

Docket No. SA-530

Exhibit 3-C

**NATIONAL TRANSPORTATION SAFETY BOARD
Washington DC**

**Canadian Helicopter EMS Industry Overview
Sylvain Seguin**

(29 pages)



- 1. Introduction**
- 2. The Canadian HEMS Framework**
- 3. Historical Review**
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- 10. Questions?**



1. Introduction

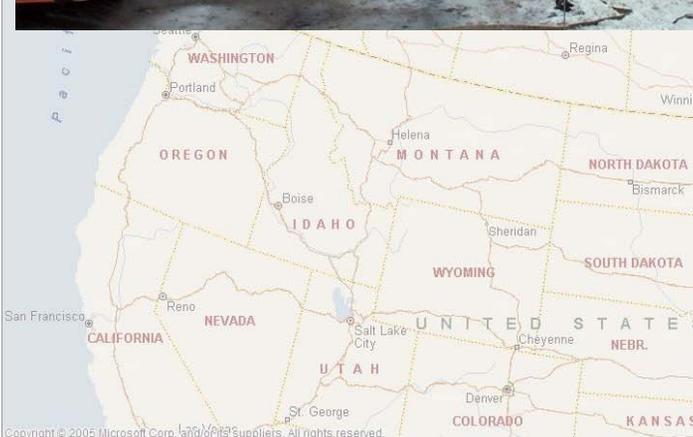
- **Dedicated HEMS operations since 1977**
- **Total of 20 helicopters, (4 Operators), currently engaged**
- **Hospital transfers, Scene Calls, Night ops, NVG ops (STARS)**
- **Over 230,000 hrs flown industry-wide with no fatal accidents**



Canadian Helicopter EMS Industry Overview



2. The Canadian HEMS Framework





2. The Canadian HEMS Framework

- Government funded programs
- No Cost recovery paradigm
- Contracts awarded via public RFP process
- Contracts managed through Provincial Health departments





3. Historical Review

1977 - First dedicated service – 1 Bell 212 – Toronto, Ontario

1980 – Multiple locations – 2 Bell 212s 1 S-76– Ontario

1985 – STARS commences operations in Calgary, Alberta – BK117

1992 – STARS expands with a BO105 / BK117

1996 – Nova Scotia commences operations with 1 S76A

1998 – British Columbia dedicated RW service with 2 S76As / 1 B222



4. Current Canadian HEMS Coverage



- **Dedicated HEMS programs in 4 Provinces**
- **Serving over 21 Million People**
- **Four (4) established service providers**



Canadian Helicopter EMS Industry Overview



Ontario





Canadian Helicopter EMS Industry Overview



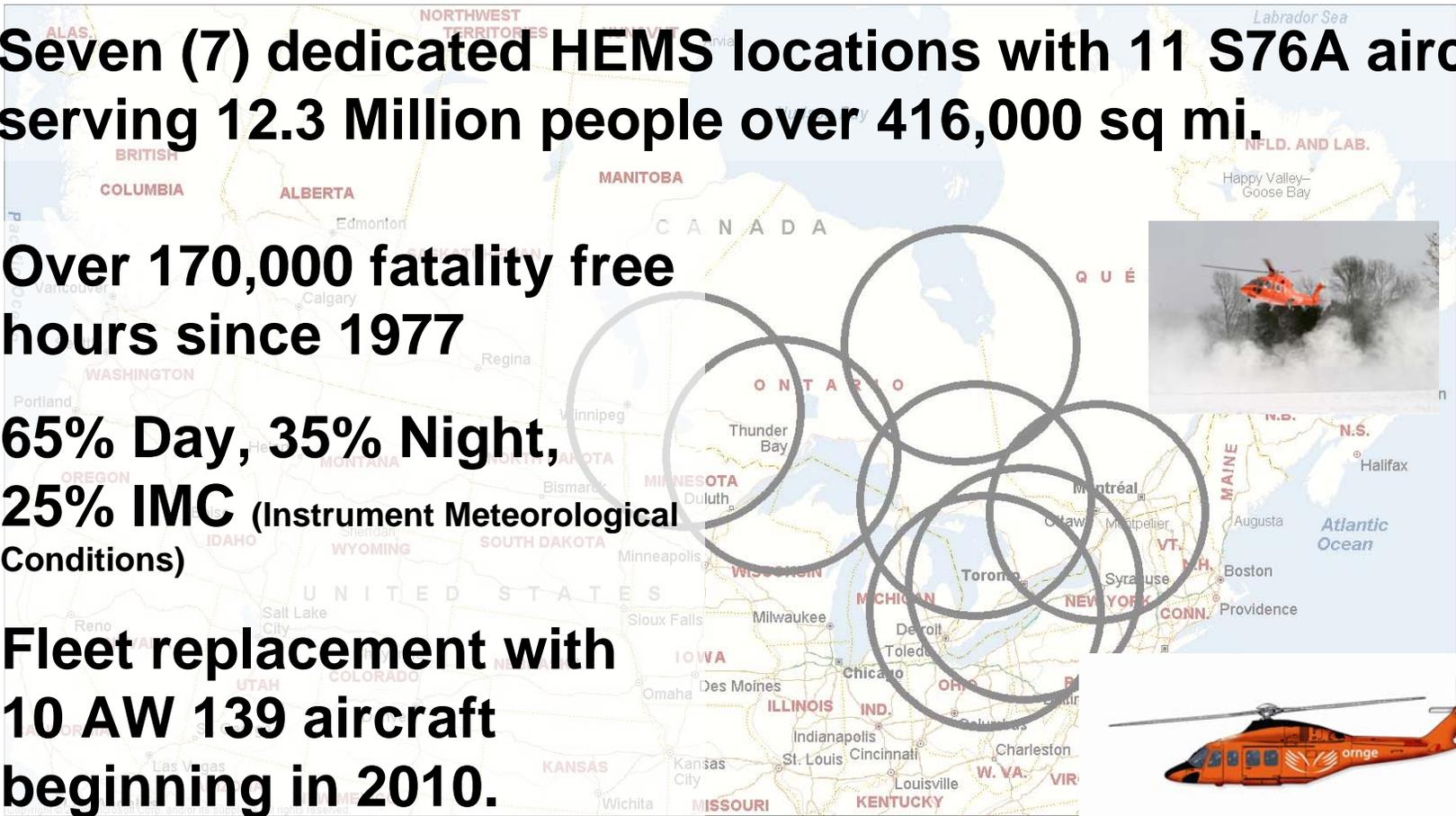
Ontario

Seven (7) dedicated HEMS locations with 11 S76A aircraft serving 12.3 Million people over 416,000 sq mi.

Over 170,000 fatality free hours since 1977

65% Day, 35% Night, 25% IMC (Instrument Meteorological Conditions)

Fleet replacement with 10 AW 139 aircraft beginning in 2010.





Canadian Helicopter EMS Industry Overview



Alberta





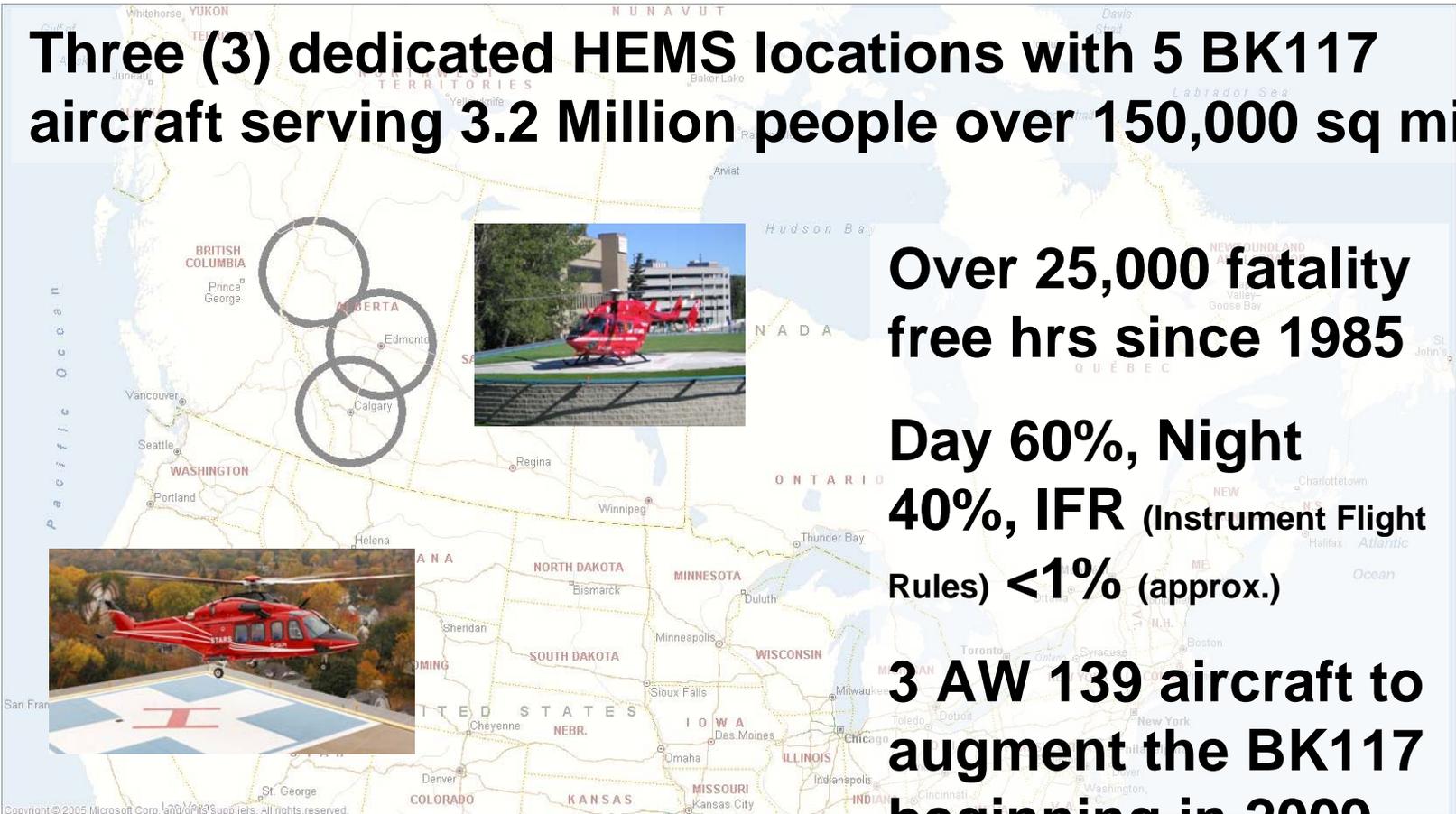
Alberta

Three (3) dedicated HEMS locations with 5 BK117 aircraft serving 3.2 Million people over 150,000 sq mi.

Over 25,000 fatality free hrs since 1985

Day 60%, Night 40%, IFR (Instrument Flight Rules) <1% (approx.)

3 AW 139 aircraft to augment the BK117 beginning in 2009.





Canadian Helicopter EMS Industry Overview



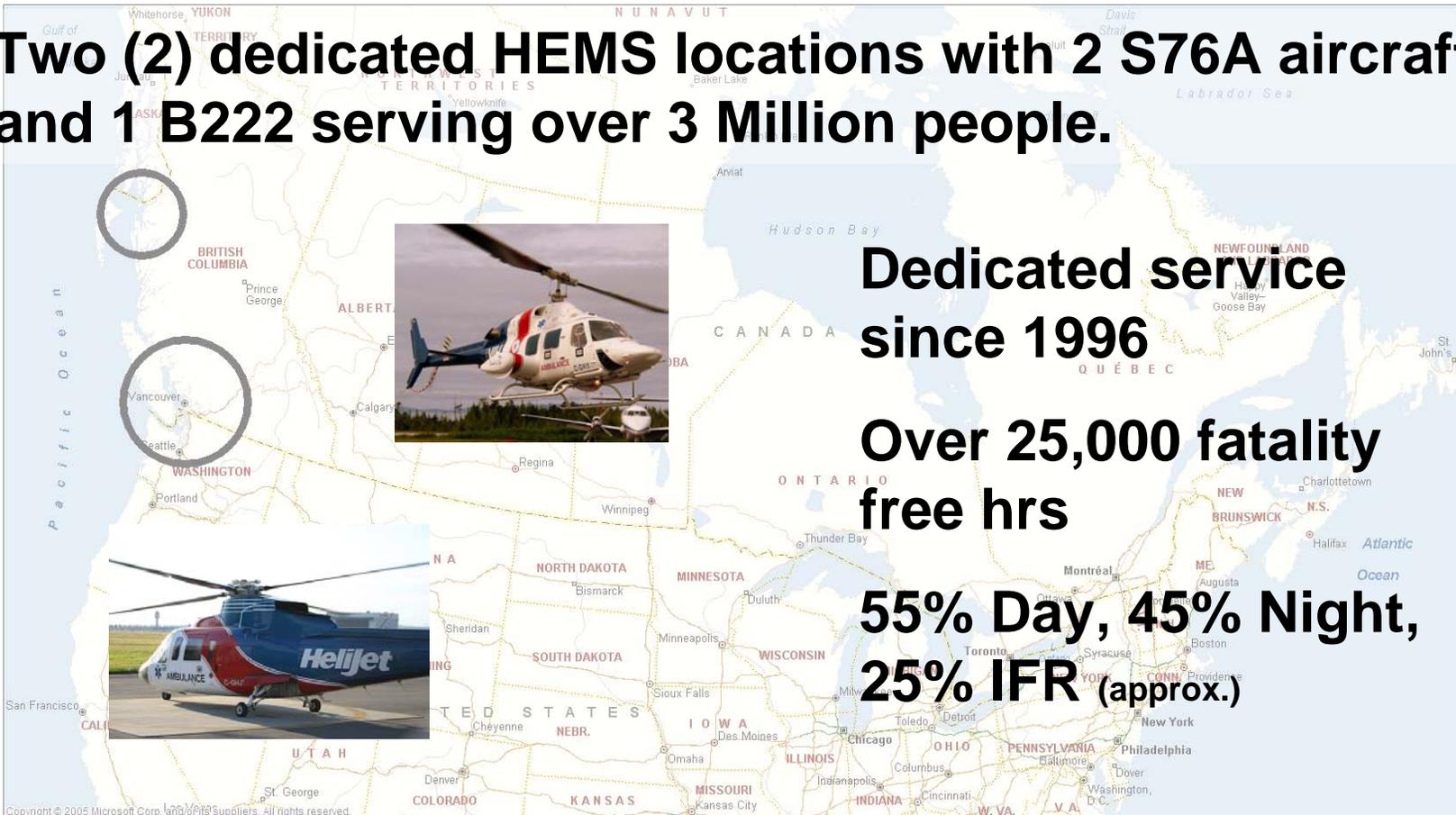
British Columbia





British Columbia

Two (2) dedicated HEMS locations with 2 S76A aircraft and 1 B222 serving over 3 Million people.





Nova Scotia





Nova Scotia

One dedicated HEMS location with a single S76A aircraft serving over 1 Million people over 25,000 sq mi.

Dedicated service since 1996

Over 9000 fatality free hrs

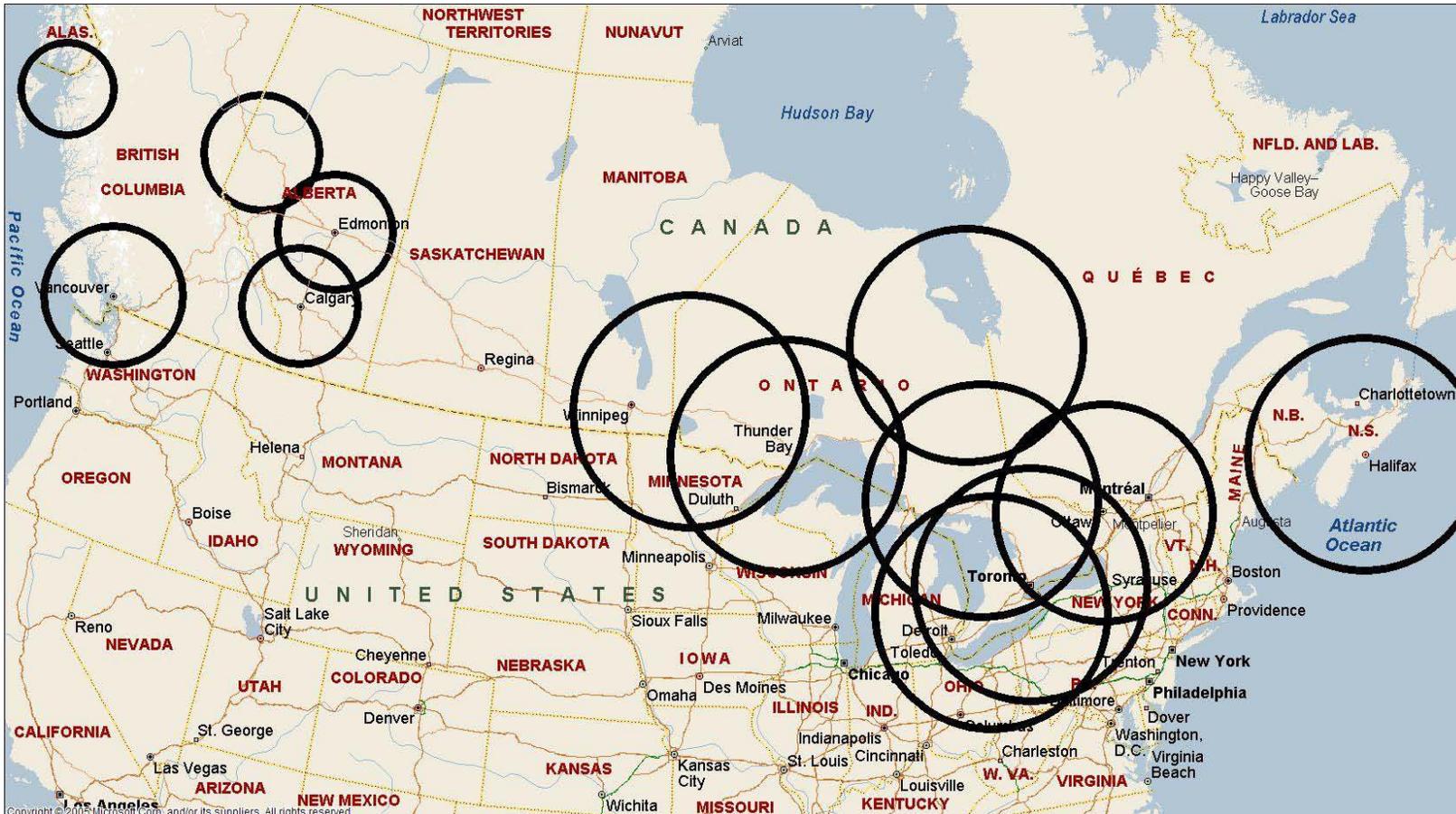
65% Day, 35% Night, 35% IFR (approx.)

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Canada



Operating Range represented by circle not to scale



5. Regulatory Framework CAR (Canadian Air Regulations)

- **Well defined weather limits – CAR 703.34 - 723.34**
- **Well defined Night VFR crew / equipment / aircraft requirements - CAR 703.88**
- **SPIFR (Single Pilot - IFR) permitted but not engaged by dedicated HEMS operators - CAR 703.86 (and 723.86)**



5. Regulatory Framework

Special Note: STARS NVG Operations

- **Weather Limits:** As per CAR (Canadian Air Regulations) for night VFR ops. (1000 ft above obstacles +/- 3 NM of track, 3 SM visby)
- **For Advance NVG operations:** TC (Transport Canada) exemption permits flights with no lateral limits for night VFR EMS flights. For advanced NVG flight in Mountainous regions, a minimum of 5 miles visibility required



5. Regulatory Framework

Special Note: STARS NVG Operations - Training

Basic NVG pilots: Initial NVG ground course and 3 hrs of NVG flight training.

Advanced NVG at STARS: NVG pilot must have 35 takeoffs and landings on NVGs and must complete advanced NVG ground school course and NVG training flight in the mountains with a Training Captain.



6. Training and Experience Levels

Client Standards for Pilot experience

Client oversight of Training programs

Regulatory oversight of Operations



6. Training and Experience Levels

Client Standards for Pilot experience (may vary by Province)

FO: (Min)

- **500 hrs total flight time**
- **Commercial license with Type rating**
- **Current Night and IFR (Instrument) rating**
- **Current PPC (Pilot Proficiency Check)**
- **ATP (Airline Transport) exams completed**



6. Training and Experience Levels

Client Standards for Pilot experience PIC (Min) (may vary by Province)

- **2000 (3000)hrs total flight time with ATPL (H)**
(Airline Transport Pilot License Helicopter)
- **1000 hr multi engine PIC** (Pilot in command)
- **Type rating, 100 hrs on type,**
- **Current Night & IFR** (Instrument) **Rating,**
- **Current PPC** (Pilot Proficiency Check)



Canadian Helicopter EMS Industry Overview



6. Operation specific training





7. Operational Framework

- **Twin Engine, IFR Certified aircraft**
- **Two pilot cockpits**
- **ATPL(H) for PIC / Instrument ratings** (Airline Transport Pilot License Helicopter)
- **Strong culture of SOPs**
- **Centralized dispatch centers**
- **Maintenance Department**



7. Operational Framework

- Not strictly a Canadian Paradigm
- New Jersey State Police Aviation Dept





7. Operational Framework

- Not strictly a Canadian Paradigm
- NJ State Police Aviation Department
 - Twin engine helicopters (S76B)
 - Two pilot crews with Inst Rating
 - Centralized dispatch





8. Role of SMS

How can SMS apply to EMS Operations?

- **Strong proactive processes for completing risk assessment**
- **Non-punitive reporting policy**
- **Strong reactive process for managing hazards / incidents**
- **Clear SOPs, Policies & Procedures**



9. Online Resources SMS

- <http://www.ihst.org/> - SMS Toolkit
- <http://www.rotor.com/> - Event Database / MMIR
- <http://www.ogp.org.uk/> - International Association of OIL & Gas Producers – Publication -Aircraft Management Guidelines



10. Questions

