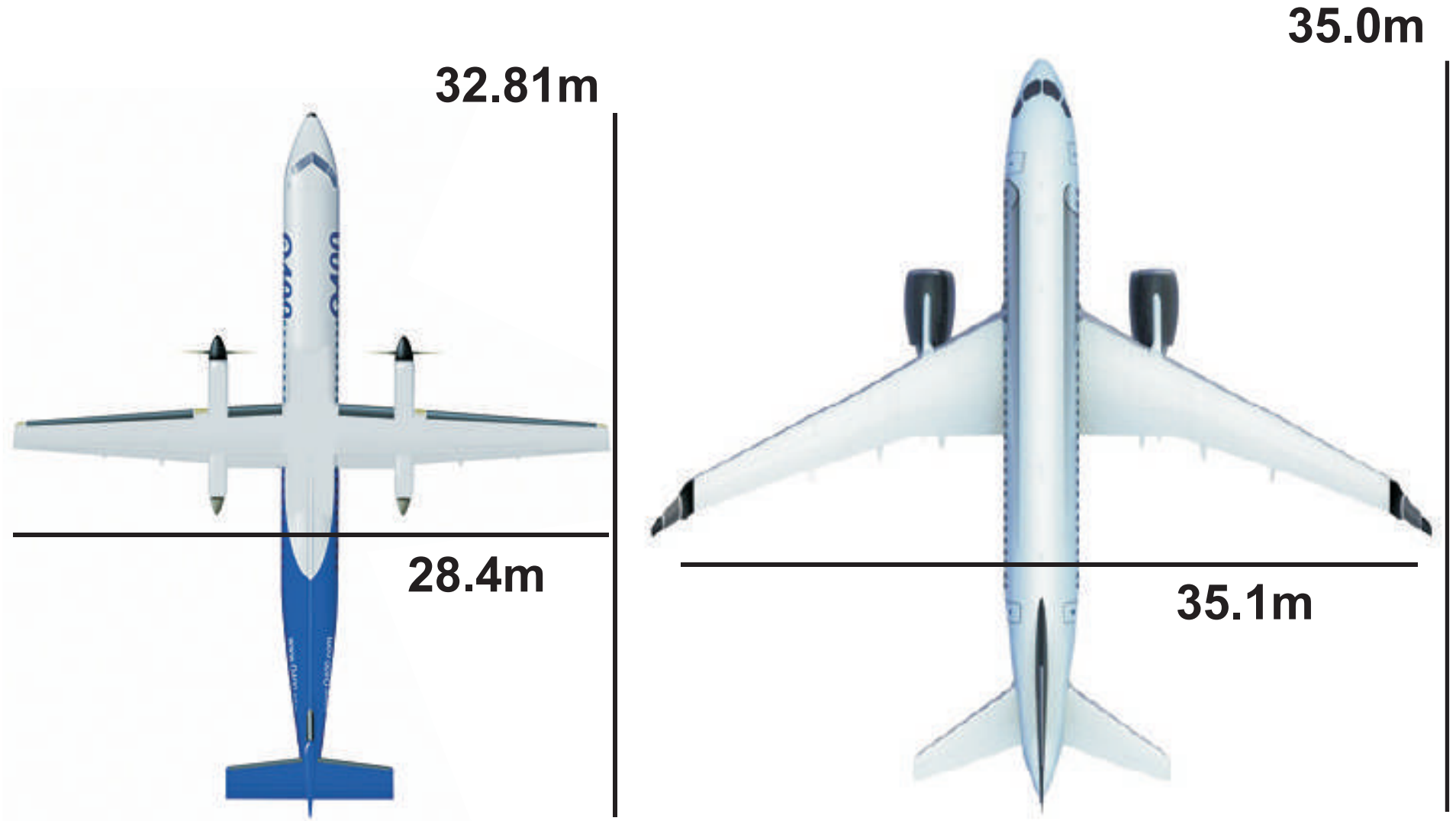
Jets of the sort Porter wants typically approach at about
a 3 degree angle of descent.

That means at **mid-harbour** or at **Ontario Place**
the jets will be
about **64 metres** above the water.

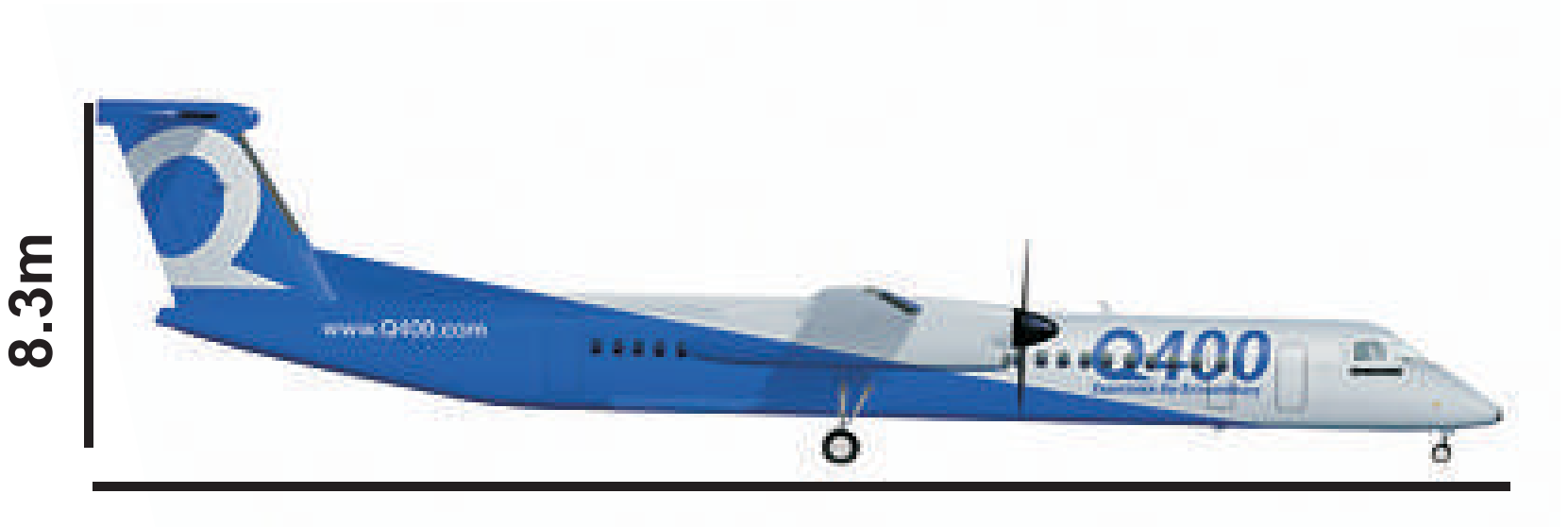
And that's assuming no runway expansion
into the harbour.

At the end of the **CURRENT** marine exclusion zone
you are far closer to the BBTCA runway
than Pearson Airport allows people to approach,
so I was not able to get a photo that close.

Let’s look at Q400 and CS100 physical dimensions.



The planes are shown to scale.



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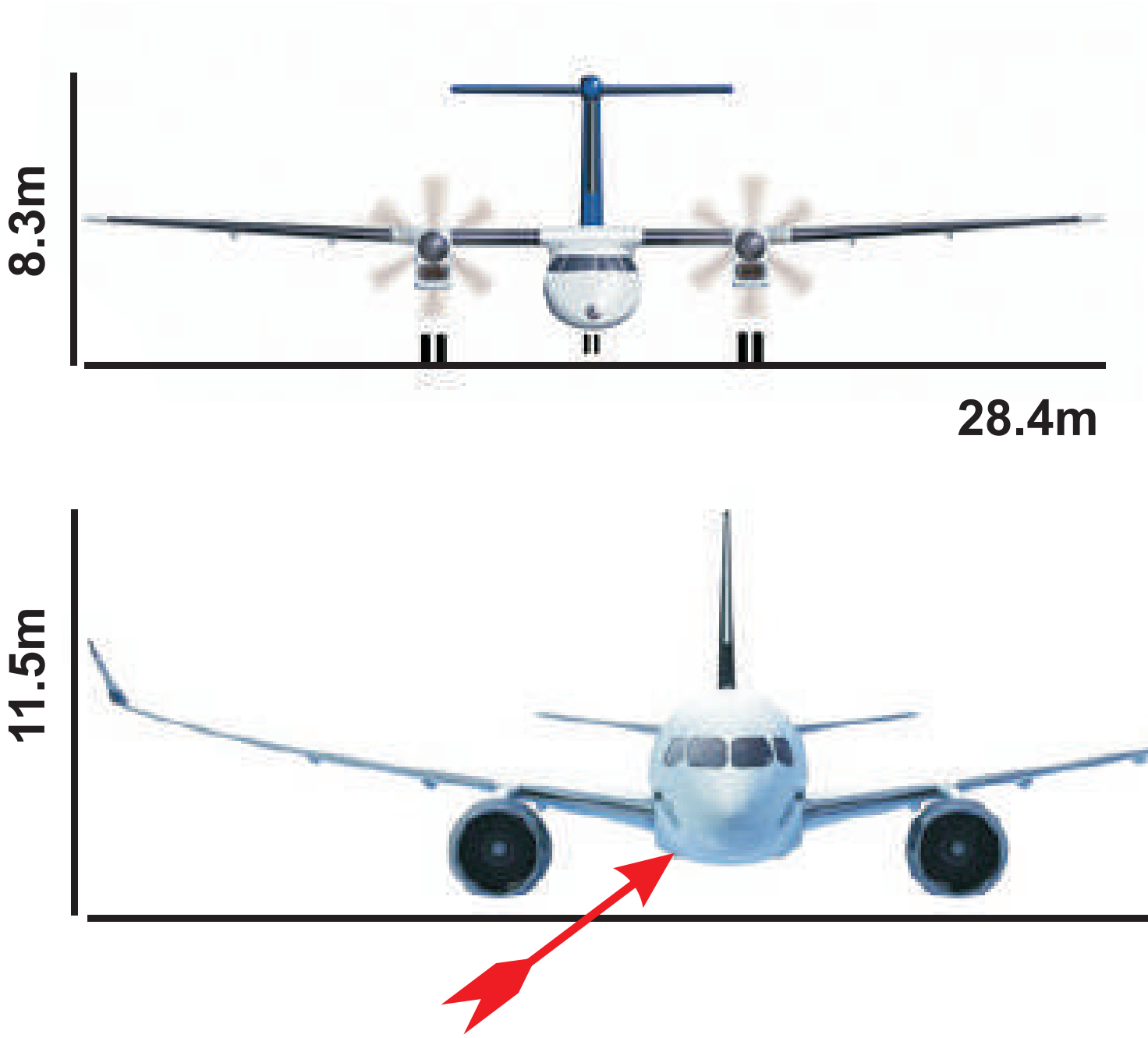


This one's kinda chunky.

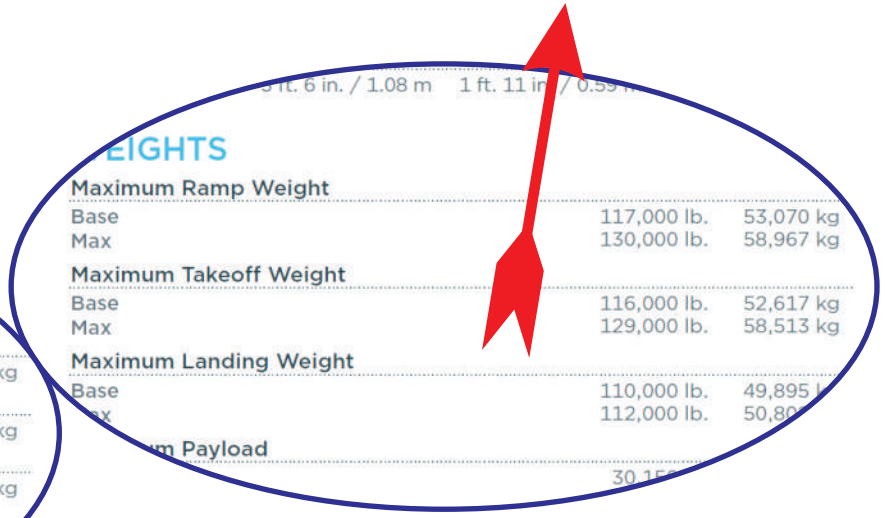
The planes are shown to scale.

That's because it weighs

TWICE AS MUCH!

Q400: 29,574 kg

CS100: 58,513 kg



That info's in the spec sheets too.

Regardless of noise profile,

regardless of pollution,

regardless of a jet ban already in place,

SIZE ALONE

makes the CS100 totally inappropriate in the context of the Toronto waterfront.

Jets and Bird Strikes

"The engines of most large jet aircraft in service are certified to achieve a safe shutdown after ingesting a bird of 4 lbs. in weight.

This certification does not support an engine that ingests multiple birds or a single large bird."

— Transport Canada

http://www.tc.gc.ca/eng/civilaviation/standards/aerodromeairnav-standards-wildlifecontrol-birdhazards-930.htm


to 1.5 lbs
Ring-Billed Gulls


Double-Breasted
Cormorants
to 5.5 lbs


to 19.8 lbs
Canada Geese


Mute Swans
to 25.4 lbs
©Harold Stiver

Canada Geese meet US Airways 1549

January 15, 2009

"Ring-billed Gull populations in the Lower Great Lakes region have increased approximately 12% per year since the mid 1970s."

"Resident Canada Goose populations in the Toronto area are doubling every five years."

— Transport Canada

http://www.tc.gc.ca/eng/civilaviation/standards/aerodromeairnav-standards-wildlifecontrol-summaries-3808.htm

"Although it is not unusual for an individual goose to weigh more than 12 pounds, no aircraft turbine engine is designed to withstand the impact of birds weighing more than eight pounds."

http://www.tc.gc.ca/eng/civilaviation/standards/aerodromeairnav-standards-wildlifecontrol-bulletins-awmb25-85.htm


September 23,
2013

Shorebirds at a waterfront airport represent a significant and serious danger to jet aircraft operation.

Other Entrants to the BBTCA

Boeing 737

Robert Deluce doesn't want these at BBTCA.

Airbus A320

Robert Deluce doesn't want these at BBTCA.

Bombardier CS100

Robert Deluce thinks this one is fine.

Robert Deluce claims the CS100 is fine for BBTCA because it will be quieter than the Boeing 737s WestJet flies, or than the Airbus A320s used by Air Canada.


WESTJET


Air Canada

"Gregg Saretsky, WestJet chief executive, said by the time Porter's planes are delivered in 2016, his carrier's regional offering, Encore, will be up and running with a fleet of Q400s and WestJet would like access too.

He said his operations staff have already done calculations, and he believes WestJet could even land its 737s on the Island with a reduced capacity of 106 passengers if the runway is indeed extended to 5,100 feet as Porter's plan proposes."

— Financial Post

http://business.financialpost.com/2013/04/11/feds-willing-to-consider-review-of-porter-airlines-plan-for-downtown-toronto-airport-overhaul/

"Calin Rovinescu, Air Canada's chief executive, said he is not afraid of the added competition. But he said Billy Bishop is not the "private playground" for any one carrier and he would like to see greater access granted to other players."

— Financial Post

http://business.financialpost.com/2013/04/11/feds-willing-to-consider-review-of-porter-airlines-plan-for-downtown-toronto-airport-overhaul/

If those jets and carriers were permitted at BBTCA, it would be hard to logically exclude smaller business jets.

Logically enough,

Porter Airlines would like to maintain

its privileged position at BBTCA.

That does not mean that OTHER

ENTRANTS would not have strong claims

to the use

of this publicly owned and operated facility.

Other Considerations

- Negative community impacts on the Toronto Waterfront
- Negative environmental impacts
- Improved rail transit to Pearson under construction
- Waterfront Toronto's investment and positive payoff to date
- City-side traffic congestion and parking
- Losses of property values for waterfront residents
- Challenges to General Aviation (ie: non-commercial) access to the BBTCA

among many others.

Missing from Consultants' Studies

- Economic costs of diminished property values
- Costing for land-side improvements
- Costing for runway surface upgrades
- Costing of negative health effects
- Analysis of jet blast risks
- Analysis of bird strike risks
- Analysis of Porter Airlines's financial viability: alternatives to passenger levies

among many other considerations.

The Bottom Line . . .

Porter Airlines has found an aircraft that is slightly LOUDER than the Q400s it currently flies from BBTCA.

But . . . the CS100 is very likely considerably QUIETER than other similar commercial jets.

Consequently, this aircraft represents a wonderful opportunity for Toronto —

an opportunity to make life BETTER for Toronto residents living in the region of Pearson Airport . . .

. . . *NOT* to make things WORSE for residents and users of Toronto's waterfront!

Thank-you