Terminal Reconstruction and Addition at the M.R. Štefánik Airport in Bratislava
Preparation of Terminal Reconstruction and Addition

Preparation started in 2003 – 2004 and was motivated by the following:

- Significant increase of airport traffic compared to preceding years (increase of number of processed passengers). Its beginning may be placed in 2003 when number of processed passengers reached 480,000 passengers (in 2004 it was already 893,000 passengers and in 2005 it reached 1,326,000 passengers).
- Rapid increase of traffic led primarily to traffic problems during peak hour. Design capacity of the existing Terminal (Terminal was built in 1971 and arrival area Addition in 1994) was approx. 1.5 million passengers per year and approx. 480 passengers at arrivals/departures – in either direction – at peak hour (total peak hour of 720 passengers).

- Preparation to meet requirements of the Schengen Agreements (effective as of March 30, 2008), namely different processing demands for passengers traveling from “Schengen“ (SCH) and “Non-Schengen“ (NSCH) countries.
The above points were fundamental for the airport management to request bids for Terminal reconstruction and Addition. During the period 2004 through 2005, public tenders for Terminal reconstruction and Addition were issued. Design company AGA - Letiště, s.r.o., won these competitions and was subsequently authorized to draft documentation needed for planning permit proceedings, building permit proceedings, for selection of sub-contractors, and construction working documentation.
The following key requirements were specified by the investor for the Terminal reconstruction and Addition:

- Final capacity of approx. 4 million passengers per year and approx. 800 – 1,000 of passengers at arrivals/departures – in either direction – during peak hour (total peak hour passengers 1,200 – 1,500)
- Separation of SCH and NSCH passengers, including different demands placed on their processing
- The Addition shall be adjacent to the south-western edge of the existing Terminal
- Existing Terminal shall be substantially reconstructed and operationally interconnected with the new Addition

In 2005 – 2006, documentation for planning permit was drafted and planning permit was awarded (August 2006). Work on subsequent levels of project documentation was started only at the beginning of 2008 (in 2007, some 2,024,000 passengers were processed – the airport was totally overloaded during high season). The reason for this delay was the need to refine the construction approach. Generous option of a brand new Terminal, including check-in area and street side “green field development“ in connection with RWY 13/31, was also considered.
Terminal construction locality
Terminal construction alternative locality
However, during this period the following activities took place in order to increase capacity for passenger processing.

- In 2006, the Addition of the Terminal built in 1994 was put into operation (arrivals of Schengen passengers)
- In 2007, another Addition of the Terminal built in 1994 was put into operation. It includes gate C (C1 and C2) and connecting bridges (C1, C2) used also as departure waiting rooms. This Addition also contains dispatching for traffic management in the check-in area.
- Final Addition to both main parts of the existing Terminal is the so called “connecting object“ put into operation in 2009. This object contains primarily commercial areas, post office branch, and corridor connecting public areas of Terminals built in 1971 and 1994.

These Additions increased capacity of the Terminal to 2 – 2.5 million passengers per year and approx. 610 passengers at arrivals/departures – in either direction – during peak hour (total peak hour passengers of 920).
At the beginning of 2008 and based on analysis performed by JACOBS, a reputable British consulting firm, it has been decided to proceed with the affordable option, i.e., the reconstruction and Addition of the existing Terminal, according to drafted documentation for planning permit proceedings, subjected to minor changes.
Modifications were based on the following:

a) Construction/technical surveys of the existing Terminal (the part built in 1971). *Results of these surveys suggested that this part of the Terminal cannot be reconstructed. This led to the decision to demolish this part of the Terminal and build a new construction with parameters corresponding to parameters of the “original“ new part of the Terminal.*

b) Decision to increase the depth of the Terminal and construction of basement areas under the entire Terminal footprint.

c) Modification of requirements to meet the following:
   - Terminal capacity (final capacity of approx. 5 million passengers per year and approx. 1,000 passengers at arrivals/departures – in either direction – during peak hour (total peak hour passengers of 1,500).
   - Access road and street side roads
Dimensions of the Terminal are based on:

- Required number of passengers (SCH/NSCH) and their baggage that must be processed during peak hour
- IATA recommended dimensions of individual check-in areas depending on number of processed passengers and baggage during such peak hour.
Unconditional requirement of the airport (BTS) regarding implementation of this Terminal reconstruction and Addition – it must be implemented during full operation of the airport (without any closures).

For this reason, it has been decided to divide this construction into 3 phases in order to meet the above unconditional requirement.

**Phase 0**

At this time, Phase 0 has been already implemented (Sept. 2008 – March, 2009). It included preparatory works connected with construction site preparation for the construction Phase 1. Namely, transfer of buried services, construction of the first section of the collector, adjustment of street side roads, adjustment of the existing Terminal, and modification of check-in area, including its lighting. STRABAG, s.r.o, was the general contractor of the Phase 0.
Phase 1

Phase 1 (Started in December 2008 and completed in June 2010. Within approximately 14 days it fully assumed functions of the existing Terminal built in 1971) includes primarily construction of Terminal departures part, i.e., area for processing departing passengers and baggage (public lobby, baggage sorting, baggage security check, temporary passenger security and passport check, transit lobby, including waiting rooms for departing passengers), technical areas, including BHS, BMS and CIS dispatching, commercial, administrative and operating areas, area for security check of employees, goods and garbage, restaurant and storage areas and sanitary facility areas. It also includes gates A (A1 and A2) and B (B1 and B2), connecting bridges (A1, A2, D, C4), temporary bridge A, pathways and street side buried services, and the second part of the collector.
Phase 2

Construction Phase 2 was started in October, 2010. Completion is expected in June, 2012. Phase 2 includes primarily demolition of the existing Terminal built in 1971 in order to clear area for construction of the Terminal, i.e., area for arriving passenger and baggage processing (public lobby, baggage claim lobby, customs, another part of transit lobby, including waiting rooms for departing passengers, additional part of baggage sorting, final passenger security and passport checks), technical areas, commercial, administrative, and operating areas, restaurant and storage areas, sanitarity areas and baggage storage. It also includes connecting bridges (B1, B2), demolition of temporary bridge A, adjustments within the departure part of the Terminal (Phase 1) related with implementation of the arrivals part of the Terminal (Phase 2), partial reconstruction of the existing Terminal built in 1994, completion of street side roads and buried services.
Construction Phase 1 (2009-2010)
Construction Phase 1 and 2 (2010-2012)
New Terminal sample cross-section
At the beginning of 2008, design works for construction implementation regarding documentation for change of planning permission, building permit, for selection of sub-contractors started fully.

At the end of 2008, selection proceedings for construction general contractor took place. Bid of ZIPP Bratislava spol. s r.o., won the tendering proceedings and the above firm became the construction general contractor.

Architectural firm MILIEU ARCHITECTS (current company name is A.M. Architects) has been selected by the investor to design interiors of the new Terminal.
Architectural concept

The overall concept has been impacted primarily by the following:
- Required locality of the Terminal
- The fact that the final check-in Terminal shall be composed partly of the existing part and to larger extent of the new part.
- Required direct operating collaboration of the existing and new part of the Terminal and connection with the existing airport monoeuvring areas (aircraft stands) – resulted in a construction directly lined up with the existing Terminal.
- Required implementation of this construction during full airport operation. This resulted in a phased construction.
The main front facade and thus the main public areas of the building are oriented towards the city with its dominant background of Male Karpaty. Volume design of the Terminal is based on the apparent image of interconnection of the main lobby areas (public and non-public) by means of load-bearing roof structure spanning the entire building. Roof, as the most significant element of any building, is designed as a massive dominant curve enclosing the southern airport facade, large arc above the central building-in structure and an opening on the northern main facade created by a huge cantilever covering the exterior entrance space, airport street side. Due to the cantilever, the roof concept is distinctly perceptible also from the outside of the building. Building cladding is to large extent glazed, the main northern facade is glazed to maximum extent such that the effect of interconnection of indoor and outdoor space is reached. Building entrance is accented by a large-scale glazed marquee.
Airport side visualization
Basic layout of the Terminal

On the 1st basement level, there are technical and technological areas, energy center, machine rooms, water reservoir for the fixed firefighting system, personnel locker rooms, storage areas for both the operator as well as the tenants. On this floor, there is also baggage security check that is part of the baggage sorting operation.

On the 1st floor in the south-western part, there is the public departure lobby (SHC/NSCH passengers) with a system of isle (Check-in) counters. Behind, in the direction of airport part, there is the baggage sorting facility connected with baggage security check area located on the 1st basement level and connection with the distribution channel on the same level used to transport baggage to baggage claim area with conveyor belts (part of Phase 2). In the north-eastern part of the new Terminal (to be built as part of Phase 2) there is the public arrival lobby (SCH/NSCH passengers). This lobby is linked with the existing connecting object.
In this area, there is also the baggage claim lobby that is also used as arrival lobby for SCH passengers. There is a direct entrance through a door space from the airport service road for passengers brought there by airport buses from aircraft. In the north-eastern part, this lobby is linked with the existing Terminal built in 1994 to be connected via passport check for arriving NSCH passengers.

On the 2nd floor, there are areas for lease, user's offices and dispatching areas (BMS, BHS).

On the 3rd floor, there is the security check and connected transit lobby with waiting rooms for departing passengers. Number of commercial and restaurant facilities provide appropriate comfort for departing passengers waiting in the transit lobby.

On the 4th and 5th floor, there are technological areas.
Construction – Phase 1

Foundation pit excavation – “Terminal above the lake“
Foundation pit excavation
Foundation slab construction
Construction of substructure
Installation of pre-fabricated load-bearing structure
Installation of steel roof girder
Airport side view of load-bearing structure
Installation of glass facade

Placing of roofing material, installation of light wells
Phase 1 - link between new Terminal and Terminal built in 1971

Facade completion
Air view of M.R. Štefánik Airport in Bratislava – airport side view (Phase 1)
Street side view of the new Terminal – Phase 1
View of connection object (Bridge D) between new Terminal and GAT building
View of connection object (bridge D) and gatehouse between new Terminal and GAT building
View of M.R. Štefánik Airport in Bratislava – airport side view
Construction – Phase 1: Interiors

View of interiors, new Terminal 1st floor public departures lobby – check-in counters in forefront
View of interior, new Terminal public departures lobby – escalators to the 3rd floor in the background
View of interior, new Terminal public departures lobby – entrance to security check on the 3rd floor
View of interior, new Terminal transit departure lobby on the 3rd floor – security check
View of interior, new Terminal transit departure lobby on the 3rd floor – security check
View of interior, new Terminal transit departure lobby on the 3rd floor
View of interior, new Terminal transit departure lobby on the 3rd floor – GATE
View of interior, new Terminal transit departure lobby on the 3rd floor – GATE
View of interior, new Terminal transit departure lobby on the 3rd floor – bar and commercial space
View of interior, new Terminal transit departure lobby on the 3rd floor – bar and commercial space
Construction – Phase 1: Technological areas

Machine room of fixed fire-fighting equipment situated on the 1st basement level
Machine room of stand-by power supply situated on the 1st basement level
High voltage electric switch room situated on the 1st basement level
Low voltage switch room on the 1st basement level, including spare supply UPS
Check-in counters on the 1st floor (CHECK-IN) – linked baggage sorting facility
Construction – Phase 1: Baggage processing

BHS situated on the 1st basement level – baggage security check
Construction – Phase 1: Baggage processing

BHS situated on the 1st basement level – baggage security check (3D)
Construction – Phase 1 and 2: Baggage processing

Check-in counters on the 1st floor (CHECK-IN) – linked baggage sorting facility
Construction – Phase 2: Baggage processing

Baggage claim lobby on the 1st floor
Construction – Phase 1: Baggage processing

Check-in counters on the 1st floor – linked to BHS system situated on the 1st basement level
BHS lobby situated on the 1st basement level – baggage security check
X-ray level 5 of BHS system situated on the 1st basement level – baggage security check
Baggage sorting on the 1st floor
Operational flows - during construction Phase 2

Operational flows, 1st basement level
Operational flows - during construction Phase 2

Operational flows, 1st floor
Operational flows - during construction Phase 2
Operational flows - during construction Phase 2

Operational flows, 3rd floor
Operational flows - final status

LEGEND:

- PASSENGER DEPARTURE
- PASSENGER SCHENGEN DEPARTURE
- PASSENGER NON-SCHENGEN DEPARTURE
- PASSENGER ARRIVAL
- PASSENGER SCHENGEN ARRIVAL
- PASSENGER NON-SCHENGEN ARRIVAL
- PASSENGER SCHENGEN TRANSFER
- PASSENGER NON-SCHENGEN TRANSFER
- ACCOMPANIMENT AND VISITORS
- BAGGAGE DEPARTURE
- BAGGAGE ARRIVAL
- BAGGAGE TRANSFER
- STAFF
- SUPPLY
- GARBAGE
- SECURITY BOUNDARY

- DEPARTURE AREA
- ARRIVAL AREA
- SECURITY AREA
- SERVICES AREA / HANDLING AREA
- OPERATIONAL AREA / STAFF AREA
- VERTICAL CORRIDORS
- COMMERCIAL AREA / TOILETS AREA
- TECHNICAL AREA / STORAGE AREA

Operational flows, 1st basement level
Operational flows - final status

Operational flows, 1st floor
Operational flows - final status
Operational flows - final status

Operational flows, 3rd floor