



Future Rotorcraft Scenarios

HELICOPTERS

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AIRBUS

Agenda

1. Current Rotorcraft Scenarios
Situation, Operational Needs & Challenges
2. Future Rotorcraft Scenarios
Enabling future Operational Needs

1) Current Rotorcraft Situation

Current situation:



Highest technology standards



No appropriate infrastructure

→ Authorities have been mainly focused on fixed-wing market.

→ Rotorcraft operations are still not equally well integrated in the current airspace framework

1) Current Operational Needs and Challenges

NEEDS

1. IFR access to VFR Final Approach and Takeoff Areas (FATOs)
Point-in-Space (PinS) RNP approaches/departures procedures to/from heliports
2. Rotorcraft integration in dense/constrained airspace
Specific **Low Level IFR routes (LLR)**
3. Rotorcraft access to busy airports
Simultaneous-Non-Interfering (SNI) rotorcraft
IFR approach/departure procedures to/from heliports located at airports

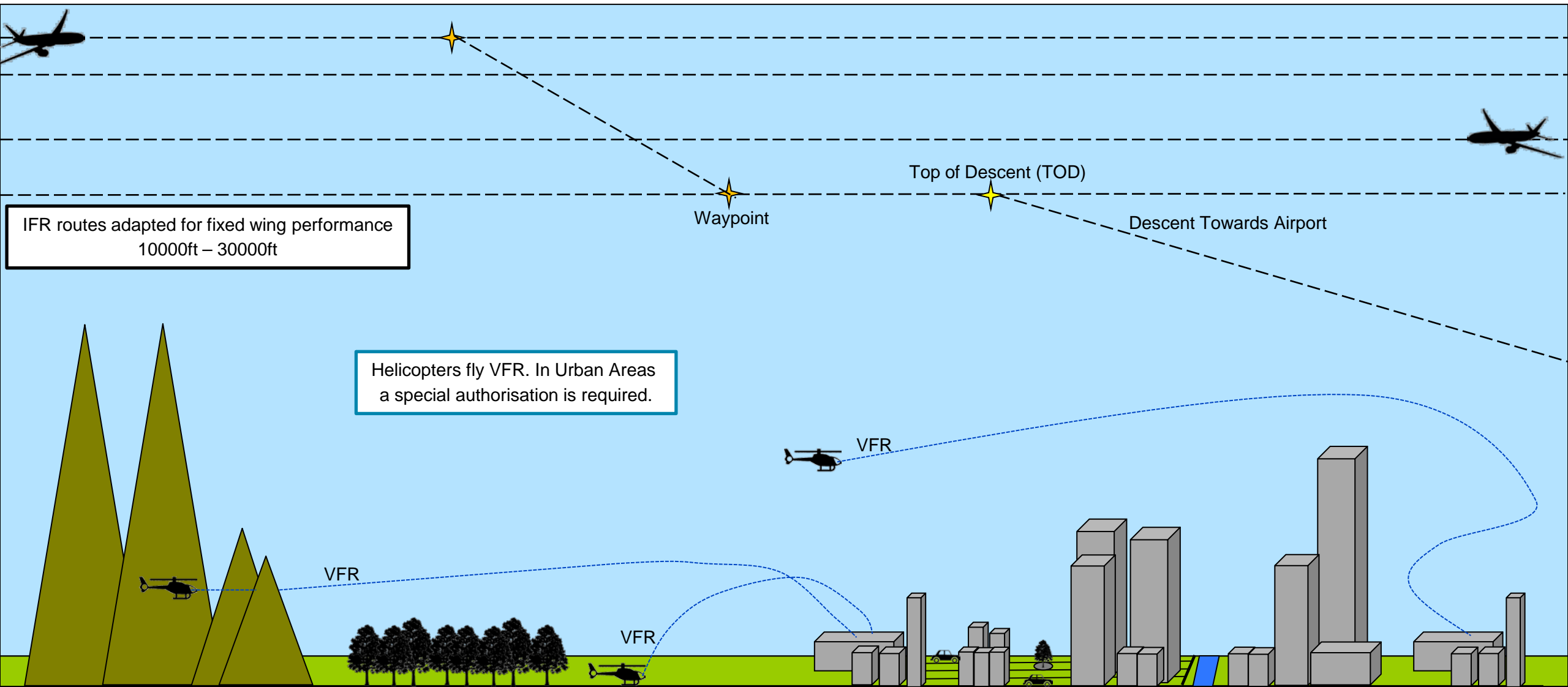


CHALLENGES

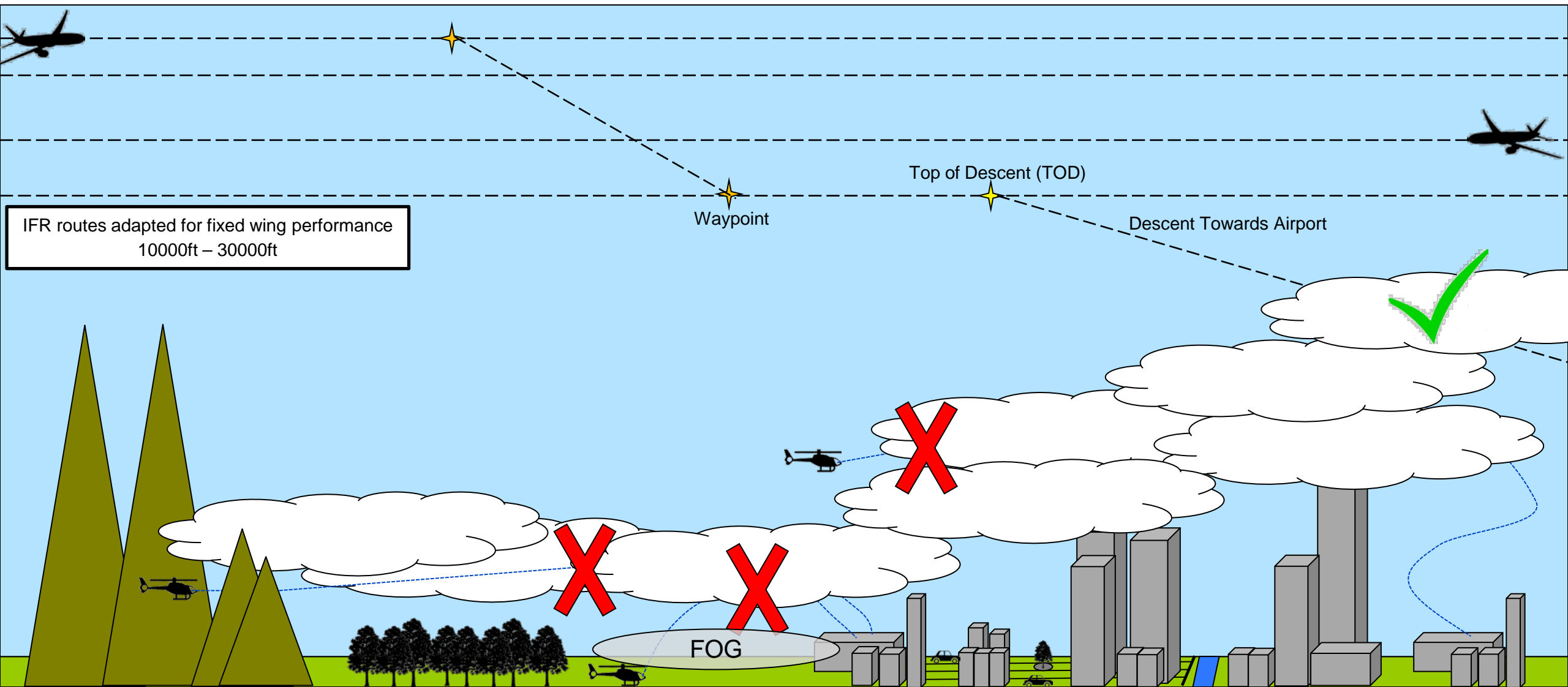
- a) Latest RC have the Highest Technology Standards: Satellite based navigation, 4-Axes Autopilot, LPV certification, Steep Approaches up to 9,9°
- b) Rotorcraft Operators Need to operate **24/7**: Operations in all weather situation (VMC and IMC)

→Problem: No LLR IFR Routes, lack of rotorcraft adapted procedures

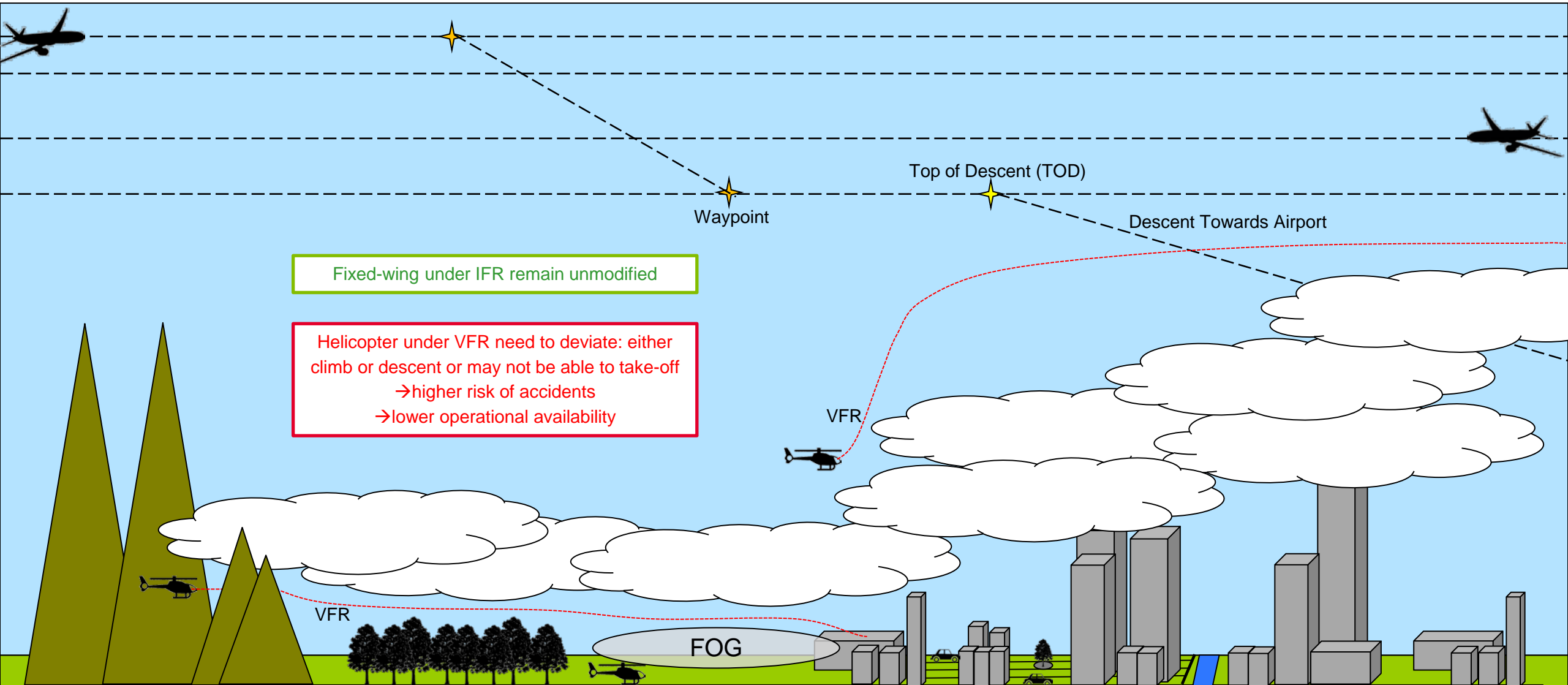
1) Current Rotorcraft Operations



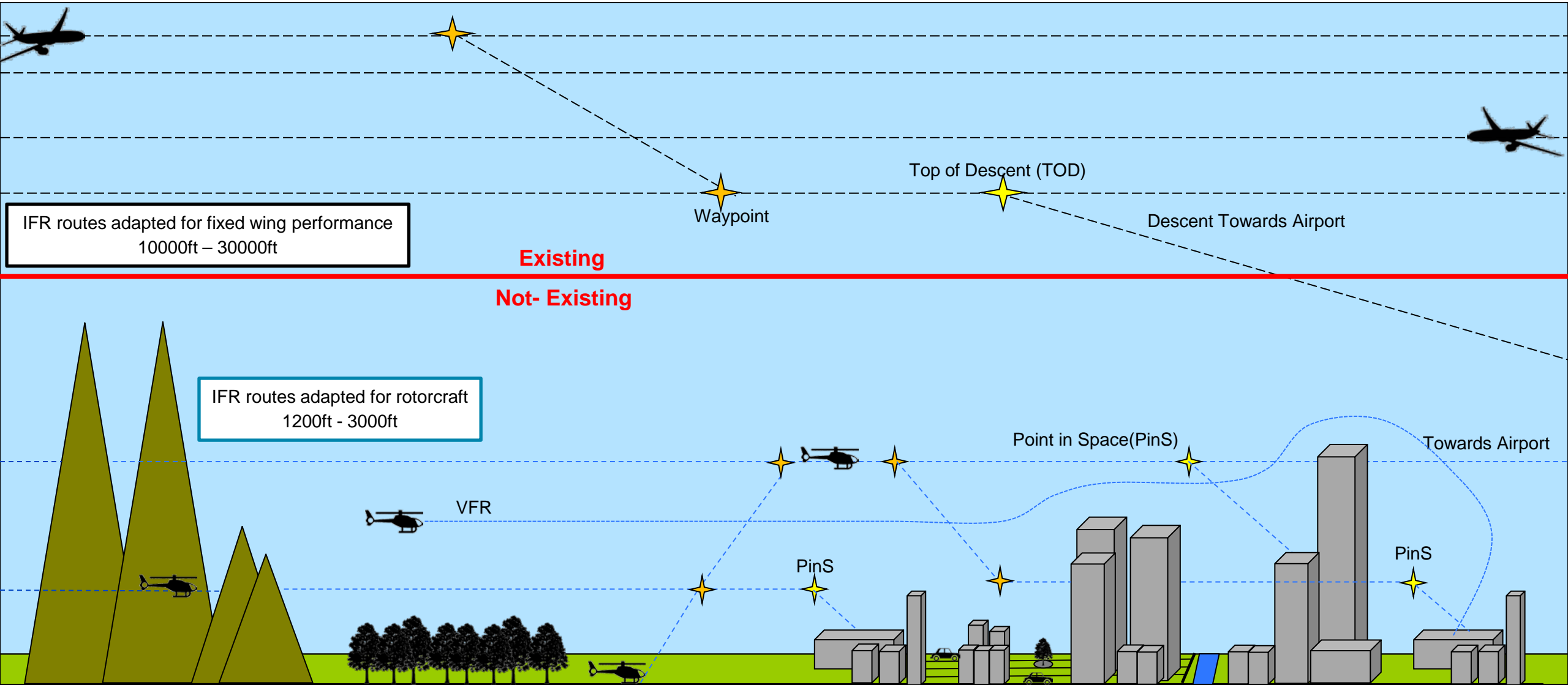
1) Current Rotorcraft Operations in Bad Weather Conditions



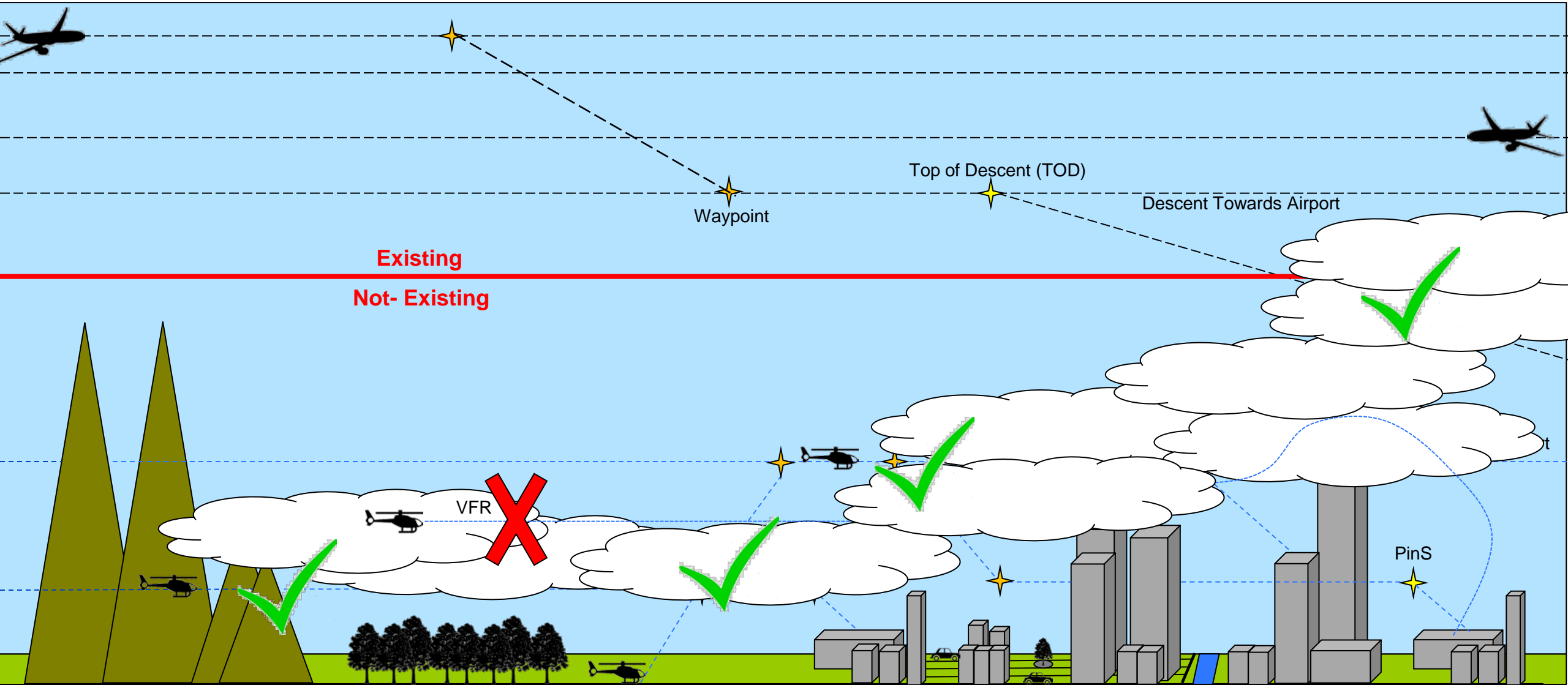
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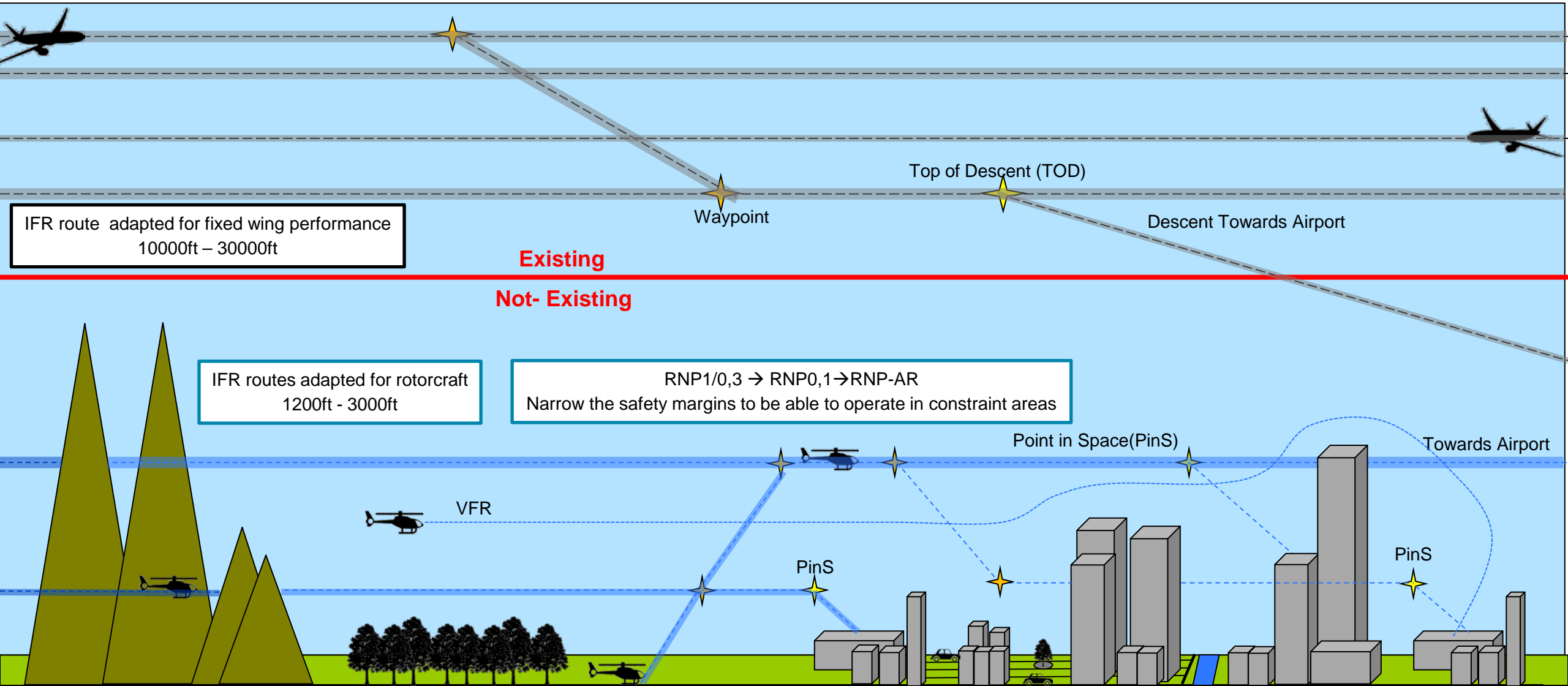
1) Rotorcraft Intended Situation



1) Rotorcraft Intended Situation in Bad Weather Conditions



2) Rotorcraft Adapted IFR Routes with Different Safety Margins



2) Understanding Demand for IFR Routes

Why do we need IFR routes for helicopters?

- a. increase operational availability → towards 24/7 operations
- b. opens the door to automation of flight during the en-route phase
- c. IFR routes with reduced safety margins support reliable and precise navigation at lower altitudes and nearby obstacles
→paves the way for urban operations
- d. IFR routes reduce the uncertainty of rotorcraft position and flight intention/ trajectory
→increases the planning capability to accommodate high demand
- e. IFR routes help defining effective safety contingency procedures

2) Enabling the Framework for Future Rotorcraft Operations

Step-wise approach:

- i. Design IFR routes according to rotorcraft performance
→Performance Based Navigation (PBN) concept
- ii. Low Level IFR routes at helicopters en-route operational altitudes
→Between 1200ft and 3000ft
- iii. Rotorcraft adapted take-off and landing procedures
→Point in Space
- iv. Narrow the safety margins to pave the way for future operations
→from RNP1 to RNP-AR or similar concepts

→ It has to be a global approach: equivalent milestones required all around the world

THANK YOU