



Right of Way infringement Visual Risk assessment Part – 1



Preface

One of the typical scenario an aerodrome manager has to cope with is the “Right of Way infringement”.

Right of Way is a general term used to describe *"the legal right of a pedestrian, vehicle, or ship to proceed with precedence over others in a particular situation or place"*.

In an airport it applies to the policy in force regulating traffic flow, amongst all possible means of transport, in order to ensure safe and expeditious operations.

In an aerodrome contest, regulating this subject is of a quite major concern as accident/incident, emerging from collision amongst two or more means of transport, not only have great impact on the safety of operations but, moreover, on the delay associated to such these and last, but not least, on the costs involved in damages (See IATA Ground Damage Database).

Interesting tips can result from a Bow-Tie Risk assessment approach to the subject.



What is a Bow-Tie

A Bow-Tie is a diagram that visualises the risk you are dealing with in just one, easy to understand picture. The diagram is shaped like a bow-tie, creating a clear differentiation between proactive and reactive risk management. The power of a bowtie is that it shows you a summary of scenarios in a single picture. In short, it provides a simple, visual explanation of risk that would be much more difficult to explain otherwise.



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Structure your thinking

New insights often emerge from bowtie workshops that were not identified by other methods. The highly visual and interactive nature of bowtie building ensures maximum involvement from all levels of the organisation.

Make risk based decisions

Analyse and distill weak points in how you manage risk and create risk based improvement plans.

Communicate risk

BowTieXP diagrams have been designed from the ground up to be easily communicable and provide you with many options to tailor the diagram for your audience.



Right of Way infringement,...in practice

Let's concentrate only on roads and surface movements of the aerodrome layout, with the exclusion of the stands where aircraft are parked for turn-around, as in that case, a dedicated and well-structured risk assessment should be produced, at least because others actors and threats are involved. We also won't consider passengers as a threat, assuming (arguable?) the Air Side to be pretty secure. In any case one more Threat (Improper moving Passenger) could be easily added and developed.

An approach to the issue could be the following:

- Evaluate all the Operations/Procedures you are dealing with;
- Classify them into **Group/Class**;
- For each **Operation** identify one or more hazards;
- For each **Hazard** evaluate one or more Top Events;
- For each **Top Event** draw related Risk analysis.

In case of an aerodrome a possible Operations classification could be:

AIRCRAFT RELATED OPERATIONS – ARops (GROUP)

1. Aircraft entering stand
2. Aircraft refueling
3. Aircraft boarding
4. Aircraft de/anti-icing
5. ...

NON-AIRCRAFT RELATED OPERATIONS – NARops (GROUP)

1. Aerodrome Traffic Movement
2. Grass cutting
3. Wildlife intrusion prevention
4. Work in progress
5. ...



Let's focus on NArOps 1 (Aerodrome Traffic Movement) to find a possible Hazard and Top Event (Figure 1).

Aerodrome Traffic Movement – ATM (Operation)
Apron Aircraft and Vehicles Movement (except stands) – AAVM-01 (Hazard)
Close proximity between mean/object or 2/more means – (Top Event)

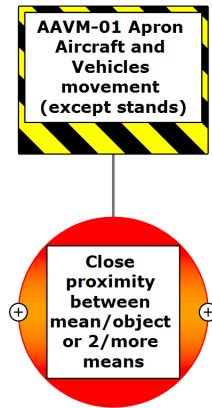


Figure 1: Hazard & Top Event

An associated visual Risk assessment (Figure 2) could be the following:

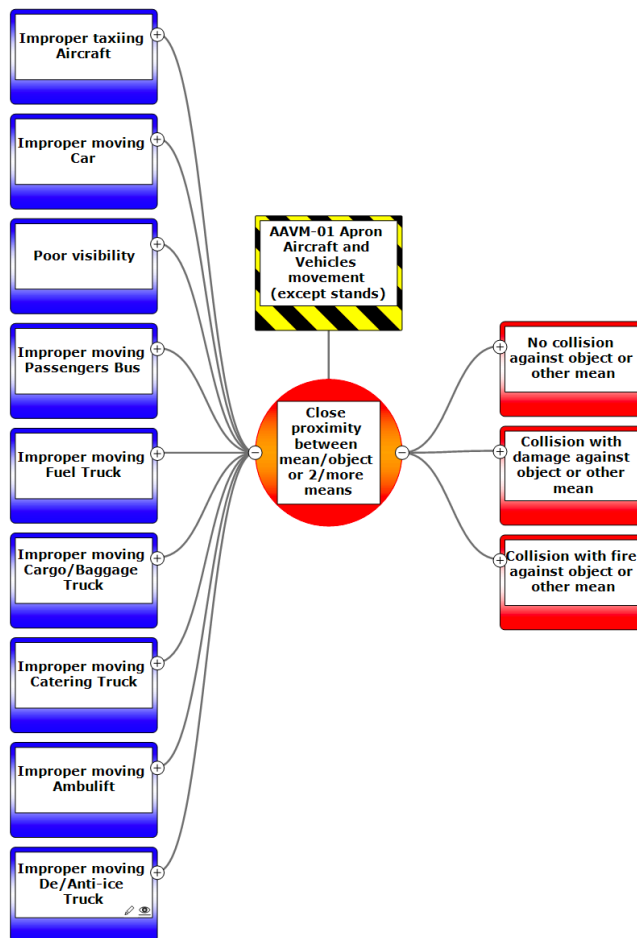


Figure 2: Visual Risk assessment



Let's now open the Risk assessment and develop all the possible barriers.
 Generally, as a golden rule, Threats having same chain of barriers, should be usually grouped together for clarity.
 However, as airport agents in charge of transport means are different it is mandatory to split them off in order to have a full control of each barrier. Of course this could produce a sort of apparent redundancy but it is the price to pay in order to have a full control of the actors in place.
 Observing the barriers chain, on the threat line "Improper moving Cars", for instance, the following comments may arise (Figure 3).

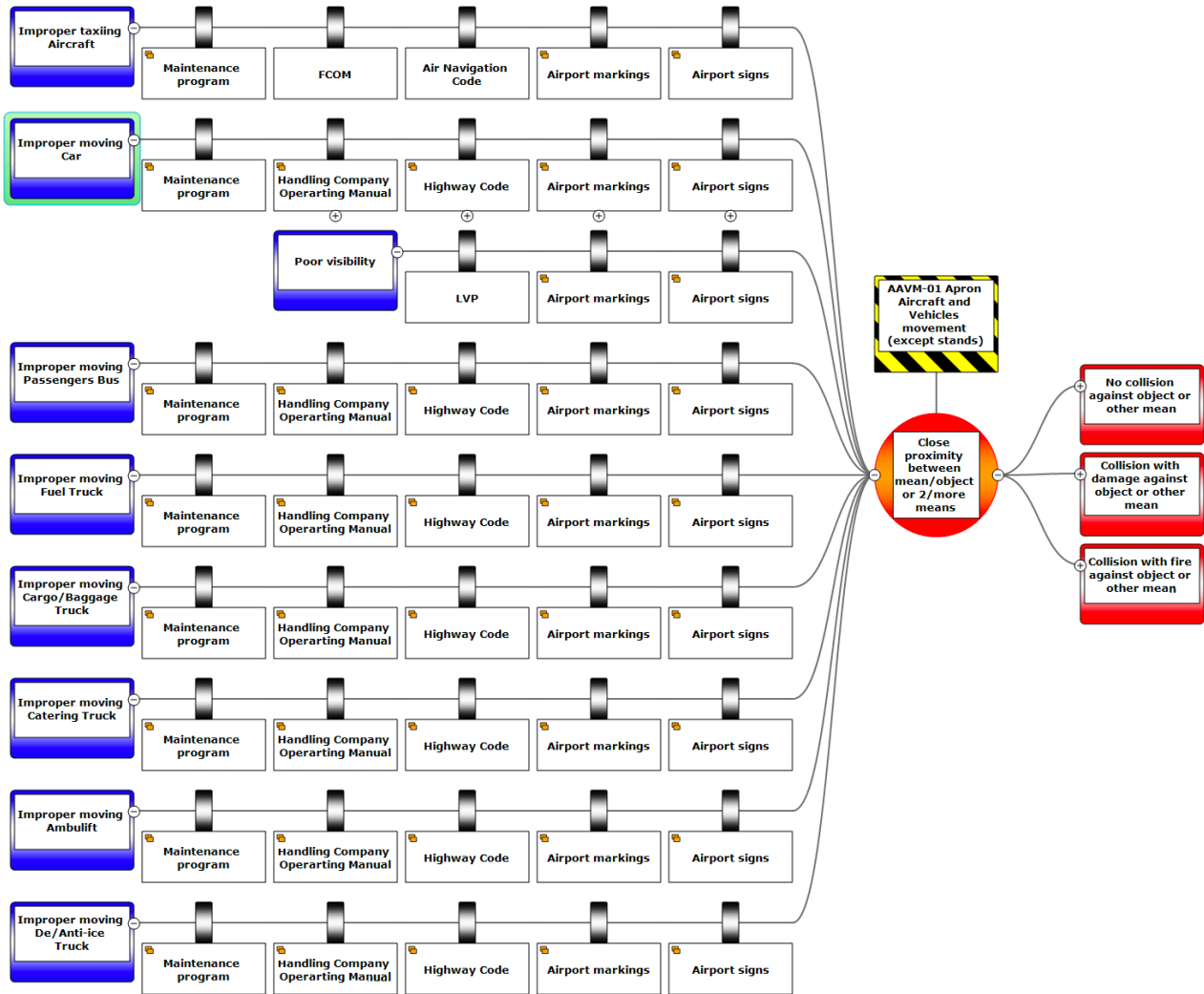


Figure 3: Barriers for Threat "Improper moving Car"

An interesting discover is that Right of way infringement can be seen as a failure of a chain of barriers and not as a Threat as someone could argue.



Final comments

We can have an “Improper moving Car”, leading to a collision against an obstacle or other means of transport because of one/more of the following reasons (Figure 4, 5):

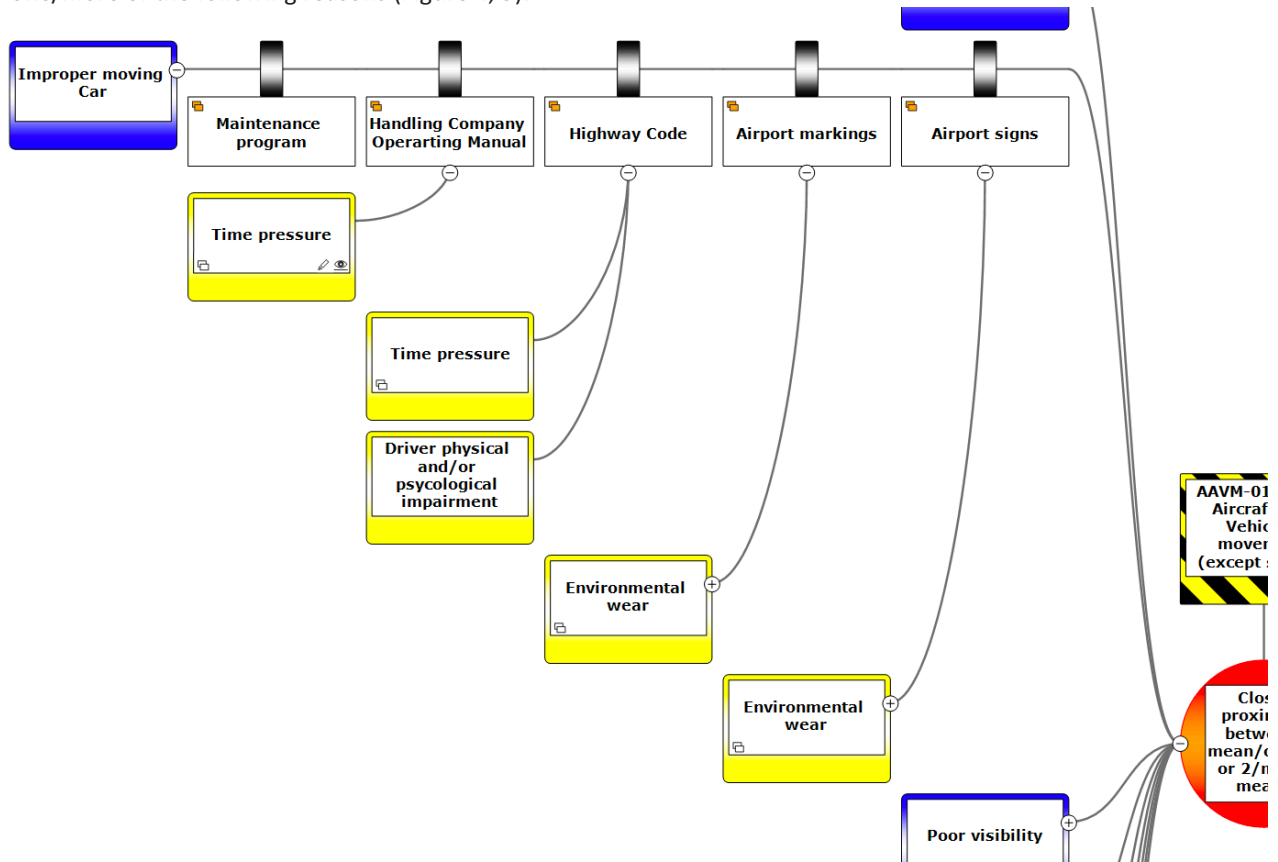


Figure 4: Possible Barriers degradation factors for "Improper moving car" Threat

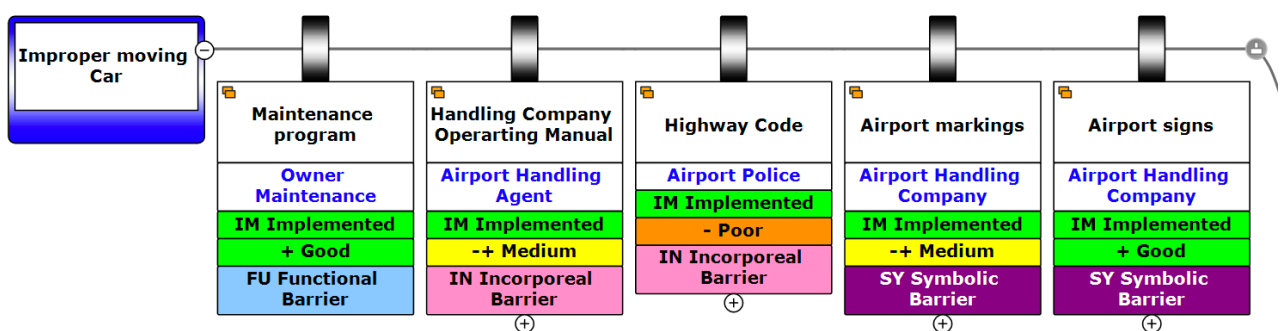


Figure 5: Barrier Accountability, Implementation status, Effectiveness and Nature, for "Improper moving Car" Threat

1. Functional Barrier “Maintenance program” – the loss of control of the car, leads to the ineffectiveness of all the other barriers being them Symbolic/Incorporeal;
2. Incorporeal Barrier “Handling Company Operating Manual” – “Time pressure” imposed on the driver for whatever reason, pushes him not to operate the car in accordance with the required standard;
3. Incorporeal Barrier “Highway Code” – “Time pressure” or “Driver physical and/or psychological impairment” push, again, the driver to short-cut (performance deviation) during his journey on the apron;
4. Symbolic Barriers “Aerodrome Markings” and “Aerodrome Signs” – markings and signs are maybe not conspicuous, or as effective as they should be, not least because they are not well maintained.



Conclusion

In the same fashion we could proceed for all the other threats.

What could be done after this risk analysis (to reinforce, validate and strengthen the analysis itself), especially after an occurrence, is to proceed with a deeper Barrier Failure Analysis, with IncidentXP, to produce the required recommended actions and related follow-up after having presumably understood, if possible, the cause(s) of each barrier failure and/or the reason for a degradation factor.

Example

Why have we got Time Pressure on the driver?

This driver could be a Ramp agent.

Maybe the handling agent, he is working for, is lacking on staff,... therefore compelling this ramp to follow two different consecutive flights in complete opposite position on the apron.

And on...



one platform to analyze incidents

Learning more from incidents

Learning from incidents is a challenge for most organizations. Providing the right method to untangle a complicated incident is crucial if you are to uncover what lessons should truly be learned on both organizational and operational levels. IncidentXP combines the most innovative incident analysis methods in one tool, allowing you to choose which one you need.

