

Toronto Pearson Enforcement Auditing Process

April 29, 2015



Toronto Pearson
International Airport | Aéroport International

Outline

Background

- **Objectives**
- **Aviation Noise Enforcement**
- **What are Noise Abatement Procedures?**
 - Arrival Procedures
 - Departure Procedures
- **Enforcement Audit Process**
 - Procedural Gate Analysis





Background




Objectives

A review of the Enforcement Auditing Processes was completed in 2014 as part of the Noise Management 5 Year Action Plan.

An objective of standardizing the Enforcement Auditing Process related to aircraft operations was established.

The Airport Noise and Operations Monitoring System (ANOMS) software purchased for Noise Management in 2012 has tools which can automatically detect potential violations of aircraft operating rules.



Aviation Noise Enforcement Program

PURPOSE

Monitor compliance of:

Noise Abatement Procedures (NAPs)

- departure procedures
- arrival procedures
 - visual approaches
 - instrument approach

Noise Operating Restrictions


- nighttime restrictions

Investigate Potential Violations of the NAPs and Restrictions

What are Noise Abatement Procedures?

Canada Air Pilot (CAP) publishes noise reduction procedures that must be followed by all flight crews. Toronto Pearson has noise reduction procedures for arrivals and departures designed to limit the impact of noise on surrounding communities.

Noise abatement procedures apply to jet aircraft at all times, and to propeller aircraft between 11 p.m. and 7 a.m. Unless safety is in question, pilots are required to comply with the Noise Abatement Procedures.



Noise Abatement Procedures

ARRIVAL PROCEDURE

Consistent with safety, crews shall minimize approach noise. For all approaches including visual approaches:

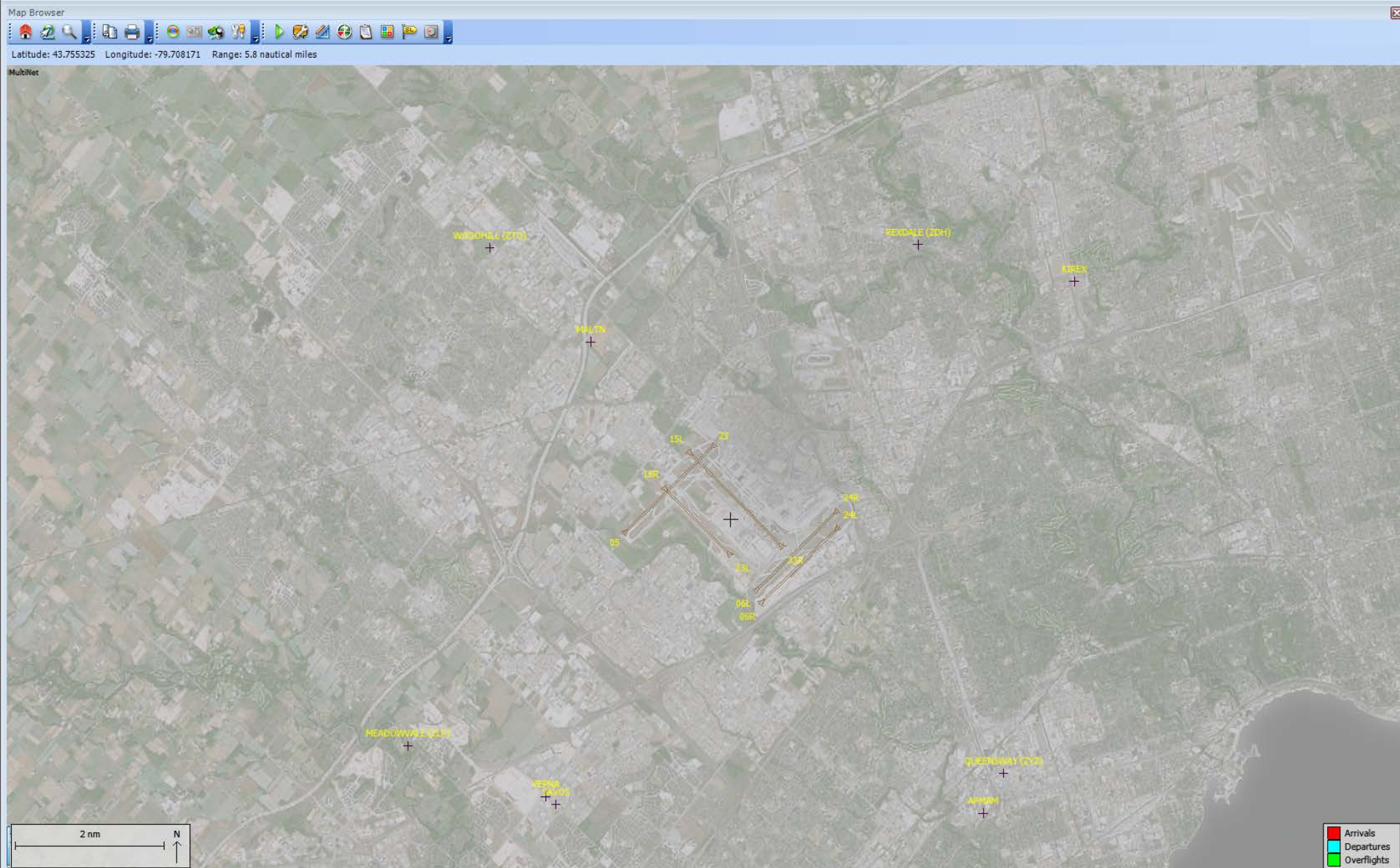
- Maintain 3000' ASL (above sea level) or above until intercepting extended runway centreline, and;
- Intercept extended runway centreline at or outside Final Approach Fix, then;
- Remain on or above glide slope or assumed 3.0° glide slope

Noise Abatement Procedures

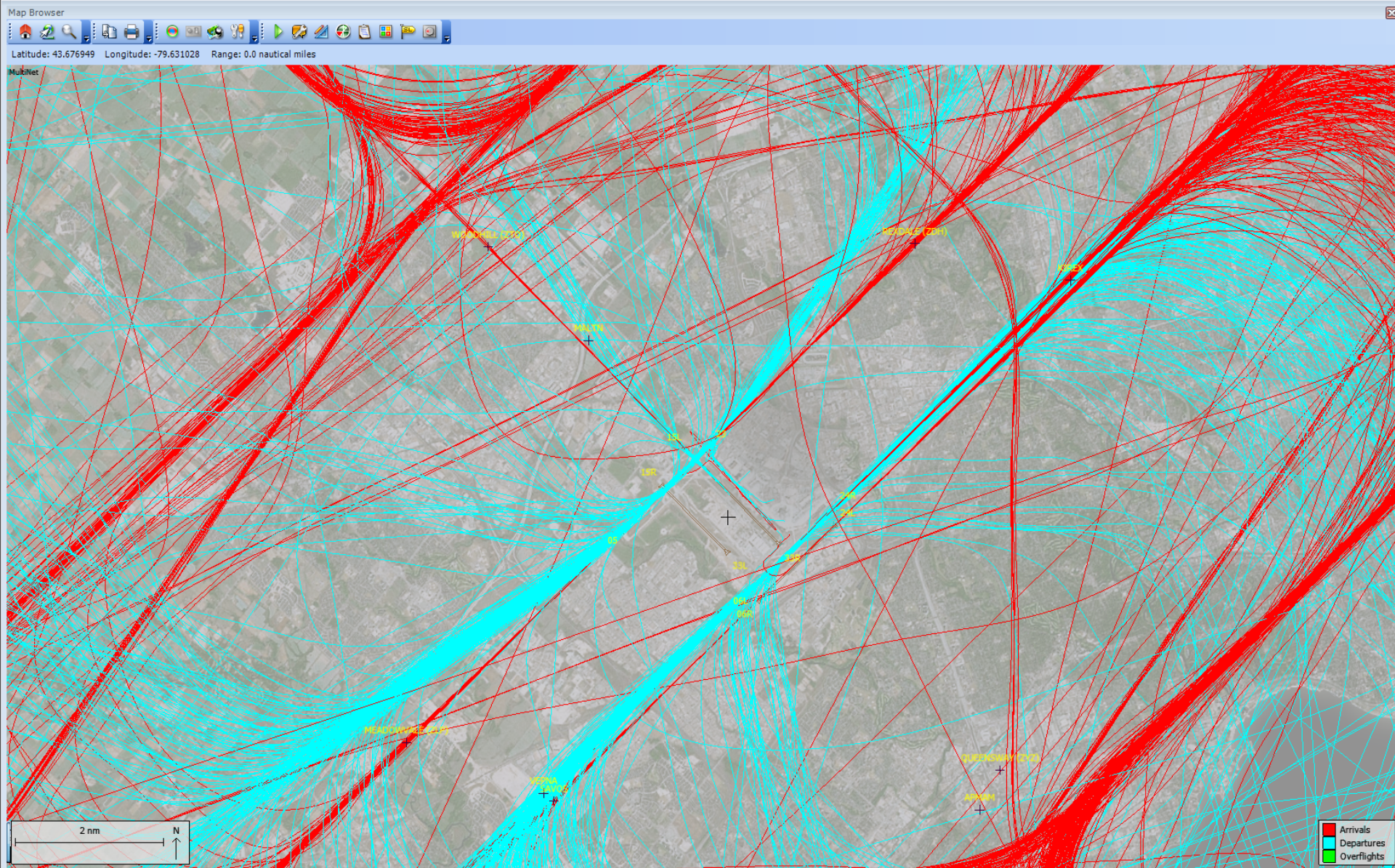
DEPARTURE PROCEDURE

- Standard Instrument Departure (SID) routing shall be followed to 3,600' ASL. For runways 33L and 33R, no unauthorized turns till abeam MALTN intersection





Final Approach Fixes and MALTN Intersection



ANOMS Radar Flight Tracks - April 1, 2015 – All Day



Enforcement Audit Process



Enforcement Audit Process

In the past, the Enforcement Specialist would conduct a daily random audit of the radar flight tracks to determine compliance with the Noise Abatement Procedures

- New Airport Noise and Operations Monitoring software (ANOMS) functionalities allows for more automated analysis of aircraft operations
- ANOMS capabilities allow procedural gates to be built in the program, with violation rules, that enable the system to evaluate ALL arrival and departure operations
- If an operation intersects a gate it will be flagged by the system automatically for additional analysis by the Enforcement Specialist

Enforcement Audit Process

Process implemented in ANOMS by the Enforcement Specialist creates a daily review of the flagged operations for additional analysis

These processes also capture Propeller Turn aircraft and the Early Jet Turn aircraft and allows for their classification in the database for future analysis



Enforcement Audit Process

Voice recordings between the aircraft and NAVCANADA are also reviewed

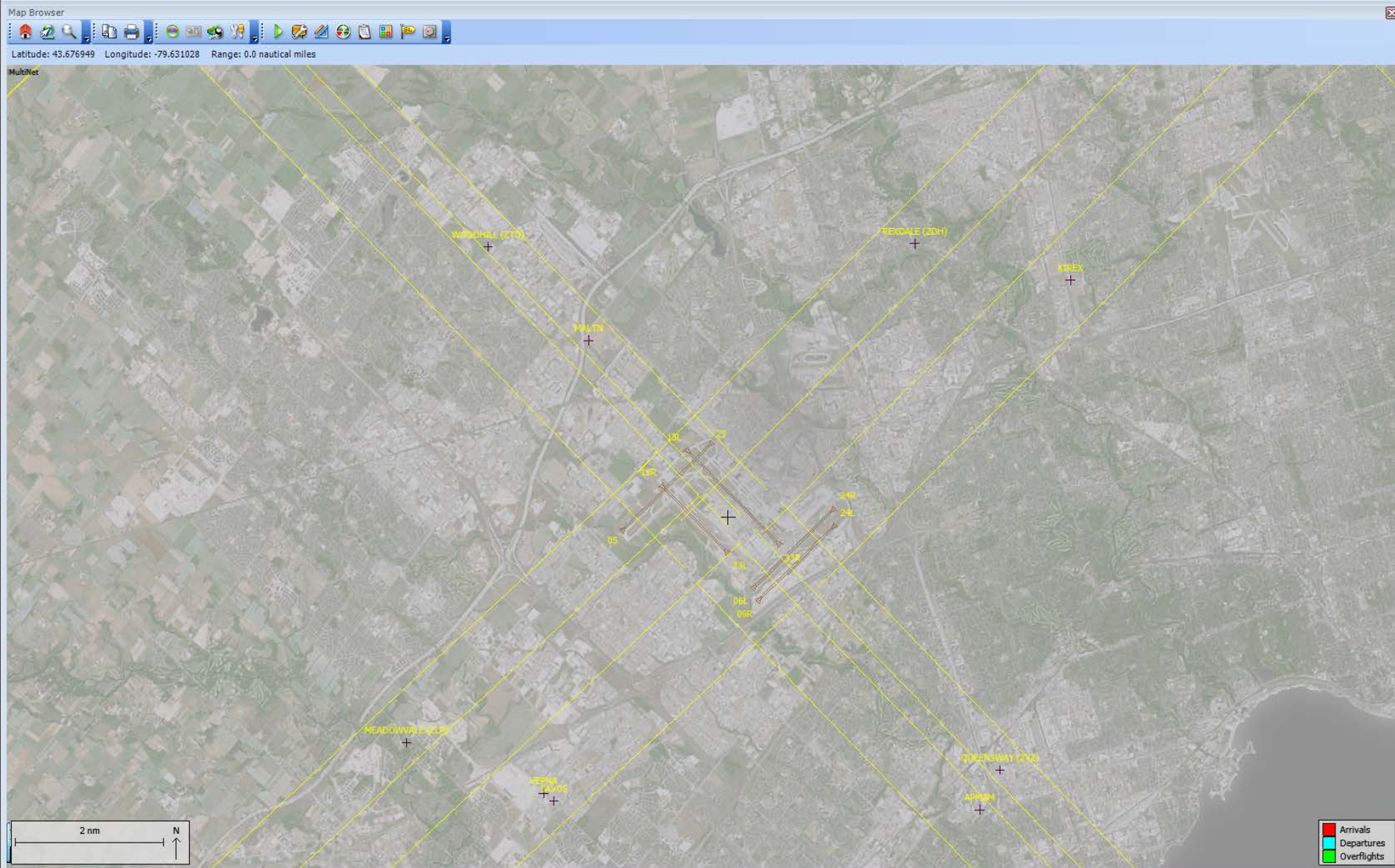
When there is no evidence to excuse the operation from the potential violation of the Noise Abatement Procedure, a formal investigation is initiated following the standard Enforcement Process



Procedural Gate Analysis

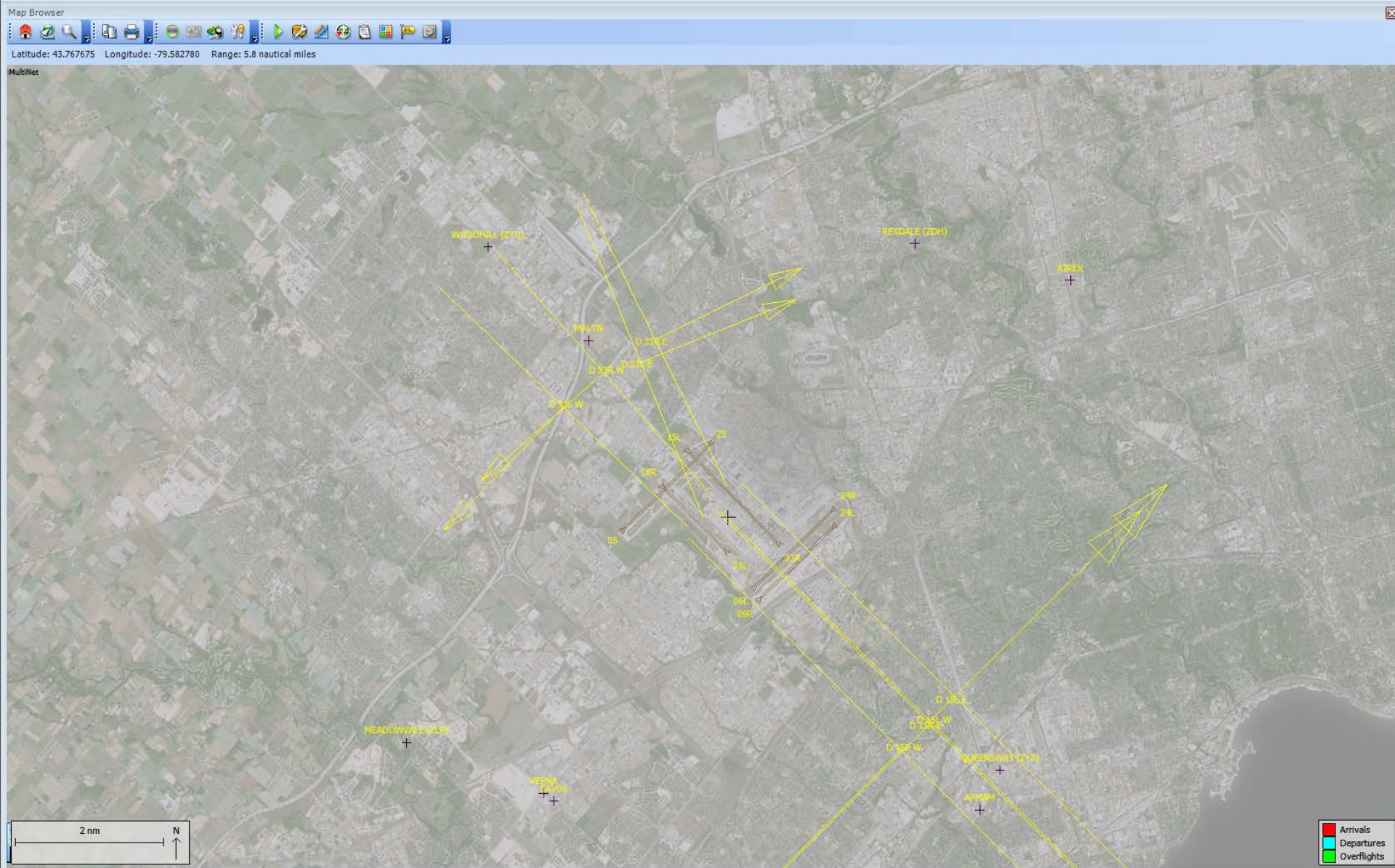
Procedural gates are windows in space adjacent to the runways, that are defined by length, height and direction

- For **Arrival** gates, the length is defined in NM, the height is ground level to 3000' ASL and the direction is toward the airport
- For **Departure** gates the length is defined by the SID and measured in NM, the height is ground level to 3600' ASL and the direction is away from the airport



Arrival Gates All Runways





Departure Gates North/South Runways

ANOMS 8 - Pearson International Airport

FileMapReportsBrowsersDataInputToolsHelp

Operations Browser

Actual Date/Time

PCA Timestamp

Operation No

Airline

Track Start

Aircraft Type

Corr ID

4/1/2015 10:30:30 AM

15972562

4/1/2015 10:35:40 AM

4/1/2015 10:39:54 AM

4/1/2015 10:49:28 AM

4/1/2015 10:53:41 AM

4/1/2015 11:02:32 AM

4/1/2015 11:30:28 AM

4/1/2015 11:36:59 AM

4/1/2015 11:52:27 AM

4/1/2015 11:50:50 AM

4/1/2015 11:55:27 AM

4/1/2015 12:06:22 PM

4/1/2015 12:12:24 PM

4/1/2015 12:20:22 PM

4/1/2015 12:44:29 PM

Violation Properties

General

Comments

Violation Operation Number:

15972562

Rule:

RWY 5 SV

Description:

SID violations RWY 5

Time:

4/ 1/2015

10:30:30 AM

Reason:

Early Turn Prop Departure

☒ Excused

Action required:

No Further Action

Severity:

Warning

Investigation Status:

Resolved

No details available

Violations Browser

No rule details are available for this violation type

ID

Operation No

Severity L

34571

15972562

Warning

34570

15972329

Warning

34569

15972797

Warning

34568

15972766

Warning

34567

15972377

Warning

34566

15972286

Warning

34565

15972738

Warning

34564

15972365

Warning

34563

15972618

Warning

34562

15972253

Warning

34561

15972569

Warning

34560

15972386

Warning

Operation Type

Flight No

Runway Name

Airport ID

Other Port

Track End

Beacon

Path Name

AC Categ.

D

05

CYZ

CYQT

4/1/2015 10:37:

5454

-

T

D

05

CYZ

CYTS

4/1/2015 10:42:

5535

-

T

D

05

CYZ

CYXU

4/1/2015 10:48:

5555

-

T

A

06L

CYZ

KBWI

4/1/2015 10:49:

3604

-

T

D

05

CYZ

CYZR

4/1/2015 10:59:

5532

-

T

D

06L

CYZ

KCHS

4/1/2015 11:10:

6322

-

T

A

05

CYZ

CYAM

4/1/2015 11:30:

4336

-

T

D

06L

CYZ

KEWR

4/1/2015 11:42:

5405

-

T

D

05

CYZ

CYTS

4/1/2015 11:59:

5536

-

T

A

06L

CYZ

KBDL

4/1/2015 11:50:

3524

-

T

D

06L

CYZ

CYXU

4/1/2015 12:08:

4337

-

T

D

05

CYZ

CYAM

4/1/2015 12:14:

5575

-

T

D

05

CYZ

CYOW

4/1/2015 12:17:

5422

-

T

A

23

CYZ

CYQT

4/1/2015 12:20:

7106

-

T

D

23

CYZ

CYQT

4/1/2015 12:50:

6303

-

T

Action

Status

Rule

Rule Description

Type

Type Description

Extent

No Further Action

Resolved

RWY 5 SV

SID violations RW

General

General Violations

Will cause multipl

No Further Action

Resolved

RWY 5 SV

SID violations RW

General

General Violations

Will cause multipl

No Further Action

Resolved

RWY 5 SV

SID violations RW

General

General Violations

Will cause multipl

No Further Action

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RWY 5 SV

SID violations RW

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No Further Action

Resolved

RWY 5 SV

SID violations RW

General

General Violations

Will cause multipl

No Further Action

Resolved

RWY 5 SV

SID violations RW

General

General Violations

Will cause multipl

Sample Violation Analysis

Conclusion

- Procedural Gate Analysis structure completed June 2014
- Fully implemented July 2014
- 100% of arrival and departure operations monitored for compliance with the Noise Abatement Procedures since July 2014





Questions?



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Thank You



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