AIRPORT KOŠICE, CRISIS SOLVING TRAFFIC SITUATIONS AT CLOSURES OF SEVERAL MAJOR AIRPORTS

Aurel MILČÍK – Ľubomír FÁBRY

The main purpose of the thesis is crisis solving traffic situations at closures of several major airports for the airport LZKZ. The work assesses the current state of Kosice airport, it deals with solving causes leading to form a crisis situation and discusses the capacity problems of several facilities in dependence with income a larger number of ACFT´s. It analyses the partial objectives of the thesis, which are takeing care about the accepted ACFT fleet, passenger and the cargo followed by the proposal solution of the issue.

K e y w o r d s. Airport Košice, capacity, RWY, TWY, APN, closure, divert, cargo

INTRODUCTION

In the present, the safest and fastest way of transport that exist, is the air transport. Annually is recorded a considerable increase of passengers in this type of transport, it says about the global expansion of air transport. The increasing demand for this type of transport, however, requires the development of new technologies, regulations and measures, and especially keeping, possibly increasing the level of achieved safety.

1 AIRPORT KOŠICE

The company airport Košice deals with the operation of the airport Košice. Under the operation of the airport, providing a range of services, ensuring the operation of the airport like maintenance of operational areas, aircraft ground handling, service equipment of passengers and cargo, the fire rescue service.

1.1 passenger clearance Service

Passenger handling takes place at check-in counters located in terminal number 2 with the total number of check-incounters 8. For the smooth progress of the clearance process was introduced the information system, which will remind the passenger to the important information.

1.2 Clearance of aircraft

Clearance of aircraft includes the steps of putting the aircraft on stands after the landing, followed by the establishment of wedges under the main undercarriage legs and connection of the aircraft to the ground electrical power source. Bringing the steps to the aircraft. Unloading and loading of baggage and also others.

1.3 General Aviation Clearance

In premises intended for the training of crews, are for general aviation are provided basic services such as assistance in the pre-flight preparation (NOTAM, METAR...), and the departure of the aircraft on arrival at CVS.

2 ANALYSYS of CAUSES OF THE CRISIS SITUATION

In the next chapter will be covered each of the factors causing the emergence of a crisis situation, their consequences for the aircraft themselves and airport system. Alebo napriklad: The next chapter will be discussed various factors that caused the crisis, its impact on airport system and the aircraft itself.

2.1 Dangerous phenomena in aviation

Meteorological phenomena such as turbulence, thunderstorms, wind shear, icing or poor visibility represent also now for Air Force possible complications, in the course of sudden and unexpected occurrence the security breaches.

2.1.1 Low visibility

Visibility is an important meteorological parameter on the basis of which the crew decides whether the lands in the planned destination or in case of low visibility values, especially in the final approach and landing will be interrupted and the aircraft wait above.

2.1.2 Frost

Frost is among the most dangerous meteorological phenomena occurring in aviation. This is the aerodynamic characteristics of aircraft, deteriorated as the decrease in buoyancy, loss of speed, higher consumption, smaller and lighter aircraft types in LPH is causing deteriorated pilotage. There is a deteriorated aerodynamic characteristics of aircraft, which has the effect of buoyancy reduction, loss rate, higher consumption of aviation fuel, the smaller and lighter types of aircraft causes impaired piloting.

2.1.3 withtrih wind shear

Side wind (crosswind) is one of the meteorological phenomena, which occurs very frequently in aviation. Effect of Crosswinds is more significant, when the aircraft is lighter.

3 CLOSURE OF AN AIRPORT

The closure of the airport is therefore the worst variant for the operator of an airport, which can occur during running. There is a temporary cessation of activities, carried out at the airport, from those simplest up to the cancellation of flights, departing aircraft to back-up or the nearest airport or around, which conforms to the operation.

3.1 Planned closure of the airport

When the scheduled closure of the airport are working with great time during which it is given to the public about the planned intention through the aeronautical information service (LIS). At the scheduled conclusion of the airport are handling a large advance in which the public is informed about the planned intention through the aeronautical information services (AIS).

3.2 sudden closure of the airport

The sudden closure of the airport divert air traffic to the back-up airports. The airport is outside the service a few hours a few days from a different reason rarely.

3.3.1 Causesof an airport closure

1) The human factor

2) Natural factor

3) Technical factor

4 ANALYSYS OF THE AIRPORT CAPACITY

The capacity of the airport expresses the ability of various airport facilities in cooperation with the other devices to handle regular rush hours in a certain time interval and an agreed level of quality. As the capacity of a device does not match the value required by the operation, there will be the time lags.

4.1 Capacity of the Runway system

The ability of runway to take a number of aircraft movements per unit time, at the agreed quality of service.

4.1.1 RWY Capacity depends on:

- The minimum longitudinal separation between aircraft on approach or departure, as required by ICAO is 5.6 km (3 NM) for IFR flights, provided that is secured by radar monitoring.

- The minimum landin spacing is 5.6 km (3 NM) at a speed approaching 144 kt (276 km / h), which over time is about 75 s.

-Large aircraft during approach to cause wake turbulence, which is dangerous for small following aircraft (if is the aircraft smaller, the effect of turbulence is more dangerous).

-In terms of VMC runway capacity is significantly higher than in IMC conditions.

4.1.2 The proposed solution to the capacity of the RWY:

1)Move away sport aviation to smaller surrounding airports to suit the type of aircraft,

2) The marshalling aircraft for themselves in order to create a smooth flow of ordered aircraft,

3) Operation under IFR, even at the expense of runway capacity, in order to ensure the safety of higher operation

4)Landing on runway 01, when satisfactory weather conditions, complete braking and rapid run through the track TWY C

4.2 Capacity of the taxiways (TWY)

The taxiways must have at least the same capacity as the actual track system. This means that there is no delay arriving or departing aircraft on the taxiways to the extent that it is impossible to achieve maximum runway capacity.

4.2.1 Capacity of TWY LZKZ proposal solutions

Capacity is closely linked with the issue of the taxiways, and a basic runway and the current operation on it. It also depends on the capacity of the surfaces of the EA.

4.3 Apron capacity

The correct design of the airport capacity in various parts around the steady state. Apron should be dimensioned and designed so as to minimize delays caused by low capacity.

4.3.1 The proposal addressing capacity issues APN

The proposed solution for capacity problems apron 1, 2 airport LZKZ if received a large number of aircraft is as follows:

1) Unset sports, light aircraft on the grass areas intended for short-term standing light aircraft, to increase the capacity of the airport area,

2) To preserve the ability of airport check in passengers (arrival or departure) is necessary to have at least two free check-in stands,

3) The cast stands maximum permissible aircraft type, which should prevent large transport aircraft parking areas primarily for serving a different purpose and each aircraft can interfer with each other

4) Temporary parking on areas intended for prolonged standing aircraft, in the case of free capacity of the surfaces,

5) In exceptional cases when the operation exceeds the capacities, and aircraft are forced to land at the airport, there may be unnecessary for the purpose of parking of aircrafts to close rolling surface E,

6) After the exhaustion of all possible safe decommissioning of aircraft parking options, it is necessary to divert to other airports surrounding aircraft coming in operation.

4.4 Capacity of the Airport Terminal

In terms of capacity building is the busiest place of the airpotr terminal structure, it represents the point at which there is intense movement of passengers, baggage, personnel, technical equipment and a wide range of other processes

4.4.1 Factors affecting the capacity of the Terminal

Seasonality

In summer, usually increases the number and frequency of flights. These are mainly charter flights, flights bound for holiday destinations.

Rush days

Peak days are usually the ones during which the frequency of flights at the airport is clearly higher than during the other days.

Rush hours

Represent the times during the day when there is increased frequency of flights. These times are dependent on the nature of the airport.

5 CARE FOR PASSENGERS

In cases where the passengers against their own will find themselves in a different destination than the target, they are fully directed to the carrier at the airport, which is currently located. Provide adequate care to tens, even hundreds of passengers is not at all a simple matter and not at all cheap.

Damage to the aircraft -. In the case when the detected defects can be removed on the spot and that's for whatever reason is the PAX possibility of delivering to the target destination as follows:

-Ensure the replacement aircraft and crew, of the carrier, which brought PAX to the target destination. (Including cargo carried.)

-Ensure the delivery of Pax to the required destination by another air carrier, operating at the airport.

Closed target airport- Inform on the earliest possible date on which the airport will be in operation again, or propose an alternative mode of transport to the target destination. The decisive factor is the distance to the airport of destination and the duration of the celebration.

-In the case of a small distance gives the option of chartering a bus, using which it is possible to deliver a Pax to the target destination.

Secondary obligation represents, take care of the individual needs and requirements of the passengers. What a snack, secure calls, accommodation. Under the care of passengers falls well financial compensation of passengers

.

6 TAKEING CARE OF ACCEPTED CARGO

To provide effective care of the cargo, it is necessary first of all to analyze factors such as time of delivery of the goods to the customer, the type of cargo carried, the way the subsequent transportation and other.

Care for cargo ccording the type of transport

Passenger air transport – the supplementary service, cargo of small dimensions and great prices. It is possible to deliver the following flight or by courier.

Freight air transport- cargo in freight transport already represents dozens to hundreds of tons. The best variant is truck traffic, as the truck is able to pick up cargo at the airport, where the loading takes place smoothly and in a few hours is able to dispatch the goods.

Perishable Goods, goods necessary to deliver within the agreed time-In order to avoid deterioration in quality, possibly the inapplicability of transported goods to transport requires a thoroughly planned logistically.

7 PROVIDING TECHNICAL CARE

Care of adopted fleet represents a complex service professionally called **technical handling**, which covers all activities carried out with the occupants of the aircraft.

Technical servicing of aircraft

Includes a set of activities associated with handling ACFT in traffic and in the implementation of the technical attendance. These include replenishing the LPH and operating supplies, cleaning, repair or replacement of the broken parts of the aircraft.

Aircraft towing

Tow aircraft after the concrete surface is carried out by the following speeds:

1) maximum 5 km/h in close proximity to aircraft objects,

2) Maximum of 15 km/h for the towing of aircraft between the objects

3) Maximum of 20 km/h for the towing of aircraft in a straight line,

4) The speed must be adapted to the track and the prevailing weather conditions.

Anchoring aircraft

At the anchoring of the aircraft occurs when longer standing due to the possibility ofstrong winds.

Performance fuel

Performance of the aircraft is carried out through the car tanks or from the airport hydrantového the system.
Performance aircraft with LPH is performed as follows:

1) The top performance of the gradient from the top of the wings,-

2) The lower performance using pressure-filling of the loop.

De-icing of the aircraft

Removal of Frost is carried out depending on the prevailing weather conditions and the time that is available in the following ways:

1) Mechanically
2) Chemically
3) The hot water
4) Light air

Preparation of the aircraft for flight

Represents a basic degree of maintenance. In relation to the flight is usually performed as a treatment before the flight, after the summer and between flights. Procedure of work in the preparation of the aircraft to the flight down the prescription for the type of aircraft.

Pre-flight preparation

It is carried out before the first flight of each day and the flight represents a review of systems and facilities, in particular those which could change the status during the period left to stand on the ground.

Preparation of an ACFT between flights

It is carried out and aircraft at the airport between landings either vzletmi. Represents the Visual control of the aircraft and its parts, systems and control of operating materials, possible fuel supplement.

It is performed after the end of the last flight and lies in the checks of the aircraft and its parts, especially those that are namáhané in flight and during landing.

8 CONCLUSION

So I could come to the conclusion, it was necessary to divide the issues arising from the formulation of the individual parts of the job. The crisis situation is the condition where there are exceptional situations or events, which clearly meets the flight situation of crisis. A separate category is made up of passengers and cargo, which was to be taken care of and a cargo which was to be delivered at the place of destination, where it awaits the owner already followed by the traffic.

BIBLIOGRAPHY

[1] KRŠKA, Karel and co.: METEOROLOGY (050 00). CERM Academic Publishing, 2006. 304p. ISBN 80-7204 447-8

[2] KULČÁK, Ludvík a kol.: Air Traffic Management. Brno, Academic Publishning CERM, 2002. 314p. ISBN 80-7204 229-7

[3] PRUŠA, Jiří a kol.: The world of aviation. GALILEO CEE Service CR, 2008. 321p. ISBN 978-80-8073-938-6

[4] LETISKO KOŠICE – AIRPORT KOŠICE, a.s., ABOUT THE COMPANY [online]. [s.a.]. [Cit. 2011-12-17]. Available at <http://www.airportkosice.sk/c/portal_public/layout?p_l_id=23.1>

Aurel MILČÍK, Bc
Faculty of aeronautics, Technical University in Košice,
Rampová 7, 041 21 Košice
aurel.milcik@gmail.com

Ľubomír FÁBRY, Ing., PhD.
Faculty of aeronautics, Technical University in Košice
Rampová 7, 041 21 Košice
lubomir.fabry@tuke.sk

Reviewer: Ing. Stanislav Ďurčo, PhD.