Runway Excursion During Landing

Delta Air Lines Flight 1086
Boeing MD-88, N909DL
New York, New York
March 5, 2015

Investigator-in-Charge

presentation
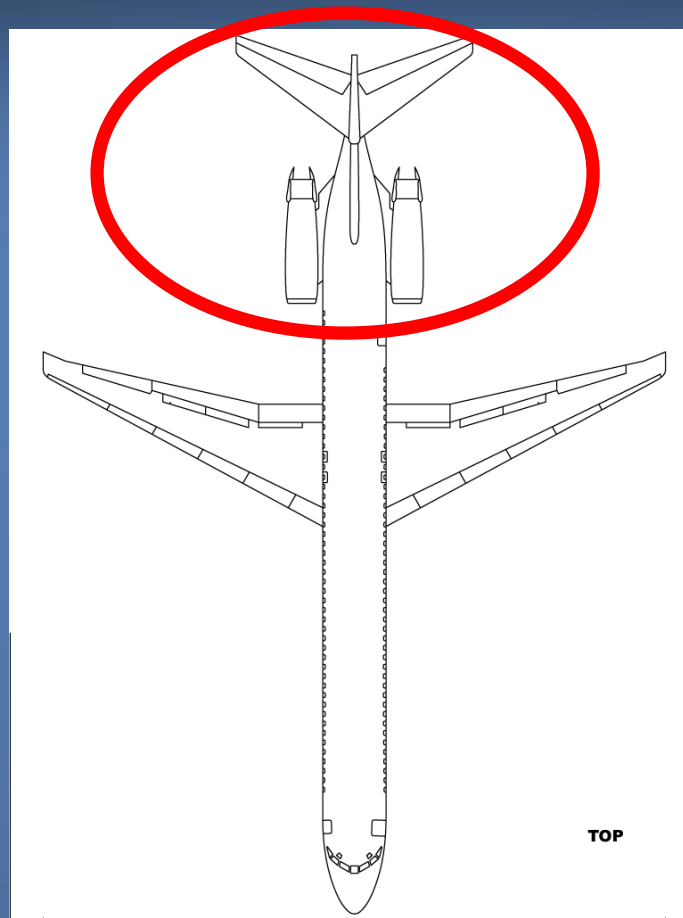
Accident Summary

Accident Summary (cont.)

- 2 pilots, 3 flight attendants, and 98 of 127 passengers not injured

- 29 passengers received minor injuries

- Airplane substantially damaged

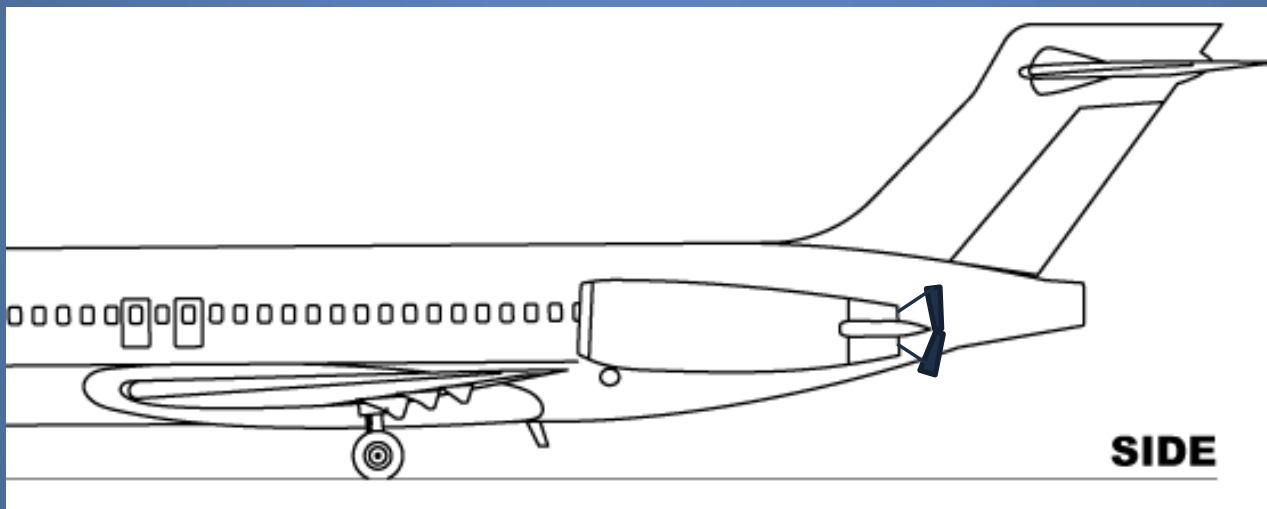- Flight originated from Hartsfield-Jackson Atlanta International Airport, Atlanta, Georgia

NTSB

Landing deceleration devices

- Spoilers

- Autobrakes

- Reverse thrust

- Manual braking

NTSB

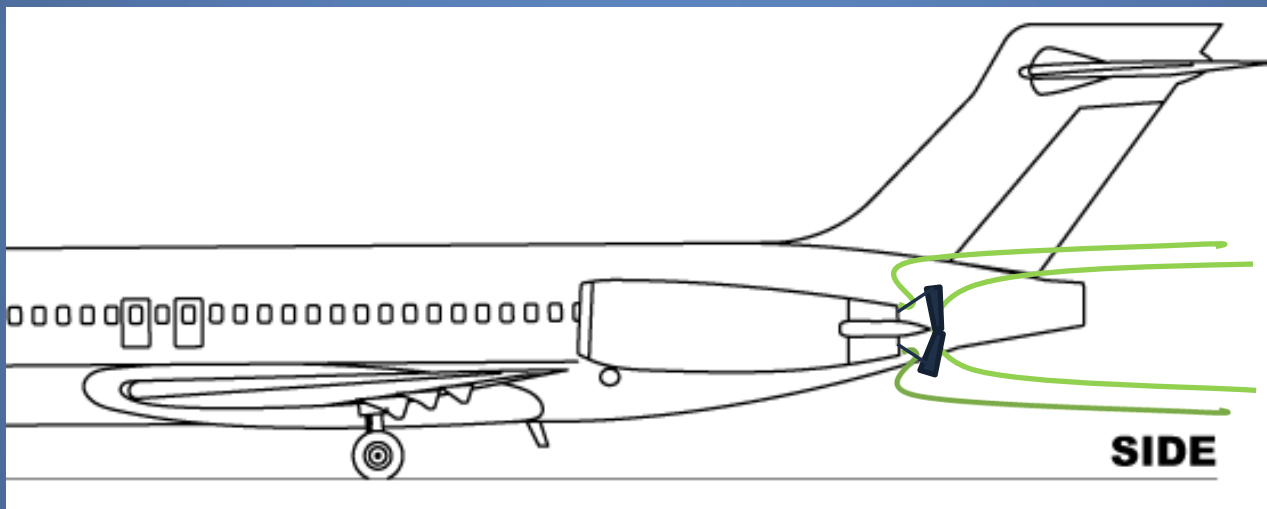# MD-88 Engine Configuration

Thrust Reversers

SIDE

For illustration purposes only
NOT TO SCALE

NTSB

Thrust Reversers (cont.)
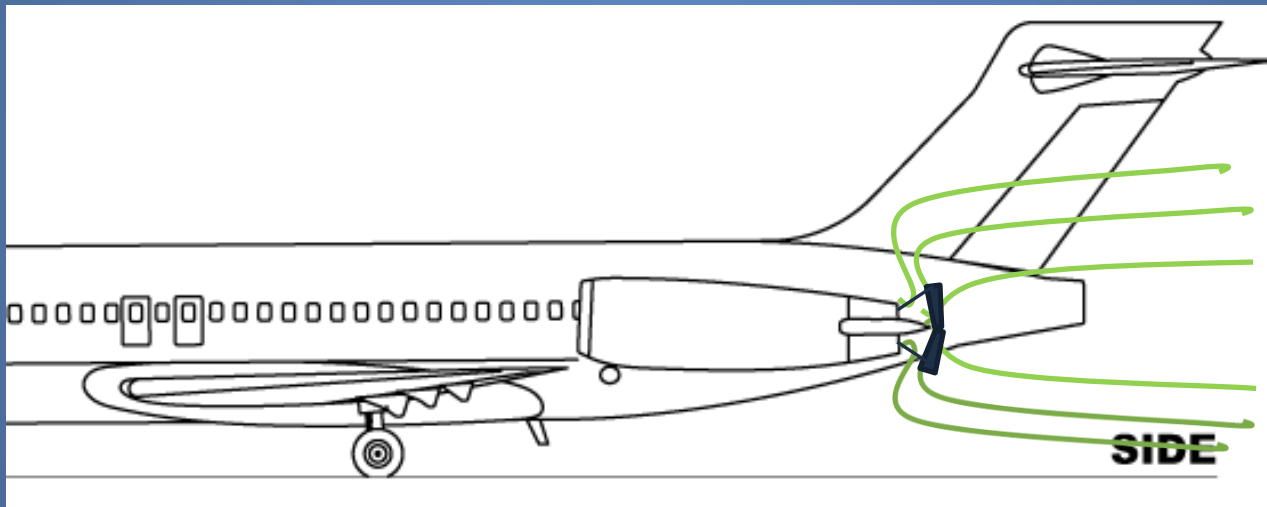

For illustration purposes only
NOT TO SCALE

Thrust Reversers (cont.)

For illustration purposes only
NOT TO SCALE

NTSB

Flushing Bay

1,000 ft

2,000 ft

3,000 ft

4,000 ft

5,000 ft

East Elmhurst

Google earth

© 2016 Google

9

NTSB

Main gear touchdown

Flushing Bay

1,000 ft
2,000 ft
3,000 ft
4,000 ft
5,000 ft

Google earth
© 2016 Google

NTSB

Right thrust reverser

Left thrust reverser

Main gear touchdown

Flushing Bay

1,000 ft

2,000 ft

3,000 ft

4,000 ft

5,000 ft

Google earth

© 2016 Google

East Elmhurst

NTSB

Nose gear touchdown

Spoilers

Right thrust reverser

Left thrust reverser

Main gear touchdown

Flushing Bay

1,000 ft

2,000 ft

3,000 ft

4,000 ft

5,000 ft

Google earth

© 2016 Google

East Elmhurst

12

NTSB

Nose gear touchdown

Spoilers

EPR passes 1.6

Right thrust reverser

Left thrust reverser

Main gear touchdown

Flushing Bay

1,000 ft

2,000 ft

3,000 ft

4,000 ft

5,000 ft

Google earth

© 2016 Google

NTSB

Nose gear touchdown

Spoilers

EPR passes 1.6

Right thrust reverser

Left heading deviation begins

Left thrust reverser

Main gear touchdown

Flushing Bay

1,000 ft

2,000 ft

3,000 ft

4,000 ft

5,000 ft

Google earth

© 2016 Google

East Elmhurst

NTSB

Flushing Bay

Nose gear touchdown

Spoilers

EPR passes 1.6

Right thrust reverser

Left heading deviation begins

Maximum autobrakes

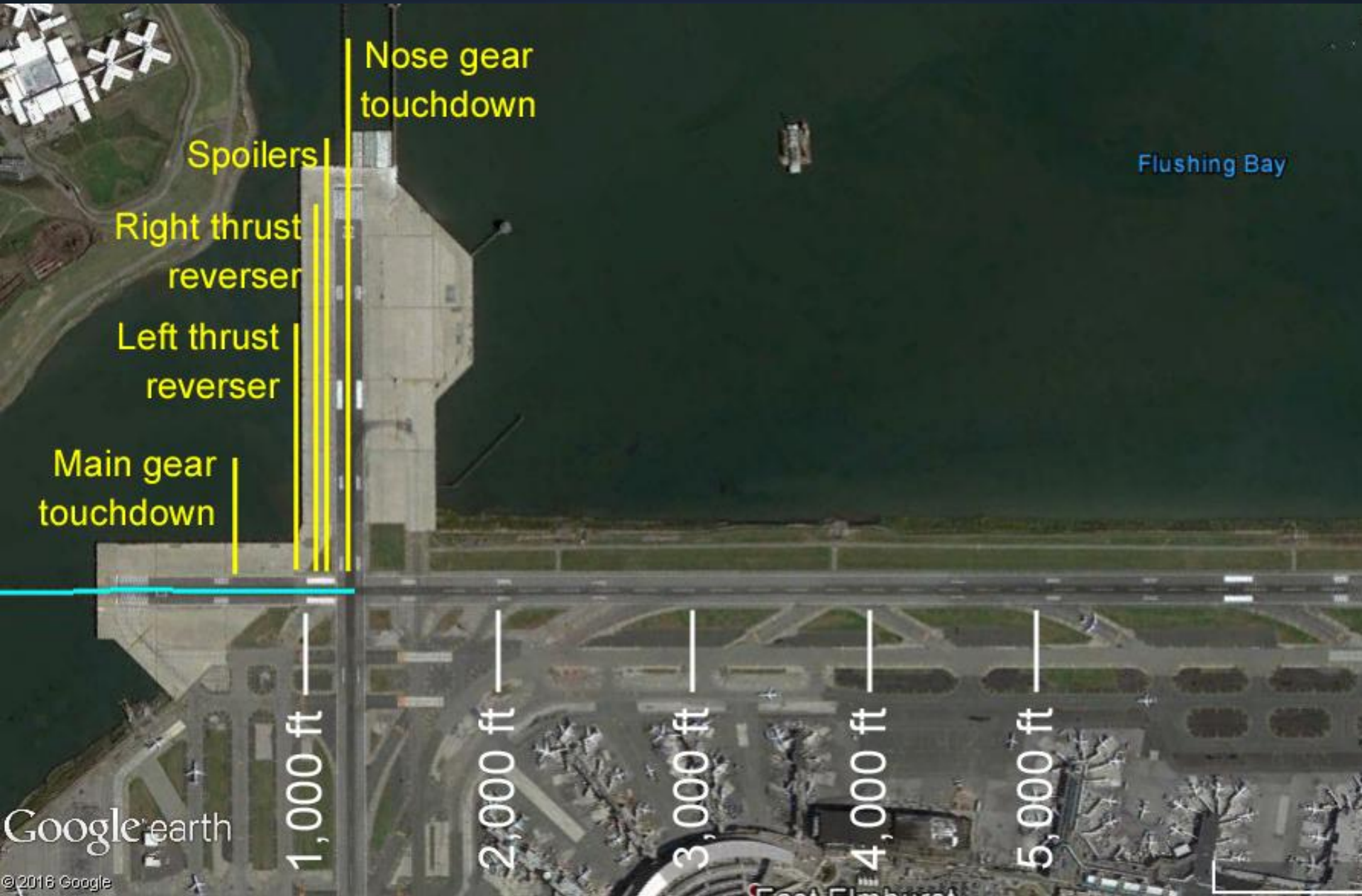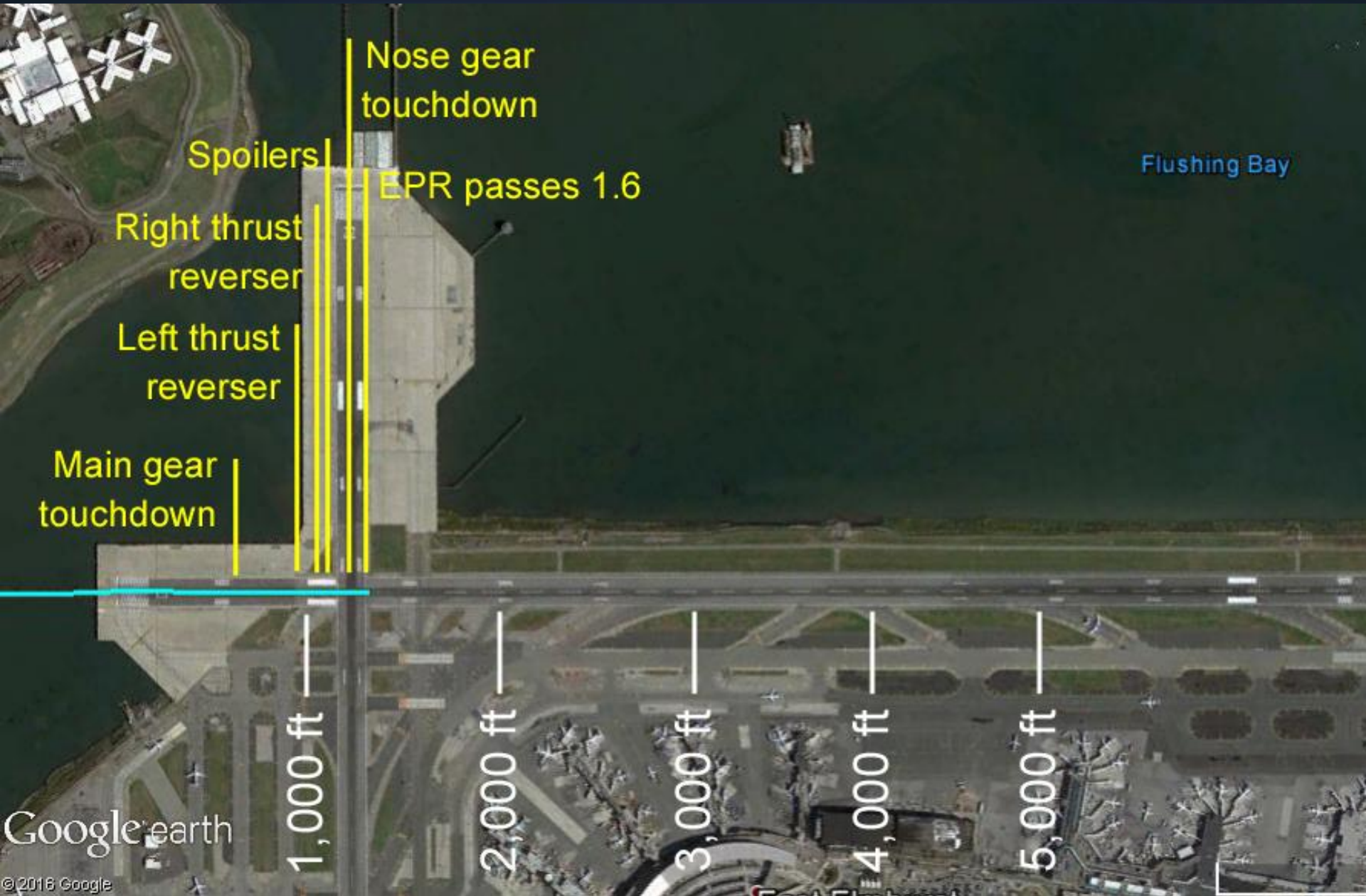Left thrust reverser

Main gear touchdown

1,000 ft
2,000 ft
3,000 ft
4,000 ft
5,000 ft

Google earth

© 2016 Google

East Elmhurst

NTSB

Nose gear touchdown

Spoilers

EPR passes 1.6

Right thrust reverser

Left heading deviation begins

Left thrust reverser

Maximum autobrakes

FO: "out of reverse"

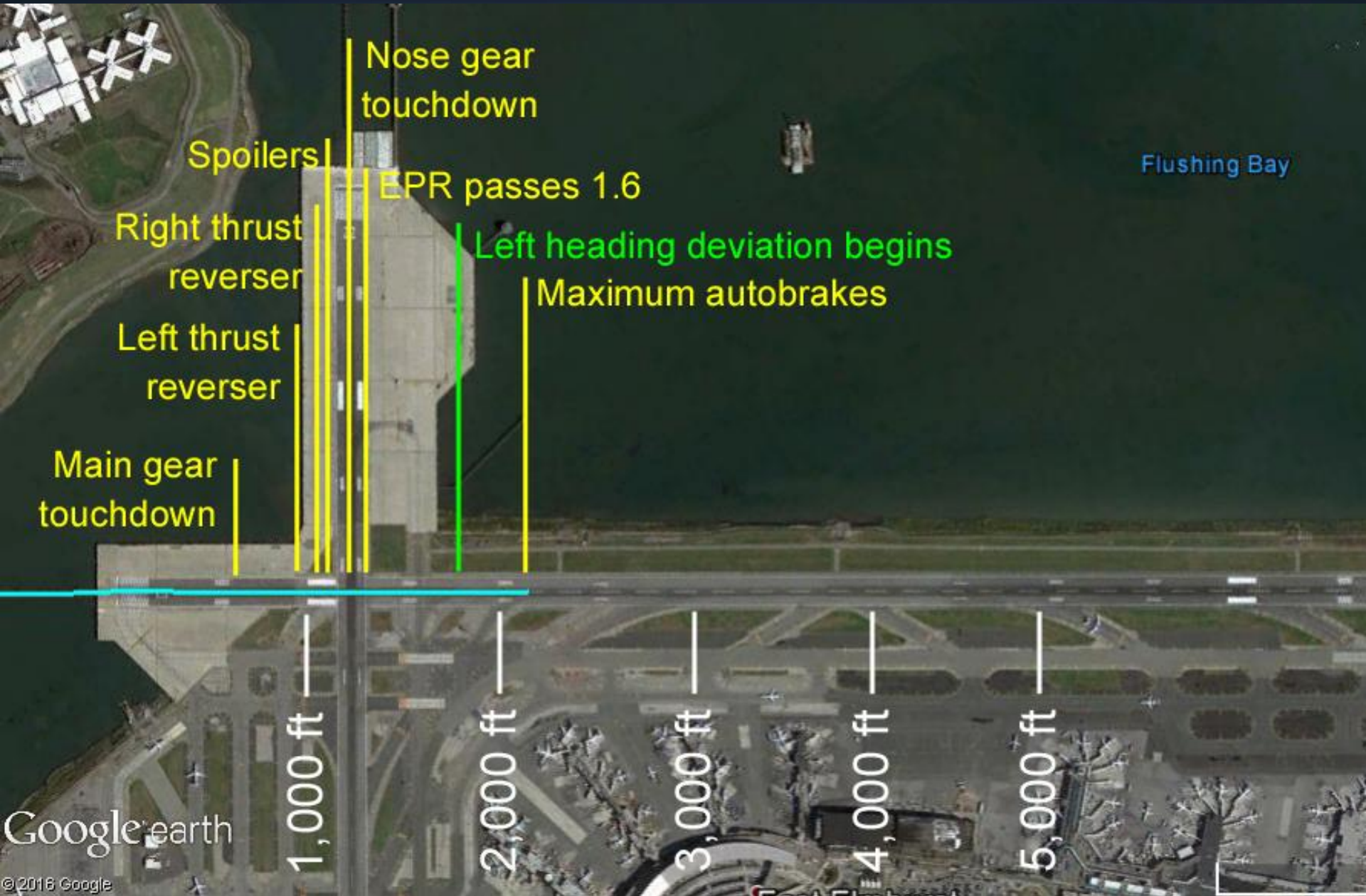Thrust reversers stowed

Main gear touchdown

Flushing Bay

1,000 ft

2,000 ft

3,000 ft

4,000 ft

5,000 ft

Google earth

© 2016 Google

NTSB

Nose gear touchdown

Spoilers

EPR passes 1.6

Right thrust reverser

Left heading deviation begins

Maximum autobrakes

Left thrust reverser

FO: "out of reverse"

Thrust reversers stowed

Airplane leaves runway

Main gear touchdown

Flushing Bay

1,000 ft

2,000 ft

3,000 ft

4,000 ft

5,000 ft

Google earth

© 2016 Google

East Elmhurst

NTSB

Nose gear touchdown

Spoilers

EPR passes 1.6

Right thrust reverser

Left heading deviation begins

Maximum autobrakes

Left thrust reverser

FO: "out of reverse"

Thrust reversers stowed

Airplane leaves runway

Main gear touchdown

Airplane final location

Flushing Bay

1,000 ft

2,000 ft

3,000 ft

4,000 ft
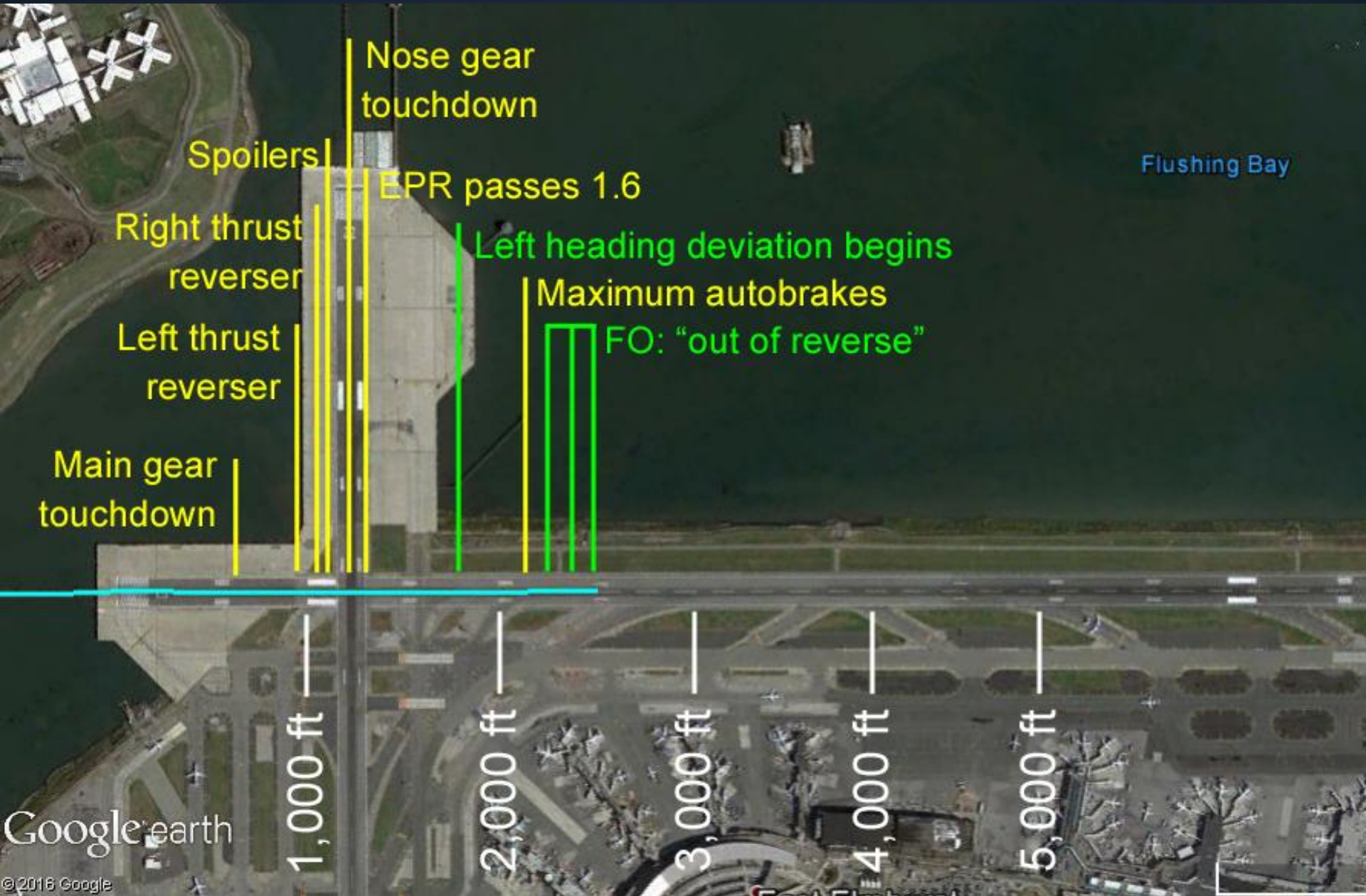
5,000 ft
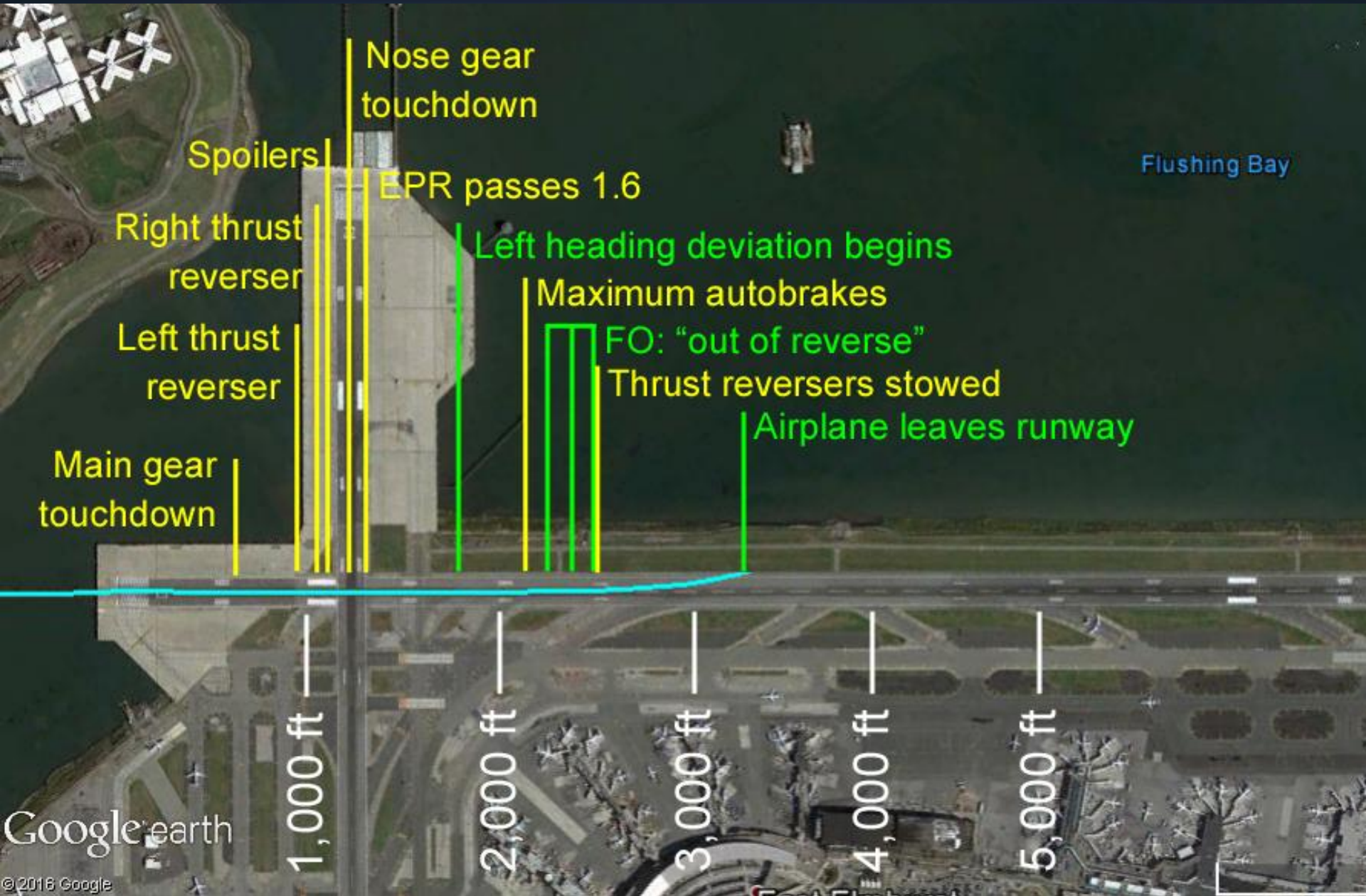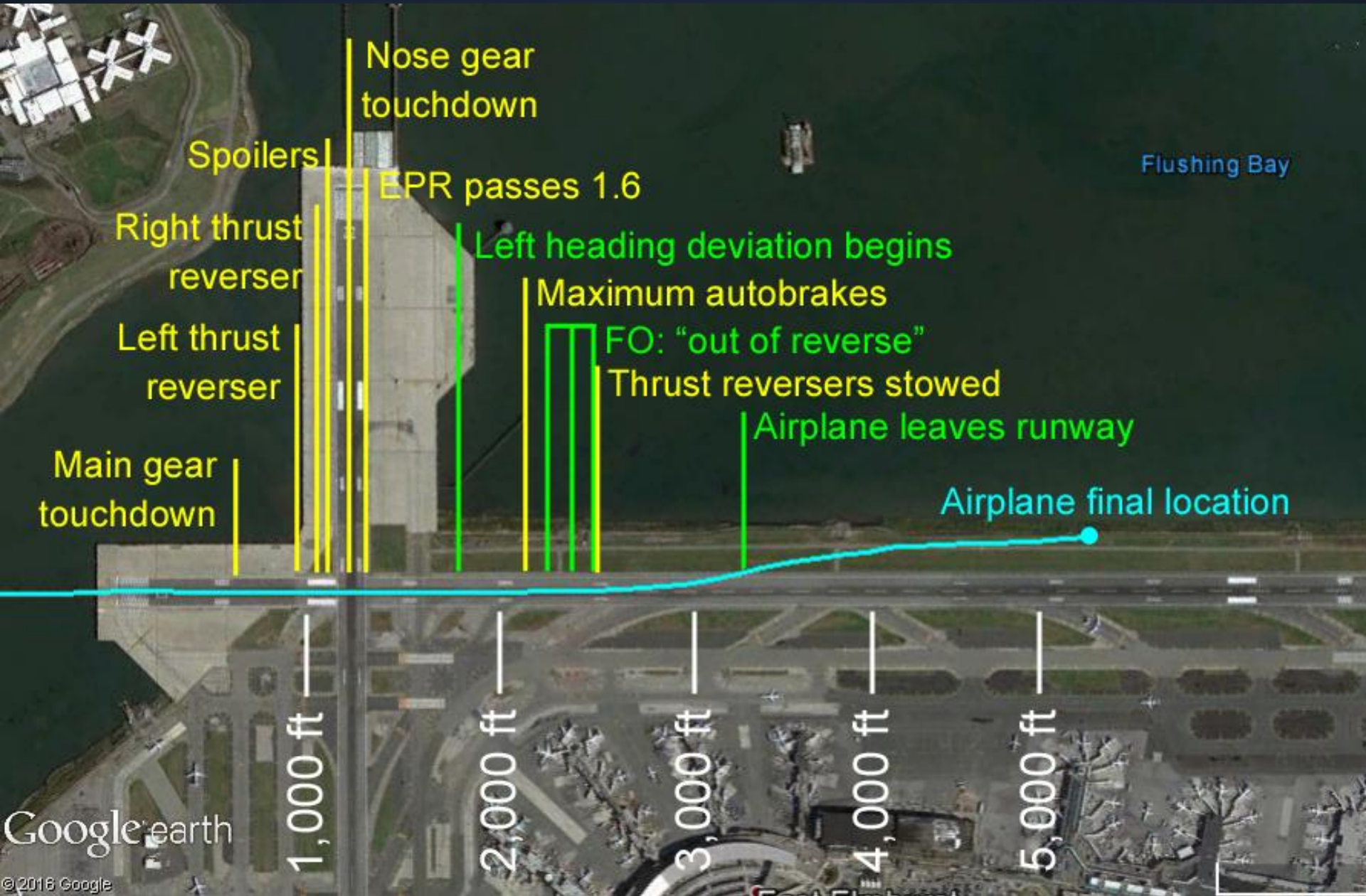
Google earth

© 2016 Google

East Elmhurst

NTSB

Accident Scene

NTSB

Accident Sequence

- As airplane contacted berm, first officer shut down both engines

- Main batteries damaged during accident sequence

- Resulted in inoperable interphone and public address system

- First responder informed flight crew that left wing was leaking fuel

NTSB

Safety Issues

- Excessive reverse thrust, which can cause rudder blanking

- Pilot braking action reports, which are subjective

- Lack of procedures for crew communication without operative communication systems

NTSB

Safety Issues (cont.)

- Inadequate communication, coordination, and decision-making regarding evacuations
- Inaccurate passenger counts provided to emergency responders
- Unclear policies regarding runway friction measurements and runway condition reporting

NTSB

Parties to Investigation

- Federal Aviation Administration

- Boeing

- Delta Air Lines

- Air Line Pilots Association

- The Port Authority of New York and New Jersey

NTSB